

# The Los Angeles Aqueduct: A Landscape Atlas

by Aaron D. Forrest  
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## Table of Contents

I.	Introduction	2
II.	Event Synopsis	4
III.	Los Angeles Aqueduct Landscape Atlas	13
IV.	The Landscape of the Los Angeles Aqueduct in Images	60
V.	Conclusion	89
	Bibliography	95

## Introduction

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Parallactic perspectives have introduced themselves into the new earth projects in a way that is physical and three-dimensional. This kind of convergence subverts gestalt surfaces and turns sites into vast illusions. The ground becomes a map.

-Robert Smithson, *A Sedimentation of the Mind: Earth Projects*.<sup>1</sup>

The Los Angeles Aqueduct was completed in 1913 and was both the product and generator of a nearly endless network of images and myths. The aqueduct, linking the nascent megalopolis with the agrarian Owens Valley immediately became an extended landscape—the physical counterpart of the images contributing to its construction. The images and myths used to produce the landscape of the aqueduct, both in representation and in fact, have been taken as singular expressions of ‘objectivity’ on many occasions. The fixed perspectives they construct serve to reduce the landscape to the status of an object—of desire, of domination, of indifference, of neglect, or of beauty. The social and political implications of this sort of representation are confounding. The idea of landscape as an object is itself a myth—an idealization that demands confrontation.

The myths and images hovering about the landscape of the Los Angeles aqueduct, taken singularly, cover over the landscape’s own narrative structure which is essentially multiple and irreducible. The myths and images under scrutiny, however, are an integral part of the aqueduct landscape. When viewed as a landscape in their own right, the multiple narratives of the landscape’s construction, thoroughly awash in misrepresentation, contradict, expose, and explicate one another, providing both a new plane of investigation and clearing a path to the landscape itself. The vanishing points of multiple perspectives vanish into one another, both reinforcing landscape’s essentially pictorial articulation while canceling each other out. This subversive act opens up new possibilities for narrative within and against the horizon of the aqueduct landscape.

This atlas is an attempt to represent the multiple landscapes of the Los Angeles Aqueduct. Taking several representational perspectives simultaneously—written history, maps, photographic ‘documentation,’ analytical drawings, indexes, and explicative cultural analysis—I try to present an admittedly narrow trajectory through the landscape of specific sites, themes, and events along the Los Angeles Aqueduct. Operating between the dual landscapes of pictorial representation and material ‘fact,’ the atlas draws links between the landscape itself and the myths that hover endlessly around it. In the end, the thesis is an attempt to develop a mode of landscape representation that, while inevitably pictorial, is simultaneously critical of its own perspective, presenting its own narrative structure as one of many possibilities within the framework of landscape understood as a space to be navigated and interpreted, not an object to be looked at or thing to be read.

The first chapter presents a synopsis of the historical landscape of the Los Angeles Aqueduct, concisely describing the events leading up to and coming out of the construction of this feat of civil engineering. The second chapter, the atlas proper, is a collection of mini-narratives of places and themes found along the aqueduct landscape, prefaced and concluded with indices and analytical drawings that serve simultaneously as openly interpretive elements and cross-referencing materials drawing links between sites and stories. The final chapter is a critical analysis of the use of images in the construction of the Los Angeles Aqueduct, beginning with the iconic image of the Cascade,s which serves as the focal point of the gaze out onto the landscape of the aqueduct, and ending with a look at the movie *Chinatown*, which presents both a fictionalized recap of the story of the landscape of the aqueduct, and a narrative structure similar to that of the landscape within which the Atlas operates. It is not my intention to advocate a particular form of landscape representation, or to suggest that the Atlas presents anything close to the ‘real landscape,’ but rather to use this intensive study of the landscape of the Los Angeles Aqueduct to propose a few structural concepts by which landscape as a space of representation, as a framework both for perception and for daily life, might be understood.

## Event Synopsis

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When Europeans were just starting to come to the New World, the region that is now California was already home to 300,000 residents, making it the most densely populated area north of Mexico. The natives tended to settle in well-watered locales, rather than performing extensive irrigation. California receives 200 million acre-feet in rainfall every year, sixty-five percent of which evaporates into the atmosphere. The remaining forty-five percent is in some sense available for use. However, the distribution of this water varies greatly across the disparate regions.

Los Angeles, at the time of colonization, was a sparsely populated semi-arid basin, not offering much to hunter-gatherers compared to other parts of the state. The region has an average annual precipitation of fifteen inches, but the variation between years is so marked that the climate proves to be unsupportive of more than a small population.<sup>1</sup>

The Owens Valley gets even less rain. It garners an average of six inches every year, making it a true desert. However, the valley is situated on the eastern slope of the Sierra Nevada mountain range. These mountains get up to eighty inches of precipitation per year,<sup>2</sup> and moisture falling on 150 miles of the eastern slope drains directly into the Owens Valley, supplying the Owens River, Owens Salt Lake, and many other streams and tributaries. Because of this great water source, the Owens Valley was the most densely populated area of the Great Basin in pre-colonial times. The Paiute Indians that once controlled the area practiced a form of irrigation as early as 1000 AD, building dams on the Owens River and diverting water every spring into one of two fields they farmed at the north end of the valley.<sup>3</sup>

The first Europeans—Spanish military and missionaries—settled in Southern California in 1769. Eleven Spanish families established the Pueblo de Nuestra Señora La Reina de Los Angeles in 1781, and built a dam across the fickle Los Angeles River to irrigate their fields.<sup>4</sup> Under Spanish colonial rule, no individual could make an exclusive claim to a water source. Rather, the government would administrate water proportionally according to need, such that no single party could dominate another entirely, even in times of drought.<sup>5</sup> At the end of the war with Mexico in 1846, California became a state. The United States used an entirely different system of water rights descendant of British common law known as riparian rights. A strongly individualist system, riparian rights tie water resources to adjacent land, making no allowances for the common good.<sup>6</sup>

Europeans first saw the Owens Valley as early as 1833. The first detailed account of the region was made by Captain J.W. Davidson, who in 1859 rode into the valley from Fort Tejon to investigate what turned out to be false charges of horse rustling against the valley Paiutes. Davidson proposed that the land be made into a reservation for the Indians, but his descriptions of the lush landscape proved too tempting to white Americans who by the 1860s were settling in the valley and starting wars with the natives.

Economic activity in nineteenth century Owens Valley ranged from mining to cattle herding to agriculture. Irrigation companies started building major canals at the north end of the valley in the late 1870s. By the turn of the century, 41,000 acres of Inyo County (which governs the valley proper) were under irrigation, the highest number of anywhere in the state. Inyo was a top producer of cereal grasses, corn, and orchard fruits. However, the valley lacked a railroad to transport its produce to the coastal cities. A narrow gauge line, nicknamed the Slim Princess, was built in 1883 between Keeler and Belleville, Nevada, to transport precious metals from the mines to the transcontinental line, but the shipping and packing costs were too expensive for most agricultural applications, and hence Owens Valley agriculture remained unknown to most southern Californians.<sup>7</sup>

When California was first admitted to the Union, Los Angeles had 1600 residents subsiding on a mainly agrarian economy. By the turn of the century, that number had grown to over 100,000. The city did not grow for the first two decades of its American existence. The transforming event of its history was the construction of the Southern Pacific and Santa Fe railroads in 1876 and 1885, respectively. Competition between the two companies brought fares from Chicago down to one dollar, at one point, inciting a mass migration to the South Coast. By 1900, the city's population had grown to 100,000 people. Symptomatically, its biggest industry was real estate.<sup>8</sup>

The Los Angeles water system started out as an array of irrigation ditches which brought water from the Los Angeles River to the basin's residential and agricultural areas. From these ditches water was delivered door-to-door by mule carts.<sup>9</sup> In 1857, the city granted a contract to William Dryden to replace this polluted and inefficient system with a closed pipe operation. However, the dispersed nature of settlement in the city made this an exceedingly difficult task, and the contract was passed on to several other individuals over the years until it fell to the Los Angeles City Water Company in 1868. The company was given a thirty-year contract to distribute ten miner's inches of water from the river to the city's population.<sup>10</sup> The water company, operating on the free-market philosophy of minimum service at maximum revenue, delivered poor service, low water pressure, and, more egregiously, was secretly stealing water from the river to sell back to the city at a profit.<sup>11</sup> The city voted to municipalize water service and terminate the City Water Company's contract at its expiration in 1897.

The water company owned the service network to the entire city, and it took 5 years of negotiations for Los Angeles to buy it off of them. The city council voted to establish a five-member Board of Water Commissioners, a non-partisan group independent from the elected government with regards to its actions and finances. In reaction to

the bad experience with the City Water Company, the council also instituted an amendment to the city charter prohibiting the transfer of water rights to any entity without a two-thirds referendum.<sup>12</sup>

While the city was able to rid itself of the water company, it was forced to hire the company's superintendent, William Mulholland, as chief engineer because there were no written records or plans of the water system – highly detailed information that only he could recall from memory.<sup>13</sup> An Irish immigrant, Mulholland started with the City Water Company as a ditch tender in 1878. Due to his hard work and dedication, he worked up the ranks to superintendent of the company in only eight years, succeeding Fred Eaton who was leaving to run for public office. Under his twelve-year direction, the company's system went from an aggregate of ditches, water wheels, and wooden water chutes to a 300-mile network of mains, reservoirs, infiltration galleries, and pumping plants.<sup>14</sup> In his first years with the newly established Bureau of Water Works and Supply (later the Department of Water and Power), Mulholland instituted a number of reforms that the water company had not been willing to pay for, including the installation of water meters, a total renovation of the infrastructure, and lower service rates.<sup>15</sup> During these years the city's population doubled and water connections multiplied enormously, straining the capacity of the Los Angeles River.<sup>16</sup> By 1904, Mulholland was looking for a new source of water to support the burgeoning metropolis.

Fred Eaton, already in and out of the mayor's office, had been to the Owens Valley several times. He foresaw Los Angeles' water need and considered the Owens River the perfect source: relatively undisturbed, and at such an altitude that it could be delivered to the city without a single pump. By the time Mulholland had announced his intentions to build an aqueduct for the city, Eaton had already been silently speculating on land and water rights in the valley. He convinced Mulholland to include the Owens Valley in his investigation of sources, and shortly thereafter Mulholland decided that it was the most economical choice.<sup>17</sup>

The newly founded federal Reclamation Service (later the Bureau of Reclamation) had its own plans for the valley. The overseer for the southwest region ordered geologic and hydrographic surveys of the region, and concluded that it would benefit from a large-scale irrigation system. It was prioritized as one of the top three reclamation projects for California, and the proper lands were withdrawn from the public domain so that the project could not be victim to speculation while in the planning stages. Owens Valley farmers were excited at the prospect of the federally funded irrigation system expanding their economy.

But the Reclamation Service's chief engineer for California, Joseph Lippincott, had a conflict of interest. Lippincott owned a consulting firm on the side, and his biggest client was the City of Los Angeles.<sup>18</sup> He knew that Fred Eaton was going to the Owens Valley to buy land and water rights for the aqueduct, and wrote him to investigate some power applications for the service while he was there. Eaton was able to use Lippincott's letter to pose as a Reclamation official buying land for the irrigation project, and thus was able to secure options on a major reservoir site and many other important lands and water rights in the northern valley. Lippincott was complicit with, and at times vocally



advocated, Los Angeles' plan to undermine the reclamation project. An investigation was mounted by an independent board of engineers, but Los Angeles already owned all the key land that the service would need, so they silently dropped the project in July 1905. Lippincott was ultimately released from his position with the Reclamation Service in response to this act of corruption, but was quickly hired by the Department of Water and Power to a high-paid engineering position on the aqueduct project.<sup>19</sup>

Eaton bought up George Rickey's Long Valley Ranch and several other key sites in the hopes of selling the water to Los Angeles for \$1.5 million per year. However, a stipulation of the Reclamation Service dropping their project was that the aqueduct be publicly owned and operated from head to foot, making Eaton's plans impossible.<sup>20</sup> He had not given up all of his dreams of speculation, though. He turned around and sold the land and water rights he had acquired to Los Angeles for a huge profit. He also managed to keep the entire Long Valley Ranch, only selling the city a 'perpetual lease and easement' for a one hundred foot deep reservoir on the site (fifty feet shallower than would meet the city's needs), while he kept the land and 4,000 head of cattle.<sup>21</sup>

After reluctantly capitulating to Eaton's speculation scheme, Mulholland rushed to the Owens Valley to buy up options on the remaining key lands and water rights needed to construct the aqueduct. He returned on July 28, 1905, to tell the water commissioners "the last spike has been driven." The next day the *Times* announced, "Titanic Project to Give City a River."<sup>22</sup>

Despite Mulholland's confidence, there were still a few major hurdles to jump before the aqueduct could be built. First of all, there was the issue of funding. The city coffers did not have close to enough money to pay for the project, estimated at \$25 million. They secured the funds through two separate bond issue elections. The first, in September 1905, was only for \$1.5 million (to buy the land and water rights options Eaton and Mulholland had secured), but was critical politically. They had to sell the project to the people of Los Angeles. Mulholland went on a huge publicity campaign, trying to convince the city's inhabitants that the aqueduct was crucial to their economic survival. He exaggerated the city's need for water, fabricating a drought scare in one of the wettest years on record. Record high temperatures in the weeks before the election reinforced fears of a water shortage.<sup>23</sup>

The project had the further support of the city's business community, which equated population growth with economic prosperity, and growth could only come with more water. The publisher of the *Times* led a syndicate of the city's most powerful businessmen (including the publishers of two other major newspapers) in a speculation venture for land in the San Fernando Valley. The then-dry San Fernando Valley at that point was not a part of Los Angeles, but its annexation was necessary both to increase the city's bond issuing capacities, and to retain rights to the water delivered there. Operating on inside information, the syndicate had bought up tens of thousands of acres in the valley at \$35 per acre, which members would sell after annexation at over ten times that price.<sup>24</sup> These men's vested interest was a major influence in the passage of the bond issue. With

the exception of Hearst's *Examiner*, no voice dared go against the aqueduct. The bond issue passed by a handy 14 to 1 margin, with the smallest voter turnout in Los Angeles history.<sup>25</sup>

The city also had to secure the federal rights-of-way on the land between Los Angeles and the Owens Valley that the aqueduct would traverse. Mulholland applied for these rights-of-way on May 13, 1906, and California Senator Frank Flint took up the cause and proposed a bill to grant them.<sup>26</sup> The bill sailed through the senate, but hit a major stumbling block in the House. Representative Sylvester Smith of Inyo County organized opposition to the bill to protect his constituents. However, Flint was able to organize a meeting with Teddy Roosevelt and the Secretary of the Interior (to which Smith was not invited), in which he was able to convince the president of Los Angeles' superior need for Owens Valley water. Having gained Roosevelt's support, the bill passed the house and was signed into law on June 28, 1906.<sup>27</sup>

A year later the city's total assessed valuation had gotten high enough that it could hold an election for the \$23.5 million bond issue needed to build the aqueduct. There was yet another massive campaign for public approval, and the date marked the first time in Los Angeles that wealthy residents lent out their cars to caravan voters to the polls. In contrast to the last bond issue, the voter turnout was the highest ever for a special election. The measure passed by a 10 to 1 margin.<sup>28</sup>

The design of the first Los Angeles Aqueduct was about as pared down as possible while still being functional. Because of the Owens Valley's relatively high altitude, there is not a single pump along its entire length; it flows entirely by the force of gravity.<sup>29</sup> The original design included three holding reservoirs, but in order to save money all of them were cut out such that the only reservoirs remaining were the feeder reservoirs necessary to keep the aqueduct functioning: Haiwee at the south end of the Owens Valley, Fairmont in the Tehachapi range, and the San Fernando distribution reservoir at the line's southern terminus. The San Fernando aquifer was effectively the only storage reservoir for the city, a design feature which Mulholland justified by saying that it would save water from the evaporation losses characteristic of open reservoirs. The aqueduct design included three power drops in San Francisquito Canyon, which could provide electricity for a majority of the metropolitan area and \$1.4 million in annual revenues for the city.<sup>30</sup>

Aqueduct construction started in September 1907, with the boring of Elizabeth Tunnel, the longest of the project at 25,000 feet. The tunnel was dug from both ends, meeting at the middle, and set the world speed-record for hard-rock tunneling: 604 feet in one month. With the tunnel finished in 1911, construction work spread more evenly such that almost all the sections were finished simultaneously. During the five years of construction, over 100,000 men, mostly European immigrants, worked on the aqueduct. At any given time, there was an average workforce of 3,000. Only forty-three workers died during construction, an incredibly low number compared to similar works of the time.<sup>31</sup>

Despite multiple setbacks, including funding and labor shortages, the aqueduct was finished early and under budget. Its construction entailed not just the 230 miles of pipe, 43 miles of tunnels (142 in all), 34 miles of unlined channel, 39 miles of open concrete channel, and 98 miles of covered concrete conduit, but also 215 miles of road, 218 miles of power transmission line, and 377 miles of telephone line. Two power plants and a cement fabrication plant were built just to service the aqueduct, and a normal gauge railroad line from Mojave to Keeler in the Owens Valley was installed by Southern Pacific to transport construction materials to and from location.<sup>32</sup>

Construction was completed in April 1913, and opening ceremonies were set for July. However, during testing the Dry Canyon Siphon blew out due to a faulty concrete mix, and opening ceremonies had to be moved back to November when repairs would be completed.<sup>33</sup> The first Owens River water flowed into Los Angeles on November 5, 1913. 30,000 people showed up to witness the event, and Mulholland yelled out to the crowd as the water rushed down the Cascades at the north end of the San Fernando Valley, "There it is. Take it."<sup>34</sup> The aqueduct broke down for the first time three months later when a flash flood in the Antelope Valley washed out and crushed a steel pressure pipe. Instead of simply replacing the section, Mulholland ordered the sheared pipe welded back together and brought back into round by slowly increasing water pressure.<sup>35</sup>

Los Angeles had already grown to over 500,000 people by 1913, almost double Mulholland's 1906 projection, but it did not need the entire flow of the aqueduct from the very start. Use based on demand would have left Owens Valley farmers with plenty of water for irrigation for the next fifteen years, but Mulholland intended the pipeline to flow full from the start, hydrating San Fernando Valley agriculture and other outlying municipalities from which Los Angeles could profit by annexation.<sup>36</sup>

During the early years of the aqueduct, residents of the Owens Valley focused their anger and energies on the Reclamation Service in hopes of securing an irrigation supply for the region. The Owens Valley Water Protective Association, a loose conglomerate of ditch owners headed by George Watterson, hired a civil engineer to design a reservoir at Fish Slough north of Bishop capable of irrigating 100,000 acres via a five-mile canal. They submitted the plan to the Secretary of the Interior, but it was ultimately rejected due to wariness over the state of Los Angeles' water rights in the valley.<sup>37</sup>

While farmers were busy taking preventative measures against the city, the only direct action that Los Angeles took against water use in the valley before 1920 was when George Chaffey, a renowned water developer that had brought early success to Los Angeles, tried to establish a water colony at Manzanar feeding off Cottonwood Creek. He managed to develop a 500-acre orchard, a small town, and the beginnings of a farming subdivision before the city managed to interdict with extended litigation. The city in the end gained control of the lands above Manzanar and cut off its water supply, at which point Chaffey was forced to withdraw.<sup>38</sup>

The Owens Valley, in fact, was doing quite well during the first decade of the aqueduct's existence. While agriculture had to be scaled back a certain extent when Los Angeles made the first claim of its water rights, valley farmers still managed to be fairly productive. With the Southern Pacific line they finally had a market in which to sell their

produce. Mineral production also increased, with the town of Keeler producing half of all the soda products used annually in the United States. However, during this time, Inyo County population remained static.<sup>39</sup>

Meanwhile, Los Angeles was growing faster than any American city before it, tripling in land area to 350 square miles between 1913 and 1917.<sup>40</sup> Irrigated acreage in the San Fernando Valley increased by a factor of twenty-five during this same time period. The land holdings of a few members of the San Fernando Valley land syndicate jumped one hundred-fold in value, with a total profit of \$100 million. By 1925, the city's population had reached 1.2 million persons; over three times what Mulholland had projected in 1911.<sup>41</sup>

While intensive growth in Los Angeles did not cause extensive damage to the Owens Valley during the teens, two factors contributed to its ultimate demise in the 1920s. First of all, in order to cope with the massive population influx and consequent water demand, the Department of Water and Power instituted a groundwater-pumping program in the Owens Valley to augment the aqueduct's flow. Secondly, a major drought in the Sierras led to Los Angeles claiming a larger than usual proportion of Owens River water, leaving little for local irrigation.<sup>42</sup> While valley farmers were shown to be some of the worst water conservationists (they were actually destroying their own lands by massive over-watering<sup>43</sup>), even mending their ways could not have saved the majority of their farms from desiccation. The water shortage hurt not just the agricultural base but the entire valley, including local business owners and the remaining Paiute Indians, all of who depended indirectly on agricultural production for their livelihood.<sup>44</sup>

In June, 1920, the Department of Water and Power embarked on a feasibility study for a holding reservoir and hydroelectric dam at the Long Valley Ranch site. Los Angeles needed the cooperation of the irrigators in order to interfere with the river's upstream flow, and thus involved Owens Valley irrigators in the process. In addition to providing power to the city, the reservoir would have normalized the river's flow in unusually wet or dry years, and conceivably would have held water for irrigation of farms in Bishop and Independence. However, due to its dealings with Eaton, Los Angeles only had rights on the Long Valley Ranch up to the 100 foot contour, and the irrigators' engineer pointed out that in order to hold enough water to satisfy all parties, the project would have to have a 150 foot dam. Los Angeles did not want to negotiate with Eaton anymore and dropped the project altogether, dashing valley farmers' hopes of staying in business much longer. While it is possible that a Long Valley reservoir built early on could have saved Owens Valley agriculture, it is not likely that Los Angeles was committed to helping the irrigators any further than was necessary to secure its own plans.<sup>45</sup>

Mulholland revealed privately that he believed that a depopulated valley was inevitable and would serve the city's interests best.<sup>46</sup> In order to quell litigation and negative publicity, for a short time the Department of Water and Power engaged in a buying spree of as much land and water rights as it could get its hands on.<sup>47</sup> In response, the valley's economic leaders, brothers Wilfred and Mark Watterson, took up the cause of preserving the Owens Valley's water. On December 26, 1922, Owens Valley voters formed an

irrigation district led by the Wattersons under the rubric of presenting a unified defense against Los Angeles. As soon as the district was formed, Los Angeles started chipping away at its foundations, first by buying off the irrigation ditch companies one by one, leaving the district with very few water rights, later killing it dead by undermining its attempts to raise funds through a bond issue.

Knowing that there was not much left of the valley to save, the Watterson brothers organized the remaining residents to demand of the Department of Water and Power the highest prices possible for their land and water rights. They mounted a publicity campaign and tried to raise competition for their water by negotiating with San Fernando Valley landowners directly. The Department of Water and Power, under mounting financial and public pressure, ceased all land purchases and filed suit against eighteen canal companies to stop water diversions from the Owens River. On May 21, 1924, forty Owens Valley residents stole dynamite from a Watterson brothers warehouse and blew a hole in the aqueduct's Lone Pine spillway gate.<sup>48</sup>

In the face of mounting resistance to its water appropriations, Los Angeles proposed building an extension into the Mono Basin, which would draw water into the valley for hydroelectric generation, and keep 30,000 acres under production. The plan was insufficient in valley residents' eyes not only because agriculture was to be severely reduced without reparations, but also because the proposal was written by Joseph Lippincott, the name they blamed for the current situation. They rejected it summarily. In further response, on November 16, 1924 a group of seventy Owens Valley farmers, led by Mark Watterson, laid siege to the Alabama Gates north of Lone Pine and turned the aqueduct's flow back out into the dry Owens River bed. The standoff lasted five days and generated a huge amount of positive publicity for the farmers. Wilfred Watterson met with Department of Water and Power officials and brokered a deal which ended the revolt, but a few months later the negotiations fell through and soon thereafter Mulholland recommenced his divide-and-conquer shopping spree of valley lands. Aqueduct bombings began again in April 1926, and by that July the line had been the object of ten fresh assaults.<sup>49</sup>

With support for their movement gradually being whittled away, and the Owens Valley economy simultaneously eroding, in 1927 the Watterson Brothers began diverting funds from their own banks to try and keep area businesses afloat. When discrepancies in their financial statements were quickly discovered by the state banking commission, the Watterson's five bank branches were shut down, and the brothers were arrested and put on trial. No one (even the prosecuting attorney) believed that they had acted with anything but the valley's best interests in mind, but the damage was done and the brothers were sentenced to ten years in prison.<sup>50</sup>

With the Wattersons gone, and the valley under the burden of a total economic collapse, resistance to the aqueduct fell apart. In February 1929, the Los Angeles water commissioners offered to buy every piece of property not yet owned by the city, including town lots, to the tune of \$7.1 million. By 1933, the city owned 95% of all farmlands and 85% of town properties in the valley, figures that hold to the present day.<sup>51</sup>

The abandonment of agricultural activity in the Owens Valley meant the end of systematic regulation of aqueduct flow. In order to control water level extremes (as in the case of drought or flood), a series of holding reservoirs were built all along the conduit. The Mulholland and St. Francis reservoirs were completed in 1924 and 1926, respectively, and the Tinemaha reservoir south of Big Pine was completed in 1927.<sup>52</sup>

The St. Francis Dam was built doubly in response to the aqueduct dynamitings that had become prevalent in the valley in order to secure a long-term water supply for Los Angeles in the event that the aqueduct should be out of commission for a long period of time. In his haste to have a backup online as soon as possible, Mulholland not only ordered the dam built on a site he suspected of having geologic instabilities, but also started filling the reservoir two months before dam construction was finished. On the morning of March 12, 1928, five days after the reservoir finished filling, Mulholland visited the site forty miles north of Los Angeles to inspect reported leaks springing from the sides of the dam. He pronounced the leaks harmless and drove back to Los Angeles. That evening, at 11:37 PM, the dam collapsed and sent a 100 foot wave rolling down into the Santa Clara Valley where it took over four hundred lives and destroyed and buried every object in its path—natural and manmade—to the ocean a hundred miles away.

Mulholland originally claimed that it was saboteurs from the Owens Valley who had destroyed the dam. But later, in the wake of nine separate investigations of the disaster, he took full responsibility and resigned from his position as chief engineer at the Department of Water and Power. The cause of the collapse was never conclusively determined, but the event signaled the end of the Mulholland era in the history of Los Angeles.<sup>53</sup> Mulholland, as designer, builder, and chief lobbyist for the project, was the bricklayer of all present and future antipathy between Los Angeles and the Owens Valley. Starting just before World War II and continuing into the 1980s, the Department of Water and Power was constantly entangled in webs of resistance trying to extract more and more water from the valley. Beginning with an extension into Mono Basin,<sup>54</sup> and later a second aqueduct<sup>55</sup> out of the valley and greatly increased groundwater pumping,<sup>56</sup> Mulholland's image became a potent symbol of what Morrow Mayo christened 'the rape of the valley.' But while all of these later interventions greatly worsened water issues in the valley, causing a shift from in concern from economic to environmental conditions among remaining valley residents during the postwar period, Mulholland, with his initial inquest into the valley, had been the one to make the decisive first move to let Los Angeles grow and the valley slip into desert.

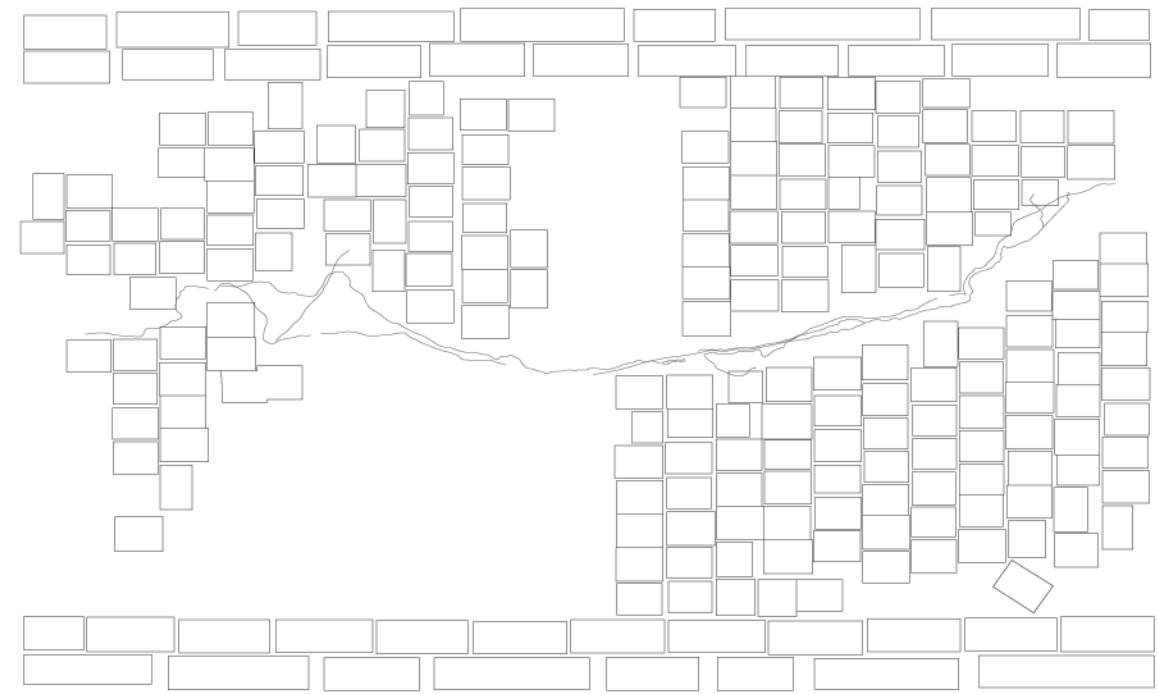
# Los Angeles Aqueduct Landscape Atlas

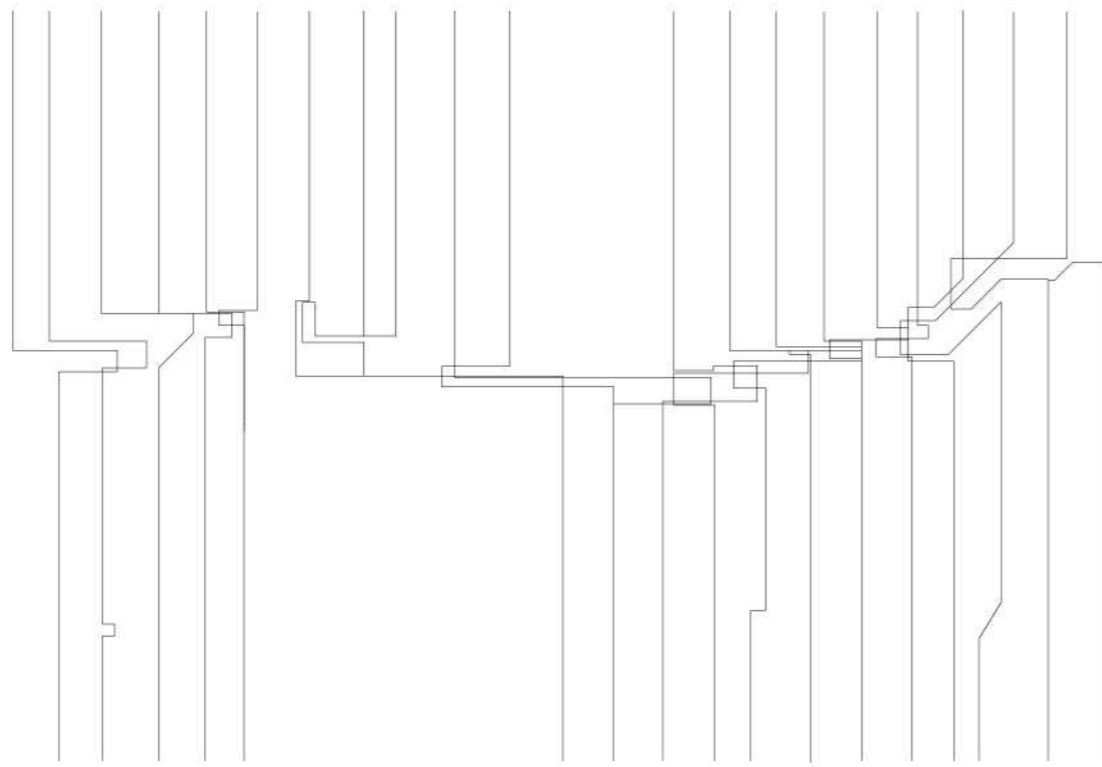
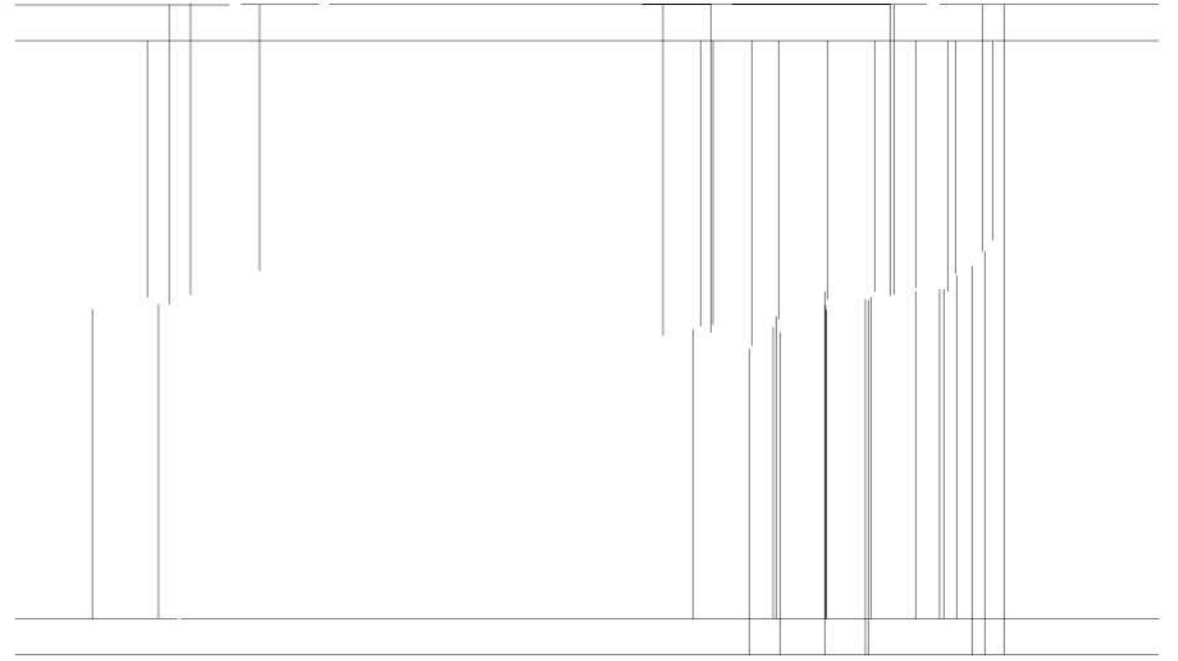
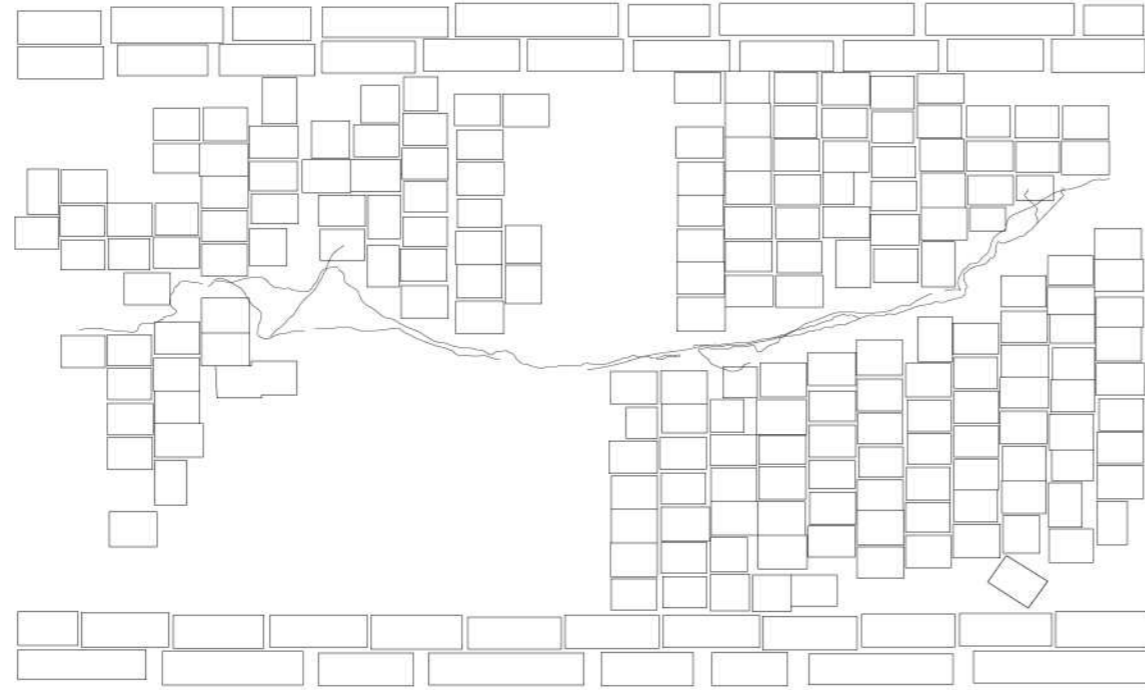
## Atlas: Table of Contents

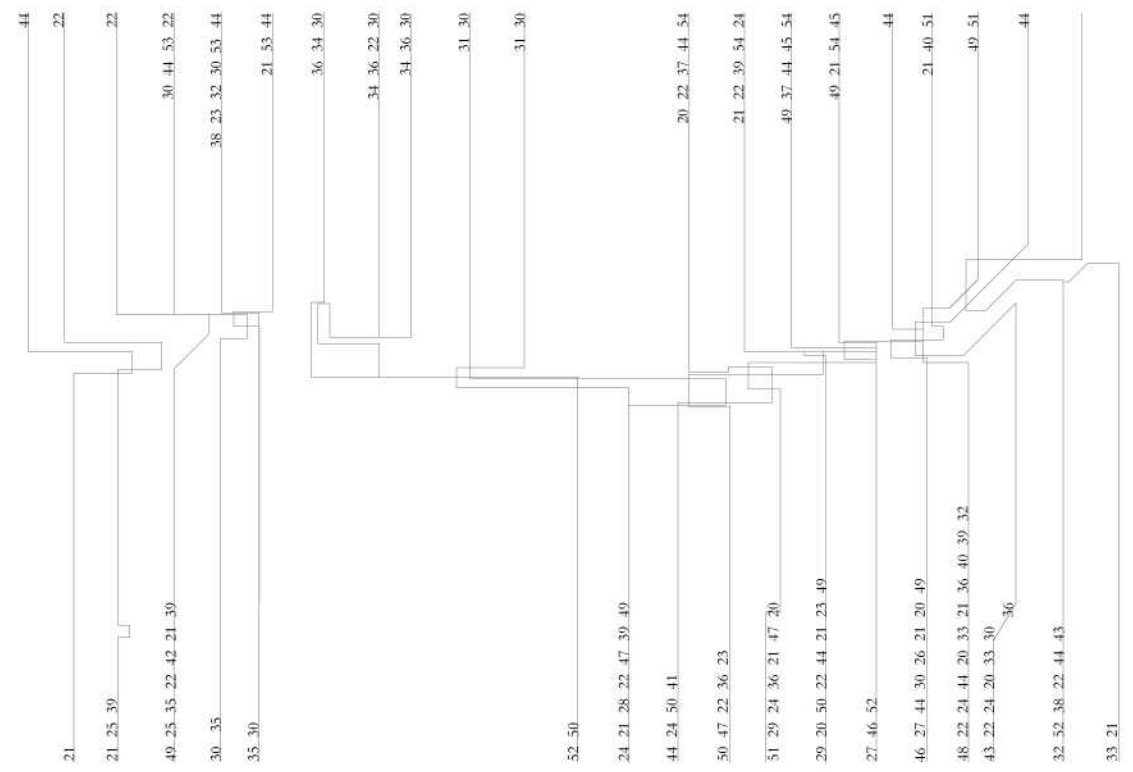
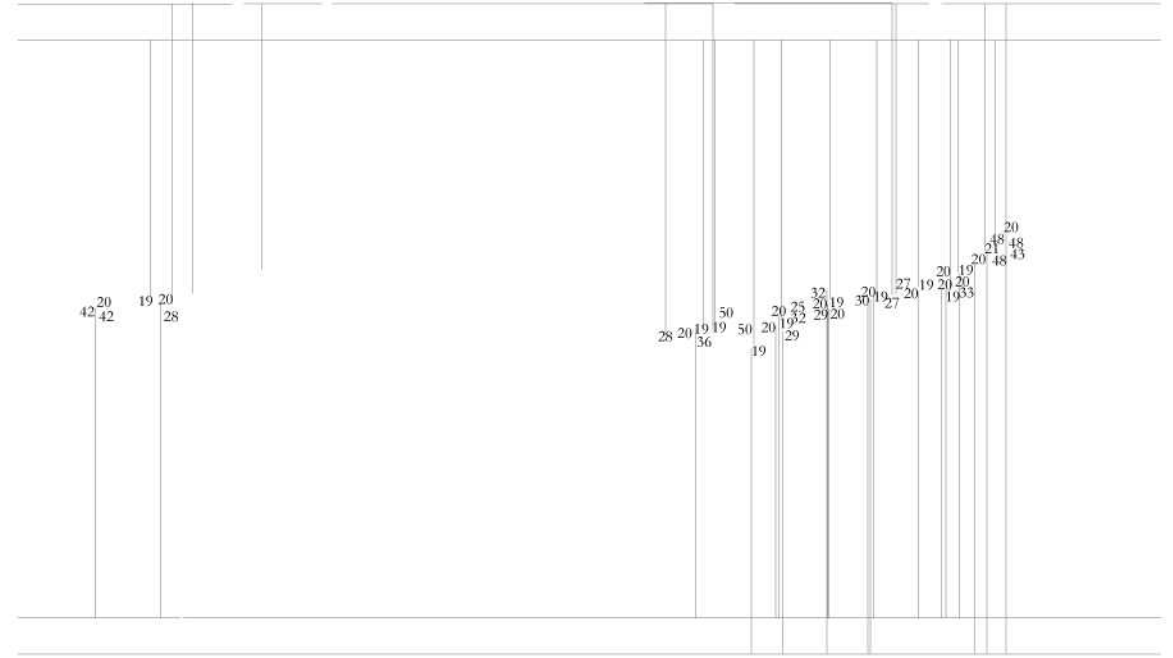
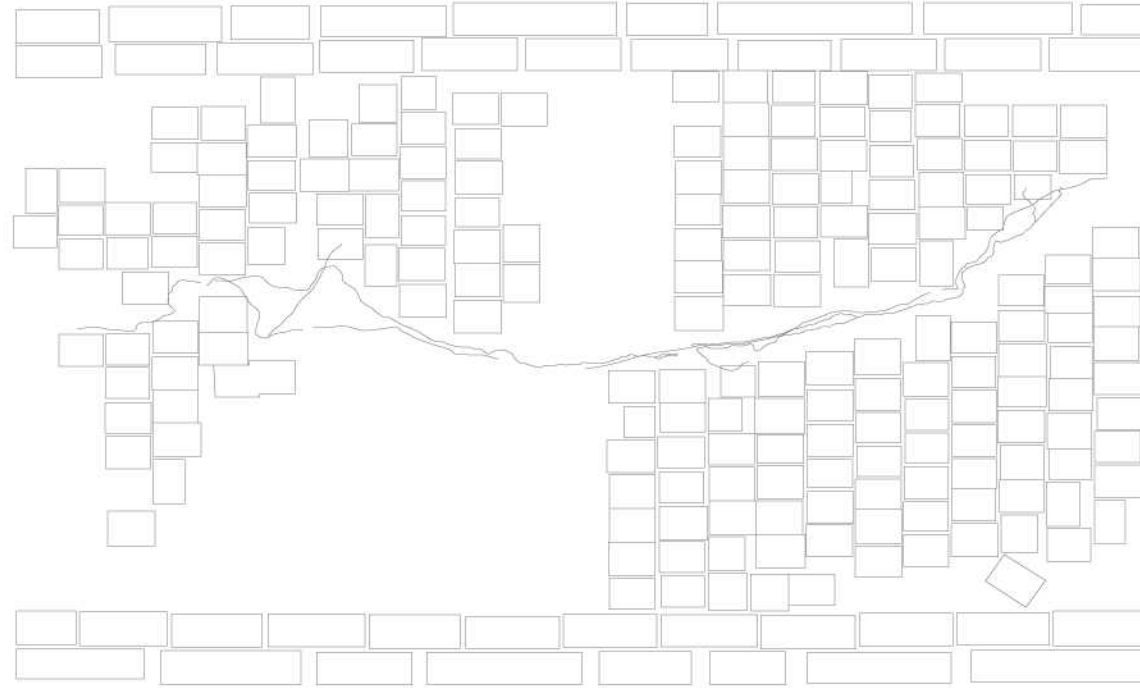
i.	Introduction	15
ii.	Organizational Maps	16
	Geophotographic Map and Outline	
	Index: Strata and Columns	
	Diagrammatic Index	
iii.	Landscape Narrative Maps	19
	Main Streets, LAA	
	River and Aqueduct Crossings	
	Los Angeles Department of Water and Power	21
	Vegetation	
	Spigots	
	Dust	
	William Mulholland	
	Pleasant Valley Dam	26
	Tinemaha Reservoir	
	Haiwee Reservoir	
	Aqueduct Intake	
	Visible Pipeline	
	Jawbone Canyon Siphon	
	Electricity	
	Owens River Gorge Power Complex	
	Los Angeles and California Aqueducts Crossing	
	Van Norman Reservoir Complex	
	Fortifications	36
	Toilets	
	Fire Emergency	
	Flood Emergency	
	Paiute Shoshone Tribes	
	Crystal Geysers Bottling Plant	
	Los Angeles River	
	Crowley Lake	43
	Rocks	
	Keough's Hot Springs	
	Owens Valley Radio Observatory	
	Highway 395 Rest Stop	
	Irrigation Ditches	48
	Historical Markers	
	Owens Lake	
	Mines	
	Railroad	
	St. Francis Dam	
	Manzanar	
iv.	Indices	55
	Los Angeles Land Development Timeline	
	Exchange Index	
	New Rivers	
	Damscapes	
	Disaster Index	

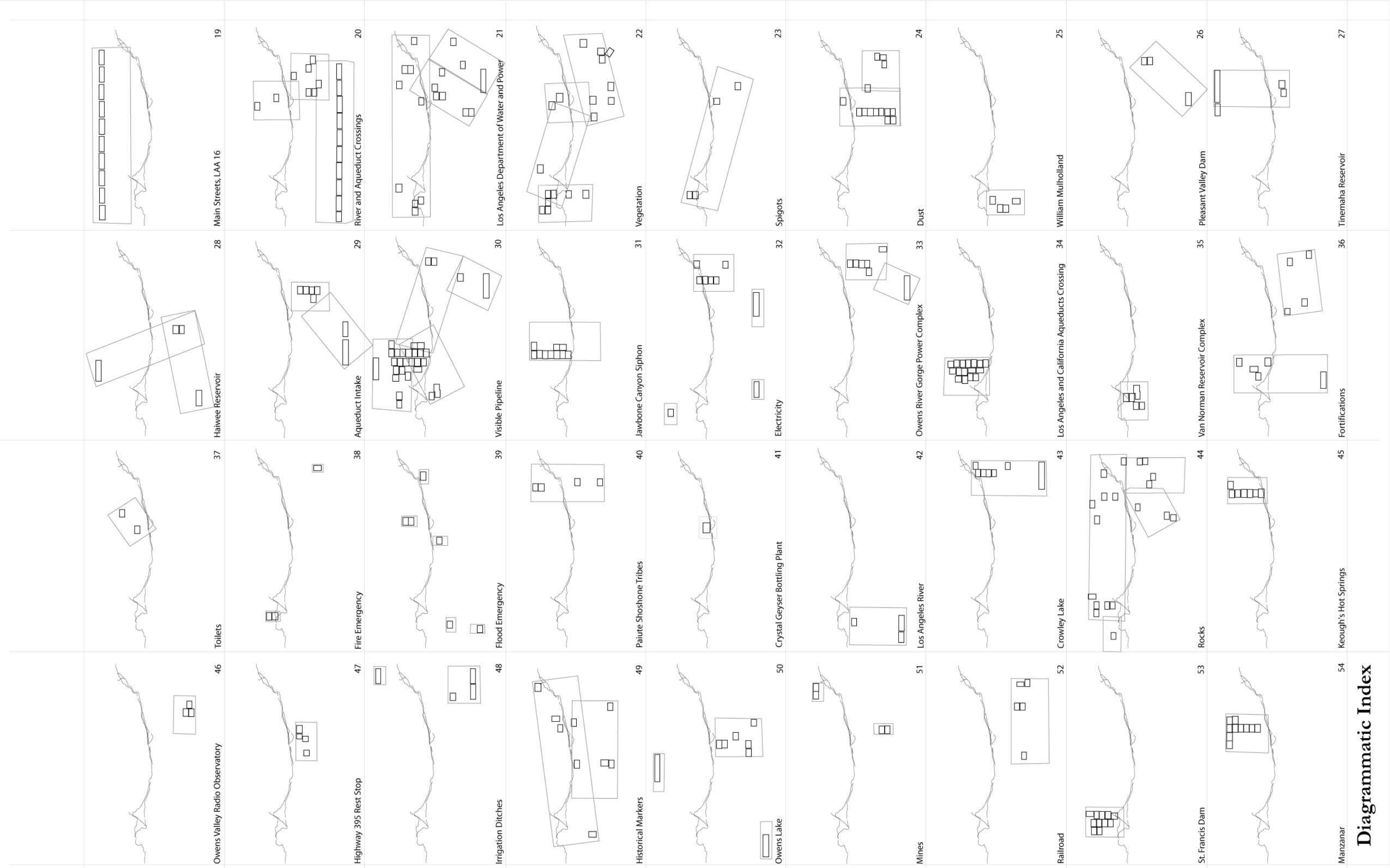


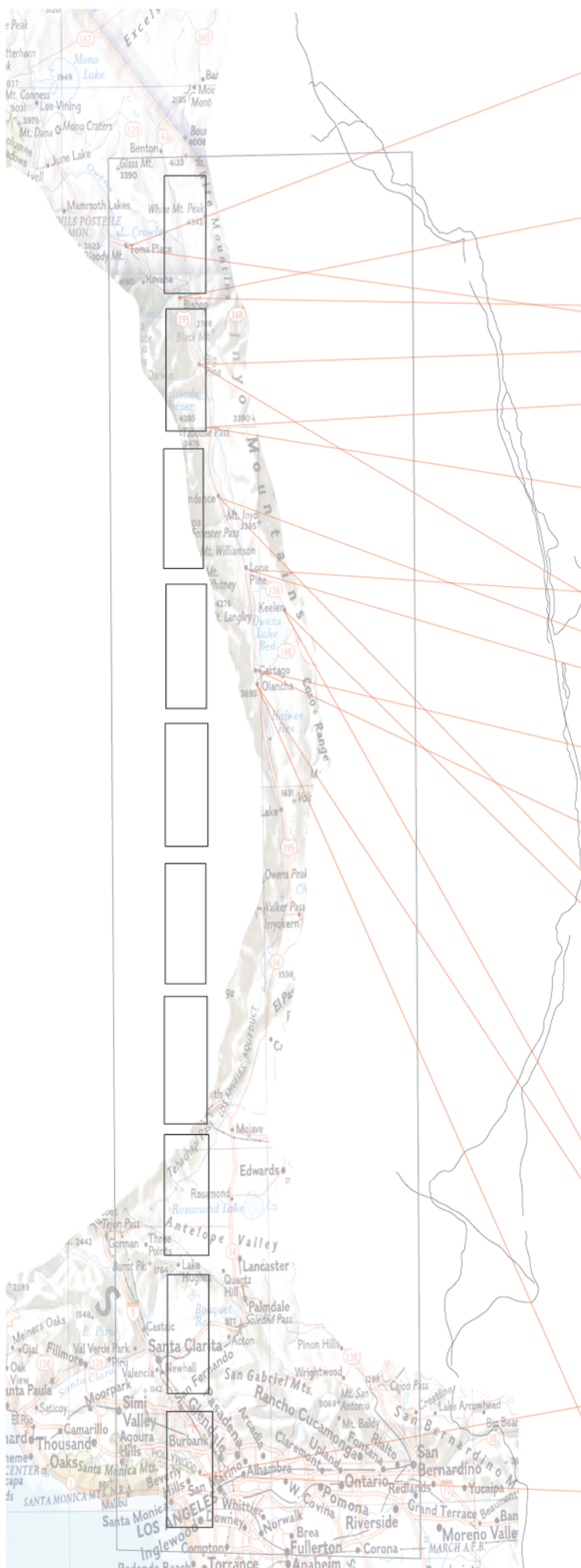
**Introduction.** This is an atlas of the landscape of the Los Angeles Aqueduct. The initial approach taken to this project was to document the landscape—a pipe connecting two points that don't exist, as William Kahrl puts it—its past and its present, as it has manifested itself in objects, things, and places around the aqueduct. Realizing that the breadth of an atlas encompasses more than just photographs, I found it necessary to add maps to locate the images both geographically and within the context of my trip to California. All three of these elements are to be found on the 'Landscape Narrative Maps,' which comprise the bulk of this atlas. These accounts of the stories that partially comprise the landscape of the aqueduct may be read in the order that I have placed them, or in any order as the reader chooses. The story maps are prefaced by pages that may be thought of as graphic 'Tables of Contents.' Their purpose is to show how I went about organizing the narratives I pulled from the photographs. Hopefully they provide a coherent framework for the presentation that follows. At the back of the compendium is a section of indices and analytical drawings which begin to draw connections between themes that spread themselves throughout the landscape, and thus have shown up in my documentation. Given the limited time frame of this project, there is nothing close to a comprehensive documentation of the landscape of the Los Angeles Aqueduct, though perhaps this is for the best. The idea behind this atlas is not to provide a picture book by which the reader may behold the sights surrounding the aqueduct, but rather to structure a double narrative wherein my documentation presents itself critically against a landscape of many other possible documentations.











Tom's Place.



Bishop.



Big Pine.



Aberdeen.



Independence.



Lone Pine.



Keeler.



Cartago.



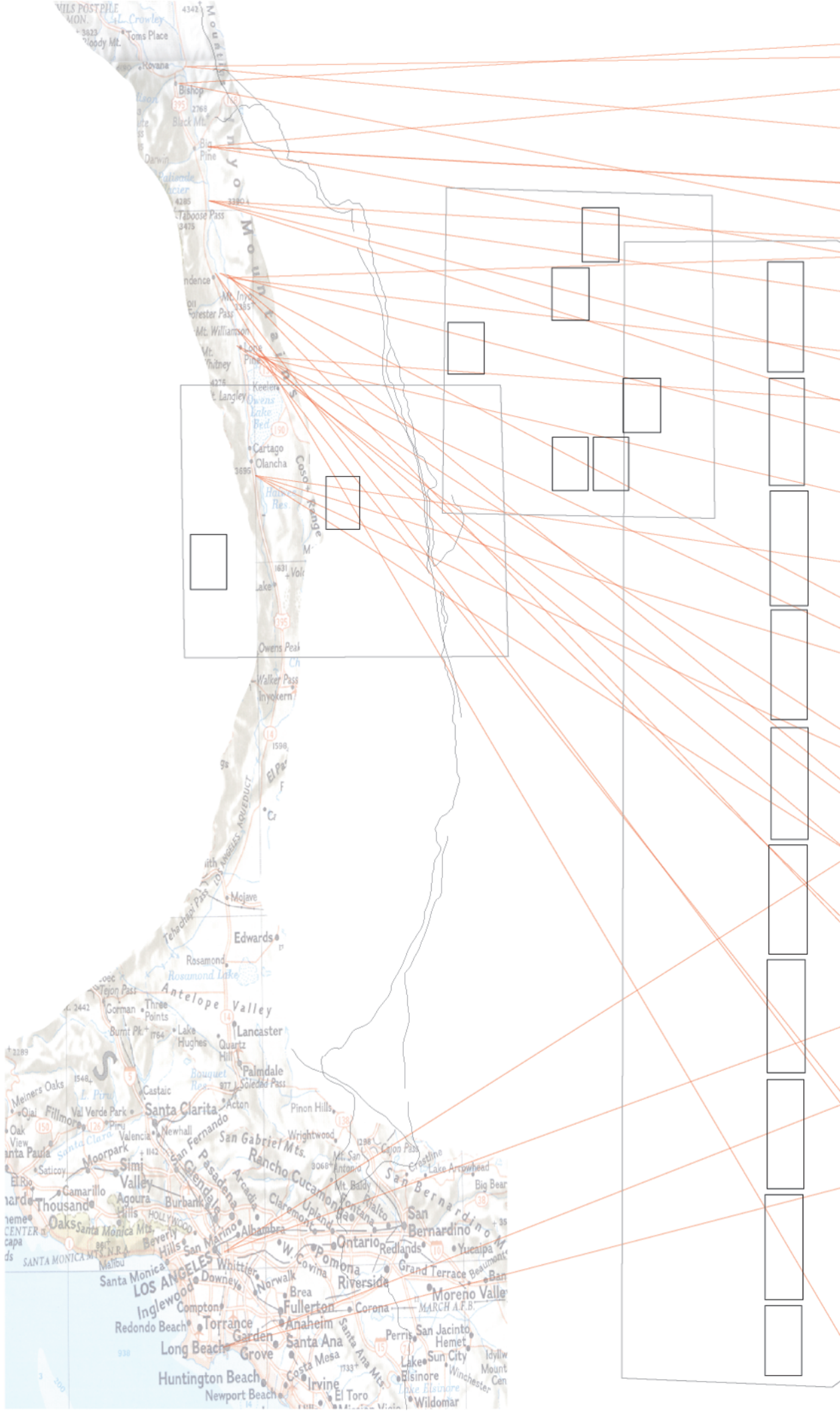
Olancha.



Larchmont Boulevard, Los Angeles.

The progression of main streets along the L.A. aqueduct is striking. All the major towns of the Owens Valley have the same main street: Highway 395. Towns not falling on 395 fall into one of three categories: 1) Resort (not a municipality); 2) No permanent buildings; 3) Abandoned. A recent proposal to turn the highway into a freeway bypassing all the downtowns threatened to desecrate the valley of its tourist income. Needless to say, the plan met with fierce resistance. Whereas the conduit-as-downtown remains central to these municipalities, Los Angeles has no sense of such a concept. Los Angeles sprawls so large and so evenly, any boulevard would do for a main street, while none could justifiably be called "Main Street." Easily replaceable by any other North-South street on the one-mile grid, pictured here is Larchmont Boulevard, Hollywood.

# Main Streets, LAA



Highway 6 crossing Owens River.



Highway 168 crossing Owens River.



Ranch road at Owens River north of intake.



1. Bishop Canal, Bishop.
3. Owens River near Intake Dam.
5. LA Aqueduct from Mazourka Cyn. Rd.
7. Aqueduct from Whitney Portal Rd., Lone Pine.
9. LA River from 1st St., Los Angeles.

2. Owens River from Hwy 168, Big Pine.
4. Owens River from Mazourka Cyn Rd, Independence.
6. Owens River from Hwy 136.
8. Aqueduct from Hwy 395, North of Haiwee Res.
10. LA River, Long Beach.



Mazourka Cyn Rd. crossing aqueduct.



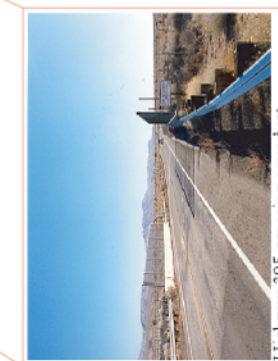
Highway 395 crossing aqueduct.



Mazourka Cyn Rd. crossing Owens River.



Highway 136 crossing Owens River.



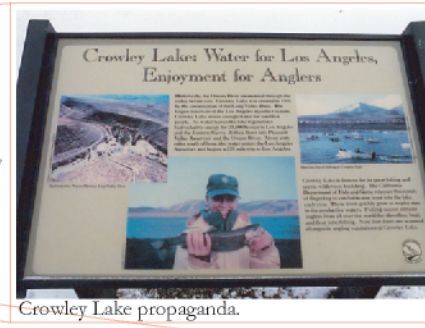
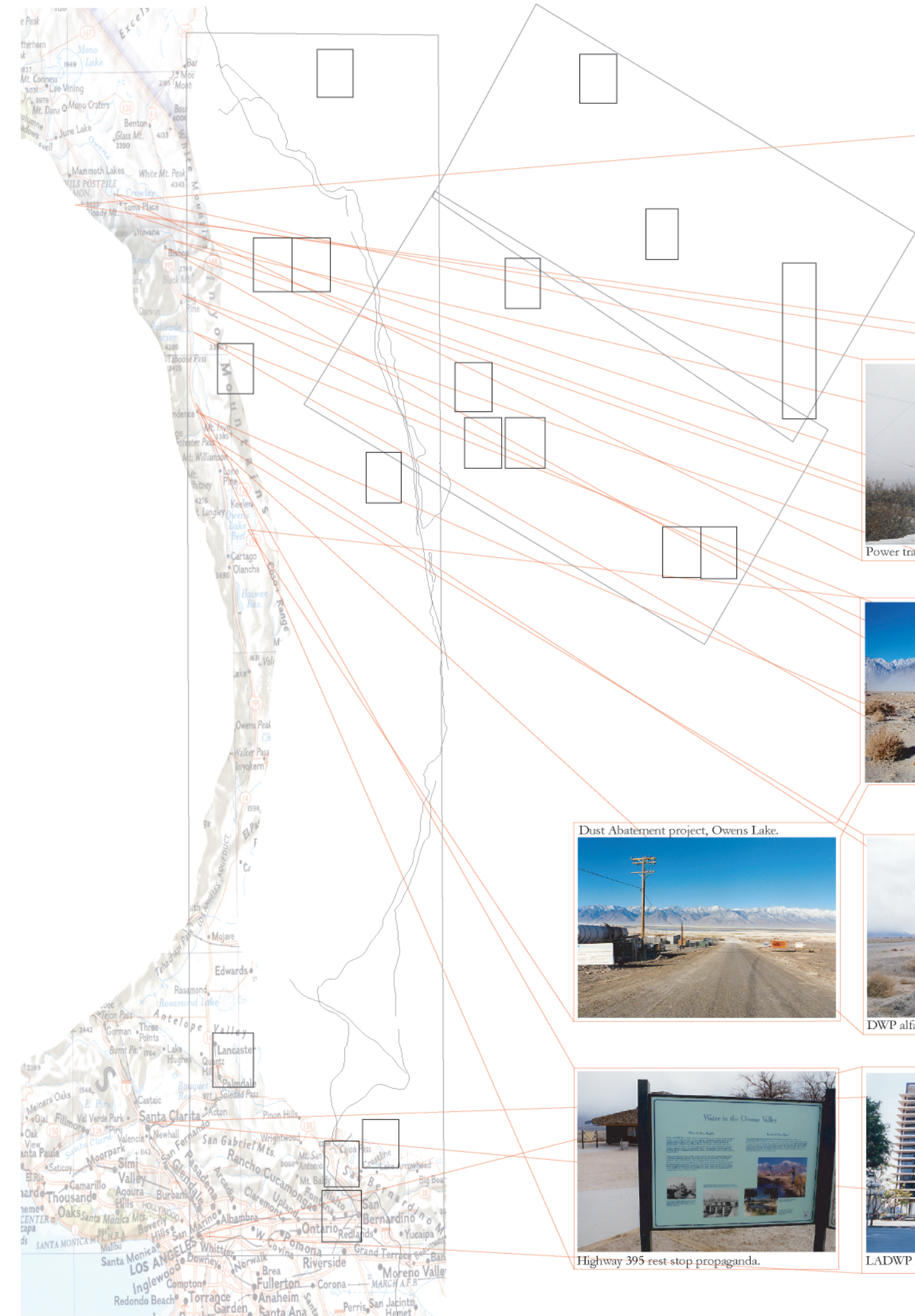
Highway 395 crossing Owens River.

The few places where the Owens River or the open channel of the Los Angeles Aqueduct are crossed by roads give clues as to the displacement of the water of the Owens Valley. North of the intake dam, where the water still flows through natural riverbed, the valley has reverted to its pre-agricultural state — an arid ecology whose vegetation is mostly hydrated by underground lakes. South of the intake and diversion dams, the river and the aqueduct run approximately parallel for forty miles at which point, just southeast of Lone Pine, the empty ditch that once held the river finds its end in Owens Dry Lakebed. There is a noticeable difference in the ecology south of where the aqueduct enters a concrete-lined channel. The soil becomes immediately dusky, as the aqueduct here cannot naturally replenish groundwater supplies. Dust problems have forced the Los Angeles Department of Water and Power to make some artificial diversions back into this desiccated part of the valley in order to avoid concomitant lawsuits. When the water reaches Haiwee Reservoir at the entrance to the Rose Valley, it does not appear again until it reaches Van Norman Reservoir in Los Angeles. Excess from this and other reservoirs is drained into the trickle of the Los Angeles river, which makes its exit into the ocean in Long Beach.

# River and Aqueduct Crossings

# Los Angeles Department of Water and Power

The Los Angeles Department of Water and Power is a commanding presence wherever it inscribes its name. Even disregarding the broader scope of the agency's works, the scale of its deployment of personnel and propaganda is vast, to say the least. Its headquarters—an Albert C. Martin modern giant—occupies a full block of downtown Los Angeles, and its branches spread like parasitic tentacles across the California landscape. The department has permanent bureaus (independent of reservoir sites) all up the spine of the Owens Valley: in Lone Pine, Independence, and Bishop. These offices, employing engineers, bureaucrats, maintenance, and public relations personnel, serve as remote-operations hubs for the region. These bureaus have deployed extreme levels of signage in areas around the aqueduct, from simple direction signs to more aggressive tactics. Propaganda at scenic overlooks on Highway 395 tells us that the area serves a dual purpose: "Water for Los Angeles" and "The Land of Open Space." But other signs paint a less idyllic picture: "No Camping" and "Property of the City of Los Angeles;" Owens Lake is now only barely accessible: "Authorized Construction Personnel Only." These mixed messages in the landscape of the Los Angeles Aqueduct tell us that Enlightenment ideals only go so far in the murky politics of water.



Crowley Lake propaganda.



Power transformers, Long Valley Dam.



Power station direction sign, Owens River Gorge.



Dust Abatement project, Owens Lake.



DWP alfalfa experiment.



LADWP bureau, Bishop.



Vegetation experiment, near Bishop.



LADWP bureau, Independence.



Charles Butte, site of first DWP land purchase in the Owens Valley.



Klondike Lake.



Highway 395 rest stop propaganda.



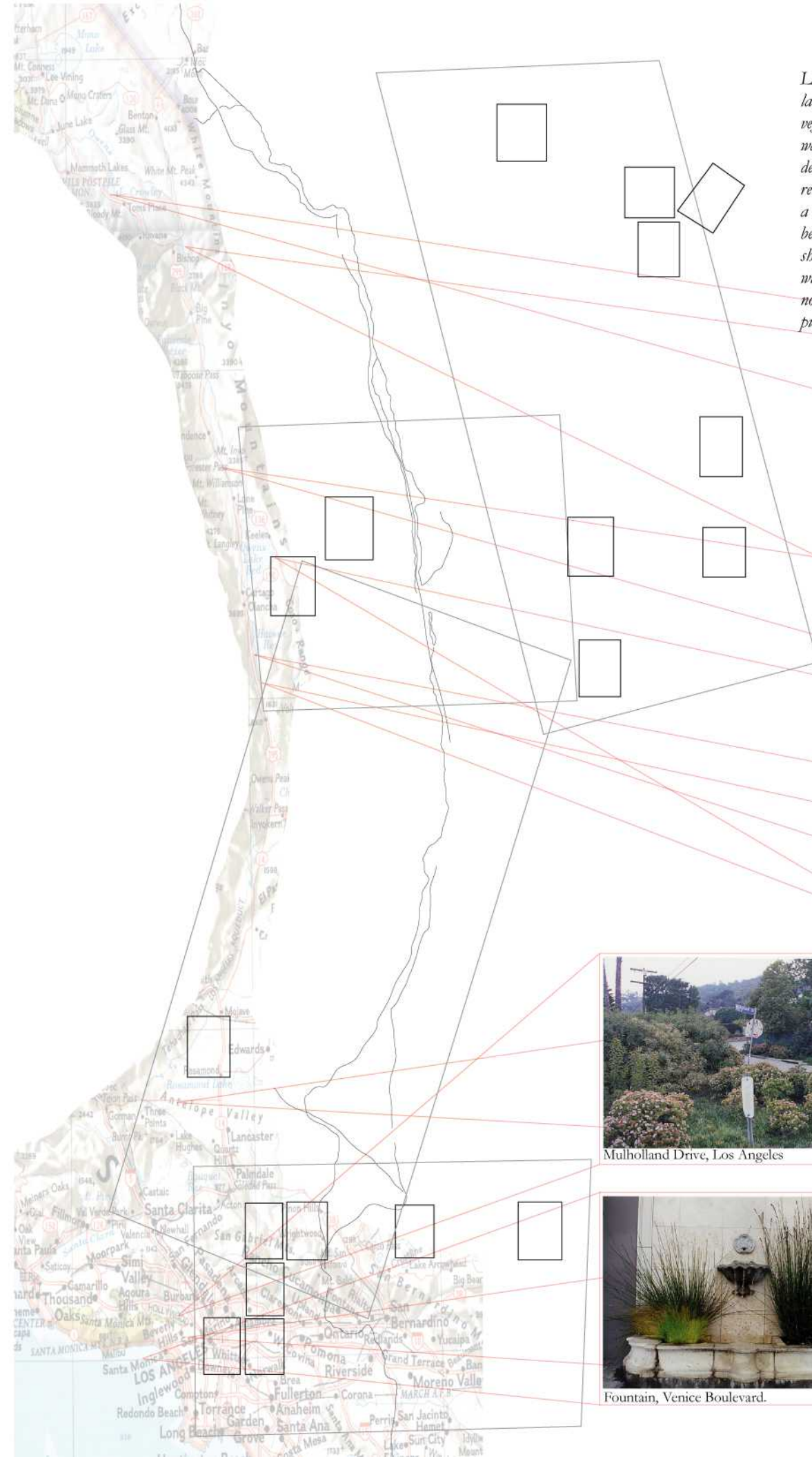
LADWP headquarters, Los Angeles. Albert C. Martin, Architect.



Power Station #2, San Francisquito Canyon.



Los Angeles, a semi-arid basin abutting the ocean with an average of fourteen inches of rain per year, is very nearly a desert. But, driving along its boulevards, one would think exactly the opposite. The lush landscaping has an Amazonian character to it, and reinforces the paradisaical image of LA: where it's always sunny, yet green as any eastern city, if not greener. Fountains, sprinklers, green grass, and tropical vegetation abound. Mulholland Drive, named after the engineer who first brought water to Los Angeles, is aptly packed with deciduous trees, shrubs, and flowers. Even the freeways are landscaped (generally with water-conservative succulents) in a kind of psychological warfare against desert. The Owens Valley constitutes an entirely different climate. Actual annual rainfall in the valley is less than ten inches, making it a true desert. During the second half of the nineteenth century, white settlers irrigated the valley with water from the Owens River. The LA Department of Water and Power argues that the building of the aqueduct has returned the valley to its most natural state. This is a bit of an overstatement. The Owens Lake, which in prehistoric times spilled out into the Mojave to the south, and just 100 years ago supported steamships, is now a dry, white, salty basin. While a few strands of salt grass and the occasional creosote bush dot the landscape, the area now is mostly sand dunes and alkali soda. Traveling northwards the land becomes gradually better hydrated, especially where the aqueduct is not lined with concrete, allowing some of the river water to seep into the aquifer. But even up at Crowley Lake, the desert creosote reigns unencumbered by more verdant shrubs. In a drought during the 1970's, the City of Los Angeles began pumping the valley's aquifers to augment the water supply. This act caused more problems than they were ready to handle. The resistance met with was not only a popular uprising by the region's inhabitants, but an unendurable reaction in the ecology itself. The valley, south of the intake, became so dry that vegetation would not grow. The sandy soil, having nothing to hold it in place, began blowing up in thick clouds of dust, reducing visibility and causing horrific car accidents on Highway 395. At risk of lawsuit, in the 1980s the DWP sharply reduced its aquifer pumping and was forced to institute a variety of programs in cooperation with local agriculturists to replant the valley with both native vegetation, and in particularly bad areas, alfalfa.



Experiment to reintroduce "native vegetation."



Crowley Lake shrub.



The verdant south shores of Owens Lake.



Owens Lake creosote.



Soda, grass.



Co-operative alfalfa experiment.



Mulholland Drive, Los Angeles



Freeway landscaping, Los Angeles.



Joshua trees, Lancaster.



Joshua tree, Dunsmuir.



Joshua Sapling, Harwee Reservoir.



Fountain, Venice Boulevard.



Storefront, Venice Boulevard.



Grass rectangles, Larchmont Boulevard.

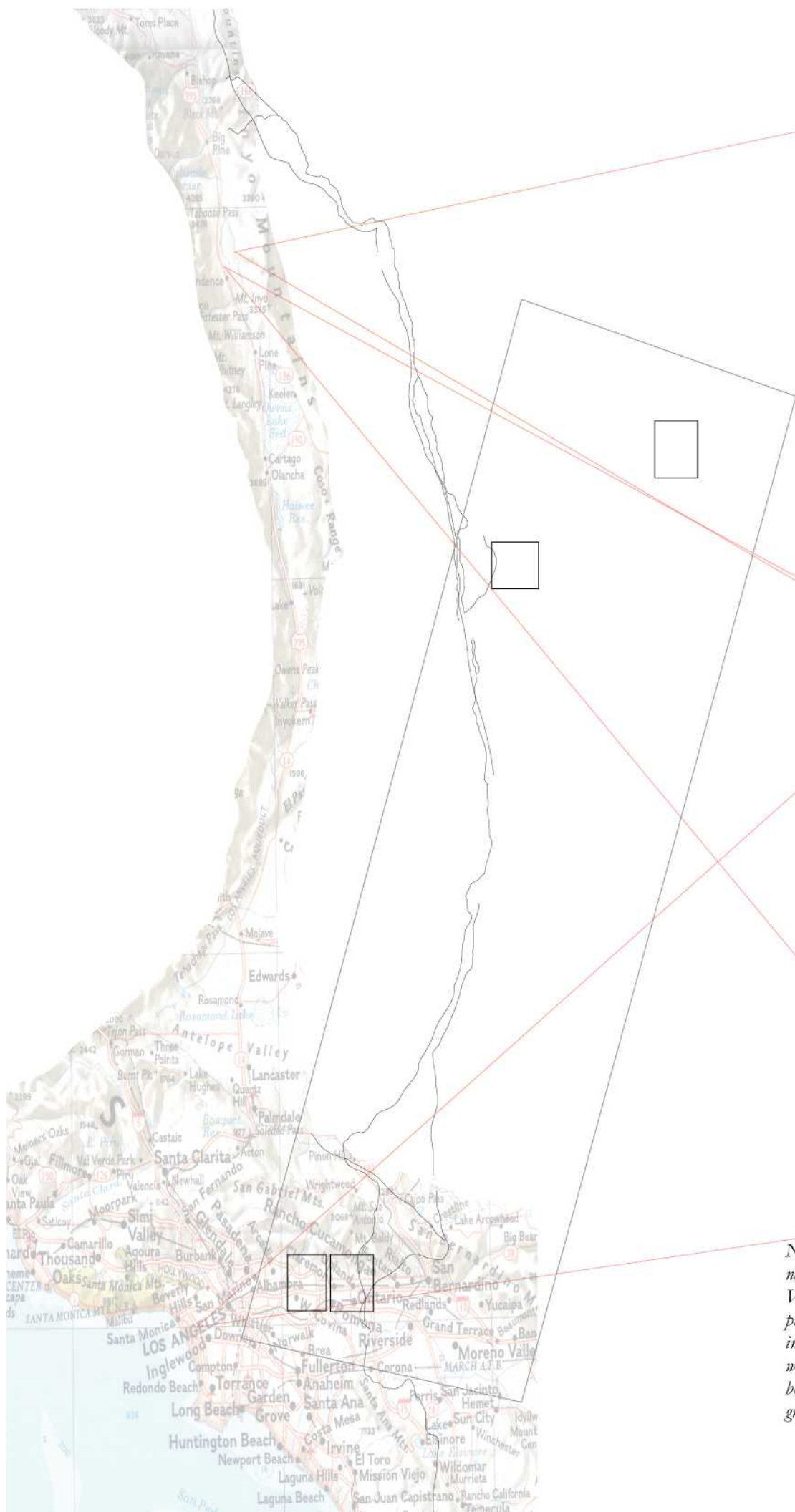


Bamboo grass, Larchmont Boulevard.



Standpipe.

Vegetation



Spilling water on a ranch in the Owens Valley.



Standpipe pokes its head out of a bamboo grass planter, imitating the vegetation around it. Los Angeles.

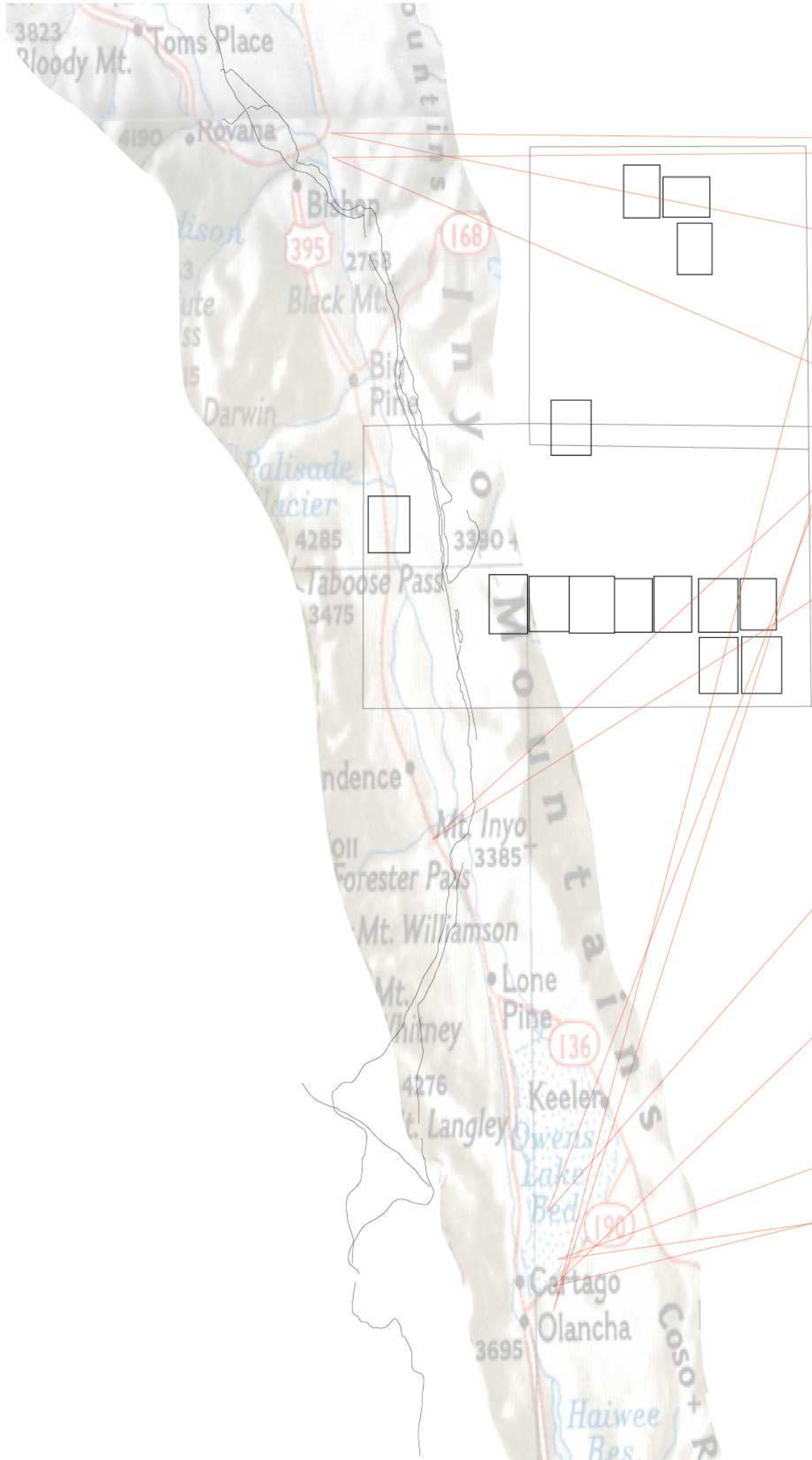


RV water refill station at a rest-stop on Highway 395.



Fire hydrant in Los Angeles.

Natural water sources are scarce in the Owens Valley and Los Angeles alike, the one because water is collected and contained before it can be used locally, the latter because almost every formerly natural water source has been either tapped at the source, drained dry, or paved over. In both places, however, false water sources abound, especially in the form of taps and spigots. In the Owens Valley, these artificial springs make for square-meter oases in the otherwise dusty landscape. A rest stop on Highway 395, funded by the City of Los Angeles, is barren except for a few of these pumps scattered across the parking lot. Grass grows thickly under the dripping spouts, attesting to the fertility of the soil. Near Independence, a pump spouts dozens of gallons of water every minute into a ditch draining into the aqueduct not twenty feet away. The hydrologic and conceptual source for this mechanism is currently under investigation. In Los Angeles itself, the fire system places water within quick, but simultaneously unobtainable, access of the public domain. The fire department leases these aquatic non-sites from the Department of Water and Power, and while hydrants make a bold stand in the middle of the sidewalk, fire standpipes for specific buildings blend into the planted vegetation, as if a water spout were something you could grow in the garden among the bamboo grass.



Olancha Dunes rescue.



Alfalfa experiment.



"Blowing Dust" warning



Earth-moving machines at work on Owens Lake.



Reintroduction of native vegetation.



The diversion of water from the Owens Valley by the building of the Los Angeles Aqueduct has caused a massive-scale desiccation of the land. Agriculture is no longer an issue in the valley, as all the farmers are long gone. In their place: dust. Owens Lake is now the largest point-source of pollution in the United States. The saline lake evaporated a few years after the Owens River was diverted into the concrete-lined channel of the aqueduct, and since then the white soda residue has been kicked up by the high winds that come whipping through the two narrow passes at the southern end of the valley. Alkali dust clouds the atmosphere in a yellow smog, obscuring visibility, blowing across roads, causing accidents. The City of Los Angeles has recently become wary of its legal liability regarding dust clouds blowing over Highways 395 and 190, and has contracted a civil engineering firm to design and construct a dust abatement system on the lake. The project consists of installing sprinklers along the entirety of the 80 square-mile dry lakebed, which will deliver water rediverted from the aqueduct channel into the basin in order to flood it and make it arable for some form of vegetation to take root and keep the dust down. It is expected that it will take three years of shallow flooding before salt grass will begin to grow with any consistency. In the meantime, one can see hundreds of earth-moving machines digging trenches and building causeways across the artificial salt flat. Further north, dust has been a problem due to a relatively short-lived project by the Department of Water and Power in the 1970's to pump the Owens Valley aquifer to further augment the aqueduct's flow. The valley became so dry by the mid-1980's that the DWP was forced not only to stop pumping the aquifer, but also to reintroduce vegetation in order to avoid potential litigation over a few serious accidents on Highway 395 caused by reduced visibility. We see evidence of the DWP's efforts all along the valley, from a 3-acre alfalfa patch they contracted a local farmer to tend along the road, to experiments reintroducing natural vegetation in various areas. Natural vegetation, in some cases, seems to have taken the form of haybales distributed in a regular pattern across former farmland.



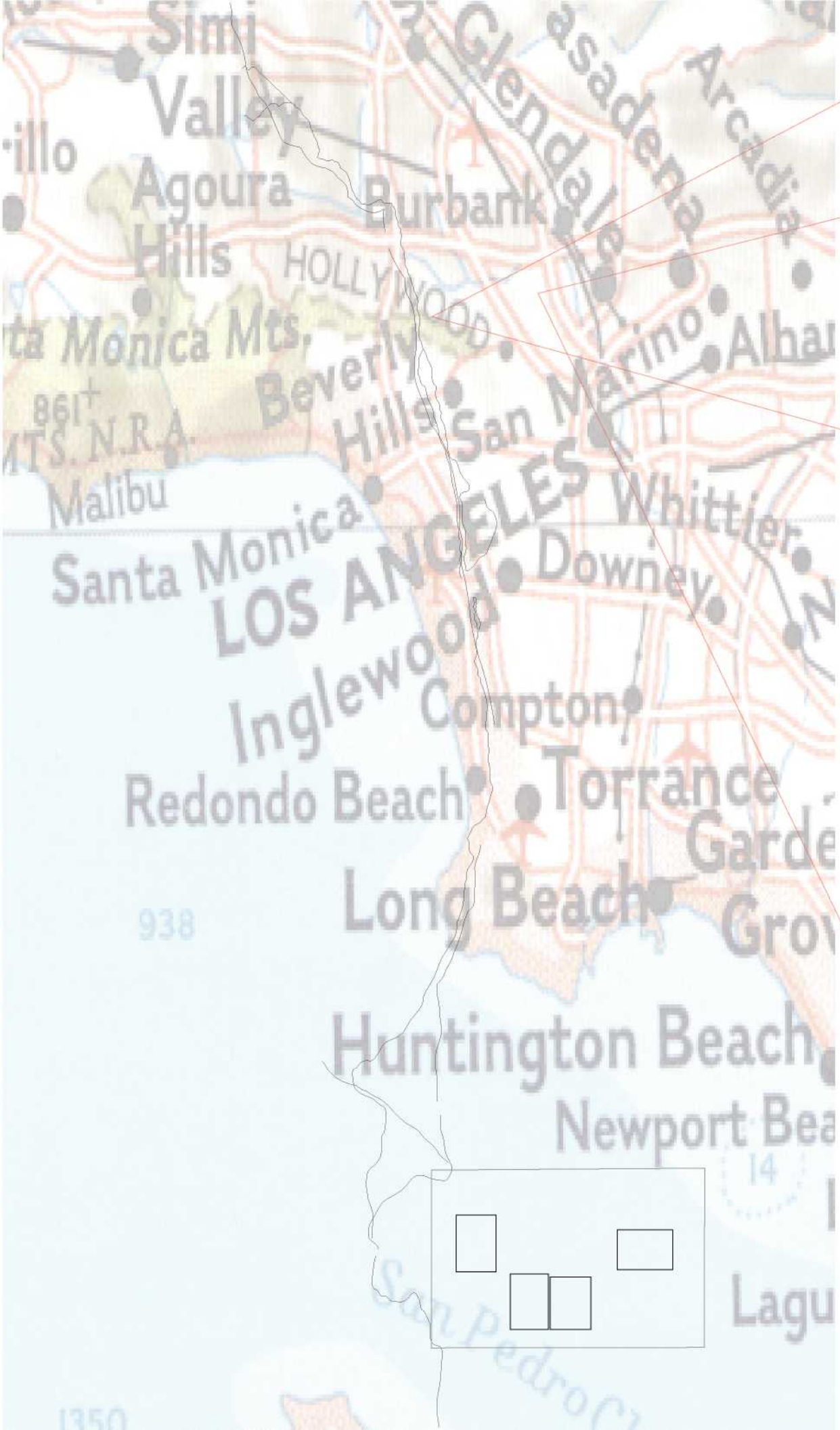
Dust from Owens Lake.



Dust abatement project.



# Dust



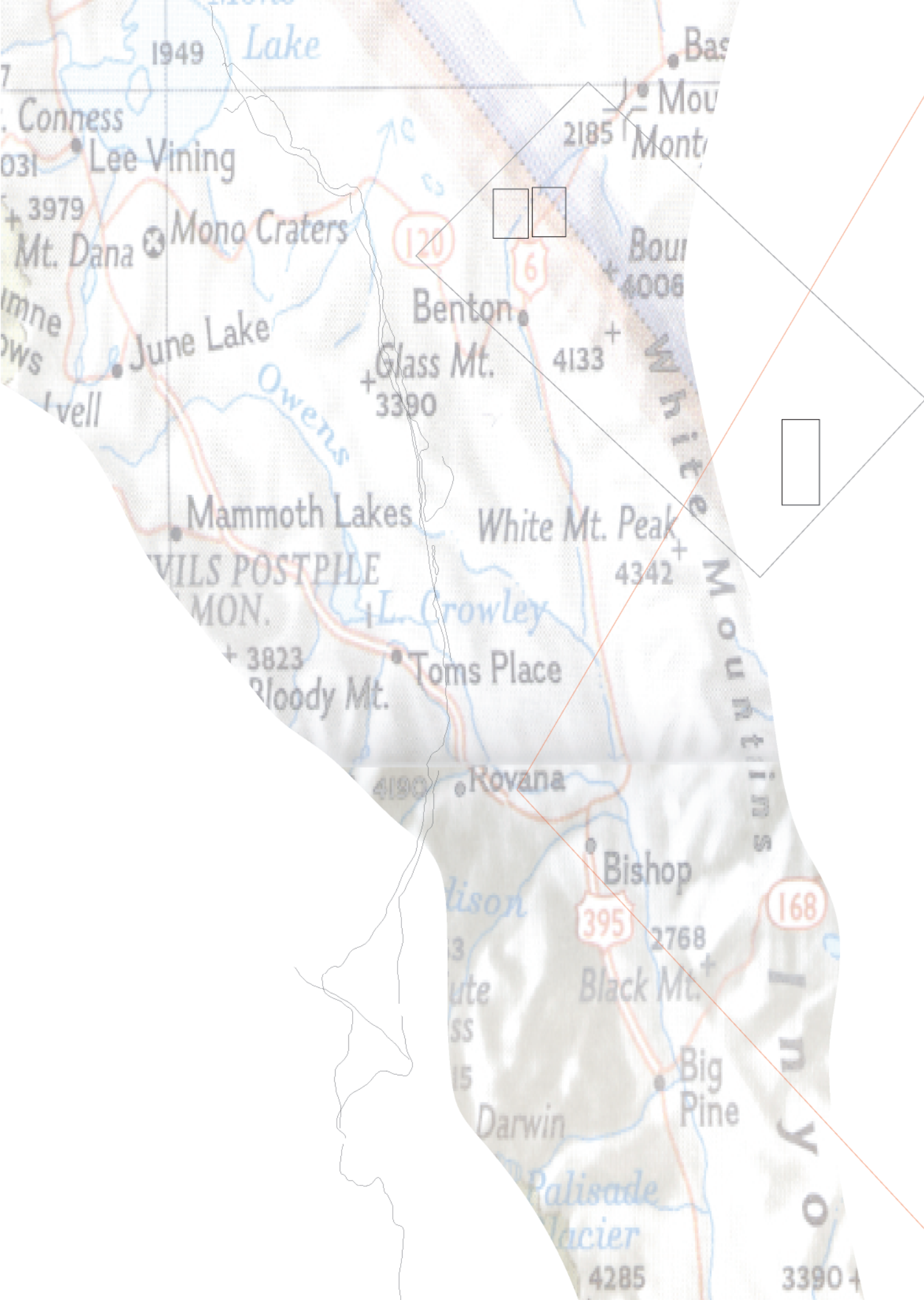
Mulholland Drive.



William Mulholland Memorial. Griffiths Park, Los Angeles.



*William Mulholland was the key figure in the conception and building of both the Los Angeles Aqueduct and Los Angeles itself. At the turn of the 20th century, Los Angeles was a small city of 100,000 people, struggling to maintain even that comparatively meager population with its groundwater supply. Recognizing that the future growth of the city depended on water, William Mulholland, with the support of the city's major business interests, created the Department of Water and Power, the agency that controls the landscapes of L.A. and the Owens Valley. The building of the aqueduct and the DWP's pervasive presence throughout the two locales ensures the constant flow of water from the latter to the ever-burgeoning megalopolis. William Mulholland, despite many controversies and fiascoes plaguing his tenure, was recognized as a hero by the city within his lifetime, with the building of Mulholland Drive along the 22-mile ridge of the Santa Monica Mountains separating the L.A. Basin from the San Fernando Valley. The road aptly occupies the ideal viewpoint for the two halves of the city that Mulholland succeeded in uniting through the politics of water supply. More recently, a William Mulholland memorial fountain was erected at the entrance to the city's largest park commemorating his gift of greenery to the desert city.*



Dam and output.

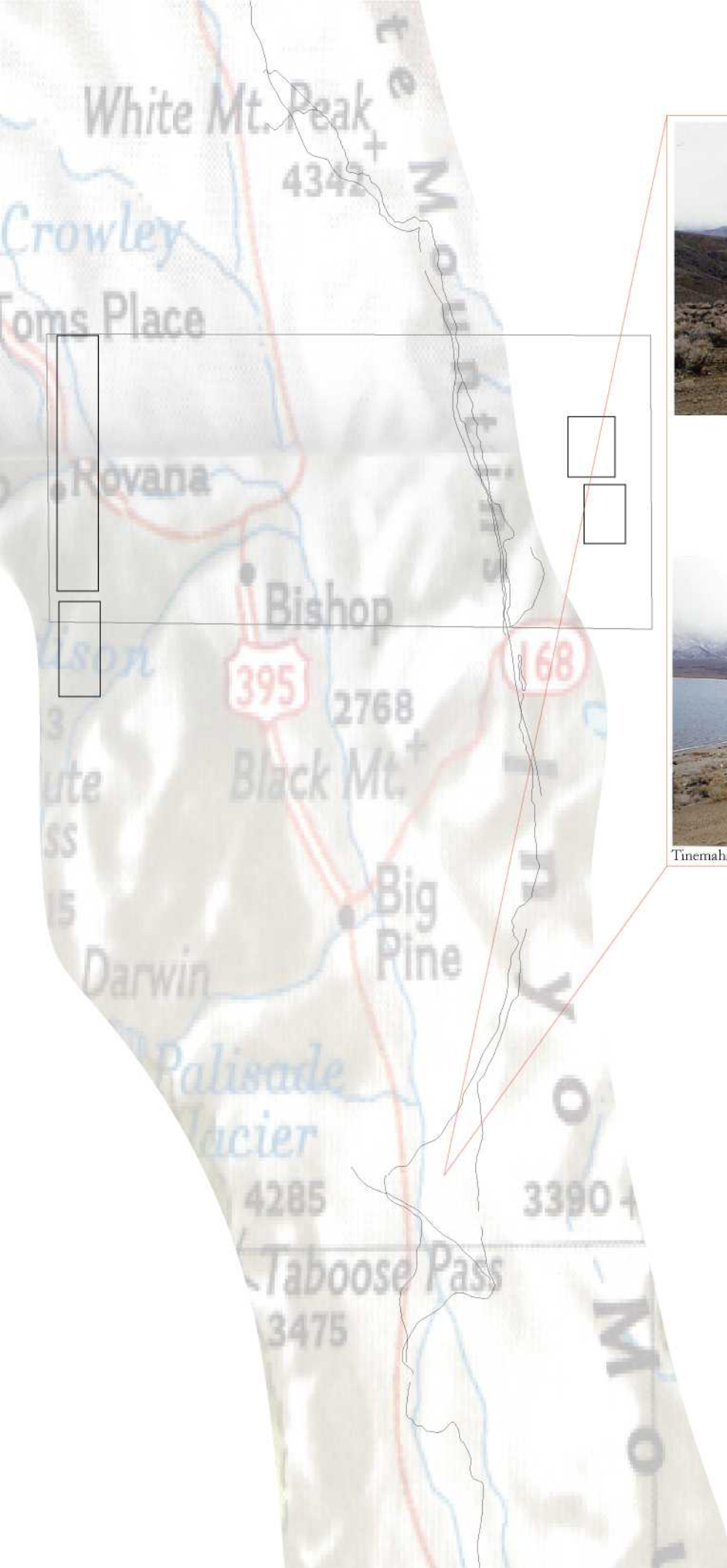


Concrete slab, Pleasant Valley.



*The Pleasant Valley Reservoir was constructed between 1948 and 1950 as a final power generating station for water descending from the Owens River Gorge. The water stored in the reservoir is channeled through hydroelectric turbines, which convert the water's flow into electric power. The electricity generated by this small dam provides power for the entire Owens Valley; meanwhile, every other power station in the valley, whether situated along the Owens River or in the Sierra foothills, sends its electricity to Los Angeles, whose power needs are almost as great as its water needs. Pleasant Valley, immediately below the dam, contains an idyllic but serviceless campground, and a curious concrete slab now crumbling at the riverbank.*

# Pleasant Valley Dam



Looking north from the Tule Elk Wildlife Overlook above the reservoir.



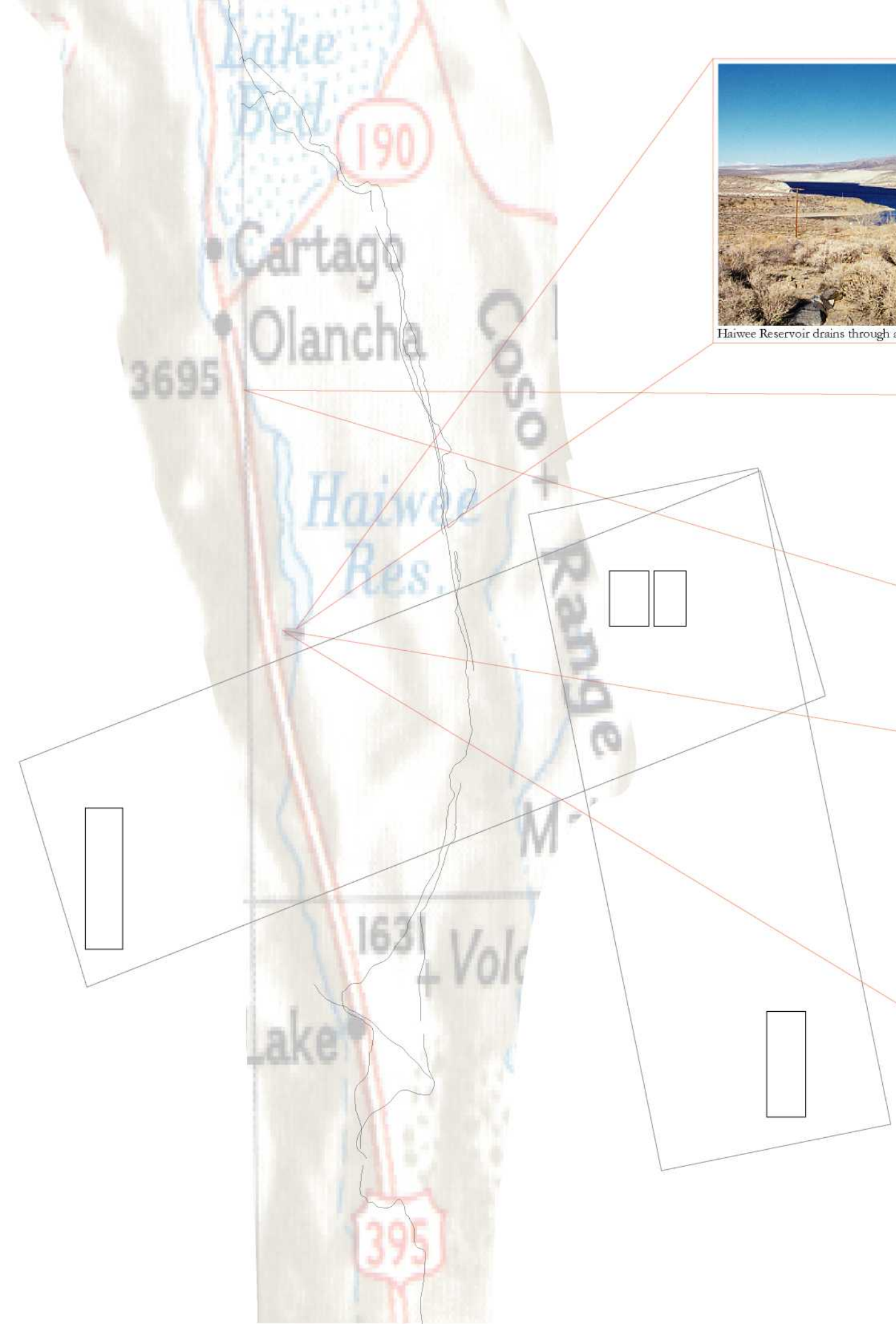
Tinemaha dam and holding reservoir.



Looking south from the wildlife overlook.

*The Tinemaha Reservoir is a vast, shallow, holding reservoir on the Owens River a few miles north of the aqueduct intake. Department of Water and Power literature indicates that the reservoir is mainly used to hold water when a more southerly part of the aqueduct is under repair, or when runoff levels are particularly high. The concrete-lined channel section of aqueduct between the Alabama Hills and the Haiwee Reservoir prevents erosion and reduces maintenance costs and water loss, but has poor performance at flood levels. Concrete's inability to absorb water and slow currents make it necessary to have some way of restricting flow. The Tinemaha reservoir, built between 1921 and 1929, serves this function. On a hill rising sharply from the dam access road there is a Tule Elk Wildlife Viewpoint (a DWP environmental amelioration project) from which expansive views over the reservoir and valley to both the north and the south are possible.*

# Tinemaha Reservoir



Haiwee Reservoir drains through a pipe rather than the outmoded stream bed.



Final stretch of the open concrete-lined canal north of Haiwee.

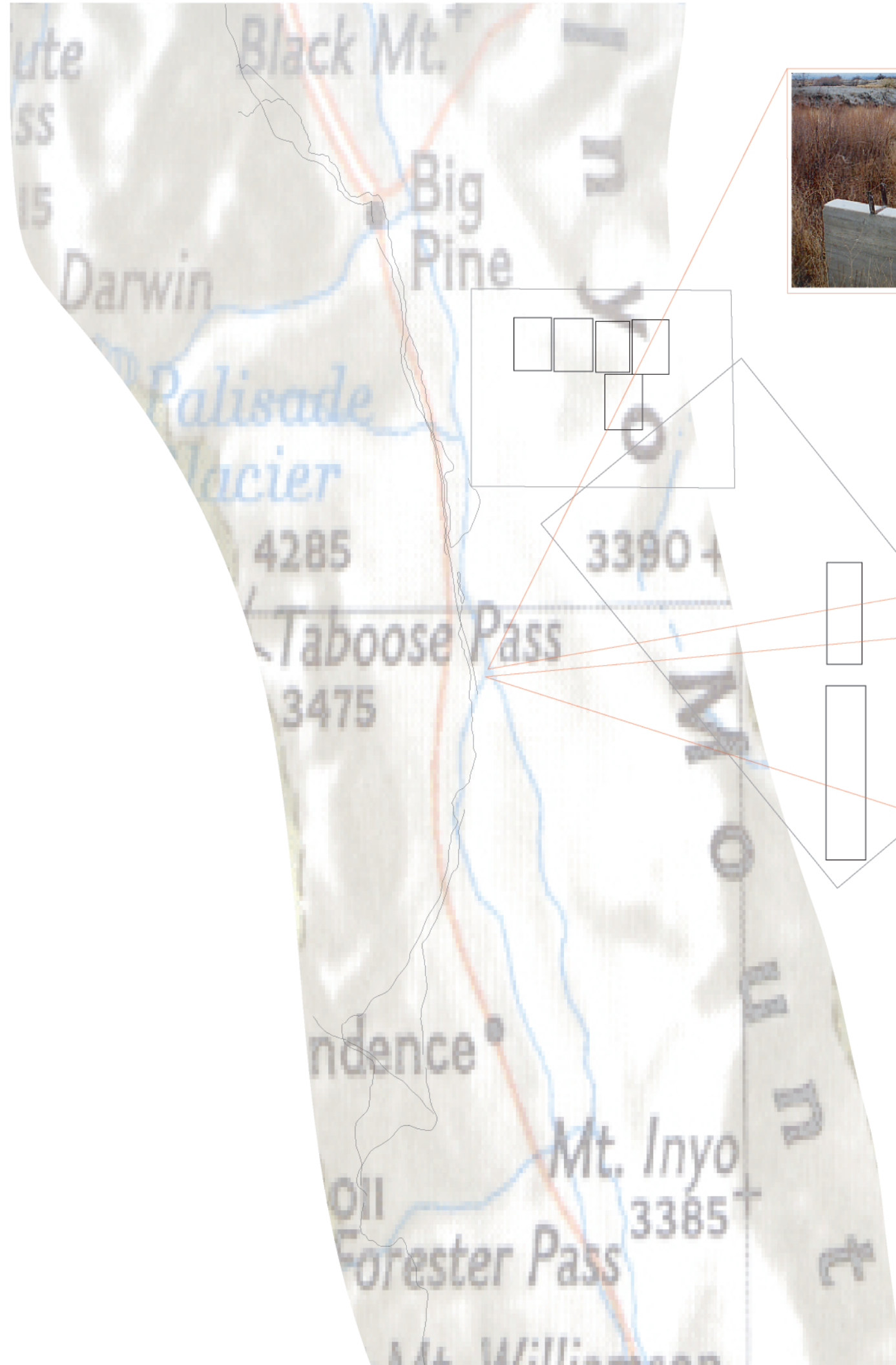


Former railroad.



Desert plants.

*Haiwee Reservoir, which is actually two reservoirs, was the first built for the Los Angeles Aqueduct. As the last point where Owens River water sees the light of day before coming out of residents' kitchen faucets in Los Angeles, the reservoir was one of three considered essential (the others were at Fairmont and San Fernando) for a project whose design did not contain a single dedicated water storage facility. The reservoir, situated at the very southern tip of the Owens Valley, does not have the potential of releasing water into a river at the base of its southern dam. Its only exit point is the steel aqueduct pipeline that penetrates the base of the dam and runs several hundred yards along the bottom of Rose Valley before entering the earth for its mostly underground journey to Los Angeles. Due to its long narrow shape, the reservoir is able to act as a natural purification tank for aqueduct water by allowing sediment to filter to the bottom during its long course through the lake.*



The diversion dam.

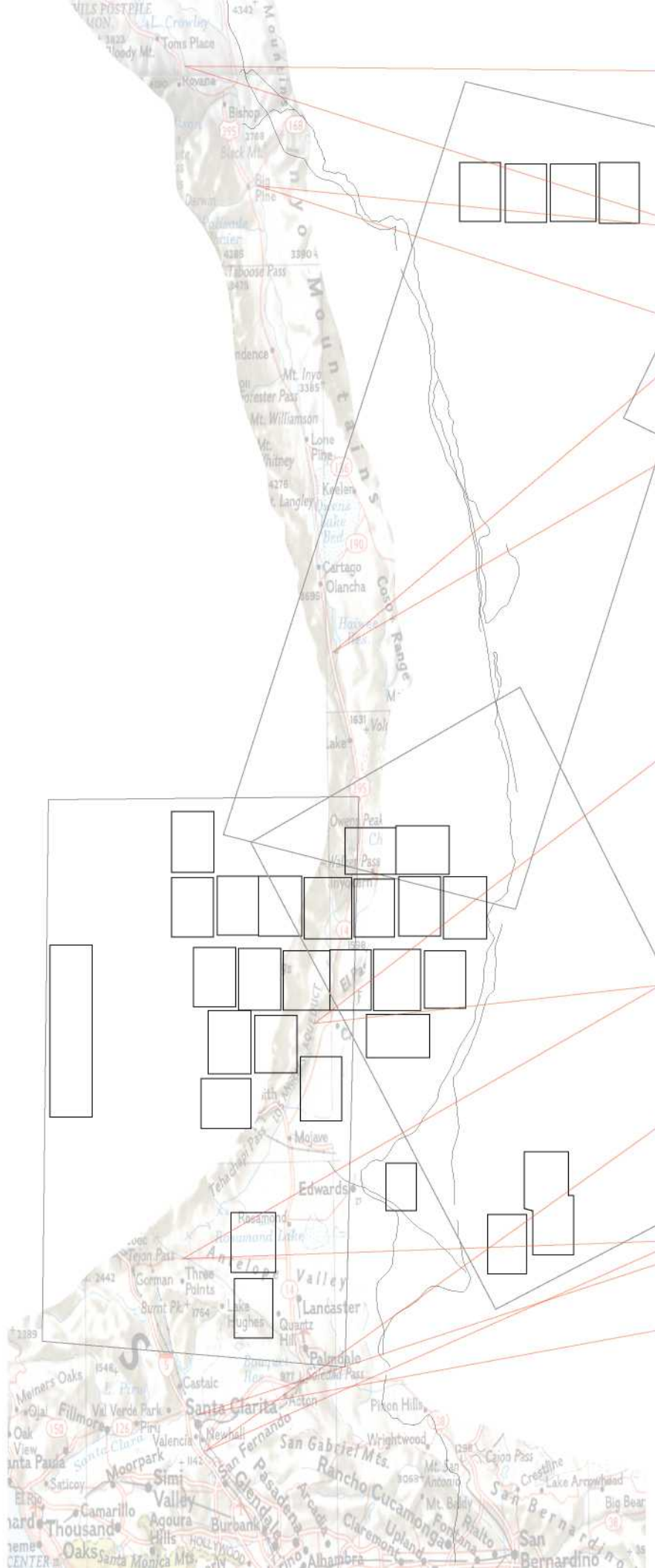


Los Angeles Aqueduct intake dam.



*Though the City of Los Angeles officially drains the watersheds of the Mono Basin southward, the water flows through the Owens River bed for the first 80 miles of its journey. At an unmarked point between Big Pine and Independence, out on 'ranch' land miles from the closest road, a diversion dam cuts off the water from its natural path to the Owens Lake, and redirects it into a man-made channel as natural looking as any river. A hundred feet away, an intake dam, which looks more like a bridge over the Seine except for the flood-gate gearboxes at its crest, appears from its upstream side to pull the water into its concrete structure never to let it go again. But peering over the other side, the concrete lining ends as abruptly as it started, and the water continues on in a dug canal for another 15 miles before entering a concrete channel for the rest of its open-air journey.*





Haiwee Reservoir and the beginning of the pipeline.



Owens River Gorge powerstation pipeline.



Wreckage at Zurich Station.



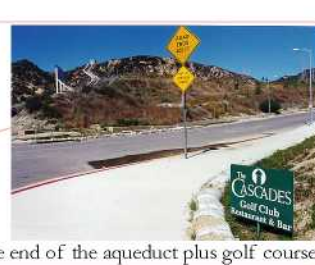
Jawbone Canyon Siphon.



Water transfer mechanism.



Los Angeles Aqueduct crossing the State Water Project channel in Neenach.



End of the aqueduct plus golf course.

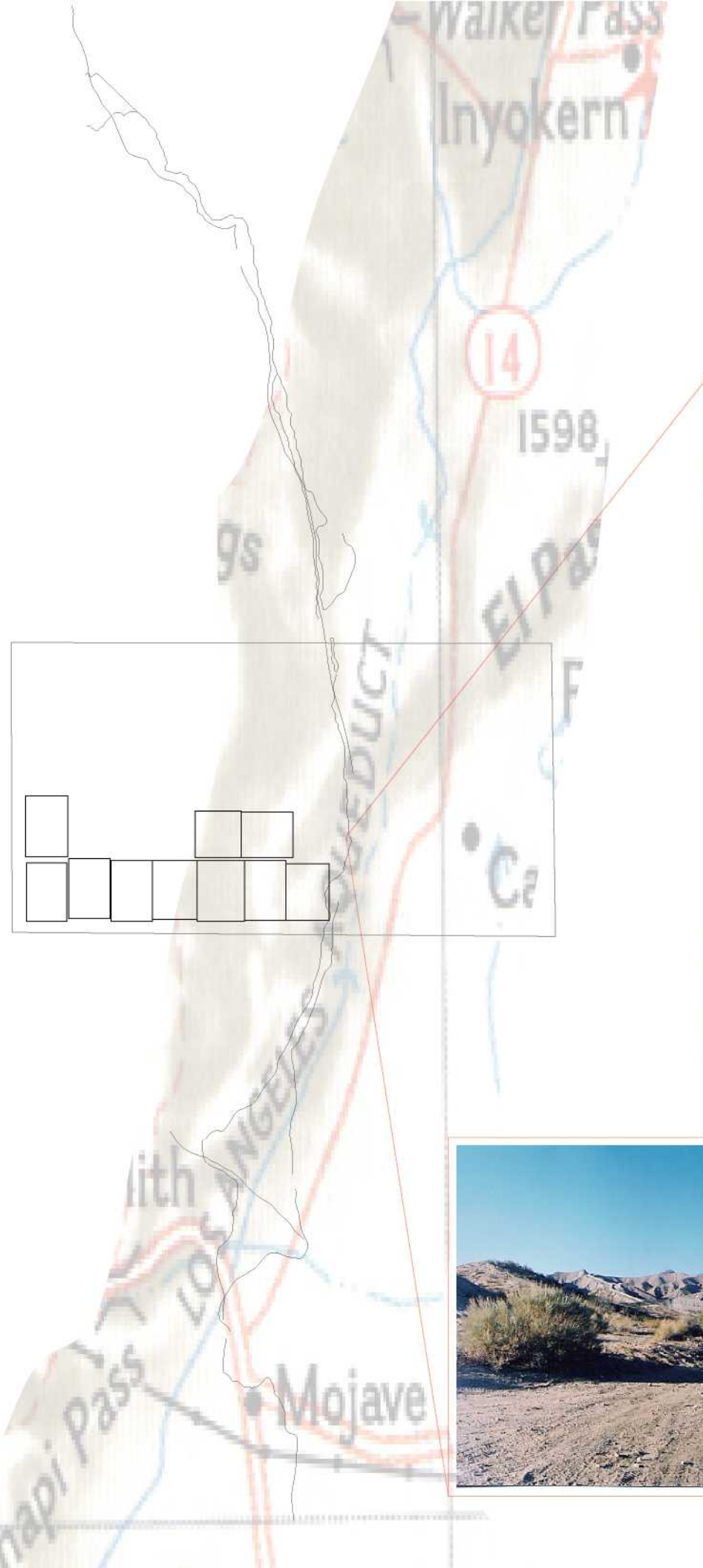
Powerstation #2.

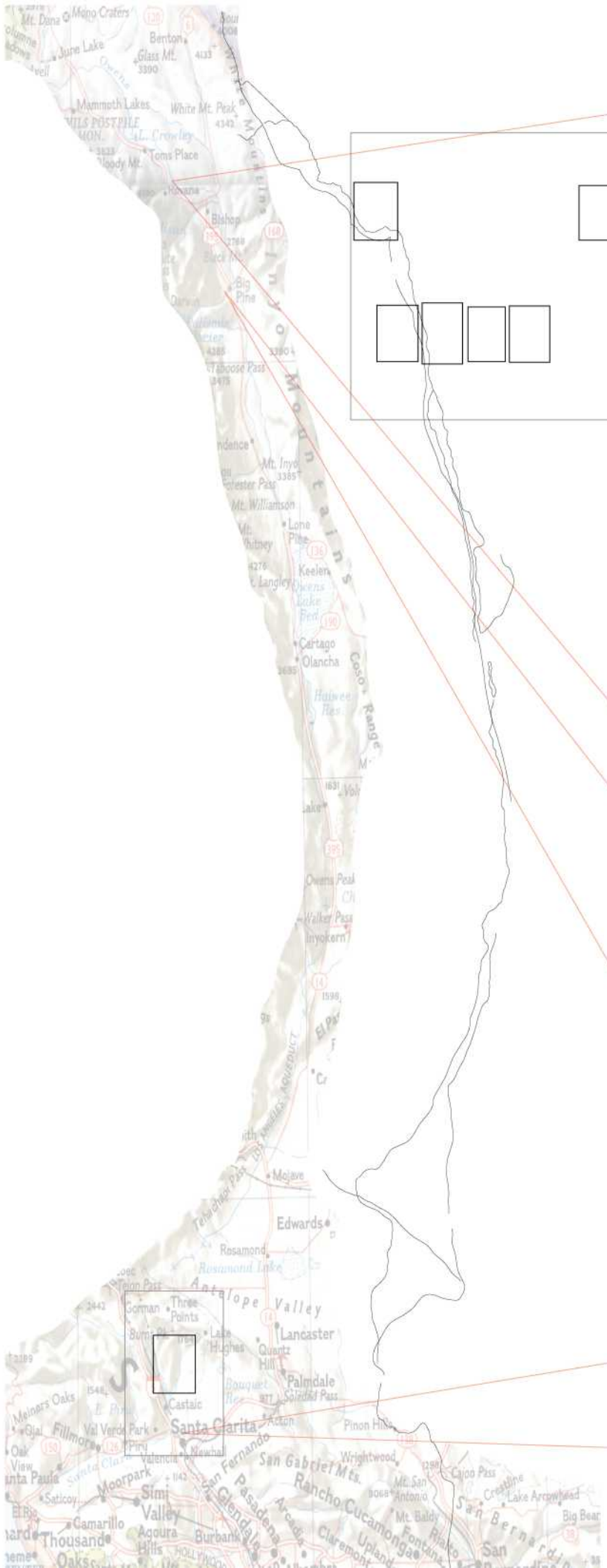
Saugus Pipeline.

For most of its course across the land, the immense 8.5 foot pipeline of the Los Angeles Aqueduct is buried underground. There are very few places where it emerges, and when it does so it is either by mistake or by necessity. Just south of Lake Crowley, a section of pipeline runs parallel to the Owens River Gorge wherein the Owens River still gushes 3,000 feet below. This is not the aqueduct proper, but rather an alternative outlet to the Long Valley Dam which allows a portion of the water let out of the reservoir to be used to generate electricity--which is then sent to Los Angeles along the course of the aqueduct. At the bottom of the Haiwee Reservoir, 100 miles south, the water enters the aqueduct pipeline, not to see daylight again until it reaches Los Angeles. The Jawbone Canyon Siphon, between the towns of Inyokern and Mojave off Route 14, emerges from the mountainside at the north end and runs exposed along the valley to be swallowed up again a mile further on. The pipe was left exposed because of the immense pressure from the long vertical drop along that section of the line. The aqueduct has ruptured on three separate occasions in this canyon, spilling millions of gallons of water into the high desert region between the Owens Valley and Los Angeles. Further south we get our last glimpses of the pipeline before it reaches Los Angeles. In Neenach, a trailer community off Hwy 138 which is traversed by both the Los Angeles Aqueduct and the California Aqueduct, one can see the crossing of the two. It was originally planned that the second LA Aqueduct would cross underneath (and out of sight), but after its construction, the planned path of the California Aqueduct was changed so that now the crossing is visible. There is a pump mechanism at the crossing which allows water to be pumped from one to the other in the event that there is an overflow problem. The Cascades into the Van Norman Reservoir is the official end of the aqueduct, and the only place where you can see the water split paths and run parallel to itself. Upon exiting the terminal tower, the majority of the water runs down the Cascades, an open, baffled, concrete channel used to dissipate the energy built up during the siphoned journey down from the 4,000 foot elevation of the pipeline's starting point. A small amount of the water is put into a large pipeline which runs down the mountain adjacent to the Cascades. This water is run through turbines at the bottom of its path to generate electricity for the City of Los Angeles.

# Jawbone Canyon Siphon

The Jawbone Canyon Siphon, one of the few places that the Los Angeles Aqueduct is visible south of the Haiwee Reservoir, is also one of the most vulnerable parts of the pipeline. Over the years, it has suffered three major ruptures: the first as the first aqueduct was filling in 1912, the second time during testing of the second LA Aqueduct in 1970, and the third time a year after that. The vertical drop of the canyon is significant: the pipeline drops 1200 feet, and then climbs to nearly its original height, all in the space of fifteen miles. This creates a huge amount of pressure at the lowpoint of the siphon, which caused it to burst at the joints and flood the canyon on those three occasions. Jawbone Canyon Siphon received several dynamite threats as well during the 1920's when Owens Valley residents were staging resistance to the draining of their watershed. It was never attacked, but siphons within ten miles in either direction were dynamited during those same years.





Equipment for Long Valley Dam Power Station.



Pipeline delivering water along alternate route to three power stations along the 3,000 foot deep Owens River Gorge.



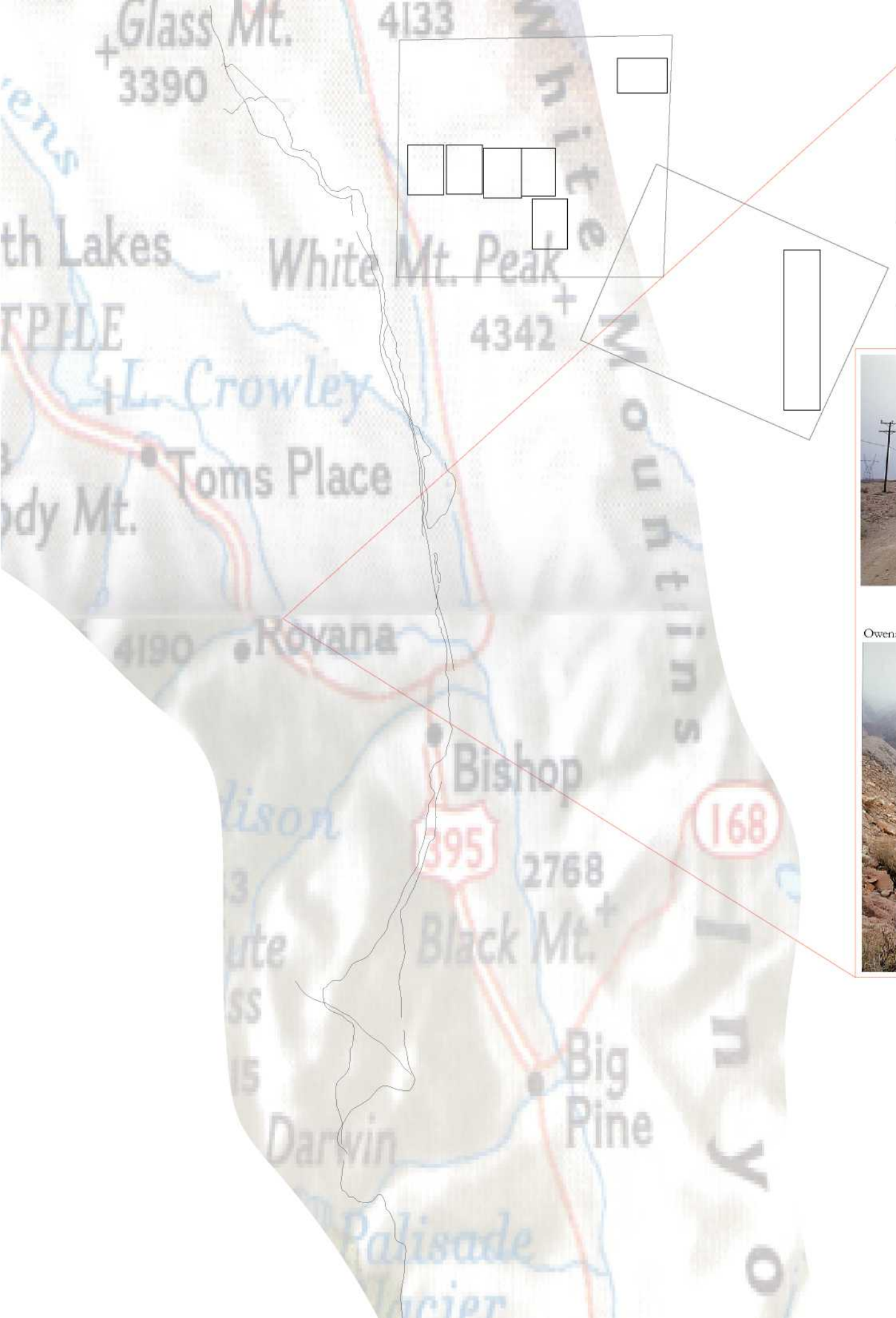
High-power electricity lines traversing the valley.



Power station #2 in San Francisquito Canyon.

Another export of the Owens Valley is electricity. The vertical drop between Crowley Lake at the start of the aqueduct and the Van Norman Reservoir at the end is approximately 7000 feet. At many of the reservoirs along its path, there are hydroelectric powerstations harnessing the excess energy of the water gushing through. Of particular interest is the pipeline that runs parallel to the Owens River Gorge. As water travels through the erosion-made ravine, 3000 feet above an 8.5 foot diameter pipe carries water diverted from Crowley lake and dumps it into three powerstations along the gorge, capitalizing on the elevational extremes of the valley.

# Electricity



Looking east onto the pipeline.



Owens River Gorge.



Splice-junction on pipe.



Between Long Valley—now occupied by Crowley Lake—and Bishop, the Owens River drops from the reservoir's dam into a 3000 foot canyon known as the Owens River Gorge. Some water, however, is diverted from Crowley Lake into a eight-and-a-half foot pipeline that runs down the western rim of the gorge. This water is then returned to the river via three power stations spaced along the gorge. Taking advantage of the long steep vertical drop of the ravine's walls, the power stations generate hydroelectric power which is sent in high power lines down the Owens Valley to Los Angeles for consumption. The third conduit running down the Sherman Grade is Highway 395, which carries the bulk of traffic out the north end of the valley to Lake Tahoe and Reno. While Owens River Gorge is totally hidden from the highway, the pipeline is in full view for most of the distance down the grade. The economics of this view are full of mixed messages. The pipeline is not a part of the Los Angeles Aqueduct, and the water it carries is not a commodity (as it is in the river flowing half a mile below), but the means by which its commodity—electricity—is produced. The water acts as a form of labor, silently borrowed from Los Angeles's drinking supply and invisibly returned through turbines situated deep in the gorge. Its ability to shift seamlessly between modes depending upon how it is ushered downward perfectly befits the agency which ushers it.

Owens River Gorge Power Complex



Pump mechanism.



LA Aqueduct buried pipeline.  
Pacific Crest Trail marker.



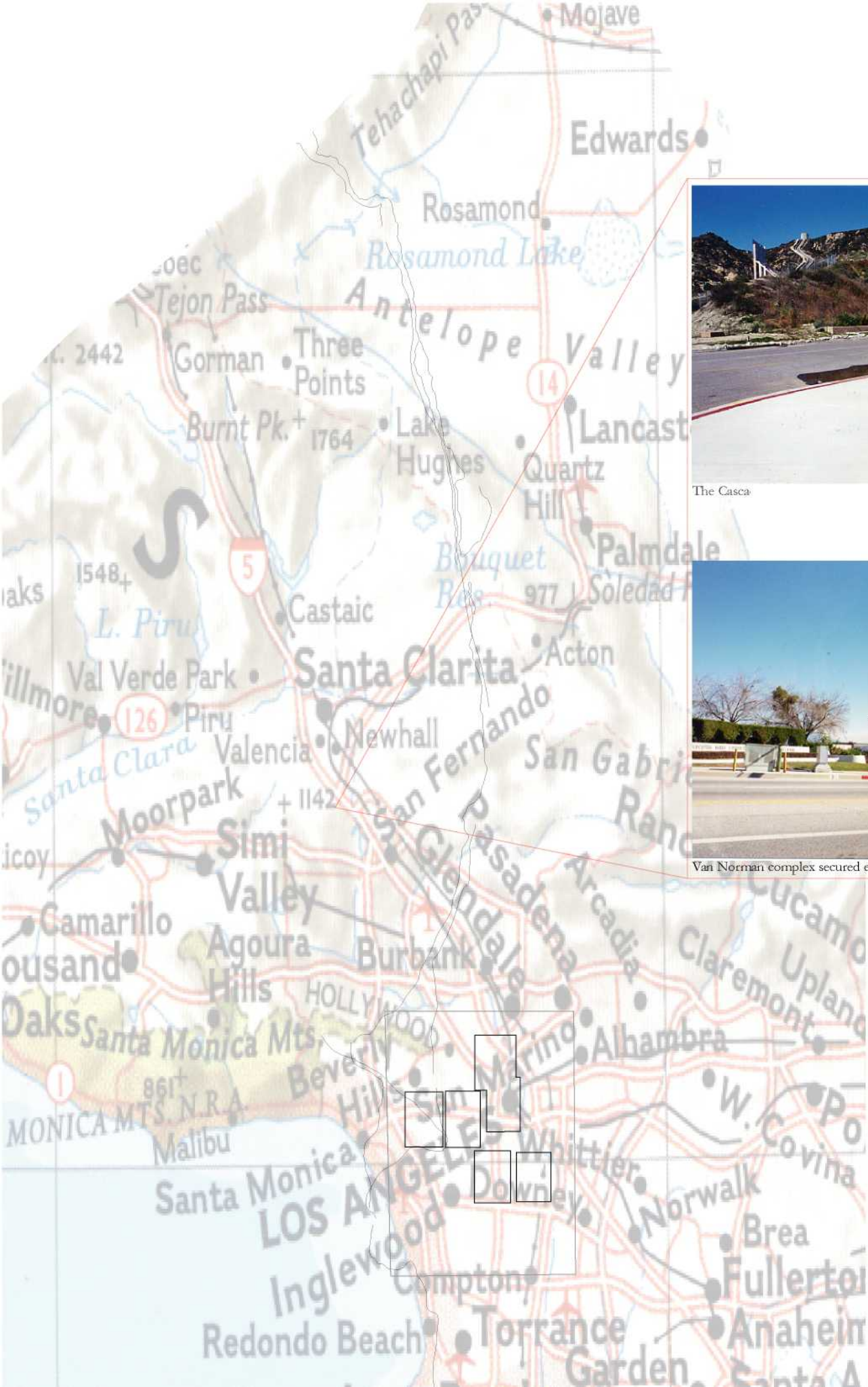
Pedestrians only.



Joshua trees.

*In the trailer town of Neenach—unmarked on even the most detailed maps—is the unique meeting of the Los Angeles and California Aqueducts. It was originally planned that the open concrete channel of the California Aqueduct, which draws its water from the San Joaquin River Delta near Sacramento, would cross over the subterranean LA Aqueduct pipeline ten miles to the south. However, in the last stages of design, the route of the California Aqueduct was changed such that it would have to be dug under the eight-and-a-half-foot diameter LA pipeline. The crossing coincides with the Pacific Crest Trail's path through the Antelope Valley, giving the buried conduit a direct inroad to nature, as the boy scouts have it. The LA Aqueduct passes low over the concrete channel and enters the ground on either side, the earthen mound that covers it extending as far as is visible across the valley. A pumping mechanism was built into the crossing so that should one of the aqueducts need to shed or gain water, it can easily make a transfer to or from the other. This is a rare event, however, because the two aqueducts are run by independent water agencies.*

# Los Angeles and California Aqueducts Crossing



The Casca



Terminal tower, Cascades into Van Norman Reservoir.



Van Norman complex secured entry gate.



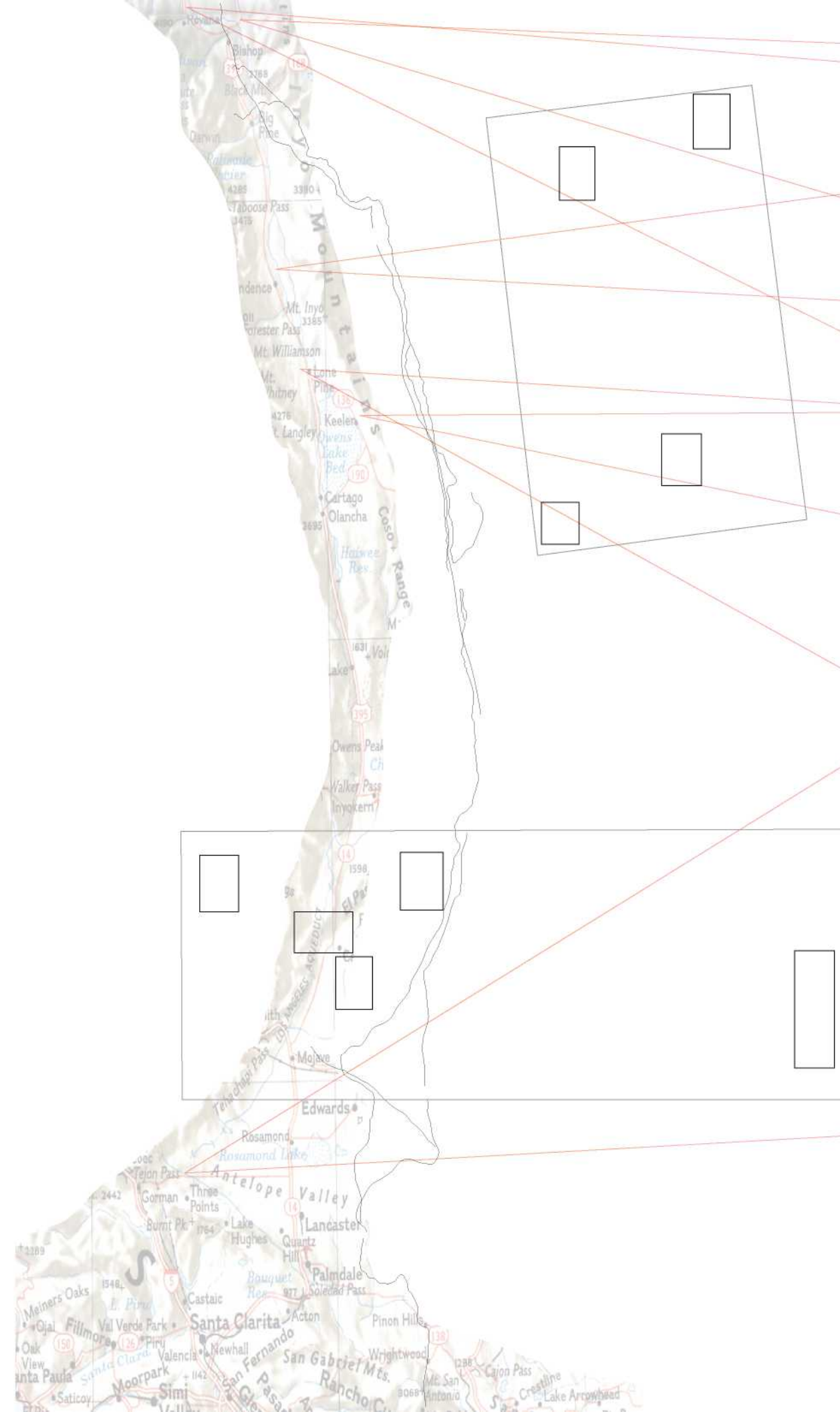
Van Norman complex, from LA County Tax Assessor's parking lot.



Van Norman Reservoir, with power lines.

*The Van Norman Reservoir, named after William Mulholland's successor at the Department of Water and Power, was built in 1929 after the St. Francis Dam catastrophe and Mulholland's subsequent resignation. It sits at the end of the Los Angeles Aqueduct, where the output of the terminal tower previously dumped directly into the San Fernando Valley. The reservoir has expanded into an extensive complex of reservoirs, ecology pools, power stations, and pipeline at the intersection of the I-5, I-210, and C-14 freeways known as "The Grapevine." The complex is also home to the Municipal Water District, an independent agency in control of the California and Colorado River aqueducts, from which Los Angeles buys about 30% of its water, depending on rainfall in the Sierra Nevada and Los Angeles basin aquifer levels.*

# Van Norman Reservoir Complex



Concrete casement, Sherman Grade.



Concrete bunker, Laws.



Boxes, Highway 395 rest stop.



Whitney Portal Road aqueduct crossing, Lone Pine.

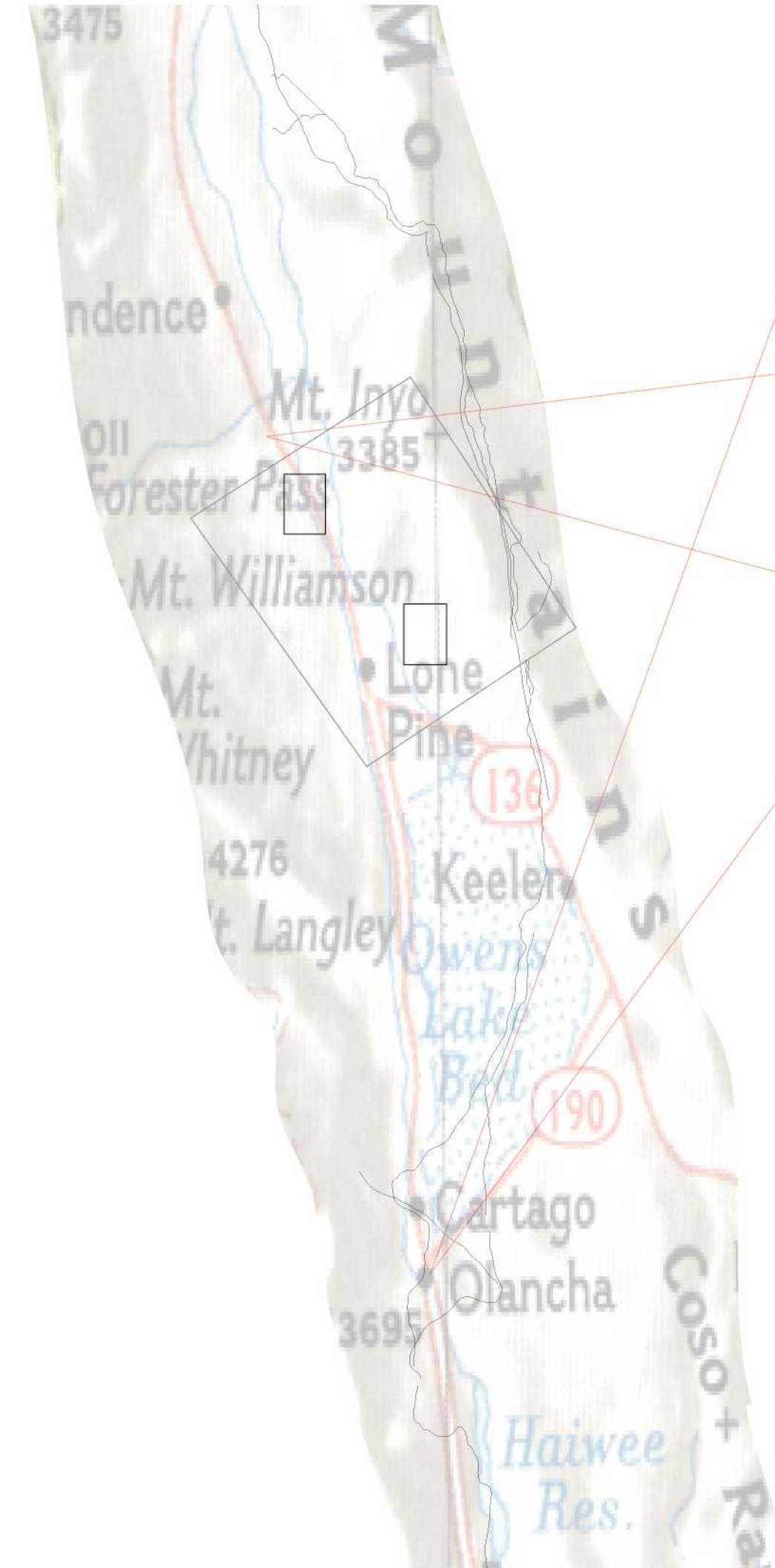


Concrete bunker, Cerro Gordo.



LA & California Aqueducts crossing, Neenach.

*Formal protections against attack or vandalism are surprisingly few for a conduit that supplies 70% of all drinking water to the nation's second largest metropolis, especially considering the number of attacks carried out against it during its early years. Along the length of the Los Angeles Aqueduct there are no guards and little other security. There is a chainlink fence, but only around the section that flows through concrete channel. This is presumably more for the protection of the general public than of the water – water in concrete channels, unimpeded by friction, flows smoothly and quickly, making it deceptively dangerous. Apparent vulnerability of the aqueduct aside, the Owens Valley appears to have emerged from a past where concrete fortifications were essential to daily life. Everywhere one goes there are abandoned bunkers of ambiguous function that nonetheless reinforce the notion that somehow the region is always under siege.*



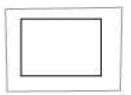
Texaco toilet, Olancha.



One of three remaining structures at Manzanar.

*Waste water materializes when least expected. In Olancha, patrons of the only gas station for 20 miles walk next door to an Art Deco “outhouse” to relieve themselves. The building, with its curious chimney, is not as primitive as it may sound: it is serviced with indoor plumbing and a prophylactic vending machine. At Manzanar, a portable bathroom is one of the three remaining structures at the site of the former Japanese internment camp. In the distance we see the old auditorium, now used as a storage facility for Los Angeles Department of Water and Power vehicles. In Los Angeles, where conservation is on the rise, grey water—non-sewage waste water—is now being used to hydrate freeway landscaping and other municipal flower beds. By 2010, the city will be recycling a full forty percent of its waste water for non-drinking use. Programs are also underway to make this grey water potable for the general public.*



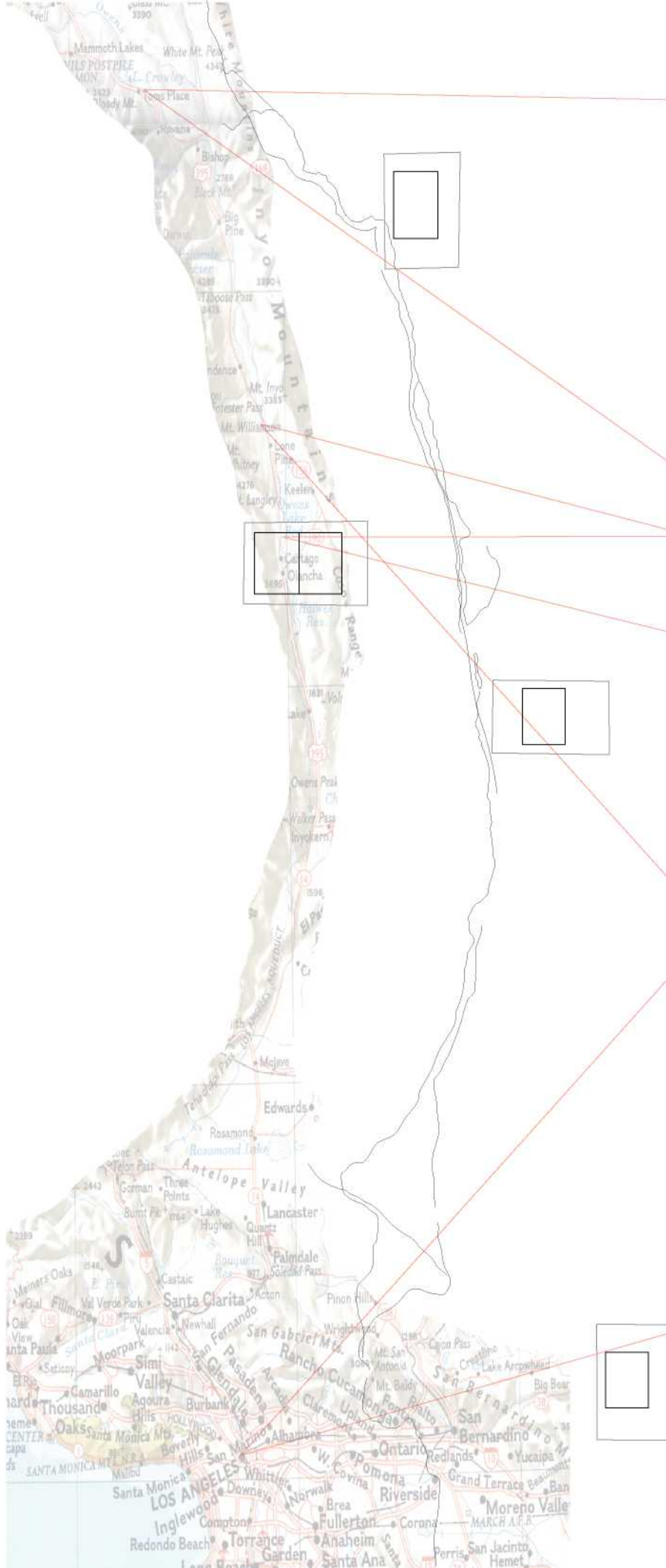


Hydrant and spigot, Larchmont Boulevard, Los Angeles.



Emergency water storage, Laws.

*Considering the extent of desiccation occurring in the landscape of the Los Angeles Aqueduct, fire risk becomes an immediate concern. Every year, the City of Los Angeles experiences some of the worst fires in the world, due to having been built so densely in an extremely hot, dry, and fire-prone area. Furthermore, the city's fire inspector has no way of keeping up with the rate of development, and so slums and other buildings in some of the most densely populated areas of the cities are allowed to continue with their egregious records of fire code violation. Fire hydrants, leased from the Department of Water and Power, are spotted every few hundred feet; and standpipes, required for buildings over a certain size, can be found nestled in among the landscaping. In the Owens Valley, with its sparse population, such precautions don't show themselves as readily. However, in the abandoned railroad town of Laws, now an historic monument, the only water at all is secured in a fire department water tower. The nineteenth century town is constructed of highly flammable sun-parched timber, and were a single spark to fly, the entire ghost village would be torched to the ground.*



Wash under Highway 395, Tom's Place.

The entire Los Angeles Aqueduct was built to deal with a specific lack of water in the Los Angeles region. Its construction caused the desiccation of the Owens Valley. Yet despite all of this dryness, there is still an immense amount of flood control equipment along the aqueduct. In any inhabited desert area, floodplains must be kept track of to ensure the safety of inhabitants and visitors alike. All along Highway 395 the road bridges dry ditches, evidence of past and future flash floods originating sometimes high up in the mountains. Los Angeles, too, is subject to violent floods which make national headlines every year. All over Griffiths Park, among lawns and tennis courts and golf ranges, concrete drainage ditches ensure that the park stays on the mountain. The Los Angeles River, final drainage point for the aqueduct and multiple other water systems, is a vast concrete channel which, for most of the year, carries only a trickle of water. But it is also the waterway with the most flood-control equipment in the world, attesting to the extreme amounts of water streaming into the LA basin during the rare rainstorm. The open concrete channel section of the aqueduct includes several mission-style flood gates. In the rare event that the water level gets too high, water may be released back into the valley from which it was diverted. One of the turnout structures, the Alabama Gates, was taken over in the early years of the aqueduct by irate Owens Valley farmers, who opened the gates and let water pour out onto their dry fields. Townspeople from across the valley came out to witness the showdown between the hijackers and Department of Water and Power officials. The fiasco soon turned into a huge five day picnic, with over seventy families attending. The DWP officials could do nothing, but before the national guard could be called out by the governor, the locals lost interest and went back to their daily activities. The gates have been subject to three bombings between the 1920s and 1970s.



Alabama Gates, in the Alabama Hills.



Flood wash, north of Cartago.



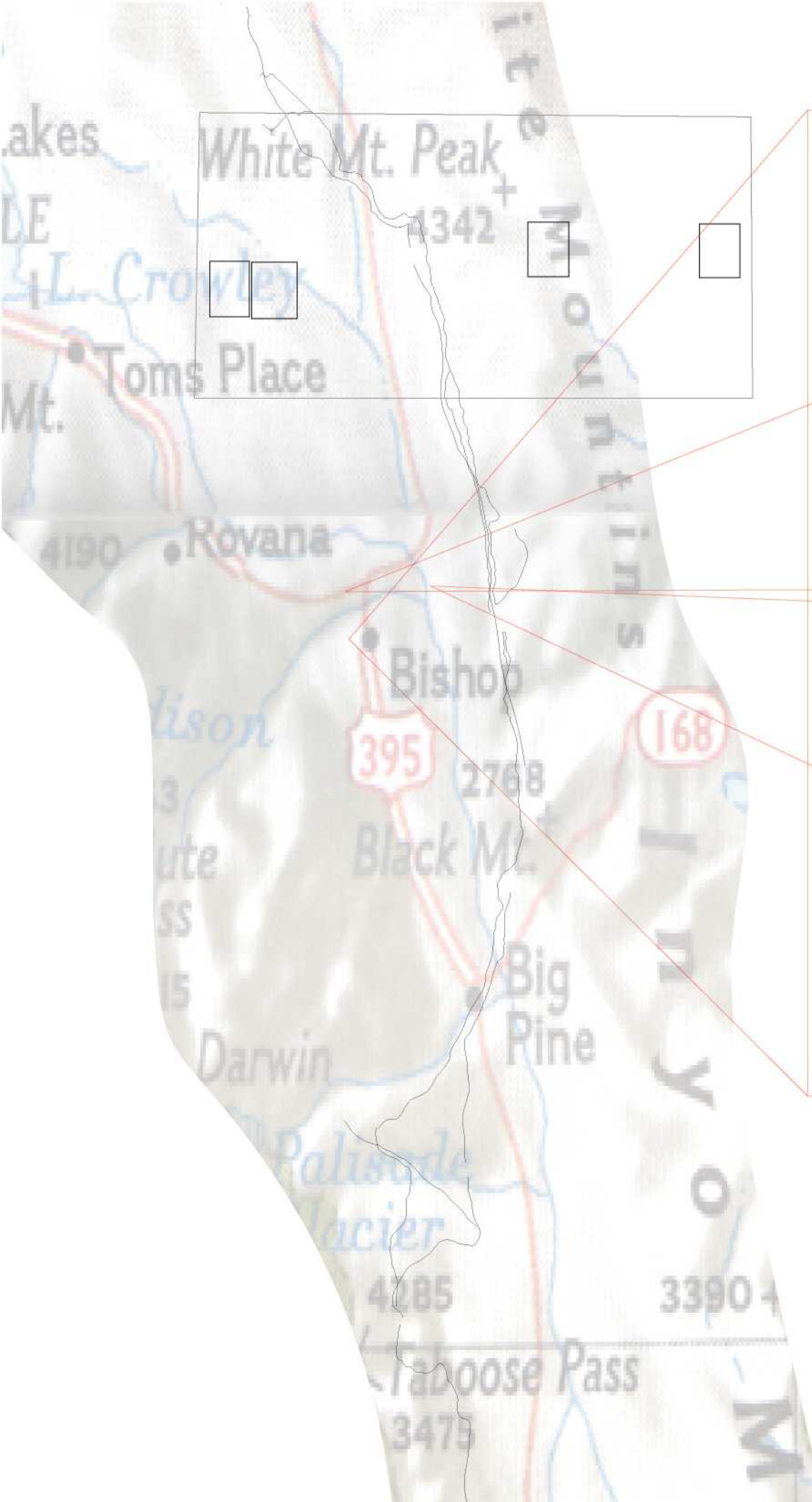
Drainage ditch, Griffith's Park.



Los Angeles River, from 1st Street Bridge.



# Flood Emergency



Hide rack, Paiute Shoshone Indian Cultural Center, Bishop.



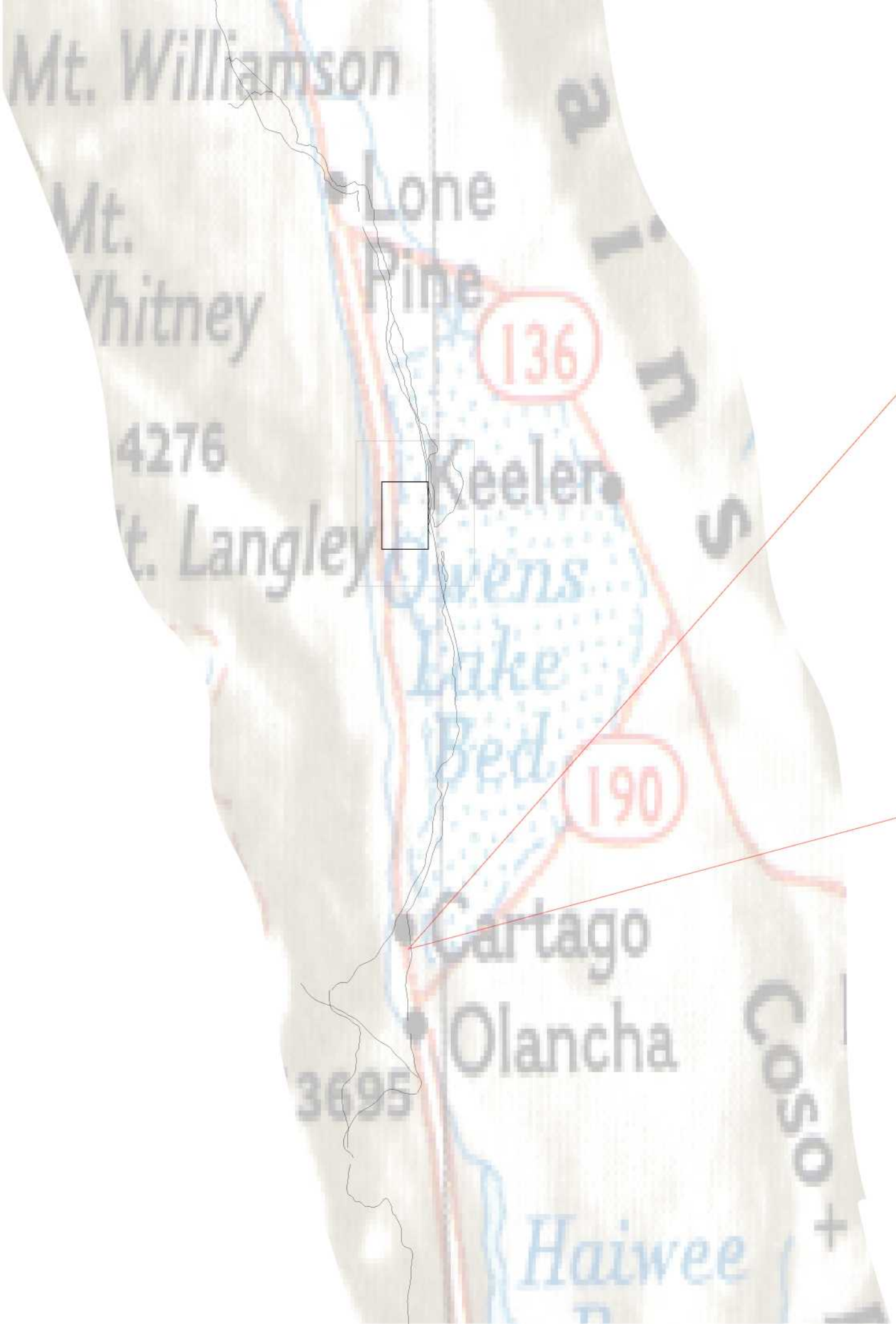
Paiute Palace casino and gas station, Bishop.



Ancient flood-irrigation ditch.

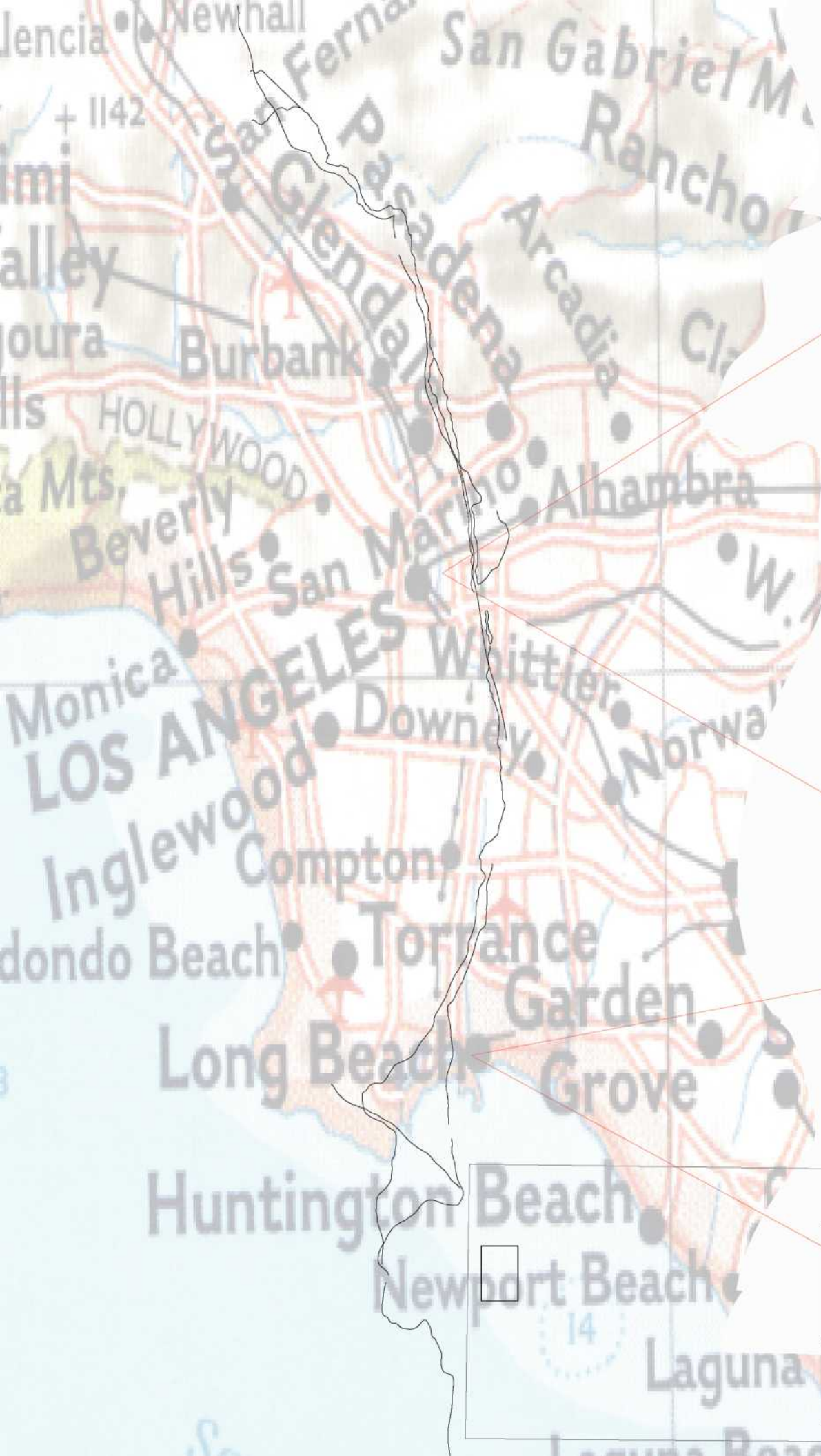
8,000 years before any white man stepped into the Owens Valley, various Paiute tribes were already thriving here. The Owens Valley Paiute, or Numa, as the tribes came to be named, subsisted on hunting, gathering, and performed a fair amount of agriculture. The Numa lost control of the Owens Valley in 1864 when the US military slaughtered a large number of their men on a falsified claim of cattle rustling and claimed the land as their own. The tribes are now restricted to small indian reservations in each of the major towns of the region, despite the vast amount of land the City of Los Angeles has set aside for public use. The Bishop Paiute are the most active of the tribes. Aside from the standard Tribal Council, they run a cultural center and museum, and a casino on Highway 395 northwest of Bishop. What artifacts of their past way of life are entombed in the museum displays at the cultural centers. Looking hard enough, there are visible signs of their comparatively light tread on the land, such as the few remaining flood-irrigation ditches and the petroglyphs left in the foothills of the mountains encircling the valley. During the 1970's, Los Angeles offered the tribes better land and water rights if they consolidated totally onto reservations. The valley tribe located at Camp Independence, a reservation in the Inyo County seat, was offered a few hundred more acres of choice agricultural land at no cost and without having to move at all. The tribe refused, and has since refused the authority of Los Angeles to give or take land from a people who lived in the Owens Valley long before it became part of the Los Angeles watershed.

Paiute Shoshone Indian Reservations



*Crystal Geyser, the largest bottled water manufacturer in California, has their bottling plant right next to Owens Lake, between Cartago and Olancho. While construction crews from CH2M Hill Corporation roll around the dry lake bed, trying to install sprinklers to ameliorate one of the largest dust problems in the world, Crystal Geyser, under the cover of this innocuous blue shed and several others like it, quietly pumps water from the valley's dwindling aquifer to be bottled up and shipped off to Los Angeles in trucks that travel down Highway 395, roughly paralleling the Los Angeles Aqueduct.*

**Crystal Geyser Bottling Plant**



LA River from 1st Street, downtown. During dry times, the river doesn't even fill the central subchannel, seen below.



*The Los Angeles River drains excess water from the Van Norman Reservoir at the end of the Los Angeles Aqueduct and 20-odd other storage reservoirs serving Los Angeles. It flows from the western San Fernando Valley south through downtown and into San Pedro Harbor via Long Beach. In normal weather, the river's concrete double channel carries a relative trickle considering its vast expanse. The river's course is so flat through the LA basin that for the last several miles it floods backwards with seawater entering through its mouth. The river serves a second function as a flood wash for the entire Los Angeles and San Fernando Valley basins. During heavy rainfall, the voluminous channel fills and often overflows. The river is exceptionally dangerous during these times, and employs more flood-control equipment than any other river in the world. Every year, dozens of people drown in the swift, violent current of the seemingly harmless river, at whose size most visitors scoff on first view.*



LA River from Ocean Boulevard, Long Beach. The drag line prevents victims from being swept out to sea.

# Los Angeles River



LADWP Propaganda.



Equipment shed, lake.



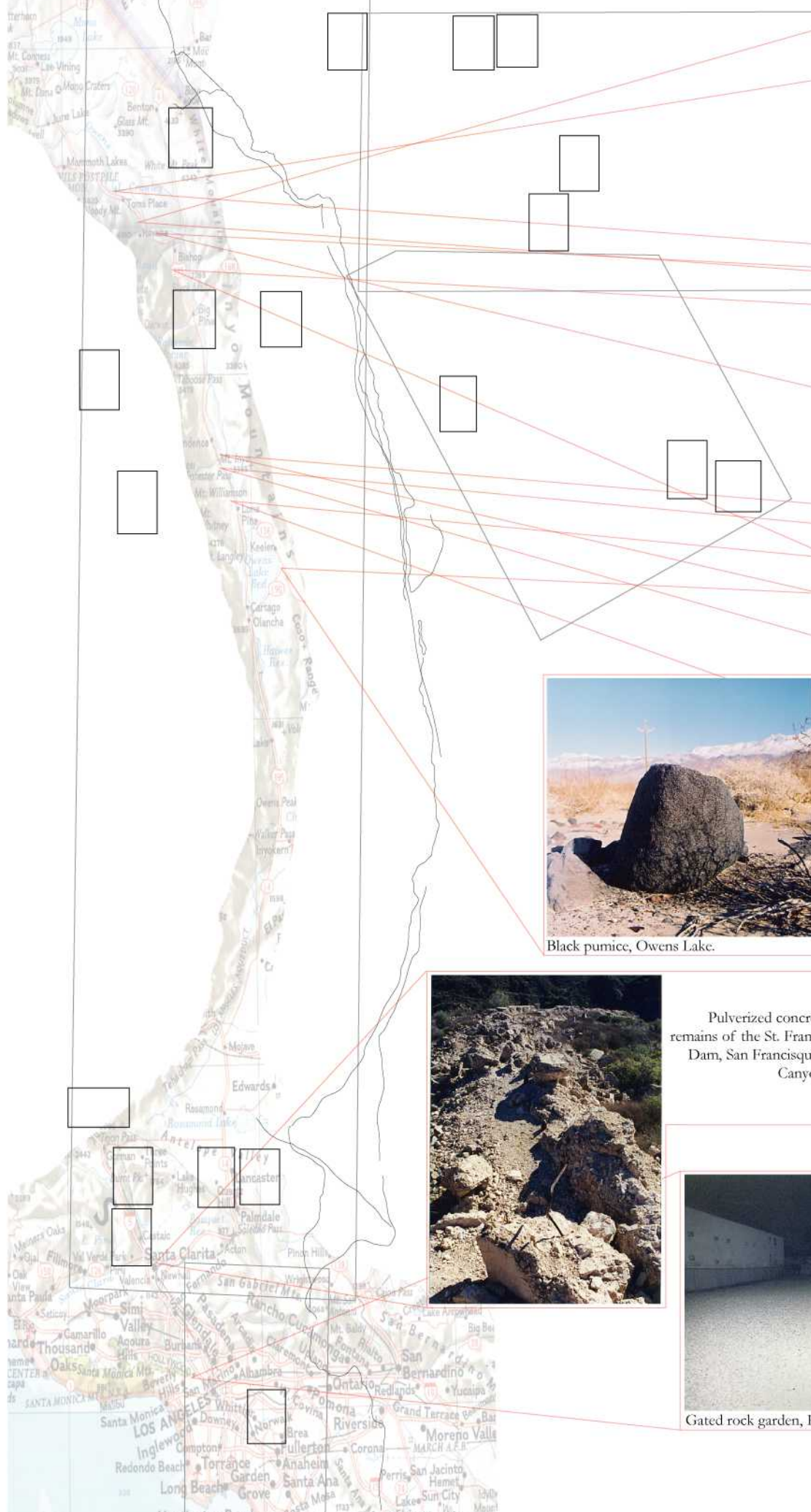
Buoy.



Long Valley Dam, at the southern tip of the reservoir.



Crowley Lake, a.k.a. Long Valley Reservoir, was the aqueduct's second holding reservoir (the first being the Haiwee Reservoir south of Olancho). It was built by 1941 after a drawn out battle between Mulholland's Department of Water and Power and the Fred Eaton family. Once friends and cohorts in the creation of both the DWP and the Los Angeles Aqueduct, Mulholland and Eaton became professional enemies over the piece of land this reservoir now occupies. Before the aqueduct could be built, Mulholland and Eaton had to go about buying up land and water rights in the valley. Eaton, a multi-millionaire at the time, purchased the Long Valley Ranch in 1905 from cattle man Thomas Rickey. However, instead of selling it to Los Angeles for the previously agreed price, Eaton took a liking to the Owens Valley, and simultaneously realised that the land would greatly appreciate in value as Los Angeles' water needs grew. The aqueduct was completed in 1913 without the benefit of this reservoir, as the City of Los Angeles refused to pay Eaton's \$1 million asking price. After two decades of negotiation, Fred Eaton suffered a series of strokes and financial devastation at the hands of his ranch managers, and his family was forced to give up the land. Mulholland designed the 150 foot dam, which was built after he stepped down from the head of the Department of Water and Power. Named after Owens Valley activist priest Father Crowley after he orchestrated a truce between the valley and the city, the reservoir guarantees Los Angeles a steady supply of water even in a five-year drought. Today, the reservoir also serves a recreational purpose, being a focal point for the state's freshwater anglers.



Owens Valley historical marker.



Geology near Crowley Lake.



Smoker, Keough's Hot Springs.



Rock Garden, Keough's Hot Springs.



Bishop Tuff.



Slab at bottom of Pleasant Valley dam.



Black pumice, Owens Lake.



Filled mine shaft, Cerro Gordo.



Remains of *Gunga Din* set, Alabama Hills.



Redecorated obelisk, Manzanar.



Charley's Butte historical marker.

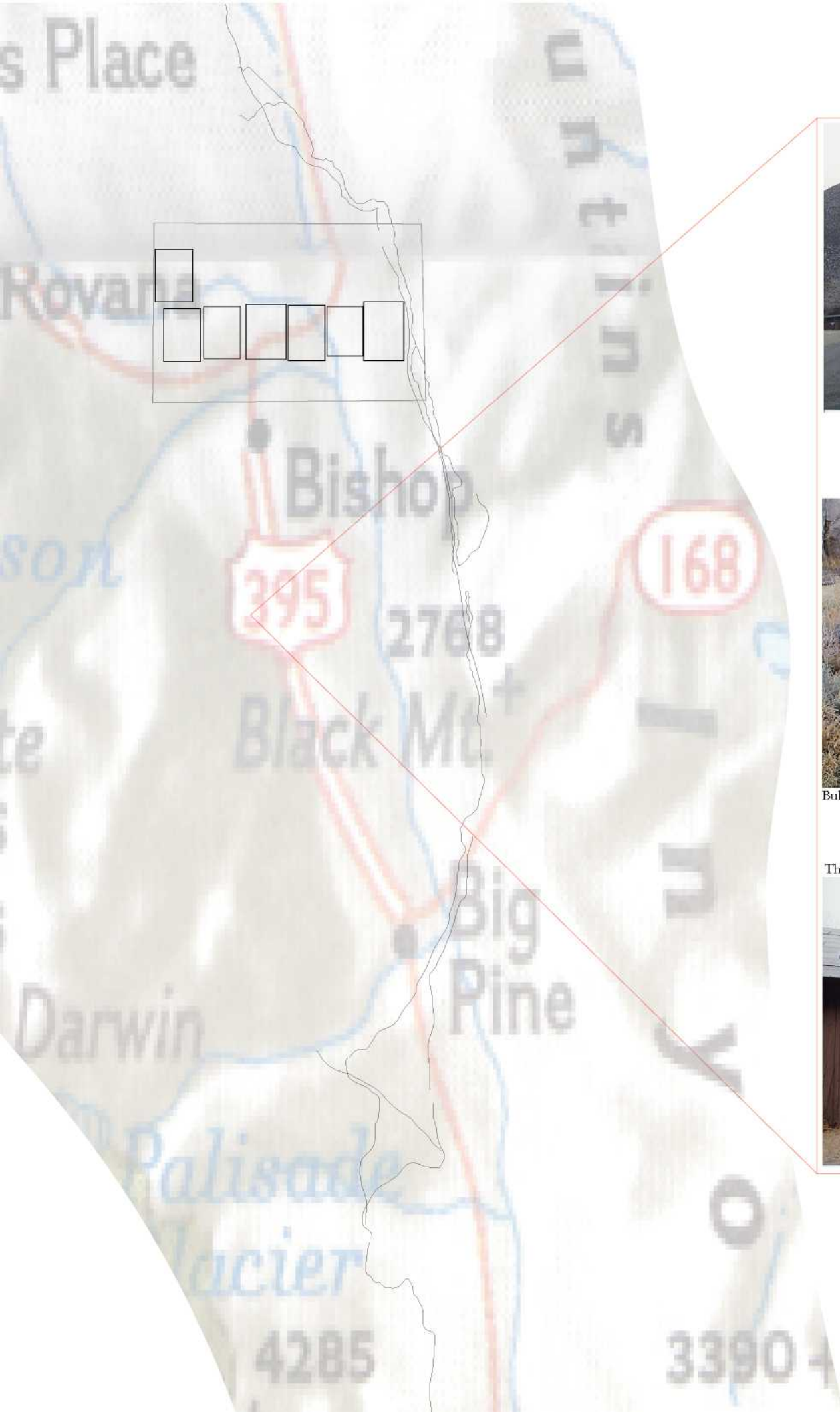


Pulverized concrete remains of the St. Francis Dam, San Francisquito Canyon.



Gated rock garden, Hollywood.

The geology—in the broadest sense of the word—surrounding the Los Angeles Aqueduct illustrates both the foundations and the recent history of the infrastructural element. A variety of prehistoric activities formed the basic landscape elements throughout the Owens Valley. The Inyo and White Mountains to the East were formed between 600 and 250 million years ago by rock deposits left when the area was still under the ocean. Within the last 200 million years, granite lifted up below the earth's surface, forming the bedrock of the valley floor, and lifting to form the Alabama Hills. Only within the last 700,000 years did the granite begin to fault significantly to form the Sierras. Until very recently, there has always been quite a bit of volcanic activity in the region. There are lava flows up and down the valley, leaving a sort of dark pumice in the south; basalt, and Bishop Tuff further north. The northern end of the valley was formed by a huge volcanic eruption in the Mono Basin 65,000 years ago, which created the Mono caldera and spread ash as far east as Nebraska. Other sorts of deposition have occurred more recently. The formerly rich soil of the valley was deposited by runoff during the last 10,000 years. Even in the last 100 years, significant events have unfolded. North of Bishop, a mysterious concrete slab, perhaps the work of some unknown artist from the late 1960's, was poured and has subsequently cracked and begun to fall into the adjacent Owens River. In the Alabama Hills, among some of the oldest mountains on earth, there is a touch of Hollywood: concrete anchors for a bridge used in a *Gunga Din* set are found poured into the natural granite formations. It comes as little surprise that this jagged and barren terrain has been named 'Movie Flat.' Dozens of movies, mostly westerns, have been filmed here over the years. Up and down Highway 395, one occasionally finds a sizable specimen of non-native white granite with a brass plaque commemorating one or another historic locale, artificially placed by the mysterious "Clampers" historical society. Mining of the valley's minerals has always been a lucrative pursuit, but only for those with patience and money to burn. North of Bishop there still exists the tungsten mine company town Kovana, while east of Owens Lake (where very visibly active geologic movement is taking place) one may visit the abandoned Cerro Gordo gold mine. Forty miles north of LA is the former site of the St. Francis Dam, where one can find the pulverized remains of a human experiment in earth-shaping gone horribly wrong. Mixed in with the natural terrain are softball-sized chunks of concrete left over from when the dam burst in 1928. An "eastern wind" has recently blown over the aqueduct, it seems, with rock gardens springing up all over. Ever fad-conscious LA has its share of the artistic phenomena, but like most things there, they are gated and left untouched by the general public. Keough's Hot Springs has brought a new interpretation of rock gardens to the aqueduct region by constructing a promenade among natural rock-fall and antique construction equipment. And finally (but by no means conclusively), Manzanar, the World War II Japanese internment camp has its own sort of geologic activity—the white obelisk placed there as memorial has collected deposits of shiny stones and other materials all along its columnar edifice.



A steaming spring.

The Rock Garden Trail.



Bulldozer used in the construction of the LA Aqueduct.



An oven turned planter.



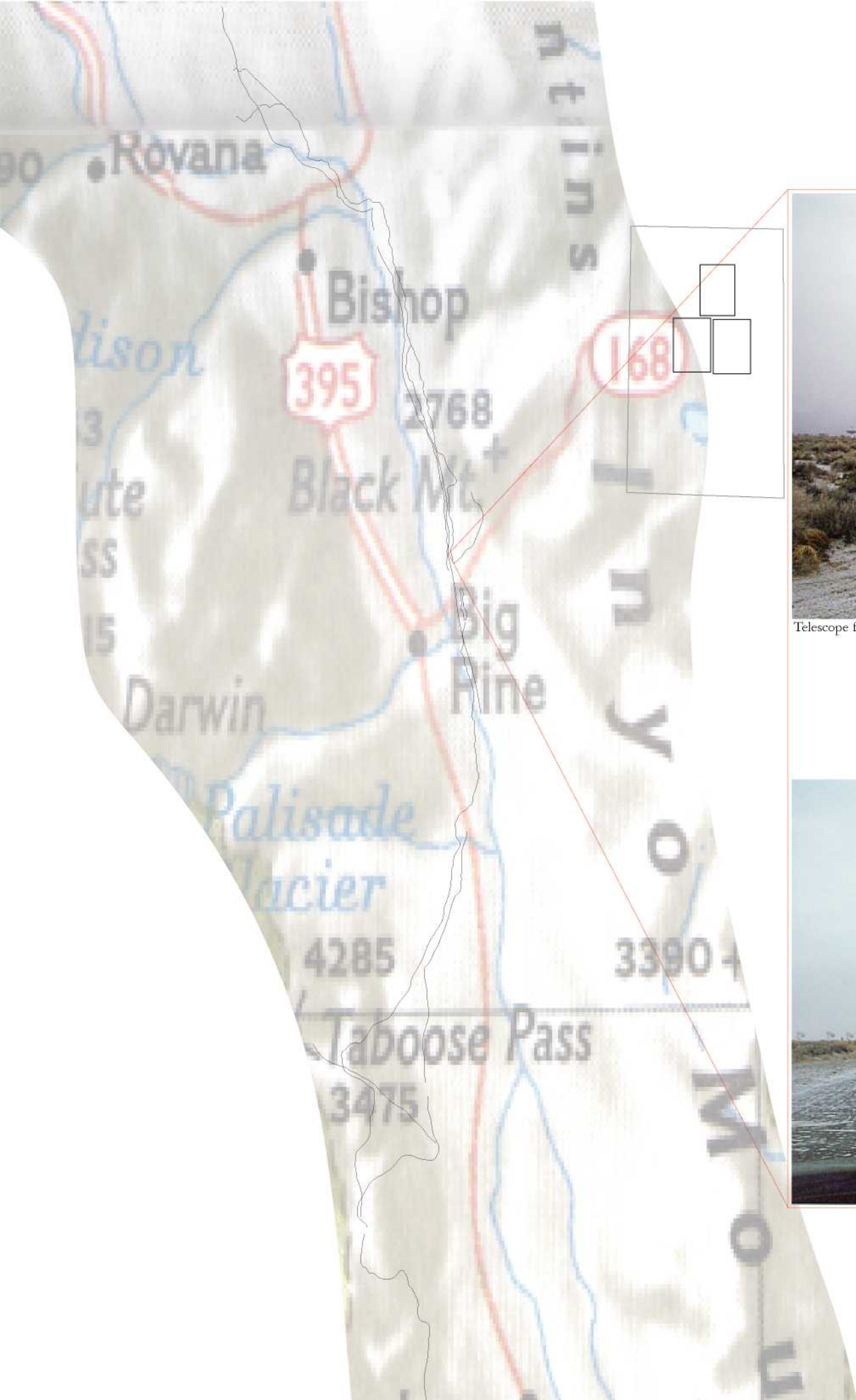
Gravestone.



The pool building.

*In the 1920's, Keough's Hot Springs was both an upscale health resort catering to Los Angeles elite and "the chief social institution" in the Owens Valley. Today, it is an indoor, naturally heated swimming pool housed in a wood cabin which serves valley residents and visiting sportsmen. The trailer park which has sprouted up—if not blossomed—around the springs is also home to a number of other attractions, including antique construction equipment, a pet cemetery, and the Rock Garden Trail, a well-manicured ramble among the geological debris left by a landslide. The hot springs ownership is now engaged in an extensive renovation project in an attempt to restore the resort to its former glory.*





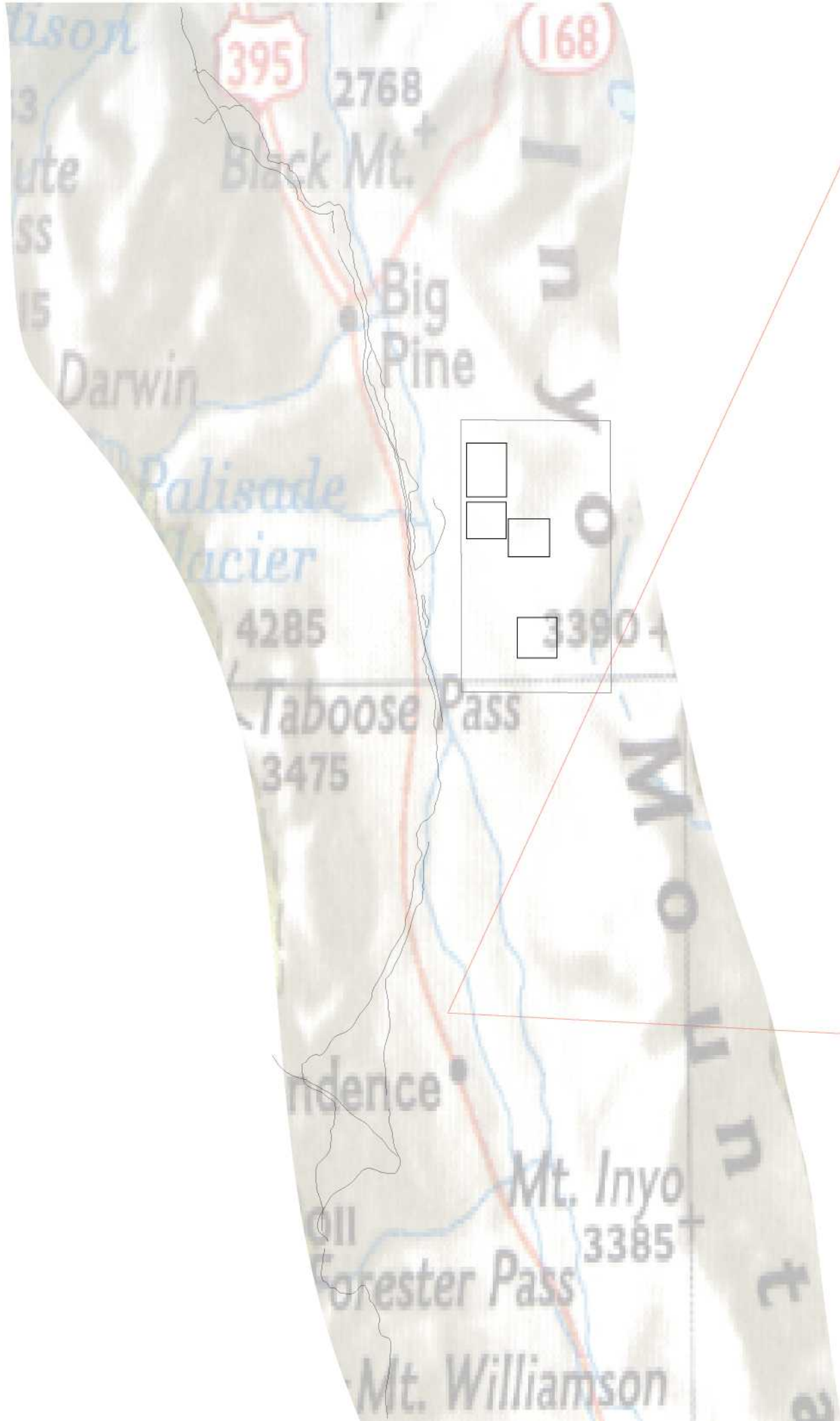
Telescope farm.



40-meter microwave dish.



*With such limited development and mountains on all sides screening most artificial light from Los Angeles, Fresno, and Bakersfield, the night time darkness of the Owens Valley makes it the perfect site for astronomical observatories. The Owens Valley Radio Observatory, run by the California Institute of Technology (based in Pasadena), is the largest college-run radiotelescope array in the world, located six miles outside of Big Pine. The telescopes range in size from 10.4 meter diameter high definition imaging telescopes, to a forty meter diameter dish designed to monitor the microwave noise in space to map the afterglow of the Big Bang. That such an incredibly futuristic device was built to scientifically monitor the furthest prehistorical event is only paradigmatic of technology use around the Los Angeles Aqueduct.*



Concrete block.

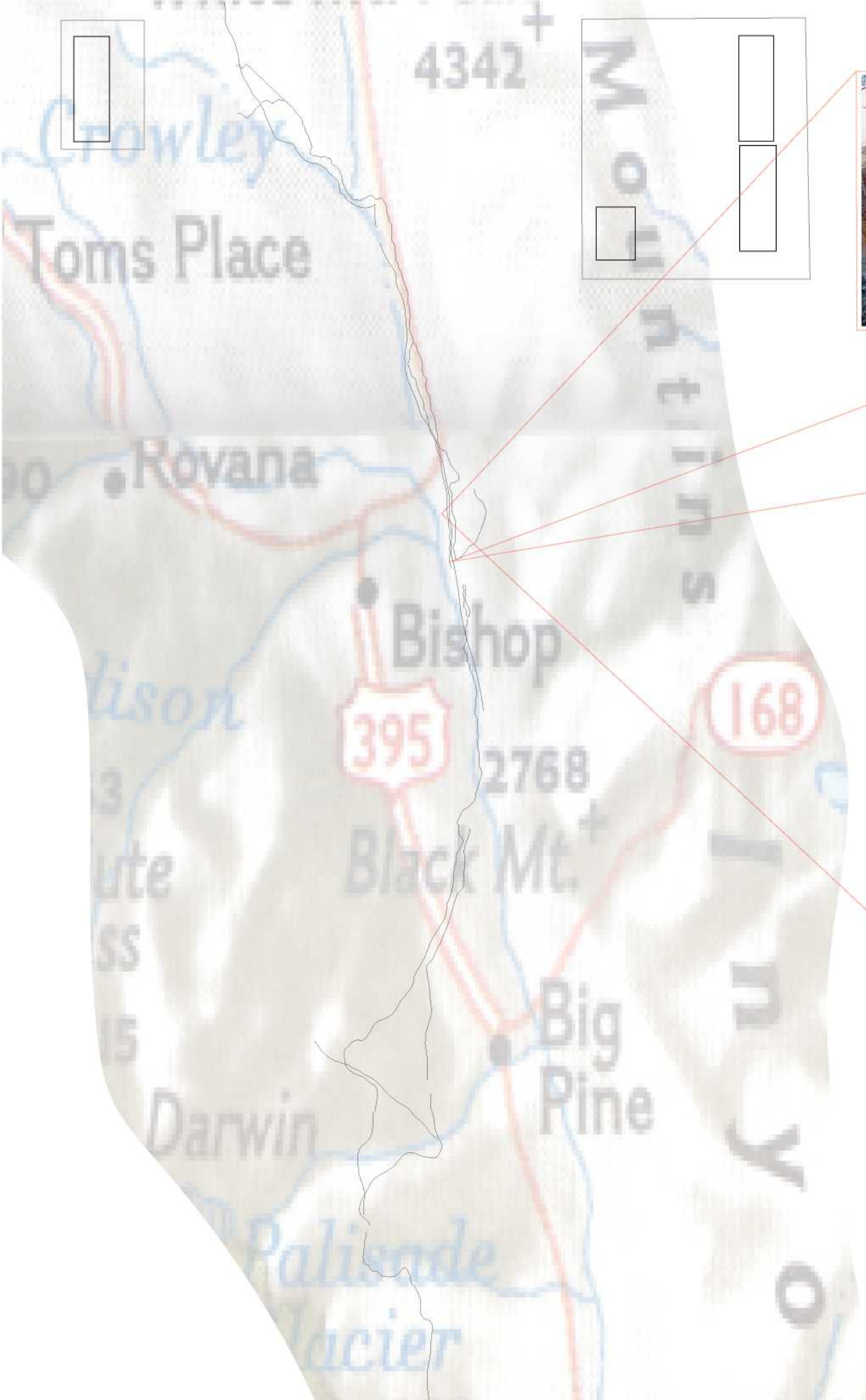


One of several RV water refill spigots lining the barren park.



Dumpsters.

Highway 395 has one rest stop on its entire path through the Owens Valley. The rest stop is fairly typical for a rural highway in the western United States: lots of parking, an excess of dumpsters, a small hut with bathrooms and maps printed large across the front, plaques informing strangers of the significance of their setting. The informational plaques at this particular site appear to have been placed by the Los Angeles Department of Water and Power to explain why there's nothing around for miles: "Water for Los Angeles; Land of Open Space." Nothing's been stolen – it was a fair trade. Los Angeles gets the valley's water, and the Owens Valley is opened up for recreationists...mostly from Southern California. The exchange is strangely reminiscent of the beads used to buy the island of Manhattan from the natives in colonial times, with rhetoric property in place of worthless glass.



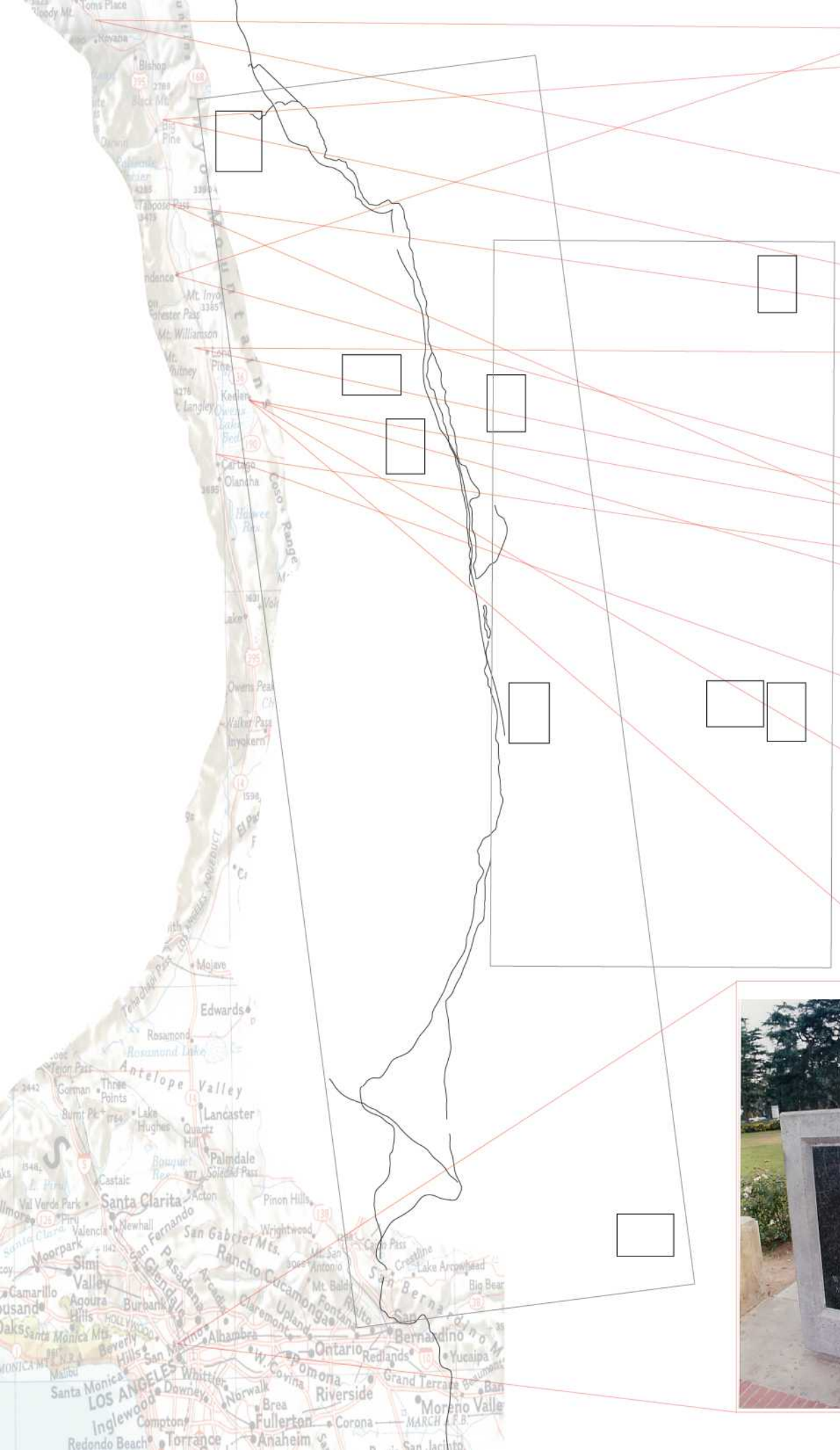
Paute Shoshone Indian irrigation ditches.



Nineteenth century irrigation ditches dug by pioneers. Roads have been built over the ditches since the aqueduct was built -- a pipeline was left clear underneath so that the canals now act as flood washes.



*On the flat eastern outskirts of the Owens Valley one comes across abandoned irrigation ditches from the region's nineteenth century agricultural activities which were cut short when the Los Angeles Aqueduct was built. The City of Los Angeles acquired all the water rights for the land abutting the Owens River, and so by law no water could be diverted for local use. Over the ensuing decades Los Angeles bought up parcel after parcel of land from area farmers who, without irrigation, found their use for the land increasingly limited. The last agricultural activity in the valley ended in the 1950's, when, with the diminishing aquifer, even small herds of cattle were found to be unsustainable. Los Angeles has since allowed the valley a little more of its own water, but still owns 85% of the land, which it leaves open for recreational activities. One can also find pre-colonial irrigation ditches, from the time when the Paute tribes that flourished in the valley performed limited irrigation to supplement their hunter-gatherer diets.*



Mary Austin's house.



Zurch Station.



Owens Valley.



Charley's Butte.



Movie Flat.



Keeler, "END OF THE LINE."



Cerro Gordo gold mine.

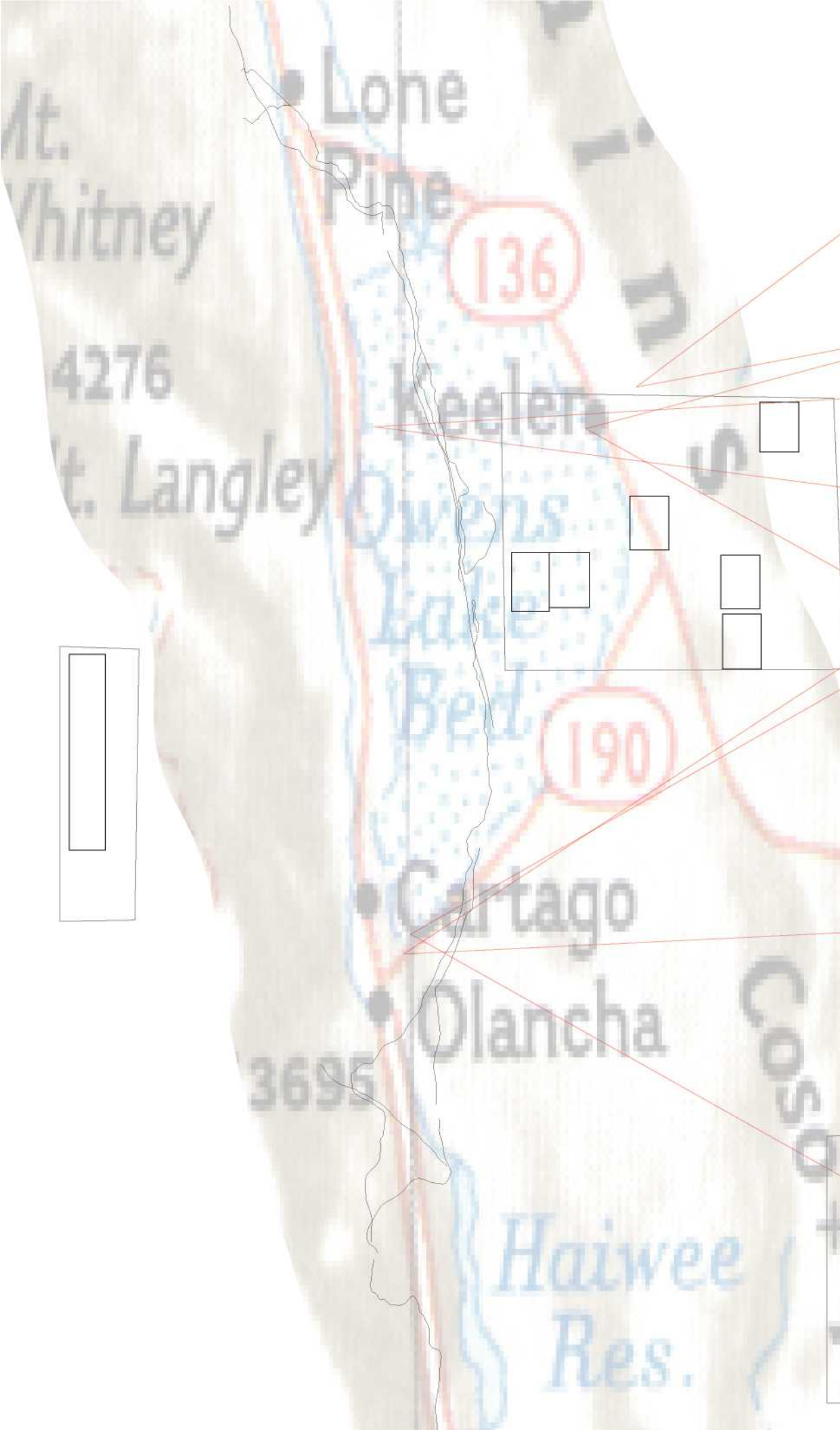


Charcoal Kilns.



William Mulholland memorial.

History is a major geological artifact along the Los Angeles Aqueduct. Bronze plaques set in stone let the traveler know that history is here, and it's not going to budge (though erosion is a distinct actuality). The state historical society has identified a few locations worthy of markers in the Owens Valley, but not enough to satisfy residents. The local 'Slim Princess' chapter of the enigmatic Clamper's Lodge has been generous in its commemorations of events and places in the valley. Charley's Butte is a site that holds double significance: a black cowboy died saving his liege from an attack by bandits in the nineteenth century, and it is also the first plot of land that Los Angeles bought in the valley in 1904. Movie Flat in the desolate Alabama Hills is the site where numerous Hollywood westerns were filmed during the last century, providing endless entertainment for millions in Los Angeles and abroad. Of particular significance are the Charcoal Kilns near Cartago on Owens Dry Lake. The nineteenth century firehouses have partially collapsed, providing a section view of their organic construction. A barbed wire fence surrounds the kilns, and the state-sponsored historical marker remains blank, leaving a silent memorial to what may look like another space colony to the unwitting observer.



Owens Lake from Cerro Gordo mine access road.



Soda, grass.



Earth-moving machines at work on the lake.



Trench being dug for dust-abatement sprinklers.



Dirty Socks Hot Springs.



The beach on the southeastern shore.

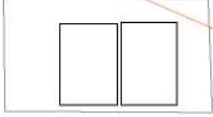
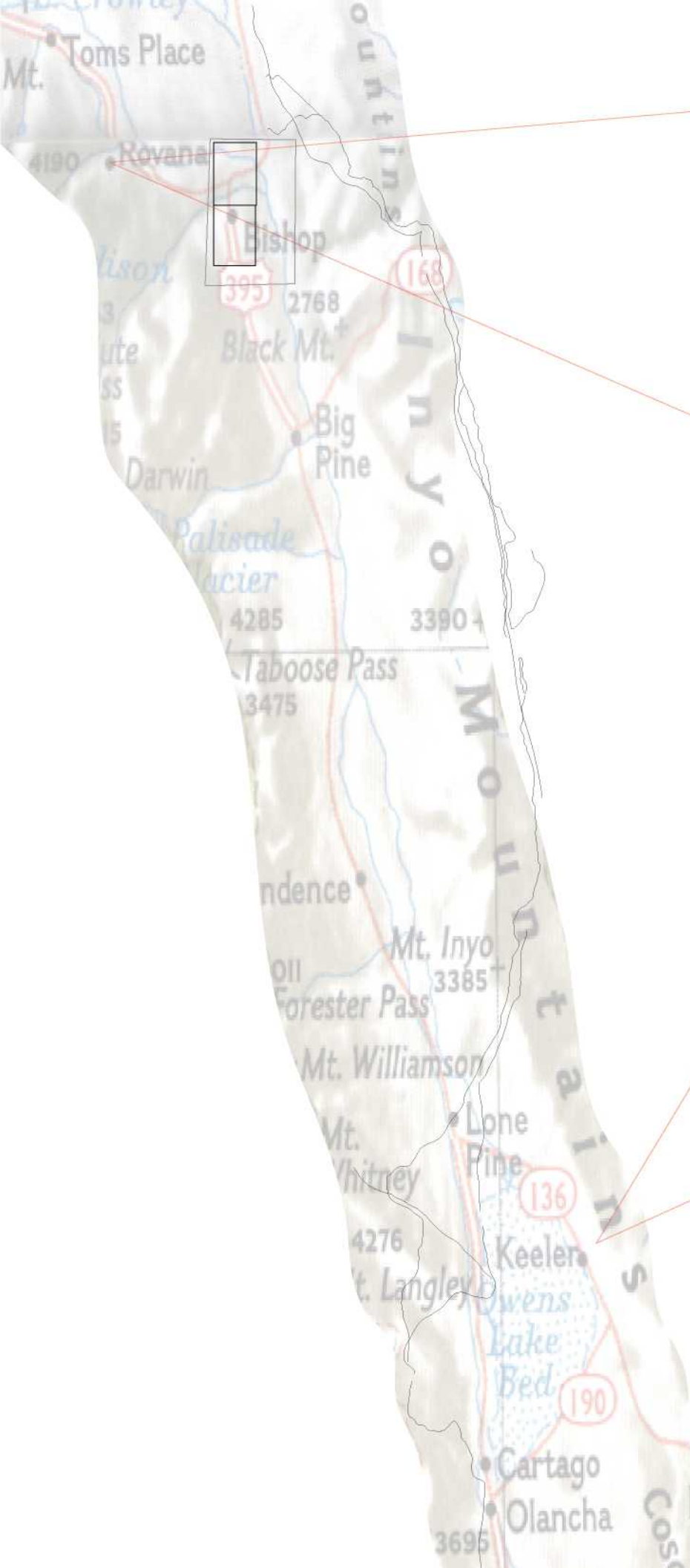


Dust abatement colony.



Owens Lakebed from Dirty Socks.

*In prehistoric times, Owens Lake was so deep that it spilled out over the ridge at the south end of Rose Valley where Little Lake now sits, and drained into the Mojave desert. When white settlers arrived in the Owens Valley in the mid-nineteenth century, the saline water that filled the Lake covered an area of approximately 100 square miles. In those days, a steam ferry would run from Keeler to Cartago, delivering gold bullion from the Cerro Gordo and other mines to a narrow-gauge railroad that would take it to Nevada and then San Francisco. After the construction of the Los Angeles Aqueduct and subsequent diversion of the Owens River, the shallow lake dried up in a matter of years, leaving behind a soda mixture of salt and alkali dust. Due to the extreme chemical nature of the residue, nothing would grow on the barren expanse, and so the dust began to blow up in the high winds whipping through the area. Recently, the Los Angeles Department of Water and Power has contracted shallow flooding on the dry lake bed to try and resolve the dust problem. Today, several chemical companies house operations on the shores and even the lakebed, harvesting the mineral-rich soda for refinement and industrial use. The Pittsburgh Glass company has found the soda to be the ideal ingredient for making glass in their manufacturing silo on the lake. The Crystal Geyser bottled water company pumps the aquifer under the the lake to bottle and ship to Los Angeles for retail sale.*



Vanadium Road.



Rovana Village.

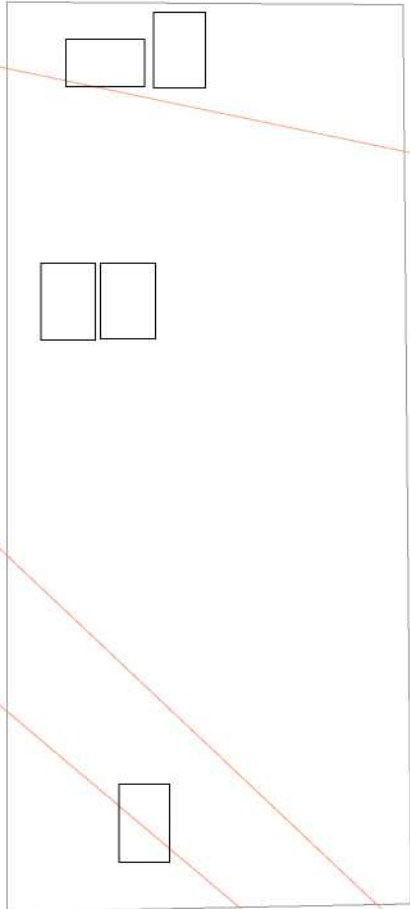
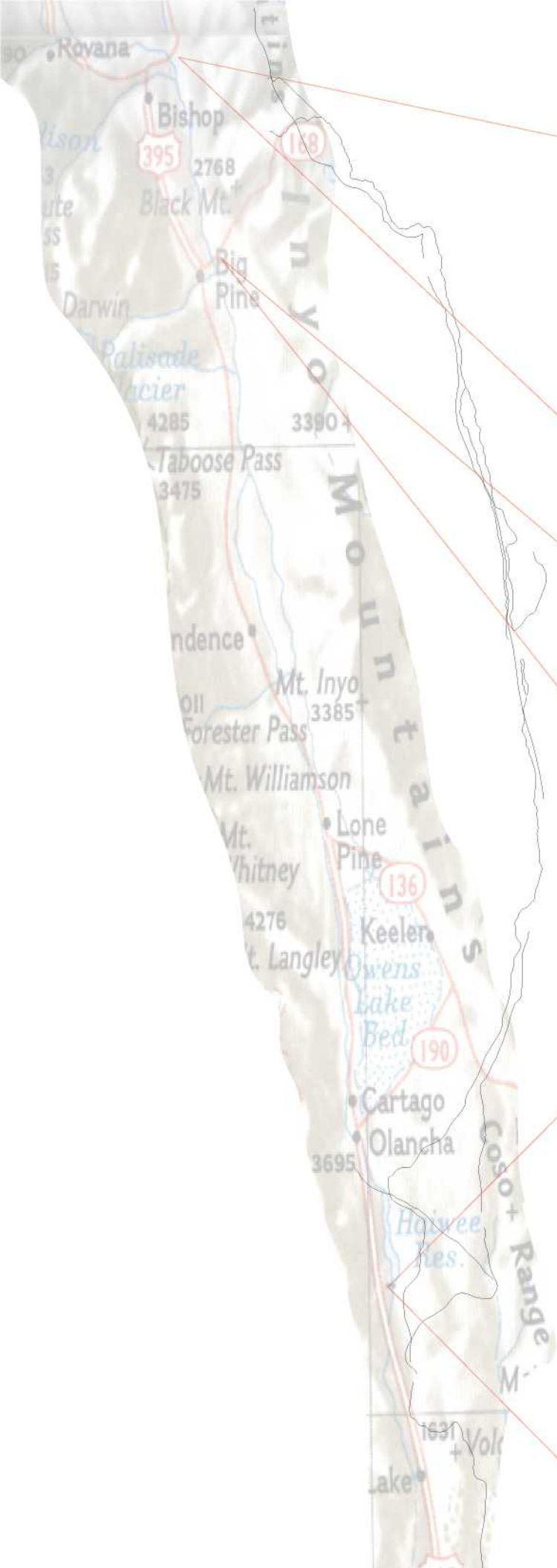


Bunker at Cerro Gordo access road.



Filled mine shaft.

*Rich mineral mines in the mountains rising on either side of the Owens Valley provided the economic base for the early days of white colonization in the area. Gold was mined from both the Sierras near Mammoth Mountain and the Inyo Mountains east of Owens Lake. The Cerro Gordo mine was so plentiful that it financed the inhabitation of several nearby towns, including Olancha, Keeler, Lone Pine, and Independence. While the mine was still fertile, a steam ferry ran across Owens Lake from Keeler to Cartago, where it could be loaded onto railroad cars to be sold in Los Angeles. The propeller from the steam ship is reputed to be buried in the muck that remains in the lake bed. While gold deposits in the valley have long since been exhausted, at the north end of the valley, the still extant company town of Rovana Village employs several hundred tungsten mine workers, provides a school for their children, and tract housing for their families, in such attractable neighborhoods as Pine Hill and Vanadium Road.*



During its mining days and during the construction of the Los Angeles Aqueduct, the Southern Pacific Railroad operated a narrow-gauge railroad in the Owens Valley, travelling from Keeler at the south end to Belleville, Nevada, at the north. The locomotive running along this line was named "Slim Princess." While the line was shut down in the 1950's due to under-use, certain remnants live on. The town of Laws, a few miles Northeast of Bishop is still largely intact as a tourist destination—an authentic old-west railroad depot. Authentic does not mean fireproof. Every building in this preservationist's dream is built out of totally dessicated century-old timber, ready to go up in a blaze at the first threat of a spark. Appropriate then, that the only water left in the town is in a Fire Department emergency water storage tower. The handful of residents still living there must fend for themselves with personal cisterns...or Crystal Geyser. The words Slim Princess have not lost all of their value: the Owens Valley chapter of the mysterious California Clamper's lodge has, in a move typical of their ironic sensibilities, taken on the old locomotive's name. The organization's members, identifiable only by their logo-less red t-shirts, have placed their own white-granite historical markers up and down the valley to commemorate the obscure, the ironic, and the mundane in the land's history. But the most resounding trace of the railroad's former existence is the vacated rail bed—still marked on most maps—that winds its way up the valley floor leaving parallel cavities wherever it crosses a paved surface.



Concrete bunker, Laws.

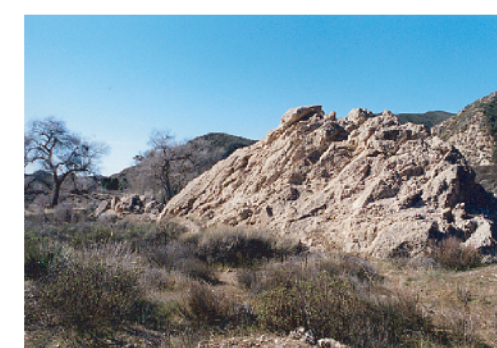


Fire emergency water tower, Laws.



Remains of Zurich Station, East of Big Pine.





When the Los Angeles Aqueduct was first built, William Mulholland conceived that it would not end in a reservoir, but rather would dump directly into the San Fernando Valley, which has its watershed in the Los Angeles basin. Thus the water would be used twice: it would hydrate the water-starved orange groves in the Valley and subsequently filter into the groundwater and end up in Los Angeles wells. A further benefit would be that very little of the water would evaporate while waiting to be used. Due to a drought that took hold of California about a decade after the building of the Aqueduct, resistance in the Owens Valley that resulted in multiple dynamitings of the aqueduct, and exponential population growth in the city, Mulholland decided that building holding reservoirs for the water in the mountains encircling LA would better ensure a constant water supply. The second of these reservoirs that he built, the St. Francis Dam in San Francisquito Canyon 40 miles north of the Los Angeles was completed in 1928. Almost immediately, nearby residents began reporting leaks around the dam. A Department of Water and Power engineer was sent to investigate on multiple occasions, and even Mulholland himself went to look at it. Since the water was not dirty (muddy water leaks are a sign of structural instability), he decided that the dam was fine. At 11:57PM, less than eighteen hours after he had made this prognosis, the dam gave out and millions of acre-feet of water came crashing down the San Francisquito Canyon, into the Santa Clara Valley, and did not stop its line of wreckage until it reached the Pacific Ocean. The valley was immediately transformed into a mud slough with wrecked homes, mangled bodies, disinterred trees, and huge amounts of rubble mixed in. Over five hundred people died within those few minutes after the dam broke, and William Mulholland went on trial the next week for manslaughter and engineering malpractice, both of which he was found not guilty. What remains of the St. Francis Dam is a concrete gulch where it once stood, with mangled rebar protruding every few feet. A few hundred yards down the canyon, two twenty-foot mountains of pulverized concrete stand as unofficial—and unmoveable—monuments to the destruction. Strewn prevalently along the canyon one finds a curious sort of stone—very homogeneous composition, usually with one flattened surface—that is actually a chunk of concrete ripped from the dam by the immense force of the water.

# St. Francis Dam

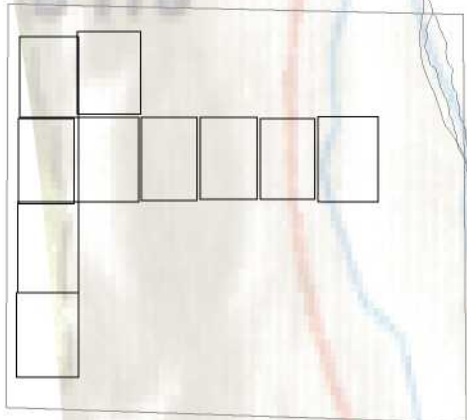




Memorial obelisk.



Auditorium from Highway 395.



Signs marking building foundations.

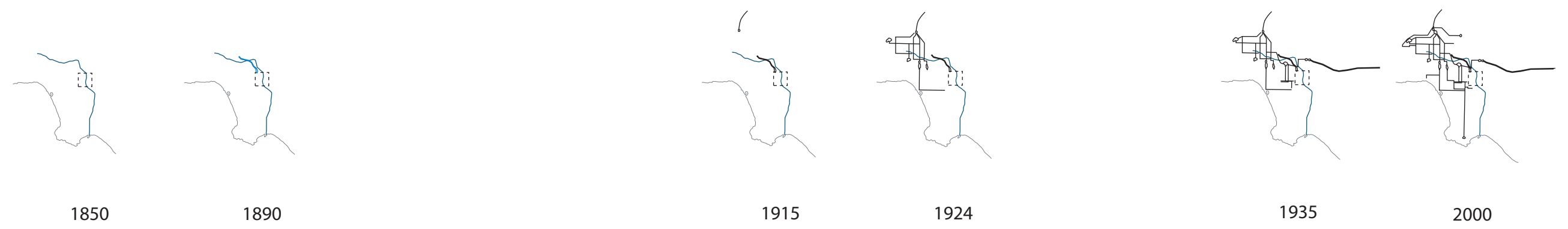


Guardpost.

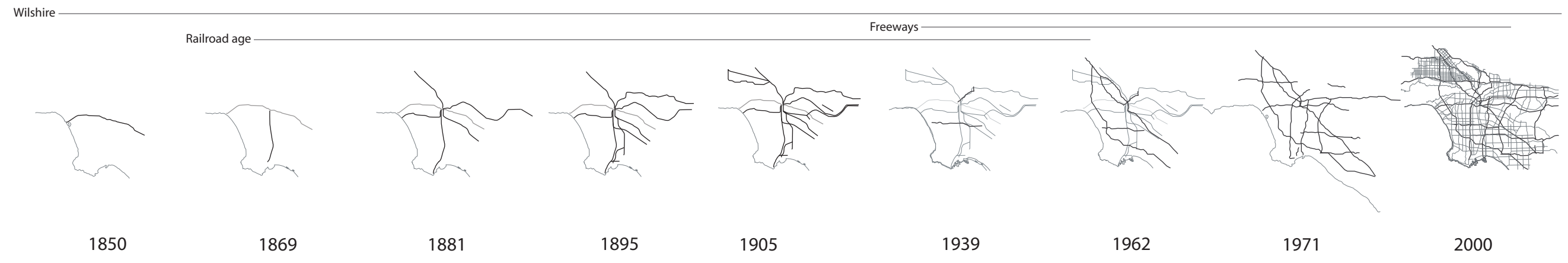


After the bombing of Pearl Harbor and the beginning of the war against Japan, the federal government ordered that all Japanese-American citizens and residents in the United States be rounded up and sent to internment camps. The Owens Valley is home to Manzanar, an internment camp that housed 10,000 inmates between November 1942 and September 1945. Hundreds of buildings, from dormitories to police stations to workshops, were erected for the temporary prison, and within days after the end of the war, the buildings were disassembled, with the wood being sold to veterans at bargain prices with which to build homes (mostly in Southern California). Three structures still stand at Manzanar, and one of them was put there quite recently (a pre-fabricated portable toilet). The appropriately Mission-style stone guard post was left standing at the front, and the lime-green auditorium, a quarter mile north, now houses Los Angeles Department of Water and Power vehicles. All that remains of the barracks and myriad other destroyed buildings are their concrete-slab foundations, the only smooth surfaces left in the rugged desert terrain. The site is being turned into a National Historic Monument, and already signs are going up to identify what stood on each foundation. A circuit road for a driving tour is being constructed for the convenience of vehicle-bound tourists. At the far rear of the site, formerly only accessible by foot, stands a white obelisk with kanji writing on it, standing as memorial to the collective thirty thousand years lost at "America's Concentration Camp." The camp is the destination of an annual pilgrimage of Manzanar survivors and their descendants. The obelisk has become a sort of shrine, accumulating gems, stones, feathers, handkerchiefs, dolls and other effects.

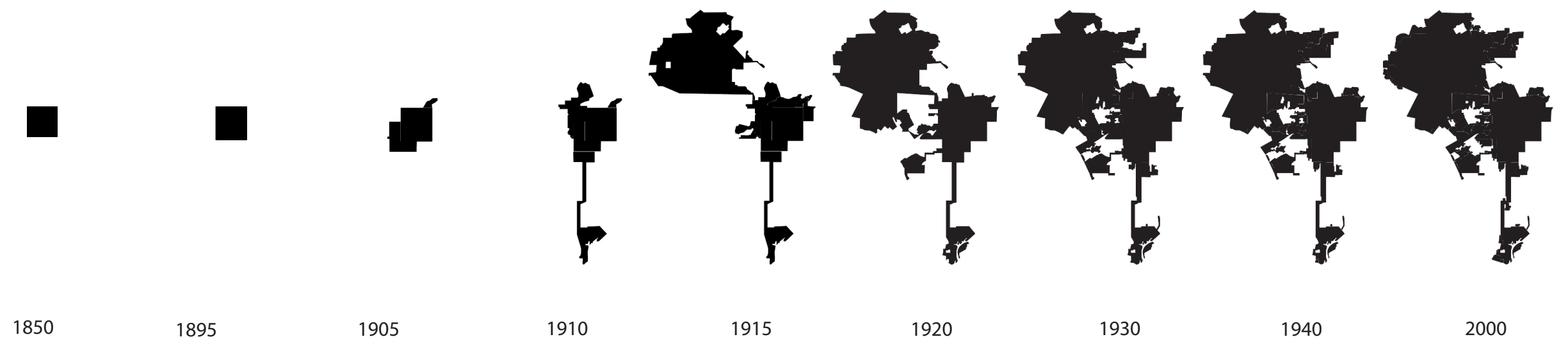
Water system



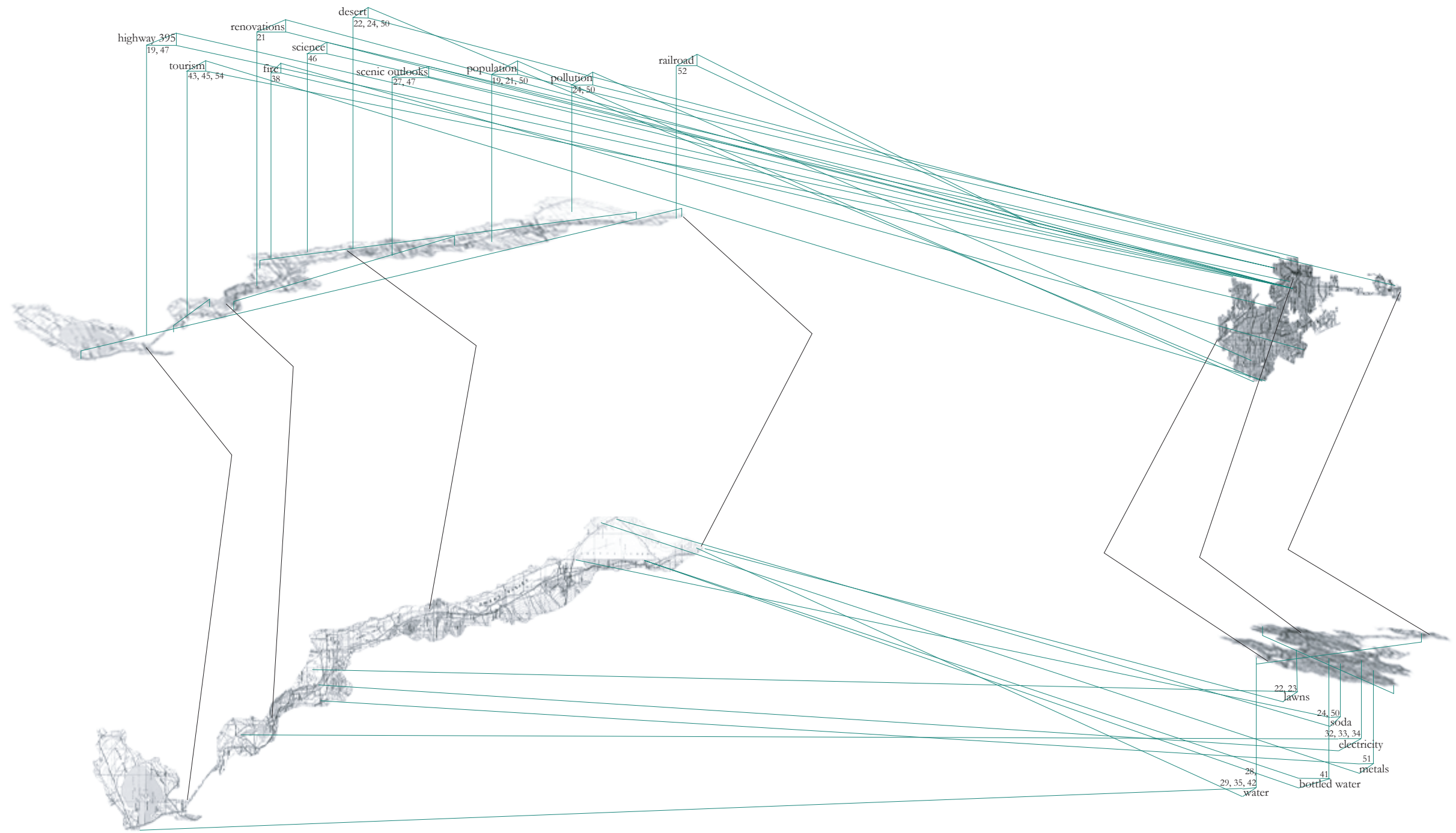
Transportation



Land area



Los Angeles Land Development Timeline



# Exchange Index

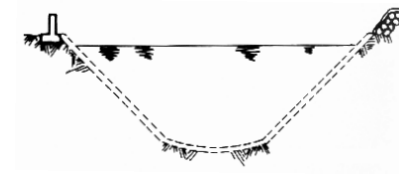


Conduit Cross-Section:

First Aqueduct (1913)

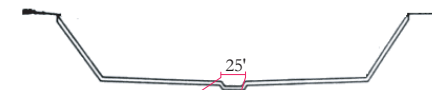


Second Aqueduct (1970)



Riverbed

Los Angeles River

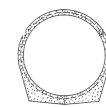


25'

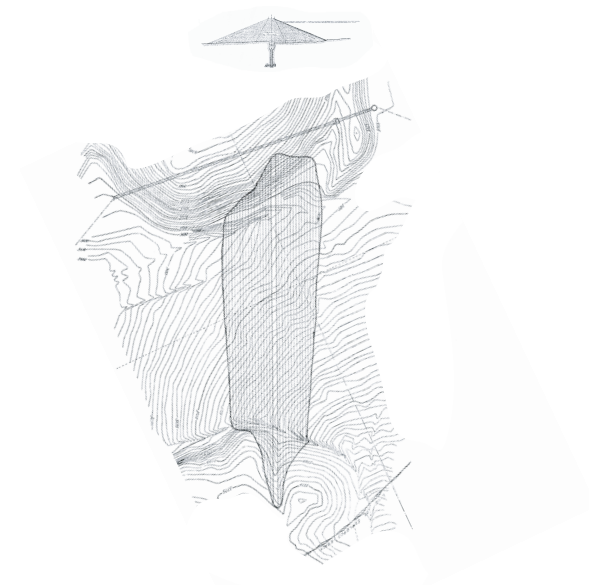
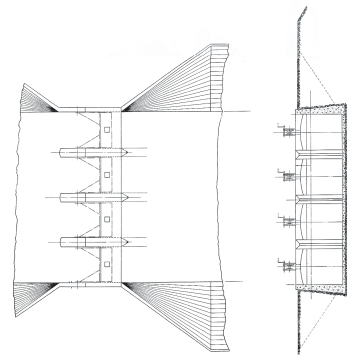
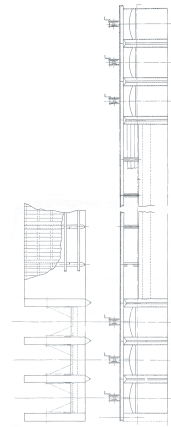
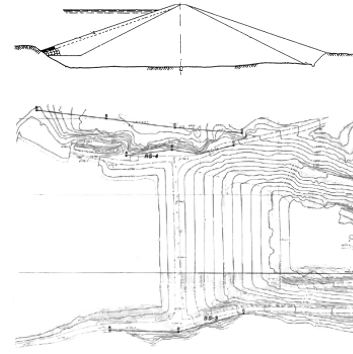
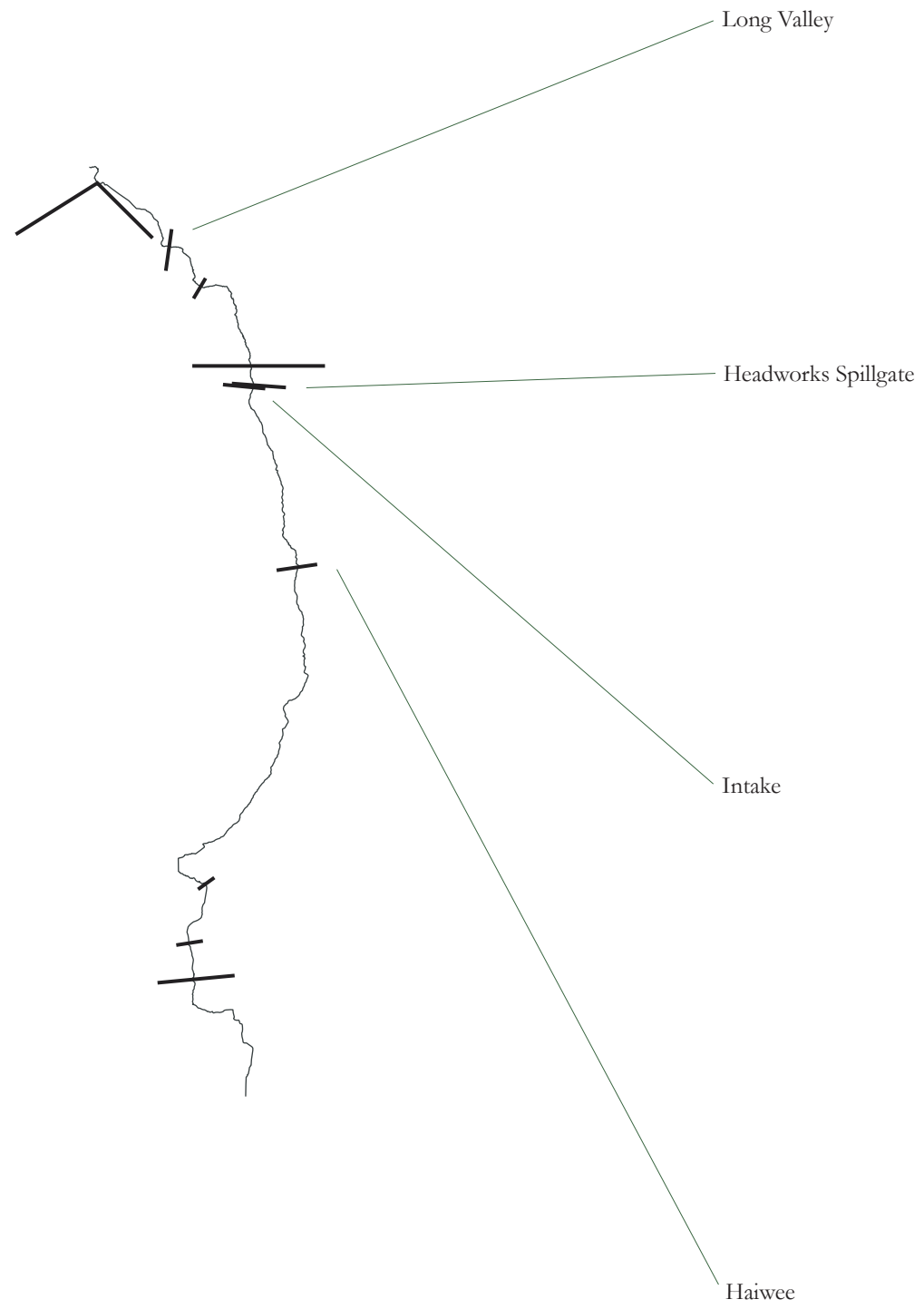
Open concrete channel



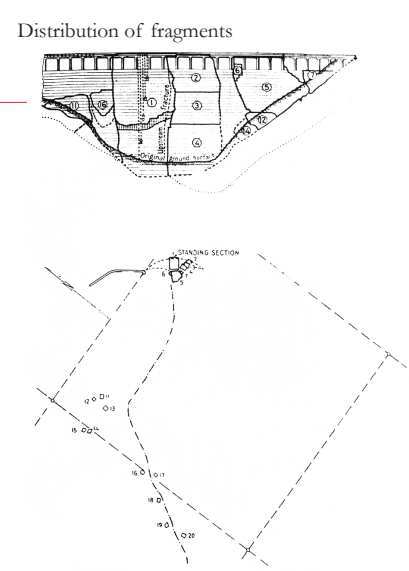
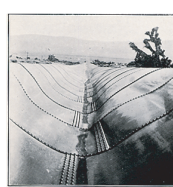
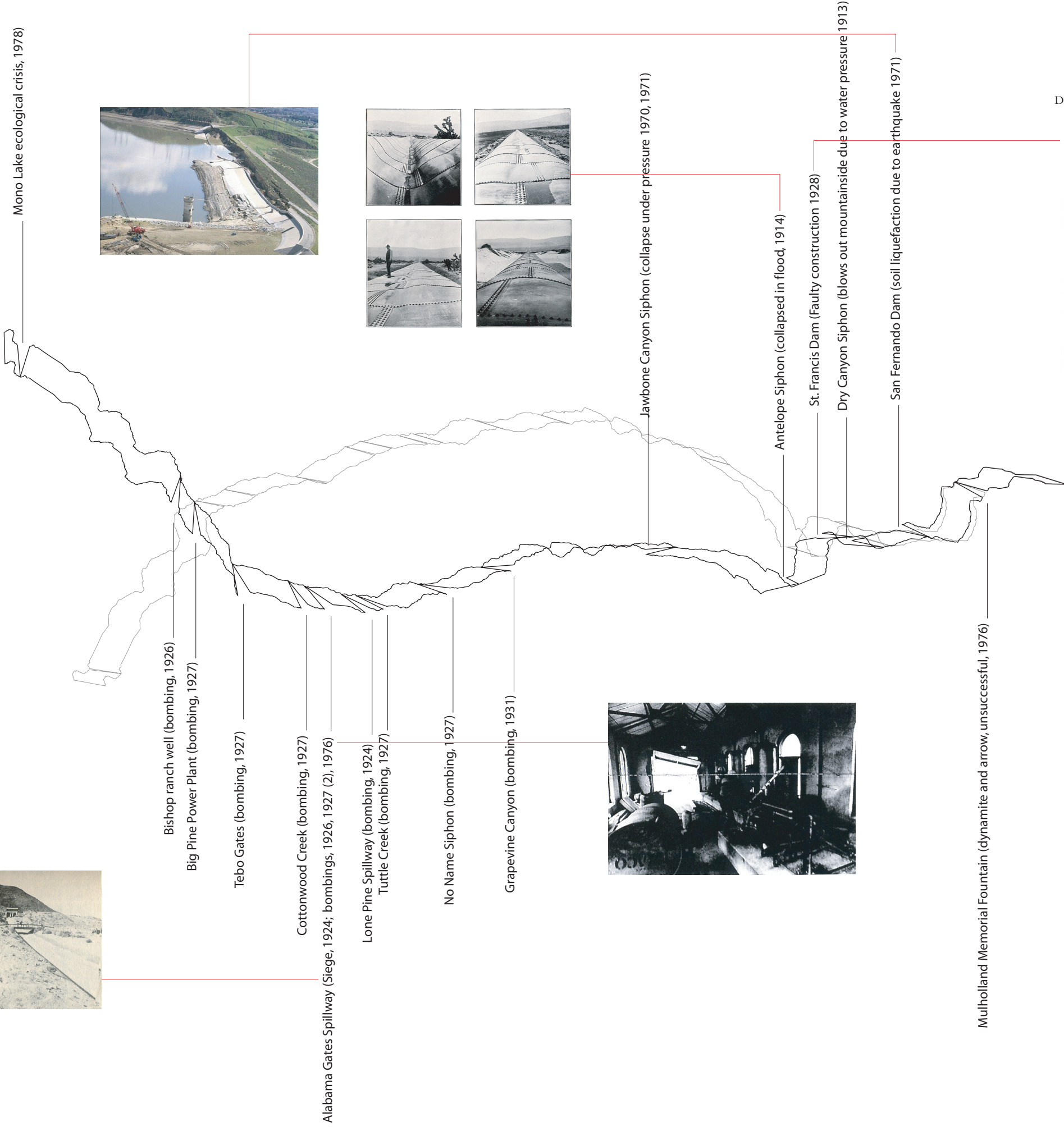
Pressure pipeline



Dam Plans and Profiles:







Breakdowns

Revolt

# Disasters

## The Landscape of the Los Angeles Aqueduct in Images

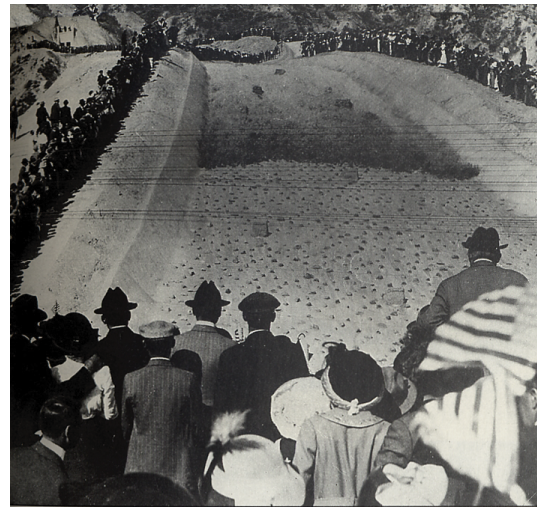
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November 5, 1913 – A crowd of 30,000 is gathered at the Grapevine—the north end of the San Fernando Valley. Assembled around a concrete baffles winding its way out of the mountainside into the vacant reservoir below, the crowd watches marching bands perform and listens to speeches given by the city’s notables. The signal is given and water begins to trickle, then gush, out of the mountain tunnel, down the baffles, and into the part of the valley later to be named Owensmouth. William Mulholland, the chief engineer of the aqueduct project, yells to the city’s mayor over the cheers of the crowd and the roar of the water, “There it is. Take it.” The click of a shutter and the image of this first water out of the aqueduct—originating over 200 miles to the north—is frozen in time and place.

The Cascades are the end of the aqueduct, but also its start in the sense that it is this image by which the people of Los Angeles take in the view of the immense landscape that extends and opens out behind the arched concrete spillgate. The Cascades themselves speak nothing of the water they guide down the mountainside – neither where it comes from, nor what elaborate processes it took to get it there. And yet it is this image, seemingly benign, mundane, and functional, that has become the emblem of the landscape of the Los Angeles Aqueduct.

The photograph of the cascades is indeed a landscape photograph. This is not a straightforward proposition, as the image contains very few natural elements—even the water in its controlled state seems somehow artificial. The mountain, instead of being the object of our attention, is backgrounded to this monument of civil engineering, making it seem more of an ‘architectural’ photograph. But it is this picture (symptomatically shot in ‘landscape’ format) that mediates between the urban landscape—Los Angeles—and the natural one from which it draws its water. At least since the Renaissance, the landscape in the west has always been articulated by pictorial representation, and the landscape of the aqueduct is no different. The Cascades act as an aperture by which the dual landscapes of Los Angeles and the Owens Valley bring each other into focus. These landscapes are vast, unintelligible, but are reduced to a single view framed by the Cascades—containing little of either landscape that it refers to.





Owens River water rushing down Cascades.  
*(Rivers in the Desert)*



Original Cascades, 1916 (Los Angeles Bureau of Water Works and Supply).



Head of Cascades (LABWWS).



Cascades for Second Aqueduct, 1971 (Department of Water and Power).

This view of water gushing out of the Cascades has become the most recognizable element of the aqueduct. My own grandmother, who has lived in the Los Angeles metropolitan area for sixty years, knows the aqueduct only by this vista. The image of these Cascades, captured by many cameras over the years, is the strongest icon of the landscape of the aqueduct—the constructed focal point of the gaze when it looks towards the water source for the arid basin.

But something is missing in this view. Very clearly, there is water coming out of the mountain (today it goes directly into a pipe, and the baffles are only used for overflow capacity), but it must come from somewhere, and through something. The photograph of the Cascades, which serves as frontispiece to many histories of the aqueduct, is strangely devoid of information—it is just as banal as it appears at first glance. The image that announces the aqueduct to hundreds of thousands of Los Angelenos everyday, in reality announces very little. But behind this image, there is an intricate history—many intricate histories that unfold into a deluge of just as many photographs, images, and idealizations by which this landscape has been built up and framed time and again. Photographic images and other pictorializations have been integral to the construction of the landscape of the Los Angeles Aqueduct, functioning as propaganda, literal construction tools, advertising, art, journalism, and myriad other ways. Looking for purity in landscape is a fruitless effort, as many have proven before, but by immersing ourselves in this deluge of images, by searching critically through their remains, the singular perspective is undermined and shrinks back into the series of equivocal views. The objective is not to find the ‘real landscape,’ but to construct a landscape of these representations and their multiple histories that float above and in front of that which they represent.

### **Selling Out**

Los Angeles has never been known as a substantive city. The vast majority of its land area has been under development for less than a century. It is known better for its beach bums and valley girls than for the strong intellectual communities that Mike Davis documents in his *City of Quartz*. In describing the city, Gertrude Stein once wrote, “There is no there, there.” But superficial or not, Los Angeles was built up and sold on the image, not trade or natural resources as with the cities of the eastern United States. While there is little connection to be found between this fact and the perceived superficiality of the region, the fact that the city was framed and photographed before it was even substantially populated – that it was framed *in order that* it could become substantially populated – gives us some clues as to the later treatment of the Los Angeles Aqueduct and the Owens Valley. The use of photographs also prefigures the city’s Edenic mutation that resulted from the building of the aqueduct. Before Los Angeles had the water it needed to become a lush paradise, it put itself in environmental drag through selective framings and other pictorial manipulations.

When California became a state in 1846, Los Angeles was a dusty little town with only a few thousand residents. Over the next quarter century, the isolated city of California's south coast barely grew at all. However, its extraordinarily pleasant climate did attract a handful of wealthy and powerful easterners—boosters, as they came to be known—intent on transforming the town into a west coast metropolis. Los Angeles is not well endowed with natural resources: it is dry, oil had not been discovered at the time, and despite being conveniently situated on the Pacific ocean, lacks a natural harbor of any sort. The boosters realized that the traditional logic of city building would not work here. However, they managed to use their considerable influence to convince the Southern Pacific Railroad against all logic to run the proposed San Francisco-Yuma line through Los Angeles. The building of the first railroad line into the city in 1876 was the first in a series of moves that would make Los Angeles one of the fastest growing and largest cities in the world.

With few residents and little trade moving in and out of Los Angeles, the Southern Pacific and Santa Fe railroads had to somehow manufacture a financial base out of thin air. The port at San Pedro (which within 50 years would become the busiest in the west) had not yet been built, and wouldn't be until 1910.<sup>1</sup> While in most cases, the building of railroads follows on substantial prior development, in Los Angeles the railroads played a central role in attracting residents. Competing railroad companies got into fierce fare wars, at one point bringing the Kansas City-Los Angeles fare down to a single dollar, but more importantly they implemented the first major advertising campaign for the city. The companies used many different means to boost immigration to the left coast, including the establishment of land bureaus in eastern cities, lecture tours by company publicity personnel, exhibits at expositions across the country, and press releases to eastern newspapers. When the railroad publicists went to give speeches, they would distribute fliers to those in attendance featuring photographs of natural vistas around the city.<sup>2</sup> The railroads' efforts paid off. With the establishment of these transportation routes, people began immigrating in droves.<sup>3</sup>

With the establishment of a consistent population and commercial activity, the Los Angeles Chamber of Commerce was formed in 1888, at which point it promptly took over the publicity activities of the railroads. Operating with fewer financial and programmatic restrictions than the railroad companies, the Chamber of Commerce was able to step up publicity operations a notch. By the 1890s, real estate and commerce had replaced agriculture as the city's biggest industries, and the organization's operations reflected this. The chamber put together a train car exhibit called "California on Wheels" that traveled to every major city in the Southern and Midwestern United States displaying agriculture, scenic photographs, and models of homes.<sup>4</sup> Landscape photographs juxtaposed with displays of industry and domestic structures showed an awareness on the part of the city's business leaders of the pastoral desires exhibited by Americans at the time.<sup>5</sup> That the photographs were scenic in nature, and exhibited *alongside* the models and

industrial literature, gave the message that middle-class Los Angelenos enjoyed that rare synthesis of economic prosperity in a peaceful, natural setting unlike any other urban center in the country.

As land development became increasingly integral to Los Angeles' economy, a cohesive real estate community was established that began to generate its own publicity for the city. The sector engaged in heavy advertising in eastern magazines and travel literature. The advertisements would exaggerate the region's climate, often boasting lush vegetation without a cloud in the sky. In an advertisement for one development, a real estate company photographed the tract with oranges stuck on the Joshua trees, advertising it as the only region in Southern California where citrus fruits were indigenous.<sup>6</sup> Entire communities were built up around the image of being something—or somewhere—else. Venice started out as the fantasy of a wealthy real estate developer who thought that Los Angeles needed its own touch of Italy. He dug the canals and even hired authentic gondoliers from Venice I, and then advertised the community to the nation as “Our Mediterranean! Our Venice!”<sup>7</sup>

Tourism has also served to promote growth in Los Angeles. Indeed, in a city where real estate plays such a central role, the tourist industry becomes yet another outlet for publicity and boosterism. The glamour of Hollywood's moving pictures effectively became a mechanized immigration booster, better than any Chamber of Commerce or real estate publicist. Starting in 1917, images of Los Angeles' good life flickered into theaters across the country at twenty-four frames per second, drawing not only would-be entertainers, but other reliant economies, such as construction, design, even (and especially) amusement parks.<sup>8</sup>

Postcards of Los Angeles have regularly featured the Avenue of the Stars, citrus groves, and freeways. As strange as this last example may appear, Los Angeles seems more ready to boast its infrastructural elements, as doomed as they may be, than any other city in the world.<sup>9</sup> And yet these three postcards exhibit precisely those things which had been used to draw people to the city during its first American century: transportation, an Edenic climate, and glamour. Climate has always been central to the constructed view of Los Angeles (that climatology was invented in Los Angeles is no accident). Prominent among the city's first angloid inhabitants were tuberculosis patients at Glendale sanitariums hoping the sunshine would cure their ills. According to a popular phrase from the city's first decades, “we sold them the climate and threw the land in.”<sup>10</sup> When, at the turn of the twentieth century, increases in population brought on by the propagation of publicity images described above threatened the very possibility of replicating these images—that is, for the city to both grow and maintain its garden-in-the-desert appeal—a new source had to be found.



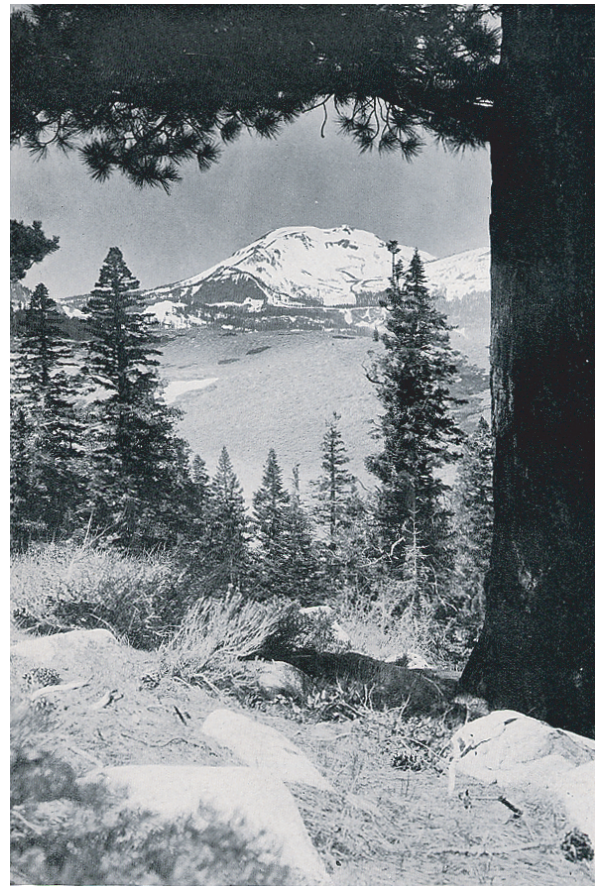
Postcards from Los Angeles.

## Outsourcing

The Los Angeles Aqueduct was advertised to the city's residents the exact same way that Los Angeles itself was advertised to outsiders. By presenting and manipulating landscape images, the city government, in concert with the business elite, was able to sell the idea of the aqueduct—a \$25 million proposition—to a city that didn't need it. The aqueduct was necessary for future growth, not to maintain the current condition. The population of Los Angeles in 1905 was 200,000, fully double the figure appearing in the 1900 census. Its only water supply was the Los Angeles River, and while the city was operating within the limits of the watershed's capacity, considerable future growth would have to be strictly limited. While this fact probably did not bother too many of Los Angeles' residents, it was quite alarming to city businessmen. Ever since the railroads came, economic prosperity had been equated with population growth. In a city where real estate is the cash crop, it is not difficult to see how this perception might have come about. And so the city leaders set off on a massive coordinated effort to sell the idea of Los Angeles – this time not to easterners, but to the city's residents themselves.

In the first bond issue election in 1905 in which the relatively trivial amount of \$1.5 million would be up for approval to pay for the land and rights to the Owens Valley water the city would be appropriating, a certain level of tact was necessary on the part of city officials. The fact that Los Angeles residents would be paying so much just to buy the rights to water for which there was no demonstrated demand forced the new Bureau of Water Works and Supply to come up with a forceful and convincing pitch. Outside of enlisting the support of the city's biggest newspapers (whose owners had a considerable financial stake in the deal going through), William Mulholland, the chief engineer of the project, did two simple things that all but guaranteed that the issue would pass. First, he fabricated a water famine in a particularly wet year by announcing that the Los Angeles River could not support more than 220,000 people (a prediction that turned out to be grossly underestimated), and that at the current levels of consumption and immigration, the supply could run short within a few weeks, given an excessive dry spell. He predicted a huge exodus should this ever happen, forcing city residents to consider their economic well-being in a circumstance where that connection might not necessarily be made. Secondly, he distributed throughout the city idyllic photographs of the lush, well-watered Owens Valley.<sup>11</sup> Since this Edenic image was the same that had been used to market Los Angeles to the nation, Los Angeles residents were already susceptible to its powers, and were easily convinced that they did not want to let go of the garden paradise they were in the business of developing. The strategy proved massively effective: the issue passed by a ten to one margin.

A second bond issue election two years later requested a more impressive \$23.5 million. The sell this time was not quite as difficult as the first one, as a precedent had already been set and the result of this election—the actual construction of the aqueduct—was much more tangible to Los Angelenos. Thus the campaign for this funding, while



Sierras in the summer, 1916 (Los Angeles Bureau of Water Works and Supply).



Mammoth Creek, 1916.



Mammoth Creek, 1916.

still enlisting the support of the newspapers, was mounted at a smaller scale by city officials, who would make presentations to small groups of businessmen or community leaders. In particular Joseph Lippincott, a consulting engineer on the project with a history of manipulating his own image, made “polished presentations with maps, charts, stereopticon views, and a moving picture to illustrate the project.”<sup>12</sup> Lippincott’s use of such cutting-edge image technology is evidence of his desire to impress his audience with the landscape imagery he was showing. By putting landscape in the frame of technology, he was able to couple the building of the aqueduct with modernization. Stereopticons and movies were almost unheard of in Los Angeles at the time, and thus were more likely to have convinced viewers that they were seeing the objects of representation themselves, and not just second-hand impressions. This grass roots campaign paid off – the second bond issue passed with a margin of fourteen to one. Even the famous naturalist John Muir, whose interest in the Sierras could be considered directly contrary to the aqueduct, was reported to have supported the project.<sup>13</sup>

Los Angeles water officials’ use of the image in their campaigns for the aqueduct cannot be supposed to have been innocent. Indeed, they must have known something of the power of photographic images, which could be presented as purely objective evidence in support of their case. However, in order to do this, they had to make sure and suppress conflicting reports. Water flow records for both the Los Angeles and Owens rivers from the first decades of the twentieth century are, in this respect, unsurprisingly inconsistent.<sup>14</sup> Fabricating a water scare during wet years would have been difficult if the city’s own scientific measurements contradicted it. And so the department issued, and kept on record, so many different reports of water levels and flows during those years that it would be impossible to tell which was accurate. Furthermore, at the time that the project was announced and the date for the first bond issue election was set, Los Angeles residents knew very little about the Owens Valley, which had no transportation corridor to the city, and the city (even the public library) made no resources available for investigations into where the water was to come from.<sup>15</sup>

The level at which the perspective towards this pre-natal landscape was controlled is astonishing. The aqueduct had several opponents from the start (Socialists, Progressives, businessmen who had not had the foresight to invest in the project), and these opponents, some of whom tried to present competing and contradictory images to those presented by the city leadership, were dealt with decisively and efficiently. From the start, there were those, including newspaper giant William Randolph Hearst, who thought that an aqueduct of such proportions was not feasible. Since Mulholland, the conduit’s designer, did not have an engineer’s education, he was an easy target for this sort of criticism. His immediate defense was not to get the outside opinion of a professional waterworks engineer, but to invite his enemies to look at his drawings, “If there are any people in Los Angeles who think we have gone into this proposition like a lot of schoolboys, with a whoop and a hurrah, they should come in and look over a few of the maps we have made in this last year.”<sup>16</sup> Drawings are representations in which the human hand is inextricably obvious by what is depicted and how, but by putting these drawings—



framed as 'scientific' observations—on display Mulholland was seemingly opening up the project to the inspection of its critics. But, knowing that they were even less qualified than he to make a technical evaluation, he knew that in a sense they would be blind to his idealizations and manipulations. The authority of science was used to erase evidence of the human hand from the image. Later on, a team of certified engineers was ordered to make an official evaluation of his design, and while the project remained essentially the same, many details were changed, and three whole reservoirs were removed from the plan. Had Mulholland's detractors known these faults to exist, it is easily conceivable that they would have defeated the project.

During the building of the aqueduct, many attacks were made on Mulholland's construction methods and project spending. At one point, when a siphon blew apart under testing, leaving concrete chunks littered across a canyon in the Mojave Desert, an inspection team from the city arrived, took pictures, and had them published in the city papers. This biting visual attack on Mulholland's expertise was in fact a fluke. When the siphon was poured, an erratic shift in the weather had caused a frost, weakening the setting concrete. Mulholland had known that due to this unpredictable frost the concrete would most likely not perform, and had been testing it under pressure before discarding it and starting over. The presence of the inspection crew was inauspicious at best, and gave the project a few more headaches.<sup>17</sup>

To counteract this and other negative press the aqueduct was getting during construction, in 1912 Mulholland gave a presentation at a 'smoker' held by the Los Angeles Chamber of Commerce. The event was held at Agricultural Park, a brand new business center where an art-glass ceiling portraying scenes of California's history was to be lit up for the first time ever by electric lights. In this setting—a technological artwork in itself—Mulholland presented by stereopticon views of the aqueduct and its landscape: tunnels, lakes, and mountains, all the while narrating the story of the project's construction.<sup>18</sup> By using hyper-realistic (for the time period) representations of the landscape of the aqueduct (this was the first time the aqueduct was presented foremost as a landscape, not fronted as a political issue) and doubling the story of the pictures with his own narrative, Mulholland doubly reinforced the official view of the project. The presentation was intended to be seamless, leaving no room for contradictory statements. Up to 3,000 people were reported in attendance, and the event was a complete success, despite a newly reinvigorated investigation into the construction and a deadly explosion on one section.

All of this spectacular publicity, exacting control of images, and efficient defense surrounding the early political events of the Los Angeles Aqueduct was meant to promote an official view of the project. The careful use of images, especially photographs, was an effort to construct an authoritative story, dictating to the people of Los Angeles their needs, playing off their latent desires, and controlling their opinions with regards to these very public events. While the bond issue elections were certainly fair and democratic, the city power structure's early mastery of the use of images for political gain was so far beyond that of their opposition that they were easily able to quell any

contradictory stories. The points at which their opposition was able to use images to their advantage were few, but telling as to the equivocal nature of these images. While photography was not a new technology in Los Angeles at the turn of the twentieth century, its power as a political tool was just beginning to be realized. Mulholland and his compatriots elicited the already-expressed desire of Los Angeles residents for a fusion of economic prosperity and idyllic surroundings by threatening them with the demise of that prospect. They latched onto the aqueduct as a relatively simple solution, but neglected to see that an excess of water would equally put an end to their dream.

### **Developing Images**

Los Angeles (and cities in general) has always been the product of a certain idealization, both of nature and of man's power to control his environment. As seen above, the particular idealization that took hold in Los Angeles was the combination of economic prosperity and the natural panorama. But the lush setting that Los Angelenos consider natural is not indigenous to the area. Los Angeles sits in what is technically a semi-arid basin—almost a desert, but not quite. The climate shifts wildly from year to year, and so it is difficult to pigeonhole it exactly. Indeed, the region's first Anglo settlers, coming from riparian ecologies, “found it almost impossible to form a consistent picture of the capricious climate or protean landscape.”<sup>19</sup> Confronted with such an unusual situation, the city's residents were almost forced to project their own desires onto this ecological netherworld, if only to stabilize and rationalize their living conditions.<sup>20</sup> That, in a fairly recent election for city office, one candidate ran on the platform of turning the stark concrete channel of the Los Angeles River blue again—with paint, not water—is only symptomatic of the general condition.<sup>21</sup> Los Angeles' treatment of the landscape has not only been pictorial in the conventional sense, but has also involved the process of the writing and rewriting of the idealized landscape in a way that tends to accumulate in layers. The development of this desert oasis, from its gardens to its infrastructure to its colonization of remote landscapes, has been based on this process of writing-over, and it has determined not only the landscape of Los Angeles, but those areas indirectly connected with the megalopolis. It can be shown that water, and the Los Angeles Aqueduct, played a crucial role in the constant revisioning of the city, its subsequent development and conquest of outlying areas.

It is not that Los Angeles is in itself incapable of supporting a human population, it is that this human population has, from the start, wanted an environment a little wetter than what the local climate is able to provide. As new waves of immigration rolled into the city, collective memory quickly forgot that the ecology could not—at least without human intervention—support the sub-tropical vegetation that residents wanted to see in their gardens and lining the boulevards.<sup>22</sup> The basin is by no means barren, but in itself lacks the means to sprout the sort of vegetation its rich soil promised to the first irrigators of the region. As Reyner Banham writes, “it was this promise of an ecological

miracle that was the area's first really saleable product – the 'land of perpetual spring.'"<sup>23</sup> Los Angeles' essential desirability is based on the land's considerable potential, given only water.

When this water appeared to be running short at the turn of the twentieth century, William Mulholland and his peers realised that an aqueduct had to be built. However, while Mulholland's project was presented as being based on the economic necessity for water in the region, the aqueduct was often portrayed in the newspapers as a civic luxury emblematic of the city's progress thus far. With the passage of the bond issue, the *Herald* announced, "every acre of dry land in Los Angeles County will be provided with sufficient water...lawns...could be kept perennially as green as emerald and greater Los Angeles could go on swimmingly in its metropolitan progress."<sup>24</sup> In this statement it is evident that the aqueduct was about expansion of the city's newly artificial nature, to be spread across the land from its origins in the irrigated areas near the river. Economic progress hums along in the background while sod is laid and palms are projected in the fore. When Los Angeles' attempt to obtain rights of way across federal lands in the Mojave was threatened by an Owens Valley congressman, President Theodore Roosevelt arbitrated the disagreement (without the opposing congressman there to present his case) in favor of the city, a decision in which Los Angeles residents' ability to water their lawns played a decisive role.<sup>25</sup>

The idea of covering over the semi-arid landscape of early Los Angeles with lush sub-tropical foliage became a local obsession. After the image of the underlying landscape was forgotten, a new image was constructed in its place – the 'true' landscape of Los Angeles, buried deep beneath the surface, is "something sinister and barren, incapable of sustaining even a tiny fraction of the current multitudes."<sup>26</sup> Indeed, aridity became so feared—more so with the massive population growth that followed after the completion of the aqueduct—that Los Angeles fought to repress the semi-desert even further in the psyches of its inhabitants as it was simultaneously being buried under ever multiplying layers of asphalt and riparian vegetation.

The image of the desert has historically been a constant threat to Los Angelenos, even as the Palm Springs region—the true desert, although it is undergoing impressive transformations of its own—becomes increasingly popular as a vacation spot. During the construction of the aqueduct, water supply fears ran so high that city officials would cut off the supply to gardens, lakes, and street sprinkling to ensure drinking water for the burgeoning population.<sup>27</sup> Thus image of the desert would immediately prefigure human death, a symbol with interesting religious connotations (particularly in a city where the John Birch Society has maintained such a presence). The image of desert was used as propaganda as well. The Merchants and Manufacturers association, one of the city's biggest advocates of the Open Shop, warned that unionization of labor would turn the city back into desert, thus playing off Angelenos' greatest environmental fears only to oppress them economically.<sup>28</sup> At the same time, in the battle between San Francisco and Los

Angeles for dominance of the west coast, San Francisco boosters distributed tourist maps of California in eastern cities with Southern California—Los Angeles included—labeled ‘barren hills’ and ‘desert country.’<sup>29</sup>

But despite these landscape desires and phobias that have developed in Los Angeles over the years, and which have been appeased by the abundance of imported water, the city, it appears, is its own worst nightmare. Mike Davis writes that, “The social construction of ‘natural’ disaster is largely hidden from view by a way of thinking that simultaneously imposes false expectations on the environment and then explains the inevitable disappointments as proof of a malign and hostile nature. Pseudoscience, in the service of a rampant greed, has warped perceptions of the regional landscape. Southern California, in the most profound sense, is suffering a crisis of identity.”<sup>30</sup> The city’s landscape palimpsest only perpetuates the conditions it seeks to gloss over.

Los Angeles’ interest in writing over its semi-arid landscape with deciduous vegetation made possible by extensive irrigation networks has directly paralleled the transformation and expansion of its urban form. The city’s first major growth cycle was a direct consequence of the building of the aqueduct. Coincident with the birth of modernism, the development of the city manifested itself as a projection onto a tabula rasa landscape – the landscape idealized as a blank screen onto which asphalt street grids, transportation networks, housing subdivisions, and other infrastructural elements were to be overlaid. Davis, making an apt reference to the city’s film industry, points out that while “celluloid or the electronic screen have remained the dominant media of the region’s self-expression...compared to other great cities, Los Angeles may be *planned* or *designed* in a very fragmentary sense, but it is infinitely *envisioned*.”<sup>31</sup> This envisioning of a new landscape predicated the laying down, in relatively quick succession, of multiple and interweaving layers of transportation, development, and water infrastructures across the new planes opened up with the expansion of the city’s borders.

The railroads that played such a key role in the early growth of Los Angeles laid down a framework from which subsequent expansions out and over the land were made possible. The railroads had a stake in attracting residents and distributing them widely. In the nineteenth century, they were the biggest land owners in the metropolitan area, and in order to turn a profit on their investment in the region, they worked hand in hand with real estate developers to lay out subdivision tracts and market them to new arrivals. In areas of low population density, the companies leased their lands to citrus farmers because orange groves both raised land values for later sales and reinforced the image of the area as an aspiring Mediterranean paradise.<sup>32</sup> The railroads created both a blueprint for growth and for the arrangement of further and future transportation networks.<sup>33</sup> In a city where water was carried to remote areas from the very start, transportation infrastructure—not natural resources—determined the nodes of residential settlement.

An immigration boom between 1886 and 1889 sparked a matching boom in subdivision. And though it ended in economic depression, that first brief period of explosive growth left behind an extensive infrastructure for future growth as the city built transportation and water lines out further than necessary in anticipation of future needs.<sup>34</sup> Projecting ahead of demand left behind a lonely imprint when the boom ended. Along the San Bernardino railway line, twenty-five town sites over thirty-six miles were laid out during the three year period. A total of five were actually occupied. While these tracts were advertised heavily in real-estate prospectuses, the economic collapse left them as ghost towns for many years.<sup>35</sup> In an early figuration of the integral link between development and water in the City of Angels, hundreds of housing tracts were advertised—unpictured—to easterners, but when the new immigrants arrived to claim their purchases, they would be shocked to find them in the dry bed of the Los Angeles River.<sup>36</sup>

The freeways, the first of which was built immediately preceding the Second World War, followed the paths of the original railroad network, by that time long outdated by the advent of the automobile. Reyner Banham writes that the imposition of the automobile infrastructure never destroyed the form of the city because it had never had any discernible form to begin with. Seen in plan this is indeed true, the lines of the cities networks had already been ingrained so deeply that the freeways could not do much else but follow suit.<sup>37</sup> However, by adding a second story to the city's horizontal landscape the freeways gave a literal spatiality to the layering operations at work.<sup>38</sup>

The connection between transportation, water, and growth has always been explicitly expressed by the form of Los Angeles. The grids of railways (later the freeways), hydrologic infrastructure, and growth, mimic and play off of each other at every juncture. William Kahrl links the building of the aqueduct to city building even in the most formal sense, “The Angelenos who built the city...were engaged in laying the foundation for a modern metropolis. The advent of a new water supply changed the shape of the city itself.”<sup>39</sup> Indeed, the building of the aqueduct and the water system along the lines of transportation laid the blueprint for a dispersed urban landscape where it was not necessary to cluster around a single water source or metropolitan center. The landscape of layered idealizations that germinated during Los Angeles' curious early development in later years grew into a sprawling<sup>40</sup> urban form, and, as an extension, sprouted dominating tentacles into far-off landscapes.

With the initiation of the building of the Los Angeles Aqueduct, the city was preparing to project its idealizations beyond the immediate area into a remote landscape coveted for its natural resources. By building a long arm of steel and reinforced concrete out into the hinterland while deceiving the residents of the Owens Valley as to their intentions, William Mulholland and other leaders of the city's water department were able capture the narrow valley's abundant water supply and deliver it solely by force of gravity back to the young megalopolis. According to Los Angeles Department of Water and Power literature, Mulholland, on his first visit to the Owens Valley looked down from its southern cusp into the Mojave and the ancient riverbed where Owens Lake had once spilled out into the desert, “and saw that the course of the old river was a direct

route to the mountains north of Los Angeles and that these mountains were the last barrier to delivering a new supply to the thirsty city.”<sup>41</sup> While probably apocryphal, this description exemplifies the off-hand religious significance that is often given to the earth’s natural features with complete disregard to physical or social realities.

With this vision, the water prophet began planning the aqueduct, the resulting design of which “was unlike anything ever seen before. Without any visible storage facilities, it was essentially a pipe connecting two points that didn’t exist.”<sup>42</sup> The economic context of the project forced a stripped down design, without a single pump or holding reservoir, which expressed very clearly the idealization of the remote, ‘natural’ environment that was to be the logical extension of Los Angeles’ own landscape. If one traces the path of the water today, from Mono Lake down to San Pedro, it appears that the Owens River is merely a tributary of the Los Angeles River. The Owens Valley itself is not naturally a lush environment, simply awaiting the seed of an agrarian civilization. It is, in fact, much more of a desert than Los Angeles. But during the latter half of the nineteenth century, the abundant waters of the Owens River had been diverted and the land amply irrigated to capitalize on its potential for farming. The building of the aqueduct forced the redensertification of the region. In response to the suggestion that the city do more in recompense for its actions, which crippled the valley’s economy for many years, Mulholland stated, “This fertile region will be nearly depopulated in the future in order to make more water available for the rapidly growing city.”<sup>43</sup> While admitting a certain economic value to Owens Valley agriculture, Mulholland speaks of the transfer of resources as if it were the logical progression of civilization. In the context of the above quote, it appears that the city’s water establishment saw the aqueduct, and the Owens Valley, as natural extensions of the urban landscape, as if during puberty all urban organisms grew tentacles and appendages which allow it to nourish its over-development.

Indeed, Mulholland’s ideas about nature display a certain purist attitude, that nature should be seen as totally apart from the city, and that whatever the city chooses to colonize immediately becomes its own. The man who built the aqueduct, who hated politics and unrelentingly quashed political opponents, who—it should be mentioned—played the lead role in a propaganda film about the Department of Water and Power, made a remark concerning the use of landscape photographs that provides an integral tool for the understanding of his attitudes regarding the relationship of the city and the country. When dining in 1925 with the head of the National Park Service, he stated boldly:

...you want to know what I would do [with Yosemite National Park]?...Well, I’ll tell you. You know this new photographic process they’ve invented? It’s called Pathé. It makes everything seem lifelike. The hues and coloration are magnificent. Well, then, what would I do, if I were custodian of your park, is I’d hire a dozen of the best photographers in the world. I’d build them cabins in Yosemite Valley and pay them something and give them all the film they wanted. I’d say, “This park is yours. It’s yours for one year. I want you to take photographs in every

season. I want you to capture all the colors, all the waterfalls, all the snow, and all the majesty. I especially want you to photograph the rivers. In the early summer, when the Merced River roars, I want to see that.' And then I'd leave them to be. And in a year I'd come back, and take their film, and send it out and have it developed and treated by Pathé. And then I would print the pictures in thousands of books and send them to every library. I would urge every magazine in the country to print them and tell every gallery and museum to hang them. I would make certain that every American saw them. And then do you know what I would do? I'd go in there and build a dam from one side of that valley to the other and *stop the goddamned waste!*<sup>44</sup>

Similar to his interest in stereopticons and motion picture technology, Mulholland's desire to use the Pathé process to render these photographs as absolutely lifelike as possible, and then robbing them of their reference is a strange reversal of the early history of landscape pictorialism. Pastoral and picturesque painters fabricated life-like 'views' of landscapes with examples of classical architecture interspersed as a way of bring man's hand into the picture. Following suit years later, the first landscape designers would construct gardens for their clients with replica classical edifices built in as part of these constructed views. Some of the garden views were modeled exactly after paintings, thus giving them a unified reference point in the physical world that did not exist when they were first executed. Mulholland's idea would have made for incredibly precise representations of a much-celebrated landscape, approaching one of two ends of landscape representation identified by W.J.T. Mitchell (the other end being total abstraction).<sup>45</sup> However, the fundamental shift here (which becomes even more intriguing considering the documentary abilities of the photographic image) is that while early landscape architects saw the need to transpose landscape representation into reality, our modern architect of the metropolis is intent on erasing the material referent of these thousands of views that would be produced by his photographers. He sees these photographs as a proper replacement—indeed, an exact replica—for the landscape they represent.

Mulholland's ideal relationship between the city and nature consists of the urban man sitting in his drawing room, in a house surrounded by gardens, looking at photographic reproductions of a place that the city has already subsumed, and erased, and internally redistributed as part of its infrastructural support system. The needs of the metropolis trump those of all other; in fact, the other landscape can be easily reproduced and mass-distributed within the isolation of the single-family x-urban dwelling unit. Mulholland's purist mentality concerning the distinction between man and nature comes to the fore both in his engineering works and his ideas about and implementations of landscape photography.

Another pictorial purist with ties both to landscape photography and the Los Angeles Aqueduct is Ansel Adams. Probably the most famous photographer in the history of the medium, Adams produced a book in 1950 called *The Land of Little Rain*, a reprint of a book of essays on the Owens Valley written by Mary Austin in 1903. While Austin's text was written before the conception of the aqueduct project, Adams photographs come well after its construction—during a time of high tensions between the city and the valley. Despite this gap in time and events, Adams photographs remain eerily aloof of the controversy. His photographs show little direct or even indirect evidence of the aqueduct's effects on the valley. In fact, several of the images he includes were captured dozens of miles away from the valley proper, and the majority of the photographs depict the magnificent mountain scenery surrounding the valley rather than the valley itself. The few photographs that focus directly on elements of the valley landscape are static; giving no hint of the changes those elements had been witness to over the past fifty years. Furthermore, the map of the Owens Valley that appears on the inside of the cover, though clearly contemporary (it shows Highway 395), leaves conspicuously absent the line of the aqueduct.

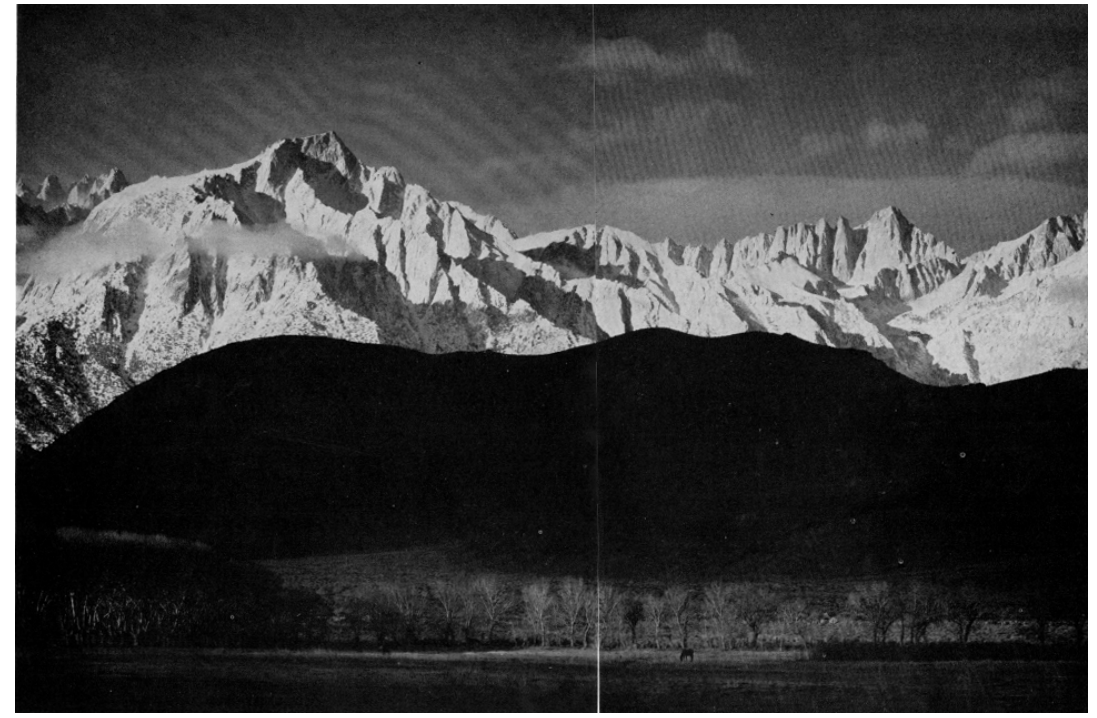
Given this glaring disinterest in the contemporary shape of the landscape, Adams presents himself as nostalgic for the land of the *Land of Little Rain*, untouched (supposedly) by human hands, pure, natural beauty. To his credit, Adams devotes three lines of a three page essay entitled, "A Note on the Land and on the Photographs," to the aqueduct's legacy, "The once bountiful Owens Valley is now sucked dry to moderate the thirst of Los Angeles, three hundred miles away. Farms have died and decayed, pastures have returned to rubble."<sup>46</sup> Why don't his photographs show this decay, this rubble? Symptomatically, he moves directly from these sentences to describing his personal raptures over the brilliant views one may perceive in the Owens Valley. With grandiose descriptions to match his grandiose images, one wonders what land it is that he gets this landscape from, exactly.

In fact, his essay explicitly states that with his photographs he is looking to present the valley from Mary Austin's reader's perspective. He professes a great admiration for her prose, and confesses "a certain temerity" in admitting that he is trying to represent the valley that *she* describes. As such his photographs are images of images, albeit with a transposition of medium. These second generation representations remove him, and his reader, a further step from the landscape. It is as if his photographs, while ostensibly providing a communication link between man and landscape, actually serve to tear the two apart in a hopelessly contrived manner. Adams' approach to the valley is typified in the following statement, "Once the habits of mountain-loving and desert-hating are broken down through experience, the grand unity of the land of little rain becomes apparent, and God is known to move in the sunlight, on the whirling winds, and in the deep thunder of desert storms."<sup>47</sup> While Adams righteously refuses a hierarchy of natural landscapes, he simultaneously imbues nature with an artificial religiosity, putting it out of touch—out of reach—of his audience.





Ansel Adams, Sierra over Owens Lake, 1950 (*Land of Little Rain*).



Ansel Adams, Sierra over Alabama Hills, 1944 (*Born Free and Equal*).

Are the results of Adams' and Mulholland's landscape ideals—both purist, both pictorial—in effect so different? They are both interested in a unified landscape: Adams, because he can hold it up high as a sign of God's presence on earth; Mulholland, because it is easy to dismantle and bury the pure landscape under the brute logic of civil society. But while Mulholland proved the power of the metropolis by constructing the aqueduct and taking the Owens Valley's water, Adams' thoughts have no discursive or practical relevance to his contemporary situation – his photographs can only act at the purest level: as images to be looked at, images that erase the very fact of the landscape.

### **Counter-Images, Watery Myths**

An incredible economy of mythologies has sprung up around the landscape of the Los Angeles Aqueduct. The story of its construction is one that can never be told straight. It is either exaggerated to portray Los Angeles as protagonist in western civilization's forward march of progress, or to portray that same city as a water-stealing, swill producing mire of evil. Even contemporary literature, seemingly removed from the events of almost one hundred years ago, doesn't hesitate to take sides. Marc Reisner, in his opening remarks on the aqueduct story in his book *Cadillac Desert*, describes the post-Civil War city as, "a filthy pueblo of thirteen thousand, a beach for human flotsam washed across the continent on the blood tide of the war."<sup>48</sup> Needless to say, Reisner does not give a flattering portrayal of the city's actions over the course of the subsequent fifty pages. But for every book trying to pull the city down off its throne, there is another pushing it right back up.

William Kahrl has devoted a good part of his life's work to the unrewarding task of debunking untruths on both sides. His authoritative research is handily abused on both sides of the divide, though his account in *Water and Power* was constructed entirely from government records (which he presumes to be accurate). Because he refuses to take sides in the dispute, the two established factions dismiss him as traitor to their opponents. He seems unfazed, writing that, "Neither account is accurate, although both have contributed vitally to the interplay of legend, myth, and political manipulation that has driven the controversy throughout this century."<sup>49</sup> Kahrl ignores what he regards as fictions, and tries to write an objective account of the aqueduct's construction.

While this seems a worthy endeavor from a journalistic point of view, a documentation of the Los Angeles Aqueduct that remains aloof of the morass of images and myths swirling around it ignores its vital essence: the entire landscape under investigation has been built up of these myths and images. Deborah Bright, in an essay on landscape photography, writes, "Landscape is not the field of ideological neutrality," as often as it is posed as such.<sup>50</sup> Images take sides, and objectivity is only a ploy to prolong the reign of

a given vision. Remaining ‘neutral’ only constructs another perspectival myth that is falsely convincing by presenting itself as somehow above the pervasive misrepresentations.

To separate the myth from the landscape is to deprive the events documented—fiction or non-fiction—of their pragmatic bearings.

Thus far, the current investigation has focussed on those images emanating out of Los Angeles: propaganda, advertising, mental gardening, and city building. The role of the oppositional image has not yet been explored. Los Angeles to this point appears powerful, dominating, even belligerent, but it should not be assumed that the city’s ‘victims’ have no means of recourse. Indeed, the opponents of the city have been involved in their own extensive production of myths to counter, decompose, and derationalize the images coming out of the megalopolis that either directly or indirectly threaten their existence. Furthermore, it is not only other political factions that may produce these counter-images. In every image it produces, Los Angeles unintentionally sews the seeds of its own exposure. Certain artists, such as Robert Nakamura and the Center for Land-Use Interpretation, have capitalized on this weakness, directly or indirectly exposing the fundamental flaw of singular landscape representation. Finally, cinema noir presents a surreal urban landscape in which fact and myth are indiscernible, where competing stories expose the very mythologies they aim to construct. As such, the narrative structure of film noir can provide clues as to the structure of landscape. Roman Polanski’s movie *Chinatown* is built upon both the space and the narrative structure of the aqueduct landscape. Its highly fictionalized rendering of the Los Angeles water story is both part of and commentary upon the landscape of the aqueduct under investigation.

### **Resistance Piece**

On November 16, 1924, forty Owens Valley ranchers, led by banker Mark Watterson, laid siege to the Alabama Gates aqueduct turnout structure fifteen miles north of Lone Pine. The men redirected the water from the aqueduct channel back to the floor of the Owens Valley, cutting off the water supply to Los Angeles. An increasing number of valley residents snowballed on the site, closing their shops and leaving their fields. Very quickly the event changed from a revolt to a giant picnic, replete with barbecue, dancing, and an orchestra sent over by movie star Tom Mix, shooting his latest Western at the nearby Movie Flat.<sup>51</sup>

Despite being an archetypal example of American grassroots activism, the rebellion was remarkably unsuccessful. In five days Mark’s brother Wilfred had brokered a deal with Los Angeles city leaders to return a certain amount of water to the valley, but the California governor refused to call out the National Guard, depriving the ranchers of the chance to generate some real publicity for their cause. Sympathy for the ranchers had increased during the siege, with several editorials in Los Angeles papers coming out in their

favor. But the day after the rebellion disbanded, the city water establishment reneged on their deal and quickly moved to paint the rebels as hick terrorists in the local press. As valley activists were soon to learn, resistance could more effectively disrupt the progress of the aqueduct if they fought Water and Power with their own weapon: images.

The strength of activist propaganda in fighting the aqueduct was actually well proven during its construction. There are several examples of how subordinating images were used during those times to try and stop the aqueduct's construction. For one, Biologist Dr. Ethel Leonard in 1914 published a scientific report, later used as evidence in a suit brought against the city by the People's Aqueduct Investigation Board, claiming that Owens River water was poisoned by anthrax and typhoid, and that the shores of Haiwee Reservoir were piled with the carcasses of dead animals who had watered there.<sup>52</sup> Even though the report was totally falsified and quickly exposed as such, the lurid imagery of animal corpses generated such consternation among Los Angeles residents and politicians that Mulholland felt it necessary to deny the claims in an appendix to his final report on the aqueduct two years later.<sup>53</sup>

During an extended legal battle in the late twenties, which culminated in several bombings of the aqueduct, valley residents engaged in a public relations campaign in the hopes that the people of California might take their side against the powerful Department of Water and Power. Not only did an Owens Valley resident write a twelve part essay in the *San Francisco Call* entitled "Valley of Broken Hearts," resistors also bought a full page ad in the Los Angeles Times with only the words, "WE THE FARMING COMMUNITIES OF THE OWENS VALLEY, BEING ABOUT TO DIE, SALUTE YOU!"<sup>54</sup> With the tide of Yellow Journalism swinging in their direction, valley residents posted one of their biggest victories in their attempt to win concessions from Los Angeles when the city's mayor subsequently approved funds to buy out all the land in the valley.<sup>55</sup>

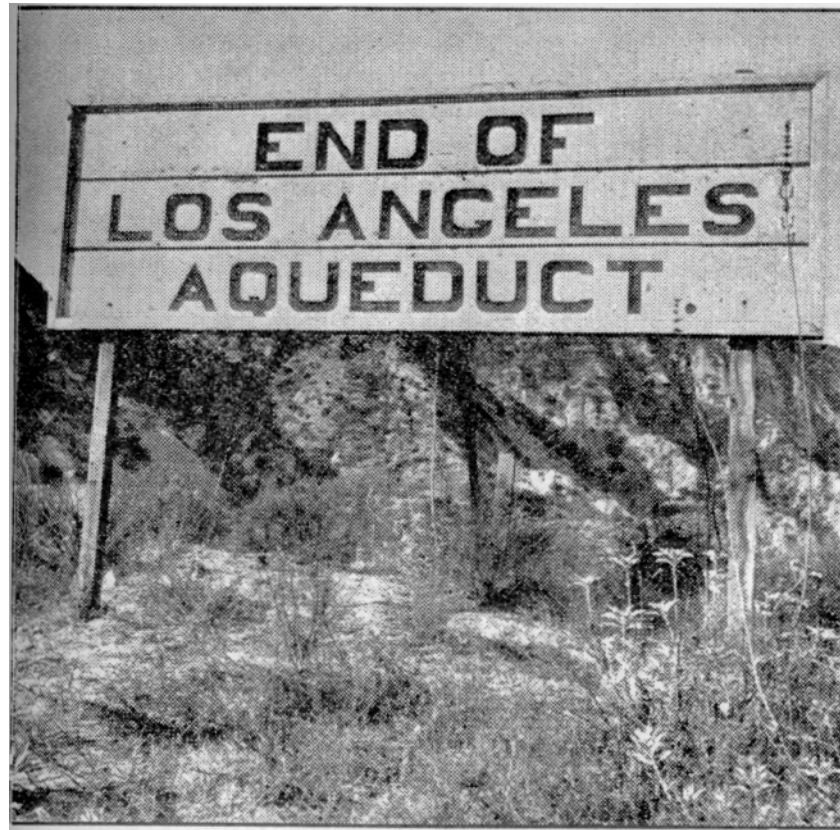
Later attacks on the aqueduct more effectively coupled image with material fact. Owens Valley residents mounted a decisive attack on the Angeleno water myth in September 1976, when, in the wake of dropping aquifer levels, agricultural die-off, dust storms and the resulting auto accidents, not to mention a marked belligerence on the part of the Department of Water and Power with respect to basic water needs in the Owens Valley—all due to the construction of a second aqueduct out of the valley—a stick of dynamite attached as payload to a longbow arrow landed in the William Mulholland Memorial Fountain at the entrance to Griffiths Park only one day after a bombing of the Alabama Gates turnout structure in the Owens Valley.<sup>56</sup> The bomb in the fountain failed to detonate, but the message was clear. By coordinating the attack on Mulholland's semblance in bronze relief with a nearly simultaneous attack on the aqueduct itself, valley rebels clearly articulated the connection between the fact of their deprivation and the representation of this concern to the people of Los Angeles. Mulholland, the designer and builder of the first aqueduct, was by then considered a city patriarch and certainly the

closest thing a civil servant ever came to demigod. His image became representative of the civil engineering society – the metropolis overpowering and overtaking distant landscapes in order to capitalize on their natural resources. The attack on the fountain that commemorates him was an attack on the city’s indifference with respect to ecologies and human lives in outlying areas that its public works directly affected. This coordinated attack was one of the most effective ever by Owens Valley residents due to a new-found ability to control how their environment was represented to the people who were indirectly responsible for its condition. Public opinion was swayed in their favor and soon thereafter a number of court decisions eventually forced Los Angeles to confront the very landscape to which it had remained willfully indifferent for three-quarters of a century.<sup>57</sup>

In 1912, Los Angeles water magnate W.T. Spilman published a pamphlet entitled *The Conspiracy* that exposed the San Fernando Valley Land Company’s role in paving the way for, and potentially capitalizing off of the construction of the aqueduct. Though rich in exaggeration, the pages of the pamphlet provide the basis for reigning popular myth about the aqueduct’s construction (especially after its immortalization in the Hollywood movie *Chinatown*). *The Conspiracy* fabricates the rumor that Mulholland and Lippincott had been secretly draining water from the city’s reservoirs in the weeks before the first bond election in an attempt to bolster fears of an impending water famine. Especially notable is the last page, on which we see the image of a lonely billboard set up against a mountainside announcing “THE END OF THE LOS ANGELES AQUEDUCT.” On this final page, Spilman writes:

Thirty miles from Los Angeles a dismal hole in the hill, strewn about with debris and wreckage, lonely, deserted and desolate, marks the end of the Owens River Aqueduct. The signboard shown above was erected by the engineers. This stands a living monument, a confession of the conspirators that they deceived the people of Los Angeles when they drew such glowing word pictures of the pure water coming down from the base of the snow clad Sierras piped into their home.<sup>58</sup>

Spilman’s text is an exemplary counter to the unified images that Mulholland and his cohorts were able to assemble in support of the aqueduct project. He quickly identifies the ‘word-pictures’ that the water establishment composed to lure Angelenos to fund the aqueduct project, which, he argues, will serve only to fatten their own, and their rich colleagues’, coffers. He calls the decrepit billboard that illustrates the page ‘a living monument,’ and paints it as a decrepit ruin to the future fall of Los Angeles under the burden of corruption. The photograph serves not only as the concluding image to the pamphlet, but as the projected endpoint of the aqueduct story: a ruined city where desert encroached and destroyed a once prosperous society. Indeed, the dry foliage around the sign reinforces and plays on Southern Californians’ deep-seated fear of desert.



W.T. Spilman, End of the Los Angeles Aqueduct, 1912.

In effect, Spilman's pamphlet undermines the consistently positive images of the aqueduct by using the very same images against it that its boosters had used in its favor. The entire campaign to fund the aqueduct was a subtle, and at times not so subtle, manipulation of the desert-loathing collective psyche of Los Angeles into believing that building the aqueduct was a matter of survival, not a means for growth and enriching the city's business leaders. That Spilman uses this same theme to try and debunk the aqueduct shows the essentially conflicted nature of the photographic image. In his analysis of advertising imagery, Roland Barthes points out that the literal content of the photographic image, especially because it seemingly lacks the intervening 'hand of man' apparent in other forms of representation, often serves as a falsely objective witness to whatever argument its framer is trying to make. While framing and composition are an essential part of any photograph, the image that they contain and create seems a simple capturing of reality, not a construction in its own right. The result is that the descriptive content of the photograph *naturalizes* the symbolic message, making innocent whatever psychical connotations the things photographed might have.<sup>59</sup> Thus it is apparent how the image of the desert can be represented in two different—indeed, contradictory—contexts. Having been offered only the 'official' image of the aqueduct given by water officials – the aqueduct as a solution to the desert problem – Angelenos would invariably support the aqueduct, as would anyone support their own livelihood. But, immersed in the sea of conflicting images, choices become less clear. The viewer becomes increasingly aware, with each image undermining its predecessor, that perhaps the landscape of this aqueduct is not what it appeared in that first picture of the lush vegetation promised to the people of Los Angeles, nor the Lynch-esque poisoned animal corpses on the shores of Haiwee Reservoir. The landscape serves only to be manipulated by singular representation, and when such actions are purported, there is invariably a reaction in the form of a counter-image.

A handful of artists have, in recent years, constructed their own counter-images about the landscape of the aqueduct. The Center for Land-Use Interpretation, based in Los Angeles, installed one in their continuing series of Sound-Emitting Devices in the dry bed of Owens Lake in 1995. The installation, entitled *Water Ghost*, runs on solar power and every day beginning just after nightfall continuously emits the recorded sound of gently lapping water until the batteries run out a few hours later.<sup>60</sup> The lake was dry from 1928 until just very recently when the Department of Water and Power began their reparative dust-abatement project there, which involves shallow flooding of the 100 square-mile lakebed. During its dry period, the lakebed was a limitless repository of alkali dust, which would get blown into the atmosphere by high-speed winds whipping through the tail end of the valley. The project is a clever response to the aqueduct, interposing the landscape 'that was' within the current landscape that is effectively the product of the aqueduct's construction. The disorientation generated by the juxtapositioning of the desiccated view (the very placement of *Water Ghost* constructs a view of the lakebed and also

the adjoining ghost town of Keeler), replete with swirling dust storms, with the sound of lapping water functions such that the contradictory images can be sensed simultaneously, as opposed to subsequently as would occur with two photographs or paintings.

Robert Nakamura's sixteen-minute 1971 film about the Manzanar War Relocation Center conveys a totally alternate perspective of the landscape of the aqueduct. Built in 1942 in reaction to the bombing of Pearl Harbor by the Japanese Air Force and the subsequent issuing of Executive Order 9066, Manzanar was one of many concentration camps set up for Japanese immigrants and Japanese-American citizens across the United States (mostly in the desert Southwest). Over 10,000 Japanese-Americans, mostly from Los Angeles, spent three years at Manzanar, carrying on relatively normal lives within the confines of the camp.<sup>61</sup> Ansel Adams was one of the first artists to document the camp in a short book called *Born Free and Equal*, in which, while speaking out against the camps, he dubiously remarks, "I believe that the arid splendor of the desert, ringed with towering mountains, has strengthened the spirit of the people of Manzanar. I am not saying all are conscious of their influence, but I am sure most have responded, in one way or another, to the resources of their environment."<sup>62</sup> Adams clearly believes in a transcendent power of landscape scenery, and while the mountains surrounding the Owens Valley may be awe-inspiring, for Adams to try to impose his own interests on the plight of these people forces the reader to dig deeper. Later on in the introduction, Adams notes that he "tried to record the influence of landscape on the people of Manzanar."<sup>63</sup> Considering that this is an explicitly political publication, Adams' intentions become obscured. The fact that he is 'recording the influence' of the landscape on a caged people, he begins to sound almost as if he were a deranged scientist conducting psychological experiments in the controlled space of the laboratory, only the space here is controlled by armed guards perched in towers holding machine guns. Indeed, Adams' interests do not appear to lie with the Japanese prisoners, but with the landscape that they can see but not touch; the book is arranged such that a body consisting of portraits of smiling Japanese-Americans is placed between an introduction and conclusion written in landscape photographs. It seems as if the Department of the Interior, which hired him for the job, was seeking to give the righteous, though admittedly unglamorous, publication a celebrity cachet. However, Adams' purist mentality prevents him from producing an adequately political work. He is more interested in the aesthetics of the concentration camp than in its social significance.

Robert Nakamura's film *Manzanar*, on the other hand, comments directly on the camp as well as on the surrounding landscape, without slipping into the trap of circumscription. The film starts out with typical shots of sunny spring scenery in the Owens Valley: leaves blowing in the trees, the picturesque stone checkpoint buildings at the camp's entrance, the obligatory shots of the Sierras in the background. While recording a little flower dancing lightly in the breeze, the camera shifts focus: the flower blurs, the screen darkens, and the viewer is confronted with a segment of barbed wire pulled taught in front of the camera. The film continues, interspersing contemporary shots of the





CLUI, *Water Ghost*, 1995.



Broken glass, still from *Manzanar*.



Groundwater pump, still from *Manzanar*.



Dusty grave, still from *Manzanar*.

abandoned, near-buildingless camp, with footage of historical newspaper accounts of the camp's construction and operations, as well as images of anti-Japanese propaganda of the era. Nakamura's voice drifts in and out, recounting memories of his childhood spent in the camp completely unrelated to the narrative of the images. The film then comes back to Manzanar in the present. It is now bleak, desolate, and dusty – a memorial to itself with its abandoned infrastructure, bare building foundations, and creaking dead orchard.<sup>64</sup>

By interweaving text and image, past and present, the film constructs a narrative that integrally links the story of Manzanar with the landscape in which it occurred and the remains of the human occupation of the site. One shot pans across a vast area covered with shattered teacups and saucers, presumably abandoned with the taking down of the mess hall. Another poignantly shows marked and unmarked graves of Japanese-Americans who died in the camp, which was the site of a deadly conflict between guards and prisoners. It is windy and blowing dust obscures the view, touching on a continuing environmental condition of that part of the Owens Valley. The film, risking on exaggeration, was shot at the driest time in the history of the valley – Los Angeles had just completed construction of a second aqueduct out of the region and was in the process of pumping its aquifers dry – even so, William Kahrl notes that, “All accounts of Manzanar agree that dust was the central fact of life.”<sup>65</sup>

The shot of dust blowing up against the tombs shows an essential link that Nakamura has drawn between the concentration camp and the landscape of the aqueduct. Los Angeles, with the assistance of the federal government, had rendered the Owens Valley land sterile. Now that the army needed a place to keep 10,000 undesirables for three years, where else did it look but to that barren landscape that it had played such a key role in emptying out? When the army set up the 4,000-acre camp, they commandeered one of the tributaries to the aqueduct to provide water for drinking, farming, and industrial uses. They chose the site based not only on accessibility to Cottonwood Creek, but also because the hydrologic infrastructure had already been laid by water colonist George Chaffey, who three decades earlier had been forcibly removed from the site by Los Angeles litigators.<sup>66</sup> One sequence in this third movement of the film displays still shots of different elements of the Manzanar water system in bleak, clouded lighting. At the same time, we hear the sound of a bubbling creek, but throughout the sequence, no water is to be seen until the actual creek itself is shown, flowing only a few hundred yards further east before draining into the aqueduct. Then south to Los Angeles. Employing the same bi-sensory device as the Center for Land-Use Interpretation project by playing the sound of water where it remains conspicuously absent in the visual frame, Nakamura's intention is not to directly address the aqueduct issue (his subject is Manzanar), but to imply a parallel between the oppressive desolation of the camp – both while it was in operation and now, in ruins – and the dry valley, pushed to the brink by a megalopolis two hundred miles distant.

These modern artworks that respond, both directly and indirectly, to the landscape of the Los Angeles Aqueduct present very different sorts of counter-images to those found in the political propaganda and resistance attempts by valley residents. The reasons for this are many: they are outsiders, and of a different generation both in age and in social sensibilities. While valley residents and the aqueduct opposition used images as a means of self-preservation, these artworks do not seek to change the existing condition in any direct fashion. Certainly, the Los Angeles-based Center for Land-Use Interpretation project is not seeking to change past actions. Their Sound-Emitting Device is a coy commentary on Los Angeles' unilateral brusqueness in dealing with foreign landscapes. The project is a subtle, nearly imperceptible, intervention into the un-built environment that serves only as a merging of two distinct potentials of the same locale into a single perceptual frame. In contrast to their engineer forbears, these contemporary ambassadors are not orchestrating major interventions in the area; they are merely conducting an exposition of those values we have placed on various landscape forms and land-uses. Nakamura's film is not an advocacy for future change, but rather an unsettling memorial to a tragic event in a society we take for granted as 'free and equal.' The omnipresence of the aqueduct landscape—both actual and metonymic—in the movie, and the concomitant layering of the time scales of two disparate events, results in a filmic structure where nature acts not as the 'setting' for the Manzanar drama, but rather becomes a parallel story line hovering above the ostensible subject, drawing the inevitable lines of comparison between the two processions.

Both *Manzanar* and *Water Ghost* act simultaneously as documents of and interventions within the landscape of the Los Angeles Aqueduct. The images they produce and play on are not singular, as with the mythologies produced by either side of the aqueduct rift, but multiple. Upon the first reading they appear benign, mundane even, but when their alternate meanings are either unearthed or foisted upon the audience member, they present an ambivalence of perspective that aqueduct landscape as a whole—if we are able to consider such ambivalences as whole—encompasses.

### **Chinatown: Landscape and Noir**

Los Angeles is often characterized as the prototypical noir city, a fractured metropolis "permanently in shadow...littered with the trash of broken lives and the legacy of self-destruction."<sup>67</sup> The city (probably the setting for more films of this genre than any other), has become the stage upon which the narrative of the hardboiled private-eye roaming a landscape of corruption plays itself out; where truth and fiction merge; where the mystery that he sets out to solve invariably swallows him whole, becoming the means of his psychological disembowelment. Film noir centers on the urban condition, and its dispersed narrative structure is especially attuned to that of Los Angeles.<sup>68</sup> However, Los

Angeles is not our direct concern: we must question whether this particularly urban narrative cycle is applicable to a study of the landscape of the Los Angeles Aqueduct. The movie *Chinatown*, a neo-noir filmed in 1972, presents us with an opportunity to explore this issue. The movie is a syncretic, semi-fictionalized retelling of the aqueduct story whose structure does not deny the myth-nature of the aqueduct landscape, but rather offers its protagonist as the means by which overlapping perspectives of the landscape may be explored. Within the detective narrative of ‘searching for the truth,’ the film constructs its own myth out of the landscape of conflicting images in that extreme example of conflicted urban sites. The movie thus operates within the aqueduct landscape at two levels, giving it both the spatiality and the narrative structure of noir.

*Chinatown* is set within the context of drought—the most desperate of all weather conditions in the city that is convinced that it was meant to be green. Within this setting, however, the politics of the water issue are reversed. Hollis Mulwray, William Mulholland’s representative character, is a detractor of the Alta Vallejo Dam proposal whose presentation marks the start of private eye Jake Gittes’s investigation into the water chief’s adulterous escapades. In this scene, Mulwray speaks out against the project, citing safety concerns. His words threaten not the livelihood of the Owens Valley, but that of the San Fernando Valley only a few miles to the north. The stark contrast between Mulwray and the real-life Mulholland elicits the question of whether or not the two personages can be linked at all, and whether the movie is indeed related to the aqueduct. But this incongruity between the characters utilizes a device characteristic of the noir genre – the confusion of image and reality – though within a different narrative order. The screenwriter addresses the fact that the film is roughly based on real events by creating a disparity, which actually serves as a metaphoric link, between the film’s internal narrative and the broader scope of history.

The important theme here is not historical accuracy, though; it is water, and the corruption and greed that the economics of water produce in the semi-arid city. As Nicholas Christopher describes:

The director, Roman Polanski, richly offers up a Los Angeles so parched by drought that the entire film revolves around water. Water as the city’s lifeblood, as a commodity, as a religious and metaphysical element, as a ramifying symbol of sexual potency and barrenness, of political power and public fraud, and ultimately, of who will reside among the living and who will be dispatched to the land of the dead. A place, we come to feel, is increasingly close at hand.<sup>69</sup>

As much as this statement exaggerates the actual presence of water in the movie, its thematic role is integral. Sites of water, with special emphasis on the hydrologic infrastructure of the city, act as the settings of action and corruption. Outside of *Chinatown*, Jake’s beat when he was with the Los Angeles Police Department and a space we only enter at the

movie's end, water locales are the only scenes where action occurs, or is at least alluded to. In contrast to most other films of the genre where the dark alleyways of the urban center perform this function, in *Chinatown* the city's water system, invariably located at the urban *periphery*, becomes the noir landscape, referring to dubious actions both in the past and the future, but very rarely in the present.

Immediately after Jake is hired by Ida Sessions posing as Mulwray's wife, he attends the Alta Vallejo Dam public comment session where the water chief is to be present. Mayor Bagby, speaking first, praises the project while standing next to an easel with a giant map exhibited below the title "ALTA VALLEJO DAM AND RESERVOIR." The map represented, on closer inspection, turns out to be not a site plan for a dam, but a map and elevational profile of the Los Angeles Aqueduct, which goes otherwise unmentioned throughout the story. The dam project is the metonymic counterpart of the actual aqueduct, which serves as a subtle attempt to give the city's water situation the historical weight of the aqueduct project. The mixing of real and fictional images here, as in the character disparities noted above, ties the film's fictional structure to historical events without the constraints of keeping the facts absolutely accurate. Indeed, the temporal and historical accuracy of the movie is hopelessly skewed, making it less of a history film than what Frederic Jameson calls a 'nostalgia film,' made in a style already ten years laid to rest, and set in a time period (late twenties) that does not come close to matching that of the events to which it refers (c. 1905).<sup>70</sup> Another allusion is made a few minutes later, when Mulwray takes the stage, though this time it is to an event which exists both within and without the movie's narrative. The dam project is a political ploy, ostensibly for the purpose of irrigating farmers' fields in the San Fernando Valley, but actually only to make good a speculative investment made by the powerful members of the Albacore Club. The water chief opposes the dam and refuses to build it because it is proposed that the earthwork be built on a similar geological footing as the Van der Lip dam (a.k.a. the St. Francis Dam) which he informs us collapsed and killed over five hundred people. Thusly the city's hydrologic infrastructure is implicated as the space of both disaster and corruption within the first ten minutes of the movie. The fact that the 'scientific' drawings which construct part of this link refer to a different infrastructural element (the aqueduct) than what the city leaders are concerned with serve as mutually undermining images – a contradiction of speech and vision – subtly destroying from the very start any possibility of truth or even a superficial resolution to the crimes that are ostensibly the object of the detective's inquests.

In the next scene, Jake follows Mulwray to the barren Los Angeles River bed, where, through binoculars, he watches but does not hear Mulwray exchange words with a Mexican boy on horseback. Mulwray squats down and examines the meager puddles at his feet, then goes back to his car and scribbles something in a ledger. Jake then follows him to a beach on the Pacific Ocean, where he spies on the water chief from a perch in a storm drain exiting the cliff forty feet up. Hours later, at sundown, Jake hears a roar

behind him and gets out of the way just as hundreds of gallons of water spew out of the steel pipe. We only later learn the significance of these scenes when Jake visits the Los Angeles River himself to see how the town drunk could possibly have drowned in the damp riverbed. The same boy on horseback ambles up to him and Jake inquires what he was talking to Mulwray about. “The water,” the boy tells him, “. . . Comes in different parts of the river—every night a different part.” Water department officials, acting under an illegitimate authority, have been dumping water from the city’s reservoirs into the ocean, thereby heightening public concern over the dropping reservoir levels and improving the chances that voters will approve the dubious Alta Vallejo dam project. The river, whose concrete flood control lining is at this point only partially installed, is the site where the corruption driving the current water scandal is exposed.

After ten movie minutes on Mulwray’s trail, chasing him from element to element in the city’s water infrastructure, Jake finally catches him in the act of his adulterous affair. Though reasonably confused as to why Mulwray spends so much of his day in desolate locales (as his assistant remarks, “He’s got water on the brain!”), Jake is eager to wrap up the case. He finds Mulwray at Echo Park enjoying a romantic row in the pond with his concubine. Jake snaps some photographs, which promptly find their way into the hands of the press in a plot to publicly discredit the engineer. The papers come out the next day with the headline, “Department of Water and Power Blows Fuse,” above a lace-fringed heart-shaped photograph of the lovers gazing at each other expectantly. The paper’s blaring headline treats the personal scandal as proof of inadequacies within the Water and Power administration. Mulwray is embarrassed both personally and professionally in one blow. The city’s media establishment, which in real life had a great financial investment in the watering and annexation of the San Fernando Valley, seeks to use Mulwray’s alleged affair to expose his inability to govern the city’s water supply. Thus a link of corruption, which is itself corrupt, is forged between Mulwray and the city’s water supply system. That the engineer was first discovered in his affair while drifting along the surface of an artificial pond supplied by the city’s water system only further engrosses the infrastructural landscape in this saga.

In two separate scenes, Jake visits the city’s Oak Pass Reservoir to further investigate Mulwray’s cryptic behavior. Immediately after the publishing of the photograph of Mulwray with his mistress, Jake is contacted by the real Mrs. Mulwray who first threatens to sue him, but then directs him to her husband so that he can clear both their names after having been duped by the impostor. When Jake arrives at the reservoir for the first time, it is a typical sunny Southern California day. Just as he descends on the reservoir, he finds himself in the midst of a crime scene investigation led by one of his former Chinatown peers. Within moments Mulwray’s waterlogged corpse is pulled up one of the reservoir drainage chutes with a rope tied around his torso. Mulwray has been drowned, though not in the Oak Pass Reservoir, as we learn later. The hydrologic site is not the space of action but rather action’s delayed referend – once Jake arrives it is already much too late to do anything at all. The reservoir is the most material manifestation of the city



Stills from *Chinatown*, 1971.

water system in the film, and likewise serves as the site of exposure of the film's central criminal act. With the discovery of Hollis's death, Evelyn Mulwray hires Jake to investigate, even though it seems she knows perfectly well that he was murdered by his former business partner (her father) Noah Cross in the decorative saltwater pool in their backyard. That his actual murder takes place off-screen in the only body of water in the film that is not regulated by the Water and Power plutocracy alludes to the different narrative significances of 'legitimate' and 'illegitimate' waters. Water blessed by the authority of Water and Power is a life-giver; any breach of that authority is a guarantee of death.

The second time Jake visits the reservoir, he drives down the access road under the veil of night. It is nearly impossible to see the reservoir from the road, and the viewer's eyes are guided only by the reflection and the frame of the point of view shot originating from the back seat of Jake's car. He hops the fence and starts snooping around. A gunshot sounds and Jake ducks into one of the drainage channels for shelter, only to find a deluge of water barreling down on him, sweeping his feet from under him and landing him up against a chain-link safety fence further down. He manages to pull himself out of the water only to be brutalized by the city's hired goons. This scene is the closest Jake comes to witnessing criminal action in the entire film. Had he seen a crime and lived to tell the story, the case would have been solved. But as is noir's wont, the crime, which is always multiple, eludes the investigator, resisting a singular solution.

This second role of the infrastructural site is an obscuring one. While the water system has been seen to be the site of the exposure of crime, it gives only an oblique view, and then quickly covers up even that. Indeed, these spaces corrupt the very evidence they reveal in the noir detective's nominal quest for 'answers.' That Hollis Mulwray spent the last days of his life intently observing these sites (three reservoirs in one day) looking for evidence of the criminal activity revolving around and within them reveals his tragic flaw. Re-quoting Nicholas Christopher's words, "Water as...a ramifying symbol...of who will reside among the living and who will be dispatched to the land of the dead. A place which we come to feel is increasingly close at hand."<sup>71</sup> Mulwray, it turns out, was conducting an investigation parallel to Jake's own. As an insider, however, he posed much more of a threat to the stability of the system than did Jake as a two-bit private investigator on the trail of an adultery case. Jake is given a relative slap on the wrist, Mulwray gets the real punishment.

At almost every step of the story's progress, Jake makes quick comparison between his current situation and his experiences on the Chinatown police beat. After getting in a fight with Water and Power goons, Jake thanks Evelyn Mulwray, who asks him when was the last time he got in a situation as sticky as that. "In Chinatown," he replies. Chinatown was so corrupt, so defeating, that Jake quit the force and became a private investigator. The recurrence of the theme prefigures the film's inevitable tragic end: the



inglorious termination of the femme fatale. For Jake, Chinatown serves as the associative leitmotif of every painful realization of forces beyond his control, and these associations come up repeatedly with regards to the water system.

What does it mean then, that not only does Jake make an explicit link between the landscape of the hydrologic infrastructure and the traditional space of corruption—the central city; Chinatown—but that all illegal activity makes itself known at these sites? It appears that, in the movie, a fundamental shift takes place whereby the infrastructural site—the landscape of the Los Angeles Aqueduct—becomes the new frontier of noir. Reservoirs, drain pipes, and flood washes are the sites that hold the residue of criminal activity in drought-stricken Los Angeles. These spaces serve as the allegorical backdrop to the more individual themes that pervade the movie: adultery, incest, greed, and avarice.

Crime is the medium of the noir narrative – the ether through which the detective floats, drifting from one scene to the next, formulating a view of the case through multiple perspectives. And just as he thinks the case is closed, everything changes and he is confounded once again. In the same sense, pictorialism is landscape's crime (a fact that is sending many fleeing to the suburbs<sup>72</sup>) – the medium by which its narratives are allowed to operate. By recognizing the host of images surrounding the landscape of the Los Angeles Aqueduct as an integral part of that landscape, a parallel world of competing myths and idealizations opens up which then serves as the medium through which our inquiry into the construction of the aqueduct landscape may be conducted. Indeed, if the water system operates as the simultaneous site of crime (or its reference) and of pictorial representation (the filmed scene takes place there), then the link between the narrative structure of noir and the landscape of the aqueduct does not seem so farfetched. In the water-driven megalopolis, hydro-infrastructure does not just regulate growth, it constructs the framework in which the conflation of myth and anti-myth create a totally other history of the aqueduct.

Not only does *Chinatown's* noir inhabit the landscape of the water system, the image-structure of landscape inhabits the narrative structure of film noir. In their landmark essay defining the genre, Raymond Borde and Étienne Chaumeton write that:

[As] a general rule, the perspective of film noir is realistic and each scene in isolation could pass for an excerpt from a documentary. It is the sum total of these realistic snapshots of a weird theme which creates the atmosphere of the nightmare. As we might have guessed, all the components of film noir yield the same result: disorienting the spectator, who can no longer find the familiar reference points.<sup>73</sup>

Each 'realistic snapshot' presents itself as 'truth,' but only the multiple layering of these authoritative images into a bleak dreamworld constitutes noir. Similarly, when looking at pictorial representations of the aqueduct landscape, each single image, taken by itself, might present a pastoral paradise (the Owens Valley) or a barren hell (the encroaching

desert) or anything opposite or in between. However, only when taken as a group—as a landscape in themselves, yet still somehow connected to real space—may the images operate within and against each other to produce a landscape that may exist outside the realm of myth and propaganda. Landscape thus becomes a palimpsest of image-scapes produced by many different hands and forces. As such it is only fitting that films noirs are rarely attributable to a single auteur.<sup>74</sup> In the case of *Chinatown*, different figures at different points in time reconfigure the events of the aqueduct into the wholly babelizing film-document that exists today. We witness Roman Polanski rewriting Robert Towne's adaptation of Carey McWilliam's polemic against the boosters of Southern California Country who produced the first 'authorized' image of the aqueduct landscape (et cetera), such that no one hand can be raised up as chief contributor.

The consequent layering of images and stories seemingly without hierarchy within this landscape produces the interminably mired space of film noir. "Good and evil go hand in hand to the point of being indistinguishable...the moral center is completely skewed,"<sup>75</sup> or so write Borde and Chaumeton. The total dissolution of a moral hierarchy leads to an abandonment of lofty idealism in favor of simply staying afloat. As Dimendberg insists, "Film noir...trades in obliqueness and frustrates reductive explanation by any single cause."<sup>76</sup> There are no grand solutions to film noir. Every attempt to explain motivations, which are invariably multiple and indirect at best, finds contradiction in the next turn of events. The audience is left enervated, barely able to watch the galaxy of narratives' downward spiral into the abyss. Even our detective is lost in this swamp of confusion. "You may think you know what you're dealing with—but believe me, you don't," says the man whom the private eye doesn't even know is his enemy. But this scene is familiar to him, and he speaks confidently as he subconsciously charts his own destruction, "That's what the district attorney used to tell me in Chinatown."

In the midst of all this confusion, film noir does perform a certain 'unmasking' of reality. The unmasking does not so much resolve or even make clear the corruption and injustices apparent in the film, but rather exposes other narrative possibilities within the landscape. The bog of images and stories is there to be navigated, not just looked at. Similarly to the paradoxical images and narratives of film noir (every one looks ok by itself, but when held up to the light, is full of holes), images of the landscape invariably conjure up subversive counter-images of darkness, what W.J.T. Mitchell calls, "a moral, ideological, and political darkness that covers itself with precisely the sort of innocent idealism [we associate with landscape aesthetics]."<sup>77</sup> Under the thin veil of singular pictorial representation, a strange, other landscape prevails – one that, while no closer to giving a reductive solution (much further, in fact), suggests the possibility of autonomy in traveling within this horizon of representation. 'Confusion' and 'fear' do not limit our possibilities, but rather open them up for us, revealing the historical events and social underpinnings of every pictorial landscape.

*Chinatown* presents a unique document in the history of the landscape of the Los Angeles Aqueduct. While the analysis of propaganda and advertising imagery has shown ways in which the landscape has been intentionally restructured through the use of images, and various artworks have provided critical commentaries on the current manifestations of that landscape, the movie mediates between the two by simultaneously representing the spaces and narratives of that landscape in a new light both for the noir film genre and for pictorial landscape representation. By both operating within and rewriting the story of the aqueduct landscape, the film's narrative structure suggests a multiple landscape in which idealisms break down and the myths of the landscape present themselves repeatedly in varying and contradictory perspectives. *Chinatown's* retelling of the aqueduct story is a double representation where the water system as the site of noir is both an anti-myth to the official story of the aqueduct handed out by the Department of Water and Power, and a fabrication in itself. By working at the brink of fiction—teetering on fact—the film immerses itself in the myths of the landscape and, instead of searching for the truth, as Jake Gittes does, comes out producing its own myth, one that has taken hold of the popular imagination and is indeed the way that most people today know about the dubious past of the Los Angeles water system. As such, the film is a suggestion for a non-reductive approach to the landscape and its multiple representations. Neither mindlessly accepting, nor stubbornly rejecting the myths and images essential to the landscape of the aqueduct, the film immerses itself critically within this secondary landscape (the 'mythic' one) to produce a new narrative. The paradox and obscurity of noir are at home in the landscape of the Los Angeles Aqueduct. Noir is both part of the myth and part of the unveiling as pictorialisms no longer remain singular, but come into the fray as part of a critical understanding.

## Conclusion

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The landscape of the Los Angeles Aqueduct may be understood as the product of images. As we have seen, during the first half of the twentieth century the city's inhabitants developed a particular domesticized view of nature whereby city officials were allowed to engage in a campaign to capitalize on the resources of outlying areas for local profit. Through the elaborate control of images in the media, advertising, and elsewhere, the city leadership built up a popular opinion very much in favor of going to great expense to secure water for a metropolis where the desert was always feared to be encroaching upon daily life. Nature was rewritten according to the riparian ideals of the city's inhabitants. William Mulholland and his allies were further able to manufacture an official history of the aqueduct that has been republished on multiple occasions under many authors. Not only did Water and Power have a great deal of control over images used to sell the aqueduct, it continues to hold a great deal of influence on posterity.

But to speak of Los Angeles as an all-powerful amorphous being with the capability to distort public perception of the landscape is to speak inaccurately. City leaders were not the only ones with access to photographic technology, and indeed a deal of highly effective resistance sprung out of opposition groups' ability to manipulate images on their own terms. Resistance propaganda, though rarely as focussed or pervasive as the city-sponsored images, sought to play off the same desires and insecurities. As such, the same photograph could be used both for and against a given cause, depending on the context of its presentation. Many years after the fall of the Owens Valley, resistance remains evident in images and materials emanating within and around the landscape of the Los Angeles Aqueduct.

People documenting the landscape from without, such as myself, have tended over the years to gravitate to one side or the other by claiming to search out the facts in a history that seems deeply mired in myth. The common urge to pare the eccentricities of history down to an authoritative sequence of events and subsequently declare a particular moral high ground seems ultimately unproductive for the purposes of reading the landscape of the aqueduct. Landscapes, especially one such as this spanning hundreds of miles, resist a totalized reading and instead work as intricately localized networks of myths and images contributed and constructed over the years by highly disparate individuals. The

urge to read the landscape as an object—to de-pictorialize it—is an idealization that collapses under pressure. Indeed, the myth-image structure of the landscape operates alongside and in front of its physical manifestation – it is a parallel landscape which becomes the medium by which we gain access to its ‘real’ counterpart.

The intermediary image-scape is inseparable from the landscape that it represents. The landscape of the aqueduct *is* the landscape of its representations. Every image within its scope tells a particular story, and while images viewed in isolation from this landscape run the risk of presenting us with a false authority (this is the function of propaganda, as *Water and Power* has demonstrated so well over the years), by immersing oneself in this landscape of myth, by sorting through the contradictions present therein, by strolling through the multiple—indeed, nearly infinite—narratives that make up this landscape, it is possible to develop a narrative of one’s own that takes into account the natural setting, the fact of the aqueduct, the social and political climate, and other aspects of the landscape that are only readable at the microcosmic level.

The work of artists, writers, and filmmakers operating at an extremely local scale within the landscape of the aqueduct has, in some sense, memorialized the landscape of the aqueduct in the most honest way possible – by presenting and subtly commenting on the mini-narratives of the region without feeble gestures toward transcendence or a spiritualization of place. My own work on this Atlas is an attempt to broaden the scope of the exposition of narratives in the landscape without universalizing their meaning. Whether explored through history books, maps, or first-hand documentation, the mode by which the landscape exposes itself is always pictorial, and always multiple. It is not that we have a fundamental inability to perceive *things*, but because landscape cannot be reduced to a singular object for our eyes that landscape only exists within the context of its representations.

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**Notes to Introduction**

<sup>1</sup> Robert Smithson, "A Sedimentation of the Mind: Earth Projects," in *Robert Smithson: The Collected Writings*, ed. Jack Flam (Berkeley: UC Press, 1996) 111. Significantly, Smithson collected materials for one of his non-site sculptures at Mono Lake, a saline body of water at the aqueduct's current northern terminus.

**Notes to Chapter 1: Event History**

<sup>1</sup> Norris Hundley, *The Great Thirst: Californians and Water, 1770s-1990s*, (Berkeley: UC Press, 1992), 1-8.

<sup>2</sup> Marc Reisner, *Cadillac Desert: the American West and its Disappearing Water*, 2<sup>nd</sup> ed., (Toronto: Douglas & McIntyre, 1993), 58.

<sup>3</sup> Hundley, 17-18.

<sup>4</sup> Los Angeles Department of Water and Power, *Sharing the Vision: the Story of the Los Angeles Aqueduct* (Los Angeles: Department of Water and Power, c. 1990) 5.

<sup>5</sup> Hundley, 39.

<sup>6</sup> William Kahrl, *Water and Power: the Conflict over Los Angeles' Water Supply in the Owens Valley* (Berkeley: UC Press, 1982), 3-4.

<sup>7</sup> *Ibid.*, 33-38.

<sup>8</sup> Hundley, 120-122.

<sup>9</sup> Kahrl, 8.

<sup>10</sup> Hundley, 124.

<sup>11</sup> *Ibid.*, 137.

<sup>12</sup> Kahrl, 15-17.

<sup>13</sup> *Ibid.* 23.

<sup>14</sup> *Sharing the Vision*, 7.

<sup>15</sup> Kahrl, 24-5.

<sup>16</sup> Hundley, 138.

<sup>17</sup> Kahrl, 48-49.

<sup>18</sup> Hundley, 146.

<sup>19</sup> *Ibid.*, 59-60, 75, 143.

<sup>20</sup> Hundley, 143-144.

<sup>21</sup> Kahrl, 68-69.

<sup>22</sup> *Sharing the Vision*, 19.

<sup>23</sup> Hundley, 150-151.

<sup>24</sup> Kahrl, 96-7.

<sup>25</sup> *Ibid.*, 103.

<sup>26</sup> *Sharing the Vision*, 22-23.

<sup>27</sup> Kahrl, 139.

<sup>28</sup> *Ibid.*, 157.

<sup>29</sup> *Ibid.*, 234-235.

<sup>30</sup> *Ibid.*, 149-152.

<sup>31</sup> *Ibid.*, 161-163. For example, one worker per week died in the construction of the New York City aqueduct.

<sup>32</sup> *Sharing the Vision*, 29.

<sup>33</sup> Kahrl, 200-201.

<sup>34</sup> *op. cit.*, 37.

<sup>35</sup> Kahrl, 202.

<sup>36</sup> *Ibid.*, 132.

<sup>37</sup> *Ibid.*, 205-206.

<sup>38</sup> *Ibid.*, 219-221

<sup>39</sup> *Ibid.*, 223-226

<sup>40</sup> Hundley, 158.

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<sup>41</sup> Kahrl, 226-229.

<sup>42</sup> Hundley, 162-163

<sup>43</sup> Kahrl, 256-257.

<sup>44</sup> Hundley, 164.

<sup>45</sup> Kahrl, 246-252. Given that climate, construction of the reservoir was not initiated until after Eaton's death in 1935, at which point the Owens Valley did not have the constituency to lobby for irrigation needs.

<sup>46</sup> *Ibid.*, 271.

<sup>47</sup> Hundley, 163.

<sup>48</sup> Kahrl, 272-288.

<sup>49</sup> *Ibid.*, 289-294; *Sharing the Vision*, 39.

<sup>50</sup> Kahrl, 307-310.

<sup>51</sup> *Ibid.*, 314.

<sup>52</sup> Hundley, 165.

<sup>53</sup> Kahrl, 312-314.

<sup>54</sup> In 1928 the city decided to forge ahead into the Mono basin for a new water supply to preserve its future rights to the water, which Reclamation was threatening to dissolve. By 1934 the necessary lands and permits had been paid for, and construction began. The 105-mile extension, which includes an 11-mile tunnel through steaming Mono Crater, takes water from four creeks that formerly fed Mono Lake, increasing the aqueduct system's capacity by 35%. The extension effectively cut off all water from the saline Mono Lake, which began drying up and becoming useless to the waterfowl, brine, and insect ecologies it supported. In 1978 the Mono Lake Committee was formed to fight Los Angeles on the issue, but they were relatively unsuccessful until a flood in 1990 deposited fish corpses below the creek diversion dams. This scattering allowed the committee to exploit an obscure Fish and Wildlife regulation which prohibited interfering with fish spawning grounds without making allowances to let the fish continue use of the habitat. Kahrl, 330-348; *Sharing the Vision*, 45; Hundley, 335-337.

<sup>55</sup> The second aqueduct began construction in 1964 and was completed by 1971. It was built in 9 sections, 7 of them by private contractors (as compared with the first aqueduct which was built entirely by municipal forces). It has about half the capacity of the first aqueduct and runs roughly parallel from Haiwee Reservoir down to the Van Norman Reservoir in Los Angeles. Kahrl, 404-410.

<sup>56</sup> Groundwater pumping in the valley greatly increased after the building of the second aqueduct, turning the valley into a dust bowl, if not nearly a dead zone. The city tried to make up for the reduced water supply by aiding recreational development with the construction of new lakes. Of course, these new elements had to be supplied by groundwater pumping themselves, desiccating the valley even further. Dying vegetation (which was already suited to the desert climate) and massive dust storms sparked lawsuits and revolts during the 1970s, eventually forcing Los Angeles to cut back on the amount of water it was taking from the valley's aquifers. Kahrl, W & P, 411-413, 426; Hundley, 342-343.

### Notes to Chapter 3: The Landscape of the Los Angeles Aqueduct in Images

<sup>1</sup> Winston Crouch and Beatrice Dinerman, *Southern California Metropolis: A Study in Development of Government for a Metropolitan Area* (Berkeley: UC Press, 1963) 29-30.

<sup>2</sup> Carey McWilliams, *Southern California Country: An Island on the Land* (New York: Duell, Sloan, & Pearce, 1946) 125-126.

<sup>3</sup> Norris Hundley, *The Great Thirst: Californians and Water 1770s-1990s* (Berkeley: UC Press, 1992) 121-122.

<sup>4</sup> McWilliams, 129.

<sup>5</sup> For more on the American technological pastoral, see Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America*, (New York: Oxford UP, 1964).

<sup>6</sup> McWilliams, 120.

<sup>7</sup> Mike Davis, *Ecology of Fear: Los Angeles and the Imagination of Disaster* (New York: Vintage, 1998) 12.

<sup>8</sup> Mike Davis, *City of Quartz: Excavating the Future in Los Angeles* (New York: Vintage, 1990) 30.

<sup>9</sup> Reyner Banham, *Los Angeles: the Architecture of Four Ecologies*, (New York: Harper & Row, 1971) 214.

<sup>10</sup> McWilliams, 98-101

<sup>11</sup> William Kahrl, *Water and Power: the Conflict over Los Angeles' Water Supply in the Owens Valley* (Berkeley: UC Press, 1982) 85.

<sup>12</sup> Catherine Mulholland, *William Mulholland and the Rise of Los Angeles* (Berkeley: UC Press, 2000) 150.

<sup>13</sup> *Ibid.*

<sup>14</sup> Kahrl, *Water and Power*, 86

<sup>15</sup> *Ibid.*, 103.

<sup>16</sup> Mulholland, 117.

<sup>17</sup> *Ibid.*, 191.

<sup>18</sup> *Ibid.*, 220-221.

<sup>19</sup> Davis, *Ecology*, 11.

- <sup>20</sup> That the city's time of fastest expansion came at the same time as the birth of modernism and its tabula rasa treatment of the landscape is not a coincidence. Some of the first American modernists were established in Los Angeles as early as 1905. Q.v. the early houses of Greene & Greene and Irving Gill. Banham, *Four Ecologies*, 61-69.
- <sup>21</sup> William Kahrl, "La Città Costruita dall'Acqua," in *Casabella* 556 (April 1989): 61.
- <sup>22</sup> McWilliams, 92.
- <sup>23</sup> Banham, *Four Ecologies*, 31.
- <sup>24</sup> Quoted in Hundley, 150.
- <sup>25</sup> Kahrl, *Water and Power*, 141.
- <sup>26</sup> Davis, *Ecology*, 10.
- <sup>27</sup> Mulholland, 72.
- <sup>28</sup> Davis, *Quartz*, 120.
- <sup>29</sup> McWilliams, 124.
- <sup>30</sup> Davis, *Ecology*, 9.
- <sup>31</sup> Davis, *Quartz*, 23.
- <sup>32</sup> *Ibid.*, 111.
- <sup>33</sup> Banham, *Four Ecologies*, 34.
- <sup>34</sup> Davis, *Quartz*, 112.
- <sup>35</sup> Banham, *Four Ecologies*, 228.
- <sup>36</sup> Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (Toronto: Douglas & McIntyre, 1993) 55.
- <sup>37</sup> Banham, *Four Ecologies*, 75.
- <sup>38</sup> This hovering transportation network has had its own effects and consequences upon the city's form, about which an extensive and contradictory literature has been developed. See, for example, Jonathan Bell, "Los Angeles and the Architecture of Disaster," *Architectural Design* Jan. 2000; ...
- <sup>39</sup> Kahrl, "La Città," 61-62.
- <sup>40</sup> "A Californian operating from Chicago, George H. Maxwell, brought together the National Irrigation Council, the National Board of Trade, the National Association of Manufacturers, and the Businessmen's League in support of federal funding for western irrigation on the promise that irrigation could solve the nation's social problems by decentralizing population..." (Kahrl, *W & P*, 31) The lobbying efforts of this group led to the signing of the Federal Reclamation Act at the turn of the twentieth century, solidifying into law the connection between water projects and sprawl.
- <sup>41</sup> Los Angeles Department of Water and Power, *Sharing the Vision: the Story of the Los Angeles Aqueduct* (Los Angeles: Department of Water and Power, c. 1990) 15.
- <sup>42</sup> Kahrl, "La Città," 62.
- <sup>43</sup> Kahrl, *W & P*, 270-271.
- <sup>44</sup> Reisner, 91-92.
- <sup>45</sup> W.J.T. Mitchell, "The Imperial Landscape," *Landscape and Power*, ed. Mitchell (Chicago: U Chicago Press, 1994)...
- <sup>46</sup> Ansel Adams, "A Note on the Land and on the Photographs," in Mary Austin, *Land of Little Rain*, photos by Ansel Adams (Boston: Houghton Mifflin, 1950) 109-111.
- <sup>47</sup> *Ibid.*
- <sup>48</sup> Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (Toronto: Douglas & McIntyre, 1993) 53.
- <sup>49</sup> William Kahrl, *W & P*, viii-ix.
- <sup>50</sup> Deborah Bright, "Of Mother Nature and Marlboro Men: An Inquiry into the Cultural Meanings of Landscape Photography," in *Contest of Meaning: Critical Histories of Photography*, edited by Richard Bolton (Cambridge, Mass.: MIT Press, 1989), 140.
- <sup>51</sup> Margaret Leslie Davis, *Rivers in the Desert: William Mulholland and the Inventing of Los Angeles* (New York: Harper Collins, 1993) 158; Kahrl, *W & P*, 292. Movie Flat was an area of a few square miles in the Alabama Hills where dozens of Westerns and other movies have been filmed.
- <sup>52</sup> *Ibid.*, 203.
- <sup>53</sup> Los Angeles Board of Water and Power Commissioners, *Complete Report on Construction of the Los Angeles Aqueduct* (Los Angeles: Department of Public Service, 1916) 292-319.
- <sup>54</sup> Carey McWilliams, *Southern California Country: An Island on the Land* (New York: Duell, Sloan, & Pearce, 1946) 190.
- <sup>55</sup> The deal eventually fizzled due to Mulholland's unyielding temperament. Kahrl, *W & P*, 287-91.
- <sup>56</sup> Ted Thackrey, Jr., "Dynamite Hurlled at DWP Fountain Fails to Explode," *Los Angeles Times*, 17 September 1976; Kahrl, *W & P*, 426.
- <sup>57</sup> Hundley, 342-343.
- <sup>58</sup> W.T. Spilman, *The Conspiracy: An Exposure of the Owens River Water and San Fernando Land Frauds* (Los Angeles: Alembic Club, 1912) 72.
- <sup>59</sup> Roland Barthes, "The Rhetoric of the Image," in *Image, Music, Text*, Steven Heath trans. (New York: Hill & Wang, 1977) 45.
- <sup>60</sup> Center for Land-Use Interpretation, "Water Ghost," [article online] (Los Angeles, 1995, accessed 2002); available at [http://www.clui.org/clui\\_4\\_1/pro\\_pro/extrap/proj/sed/sed\\_popup.htm](http://www.clui.org/clui_4_1/pro_pro/extrap/proj/sed/sed_popup.htm); Internet



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<sup>61</sup> Kahrl, *W & P*, 367-371.

<sup>62</sup> Ansel Adams, *Born Free and Equal, Photographs of the Loyal Japanese-Americans at Manzanar Relocation Center, Inyo County, California*. (New York: U.S. Camera, 1944). XX. Also see John Arthur and Peter Wright, *Manzanar*, photographs by Ansel Adams (New York: Times Books, 1988).

<sup>63</sup> Ibid.

<sup>64</sup> *Manzanar*, dir. Robert Nakamura (San Francisco: National Asian American Telecommunications Association, 1971), Videocassette, 16 minutes.

<sup>65</sup> Kahrl, *W & P*, 371.

<sup>66</sup> Ibid., 219-221.

<sup>67</sup> Jonathan Bell, "Los Angeles and the Architecture of Disaster," *Architectural Design* (Jan. 2000): 54.

<sup>68</sup> Edward Dimendberg, *Film Noir and Urban Space*, Diss. UC Santa Monica, 1992. (Ann Arbor, Michigan: UMI, 1995), 8.

<sup>69</sup> Nicholas Christopher, *Somewhere in the Night: Film Noir and the American City* (New York: Free Press, 1997), 241.

<sup>70</sup> Frederic Jameson, "Postmodernism and Consumer Culture," in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (New York: New Press, 1983), 111-125.

<sup>71</sup> Christopher, 241.

<sup>72</sup> For a cursory introduction to recent anti-pictorial trends in contemporary landscape theory and architecture, look to Julia Czerniak, "Challenging the Pictorial: Recent Landscape Practices," *Assemblage* 34 (1997): 110-120; also, James Corner, "Eidetic Operations and New Landscapes." In *Recovering Landscape: Essays in Contemporary Landscape Architecture*. Ed. James Corner (New York: Princeton Architectural Press, 1999) pp. 153-169.

<sup>73</sup> Raymond Borde and Étienne Chaumeton, "Towards a Definition of Film Noir," (1955) in *Film Noir Reader*, eds. Alain Silver and James Ursini (New York: Limelight, 1996), 24.

<sup>74</sup> Dimendberg, *Film Noir*, 10.

<sup>75</sup> Borde and Chaumeton, 25.

<sup>76</sup> Edward Dimendberg, "City of Fear," *ANY* 18 (1997): 14-17.

<sup>77</sup> W.J.T. Mitchell, "Imperial Landscape," in *Landscape and Power*, ed. Mitchell (Chicago: University of Chicago Press, 1994) 7.

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