Los Angeles County
Department of Regional Planning

Planning for the Challenges Ahead

Amy J. Bodek, AICP
Director

Dennis Slavin
Chief Deputy Director

April 25, 2019

TO: Supervisor Janice Hahn, Chair
Supervisor Hilda L. Solis
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Kathryn Barger

FROM: AG Alex Garcia, Supervisor
Zoning Enforcement Special Projects

ADVISORY PANEL REPORT ON BOARD MOTION REGARDING THE OIL AND GAS STRIKE TEAM FOR UNINCORPORATED LOS ANGELES COUNTY (MARCH 29, 2016 – AGENDA ITEM NO. 12)

On March 29, 2016, the Los Angeles County Board of Supervisors (Board) passed a motion instructing the Director of Regional Planning (DRP), in coordination with the Fire Chief, Director of the Department of Public Health, and Director of the Department of Public Works to convene a Strike Team to assess the conditions, regulatory compliance and potential public health and safety risk associated with existing oil and gas facilities in unincorporated Los Angeles County. The Board instructed the Strike Team to report back on a biannual basis with a summary of its findings and any recommendations on legislative and regulatory positions that the Board should consider. The Strike Team's sixth biannual report was submitted to the Board on March 28, 2019.

The Board also requested that a five-member Advisory Panel be established, comprised of one appointee from each Supervisor with an expertise in oil and gas exploration and production, to work in conjunction with the Strike Team to assess the team's findings and recommendations and to provide a report to the Board on this assessment no later than 30 days after the Strike Team's report is submitted to the Board. The Advisory Panel public meeting was held on April 22, 2019 to discuss this assessment of the Strike Team's report.

This report addresses the Advisory Panel's assessment of the Strike Team's sixth biannual report. This report includes the written comments from Advisory Panel members

from the First, Second, and Third, Supervisorial Districts. The Advisory Panel report can be accessed on DRP's web page at planning.lacounty.gov/oil-gas/strike.

The appointed Advisory Panel members are:

- First District Board Office appointee – Julia May
- Second District Board Office appointee – Andrew Weissman
- Third District Board Office appointee – Timothy O'Connor
- Fourth District Board Office appointee – Matt Rezvani
- Fifth District Board Office appointee – R. Rex Parris

The next Oil and Gas Strike Team report to the Board is due on September 29, 2019, and the Advisory Panel report will follow no later than 30 days after that date. Should you have any questions about this report, please contact Timothy Stapleton, Zoning Enforcement Special Projects section, at tstapleton@planning.lacounty.gov or (213) 974-6453.

AG:ts

Attachment: planning.lacounty.gov/assets/upl/project/oil-gas_advisory-panel_20190425-report.pdf

c: Executive Office, Board of Supervisors
Chief Executive Office
County Counsel
Fire Department
Department of Public Health
Department of Public Works

FIRST DISTRICT
ADVISORY PANEL MEMBER
JULIA MAY
COMMENTS

4/18/2019 **Comments & Recommendations on Report #6, LA County Oil & Gas Strike Team, Julia May, District 1 Advisory Committee representative**

Follow-up regarding setbacks:

- County Report #3 recommended requiring setbacks between wells, and residences and sensitive land uses, as follows:

  > **"The updated code should require that wells and associated facilities have a sufficient buffer zone from residential and other sensitive land uses.** This would be determined based on health risk, air quality, noise, odors, aesthetics and other environmental, health and safety, and public nuisance considerations. An incentive program could be developed as part of the new code to encourage oil and gas producers to plug and abandon facilities within the new setback." (p. 134)

- **Please provide the Strike Team and Advisory Committee with a progress report on this activity.** I again recommend a 2,500 foot setback, as previously discussed.

Environmental Justice and Equity Principles need to be elevated

- I received information regarding the need for a trained facilitator at County Oil & Gas Listening Sessions, to support and welcome community member input.
- The County has already developed equity principles related to Environmental Justice and equity through the LA County Center for Health Equity, which could be applied to the Listening Sessions: http://publichealth.lacounty.gov/CenterForHealthEquity/About.html
- These principles should be applied to the next O&G strike team public listening sessions and other meetings, to welcome and support community members participation. Community members provide valuable perspectives, and help identify gaps in communications and necessary evaluation. Impacted community members also deserve information and respectful answers to questions.
- In addition, please see recommendations below, regarding including Environmental Justice factors in prioritization of actions needed on abandoned O&G well, pipelines (as well as other sources of risk evaluated by the Strike Team).

Abandoned Wells:

- I appreciate the work of fellow advisory member Matt Rezvani in helping county staff and consultants identify abandoned O&G pipeline data, and gaps in oversight, as reported in Report #6.
- The sheer number of abandoned wells makes prioritization and actions difficult.
- Wells were prioritized based on: well status (plugged or unknown), well location and census block population density, historical well type, well location within 500 feet of an active injector well, age of well by spud date (date drilling commenced), well located in an oil and gas field by field age, and reservoir characteristics. (p. 11)
- **Please add to the list of well priority factors to include the siting of wells in EJ communities, which experience a high cumulative burden of multiple environmental and safety hazards.** For example, CalEnviroscreen (https://oehha.ca.gov/calenviroscreen) provides a ranking of zipcodes and census blocks according to individual and cumulative burdens of environmental impacts and socioeconomic stressors. I urge the County to include the Calenviroscreen rankings as one of the priority factors at the well sites, to supplement the list on p. 11. This will help to identify abandoned wells in communities that are already the most at-risk.

- **Simple emissions measurements at abandoned wells may help in prioritizing**. Many low-cost monitoring options are available which could help identify wells that are already emitting to atmosphere. The report states that monitoring is not part of the scope, but it may be a useful tool to help prioritize actions to remediate the large set of abandoned wells requiring action.
- **The County should consider also identifying the list of abandoned wells within the City of LA** (not just unincorporated areas), since the County has developed a method for pulling this data together. I do not think the City has yet pulled together this particular data set.
- **I look forward to follow-up information on accidents/events at abandoned wells,** and community impacts such as air, water, soil, public health harms.

O&G Pipelines – abandoned, idle, retired, or in-service:

- **I recommend the County include reports of pipeline spills that have occurred, and lessons learned.** For example, Wilmington, a center of oil and gas infrastructure, had at least two major pipeline ruptures that I know of in the last ten years, where oil spilled onto residential streets in large volume near houses, making people sick. For example, the photo below shows a 2014 spill. Although this is part of the City of LA rather than unincorporated LA County, there are lessons to be learned from evaluating this incident. This was an old oil pipeline no longer in use, owned by Phillips 66, which may have been a "retired" pipeline that was no longer maintained, and appears not to have been properly "abandoned". People had no idea the pipeline was present.
- This caused severe odors, and prompted a visit and comments by Janice Hahn, at the time U.S. Representative (San Pedro), who visited the site out of "concern for the safety and well-being of the residents of Wilmington." She stated: "The harsh, crude oil smell is not only horrible, but can also be potentially harmful to the neighborhood residents and environment."
- "As a member of the House Transportation and Infrastructure Subcommittee on Railroads, Pipelines and Hazardous Materials, I plan to make this oil spill incident a priority," . . . "I have already reached out to the subcommittee to find out what federal actions we can take to ensure that an incident like this will not happen again, and that there is proper oversight with our nation's pipelines." . . . "We have to protect the residents of Wilmington and the environment from the risks of hazardous materials transportation." [1]

Phillips 66 2014 Wilmington neighborhood oil spill from Press-Telegram

[1] Crack in idle Phillips 66 pipeline spews crude oil onto Wilmington streets, Press-Telegram from Sandy Mazza, Daily Breeze, 03/18/14, http://www.presstelegram.com/general-news/20140318/crack-in-idle-phillips-66-pipeline-spews-crude-oil-onto-wilmington-streets

- **I urge the County to gather relevant reports on the cause and recommended follow-up actions related to investigations of this incident,** especially as Supervisor Janice Hahn witnessed this herself, and called for follow-up actions.
- I recommend the county provide a list of known oil and gas pipelines ruptures, leaks, and other accidents, with causes, locations, impacts, and lessons learned.
- **I again recommend that CalEnviroScreen be used to identify areas with highest cumulative burdens, as a factor in determining future actions to ensure health and safety related to Oil & Gas pipelines.** For example, please note that the map in Report #6 Fig. 4-1 (p. 33) shows that pipelines become more highly concentrated in the Wilmington area. This is likely a result of pipelines concentrating from the ports area to the broader region. This illustrates that EJ communities such as the Wilmington area may have higher concentrations of such pipeline risks. This would be important to evaluate in the County reports. Nearby unincorporated areas are likely also at higher risk. Also, pipelines do not stop necessarily stop or start in unincorporated or incorporated areas, but travel across regions.
- **I request some additional definition of important terms, which can make the difference between a pipeline being covered or not by specific regulations.** For example, Report #6 used the terms "hazardous liquids" and "highly volatile liquids" at many points relating to various federal, state, and other regulations. But these broad terms are defined differently in different regulations and laws. Certain compounds can be exempt under such definitions, so clear definitions in the County reports are necessary for these descriptions to be meaningful. (For example, see Report #6, p. 24.)
- **In general, while listing the existing regulations is helpful, it would be more helpful to provide evaluation of the limitations and gaps in the regulations.**

Well Maintenance and rework:

- I appreciate the beginnings of analysis on the 1148.2 reporting regulation, including the lists of chemicals used, and that the County is planning additional follow-up including the impacts of these chemicals. **Please provide CAS (Chemical Abstracts Service) numbers for each chemical (helpful since chemicals have many synonyms).**
- Please note the limitations of Rule 1148.2, which does not report the volumes of chemicals stored at well sites. Since the County has identified the scope as mainly relating to above-ground activities, storage of these chemicals is very relevant (in addition to the use of chemicals within the wells). **Please identify available data on storage of toxic chemicals at well sites. Transportation methods, volumes, and routes are also very important to identify, to determine risks. Certain chemicals are higher risk than others (for example, hydrofluoric acid).**
- Specific comments were submitted by community organizations to the South Coast Air Quality Management District during Rule 1148.2 development and adoption regarding the limitations of the rule, and the need to improve the reporting and notification process in the future. **I recommend that the County collect the written comments submitted to SCAQMD by community members, and summarize the recommendations in future reports.**

O&G storage:

- **I look forward to the strike team follow-up to develop more information on the hazards related to oil and gas storage.**

SECOND DISTRICT
ADVISORY PANEL MEMBER
ANDREW WEISSMAN
COMMENTS

ANDREW N. WEISSMAN

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STUART N. ARKIN
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ALVIN H. WEISSMAN
(1919-1991)

April 11, 2019

Timothy Stapleton, AICP
Zoning Enforcement West
Department of Regional Planning
320 W. Temple Street Los Angeles, CA 90012

Re: Comments to LA County Oil Well Strike Team Biannual Report #6

Dear Mr. Stapleton:

I have reviewed the report and cover memo and have no questions or comments with respect thereto.

Very truly yours,

Andrew N. Weissman

bwa

THIRD DISTRICT
ADVISORY PANEL MEMBER
TIMOTHY O’CONNOR
COMMENTS

April 24, 2019

Timothy Stapleton, AICP
Zoning Enforcement West
Department of Regional Planning
320 W. Temple Street
Los Angeles, CA 90012

Re: Comments of Tim O'Connor (District 3 rep.) and EDF on the LA County Oil Well Strike Team's Biannual Report No. 6 (Phase II, Report No. 1)

Dear Mr. Stapleton and members of the LA County Oil Well Strike Team,

Please accept these comments on the sixth report of the LA County Oil Well Strike Team (Phase II, Report No. 1).

We commend your effort to maintain and make progress on the lengthy but necessary task of conducting a comprehensive evaluation of the oil and gas industry in Los Angeles - in conformance with the direction within the LA County Board of Supervisors March 29, 2016 motion.

In support of the Strike Team's effort, and to help ensure the work both lays a transparent foundation for appropriate action, and considers the most up to date information, please accept these comments and recommendations for inclusion in the Strike Team report as follows:

Comments on process

- On the issue of high-level process, given that there are going to be six reports in this series, and this is the first of the six, I recommend a change in the process going forward. As it stands now, the Advisory Panel receives a copy of the Strike Team's final report and is asked to comment on it. In the past, the only way the Advisory Panel's input has been formally incorporated into the report has been by way of an appending of the text of each person's comment to the back of the report. As a result, the panel members are not allowed or given the opportunity to participate during the development process. I suggest a conference call with the panelists mid-way through the report development process to update them on the progress and solicit feedback and input earlier on so as to ensure authentic and robust engagement.

- The report focuses on four issue areas - Abandoned and orphaned wells; Storage facilities; Pipelines; and, Hazardous chemicals. However, given that new information may have surfaced on other issues related to oil and gas development during the development of this report, I recommend the strike team leave open the opportunity (and explicitly make room in the report) for other observations and emerging issues that are identified during the report

development process. In particular, I recommend the report include a section on issues identified during Strike Team review.

Comments on idle, abandoned and hazardous wells

- The Strike Team proposes to develop a prioritization matrix for idle, abandoned and hazardous wells based on a series of factors. However, it is uncertain what this scoring will be used for. At the Advisory Panel meeting on April 22, it was discussed that this matrix would be used to inform the Board of wells that warranted further oversight and potential sampling. Based on that additional work, this prioritization ranking could be used to prioritize actual well rework and plugging as well as continuous air monitoring – or to inform DOGGR of the need to do such work. If this is indeed the intent, it should be clearly spelled out in the report.

- The prioritization matrix should be made public as it is being developed, no later than upon the release of each report. This should include all of the factors going into the matrix as well as the results.

- Additional criteria should be considered for the matrix, such as 1) water level recordings during regular tests by operators, 2) observations in county or other well records of negative integrity indications, 3) date on which prior plugging was performed, 4) whether the well is located in a disadvantaged neighborhood, using a tool like CalEnviroScreen to elevate the issue of environmental justice, and 5) proximity to sites of past incidents (such as blowouts). Further, at the Advisory Panel meeting, it was stated that for wells at the recent Marina Del Rey blowout site, there had been past incidents of issues at nearby wells and elevated gas pressure in the well(s). Since pressure inside a well can contribute to leakage, the prioritization matrix should include whether the wells are having, or have experienced past incidents and whether they have downhole pressure above atmospheric. Additionally, in coastal locations such as Marina del Rey, nearby offshore wells should also be examined for past or present leaks. Any information obtained regarding well pressure information should also be made public, so as to empower residents and other community members of higher-risk wells in the area.

- It is my understanding that several years ago DOGGR conducted a review of water level testing records for idle wells and found several idle wells that showed year over year changes to water level recordings, indicating potential negative well integrity. The Strike Team should seek out such records for all wells in the unincorporated area of Los Angeles (possibly though access at DOGGR or through the DOGGR well finder program), and add to the matrix a score for whether well records indicate any communication between well liquids and the surrounding geologic formation. To the extent that the Strike team received information from DOGGR in the January 15, 2019 correspondence from the agency, identified on page 8 of the report, the content of that correspondence should be disclosed. If however, as was disclosed at the April 22, 2019 meeting, the county is unable to acquire records from DOGGR in an expeditious manner through the strategies it currently employs, the strike team should pursue additional efforts to secure this information, such as through direct phone calls to the head office.

- Given DOGGR's focus on idle, abandoned and hazardous wells, close coordination should be sought with the agency – there is a lot of activity happening across the state, and likely in the unincorporated area of LA – to plug and abandon idle wells right now. The report and Strike Team should seize on this activity and the opportunity it creates to collect information / sample during the well plugging processes. This would serve two purposes. First, this information can be used to identify trends in well integrity and also shed light on whether these old wells are leaking in advance of being plugged and abandoned. Second, the report can identify whether well plugging operations are a source of community exposure. By looking at data associated with these operations, the Strike Team can extrapolate information to learn whether other wells are leaking and what types of circumstances are most likely to cause leakage.

- As to the matrix's inclusion of prior plugging date, we observe that such information is important in knowing whether and to what extent, modern well plugging standards were used in this process.

- Seeping methane buildup from natural accumulation in the soil caused an explosion at a Ross Dress-for-Less store in the Fairfax area of LA in 1985. Following this incident, Senator David Roberti authored and passed SB 1458 as an urgency statute to address methane accumulation (attached). The bill required the State Oil and Gas Supervisor, in cooperation with appropriate state and local agencies, to conduct a study of all abandoned oil and gas wells located in the City of Los Angeles to determine the location and extent of methane accumulations. It also required the supervisor to develop a strategy for extracting such methane accumulations from the wells and for the management of methane from the wells so as to prevent future methane gas accumulations. The resultant study (attached), conducted by GeoScience Analytical, surveyed a number of high-risk, primarily urban areas - many of which are part of LA County. Finding numerous hazardous soil gases in certain areas, the study makes certain recommendations of next steps, such as the installation of methane detectors, warning systems, and perforated pipes, as well as sealing foundations and restricting development in places like the Brea-Olinda oil field. The Strike Team should take into consideration the results and recommendations for these areas in their evaluation.

<u>Comments on the evaluation of pipelines</u>

- Based on comments at the April 22, 2019 meeting of the Advisory Panel, it appears that the Strike Team plans to create a prioritization matrix for pipelines as it is doing for idle wells. This is an important task and one worthy of support. This matrix should include certain key pieces of information in addition to those listed, including:
    - Gas quality and respective corrosivity
    - Whether inspection reports have conveyed an indication of negative pipeline integrity conditions or trends
    - Whether gas pipeline has an active / valid / non-expired local franchise agreement in place
    - Potential concerns of volatile seismic activity near pipelines
    - Whether high-risk pipelines exist under areas of relatively high population density

- Whether reports filed with the local fire department indicate any pipeline maintenance and operations abnormalities or deficiencies

- In the evaluation of pipelines, it is important for the Strike team report to strive for the highest degree of accuracy in the information presented. Upon review though, it appears that some of the information presented is inaccurate, and needs revision, in particular:

    - CPUC rules for natural gas pipelines should incorporate the SB 1371 compliance plans filed by So Cal Gas for leak detection and repair on its natural gas pipeline facilities. In particular, So Cal Gas has proposed more regular inspections on some leak-prone pipes, while also proposing less rigorous inspection and repair on some others than what was listed.

    - The amount of gas pipelines listed in the report appears to be a gross underestimate of the actual miles of pipe (distribution and transmission) in the system. When Strike Team representatives were questioned about this at the April 22, 2019 meeting of the advisory panel, this appeared to be due to a decision by the County not to ask or compel So Cal Gas to give pipeline data to aid the Strike Team report. To the extent the report includes numbers of miles of pipe, it should strive for accuracy instead of false precision, aided by guesstimates.

Comments on the evaluation of oil and gas storage facilities

- As it relates to storage systems, the Strike Team should conduct a thorough assessment of the Playa Vista gas storage facility owned and operated by So Cal Gas. At that facility, nearby residents have complained for years of strong odors and releases of gas. As a result, the Strike team should seek out the information for nearby residents and open the door to enhanced participation in this area of the report. To the extent that the county decides the facility is not within the charge area of the study, the Strike Team should evaluate the lateral extent of subsurface stored gas to determine whether any below-ground gas storage extends into the county as opposed the facility fenceline.

Comments on the evaluation of hazardous chemicals

- As it relates to hazardous chemicals, the report seems to focus on the chemicals and materials that are used onsite for well stimulation, but seems to miss the chemicals and constituents that are naturally entrained in the oil itself (and brought to the surface through produced water), or contained in leaks from oil and gas sites. As a result, it appears that the Strike Team is reading its direction form the board on this issue "Review chemicals at oil and gas facilities not identified in Hazardous Materials Business Plans" in an overly narrow manner – because there are many chemicals that can be found from the oil and gas itself.

- As to the chemicals entrained in oil and gas leaks, there has been a lot of research – one such research report was written by EDF and summarizes a lot of the science on the hazardous compounds found in leaks. - https://www.edf.org/sites/default/files/california-monitoring_filling-the-void.pdf You can also see a CARB report on chemicals included in

oil and gas leaks by Sage Environmental – CARB, (2015), "Air Resources Board RFP No. 13-414: Enhanced Inspection & Maintenance for GHG & VOCs at Upstream Facilities—Final (Revised)," Prepared by Sage ATC Environmental Consulting LLC, https://www.arb.ca.gov/cc/oil-gas/sage_i&m_ghg_voc_dec2016.pdf

- With regard to toxic contaminants such as hydrogen sulphide leaking from idle, abandoned and hazardous wells, the Strike Team should seek to ensure the most current and accurate information possible, given that contaminant levels may be underestimated due to the age of certain wells.

- Given that the hazardous chemicals associated with hydraulic fracturing processes can additionally be used in on-site storage facilities and transportation of oil and gas, information related to their usage in such processes.

- As to produced water, much has been written about this. In considering spills of produced water, the Strike Team should investigate further the presence of hazardous chemicals such as benzene and compare the level of chemicals present to established exposure limits.

Thank you for considering these comments moving forward.

Sincerely,

Timothy O'Connor
County District 3 Representative, Oil and Gas Strike Team Advisory Panel
Senior Director and Senior Attorney, Energy Program, Environmental Defense Fund

SENATE BILL No. 1458

Introduced by Senator Roberti

March 28, 1985

An act to add Article 4.1 (commencing with Section 3240) to Chapter 1 of Division 3 of the Public Resources Code, relating to abandoned wells, and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

SB 1458, as introduced, Roberti. Abandoned wells: methane gas accumulations: City of Los Angeles.

(1) Existing law requires the State Oil and Gas Supervisor to carry out duties relating to hazardous oil and gas wells and other oil and gas activities.

This bill would require the supervisor, in cooperation with appropriate state and local agencies to conduct a study of all abandoned oil and gas wells located in the City of Los Angeles in order to determine the location and extent of methane gas accumulations from the wells. The bill would require the supervisor, in cooperation with appropriate state and local agencies, to develop a strategy for extracting methane gas accumulations from the wells and for management of methane gas from the wells to prevent future methane gas accumulations.

(2) The bill would take effect immediately as an urgency statute.

Vote: ⅔. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

1 SECTION 1. Article 4.1 (commencing with Section
2 3240) is added to Chapter 1 of Division 3 of the Public
3 Resources Code, to read:

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1 Article 4.1. Abandoned Wells
2
3 3240. The supervisor, in cooperation with appropriate
4 state and local agencies, shall conduct a study of all
5 abandoned oil and gas wells located in the City of Los
6 Angeles in order to determine the location and extent of
7 methane gas accumulations from the abandoned wells.
8 3241. The supervisor, in cooperation with appropriate
9 state and local agencies, shall develop a strategy for
10 extracting existing accumulations of methane gas from
11 abandoned oil and gas wells in the City of Los Angeles in
12 order to protect the health and safety of the public. The
13 strategy shall also provide plans for the management of
14 methane gas from old wells in the city where no
15 accumulations are discovered in order to prevent future
16 accumulations of methane gas.
17 SEC. 2. This act is an urgency statute necessary for
18 the immediate preservation of the public peace, health,
19 or safety within the meaning of Article IV of the
20 Constitution and shall go into immediate effect. The facts
21 constituting the necessity are:
22 Recent methane gas explosions in the City of Los
23 Angeles have threatened the public health and safety and
24 it is necessary that the provisions of this act take effect at
25 the earliest possible opportunity.

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AMENDED IN SENATE MAY 13, 1985

SENATE BILL No. 1458

Introduced by Senator Roberti

March 28, 1985

An act to add Article 4.1 (commencing with Section 3240) to Chapter 1 of Division 3 of the Public Resources Code, relating to abandoned wells, and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

SB 1458, as amended, Roberti. Abandoned wells: methane *and other hazardous* gas accumulations ~~: City of Los Angeles~~.

~~(1)~~ Existing law requires the State Oil and Gas Supervisor to carry out duties relating to hazardous oil and gas wells and other oil and gas activities.

This bill would require the supervisor, in cooperation with appropriate state and local agencies, to conduct a study of ~~all~~ abandoned oil and gas wells located in ~~the City of Los Angeles~~ *areas with substantial potential for accumulation of methane and other hazardous gas* in order to determine the location ~~and~~, *the* extent of methane gas *and other hazardous gas* accumulations, *and potential hazards* from the wells. The bill would require the supervisor, in cooperation with appropriate state and local agencies, to develop a strategy for extracting methane gas *and other hazardous gas* accumulations from the wells *in high-risk areas identified by the supervisor* and for *the* management of ~~methane gas~~ *those gases* from the wells *in high-risk areas* to prevent future ~~methane gas~~ accumulations *of those gases*.

The bill would require the supervisor to report to the Legislature on or before July 1, 1986, on the bill.

~~(2)~~ The bill would take effect immediately as an urgency statute.

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Vote: ⅔. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. Article 4.1 (commencing with Section 3240) is added to Chapter 1 of Division 3 of the Public Resources Code, to read:

Article 4.1. Abandoned Wells

3240. The supervisor, in cooperation with appropriate state and local agencies, shall conduct a study of ~~all~~ abandoned oil and gas wells located in ~~the City of Los Angeles~~ *those areas of the state with substantial potential for methane and other hazardous gas accumulations* in order to determine the location ~~and~~, *the* extent of methane gas ~~accumulations~~ *and othr hazardous gas accumulations, and potential hazards* from the abandoned wells.

3241. The supervisor, in cooperation with appropriate state and local agencies, shall develop a strategy for extracting existing accumulations of methane gas *and other hazardous gas* from abandoned oil and gas wells in ~~the City of Los Angeles~~ *high-risk areas identified by the supervisor* in order to protect the health and safety of the public. The strategy shall also provide plans for the management of methane gas ~~from old wells in the city~~ *and other hazardous gas from wells in high-risk areas* where no accumulations are discovered in order to prevent future accumulations of methane gas *and other hazardous gas.*

3242. The supervisor shall report the findings and recommendations developed pursuant to the requirements of this article to the Legislature on or before July 1, 1986.

SEC. 2. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts

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1 constituting the necessity are:
2 Recent methane gas explosions in the City of Los
3 Angeles have threatened the public health and safety and
4 it is ~~necessary that the provisions of~~, *therefore, necessary*
5 *that* this act take effect at the earliest possible
6 opportunity.

O

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AMENDED IN SENATE JUNE 3, 1985

AMENDED IN SENATE MAY 13, 1985

SENATE BILL No. 1458

Introduced by Senator Roberti

March 28, 1985

An act to add Article 4.1 (commencing with Section 3240) to Chapter 1 of Division 3 of the Public Resources Code, relating to abandoned wells, *making an appropriation therefor,* and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

SB 1458, as amended, Roberti. Abandoned wells: methane and other hazardous gas accumulations.

Existing law requires the State Oil and Gas Supervisor to carry out duties relating to hazardous oil and gas wells and other oil and gas activities.

This bill would require the supervisor, in cooperation with appropriate state and local agencies, to conduct a study of abandoned oil and gas wells located in areas with substantial potential for accumulation of methane and other hazardous gas in order to determine the location, the extent of methane gas and other hazardous gas accumulations, and potential hazards from the wells. The bill would require the supervisor, in cooperation with appropriate state and local agencies, to develop a strategy for extracting methane gas and other hazardous gas accumulations from the wells in high-risk areas identified by the supervisor and for the management of those gases from the wells in high-risk areas to prevent future accumulations of those gases.

The bill would require the supervisor to report to the Legislature on or before July 1, 1986, on the bill.

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The bill would appropriate $350,000 from the General Fund to the supervisor for carrying out the purposes of the bill.

The bill would take effect immediately as an urgency statute.

Vote: ⅔. Appropriation: ~~no~~ *yes*. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

1 SECTION 1. Article 4.1 (commencing with Section
2 3240) is added to Chapter 1 of Division 3 of the Public
3 Resources Code, to read:
4
5 Article 4.1. Abandoned Wells
6
7 3240. The supervisor, in cooperation with appropriate
8 state and local agencies, shall conduct a study of
9 abandoned oil and gas wells located in those areas of the
10 state with substantial potential for methane and other
11 hazardous gas accumulations in order to determine the
12 location, the extent of methane gas and ~~othr~~ *other*
13 hazardous gas accumulations, and potential hazards from
14 the abandoned wells.
15 3241. The supervisor, in cooperation with appropriate
16 state and local agencies, shall develop a strategy for
17 extracting existing accumulations of methane gas and
18 other hazardous gas from abandoned oil and gas wells in
19 high-risk areas identified by the supervisor in order to
20 protect the health and safety of the public. The strategy
21 shall also provide plans for the management of methane
22 gas and other hazardous gas from wells in high-risk areas
23 where no accumulations are discovered in order to
24 prevent future accumulations of methane gas and other
25 hazardous gas.
26 3242. The supervisor shall report the findings and
27 recommendations developed pursuant to the
28 requirements of this article to the Legislature on or
29 before July 1, 1986.
30 SEC. 2. *The sum of three hundred fifty thousand*
31 *dollars ($350,000) is hereby appropriated from the*

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1 *General Fund to the State Oil and Gas Supervisor for*
2 *carrying out the purposes of Article 4.1 (commencing*
3 *with Section 3240) of Chapter 1 of Division 3 of the Public*
4 *Resources Code.*
5 *SEC. 3.* This act is an urgency statute necessary for
6 the immediate preservation of the public peace, health,
7 or safety within the meaning of Article IV of the
8 Constitution and shall go into immediate effect. The facts
9 constituting the necessity are:
10 Recent methane gas explosions in the City of Los
11 Angeles have threatened the public health and safety and
12 it is, therefore, necessary that this act take effect at the
13 earliest possible opportunity.

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F I N A L R E P O R T

October 10, 1986

A STUDY OF ABANDONED OIL AND GAS WELLS AND METHANE AND OTHER HAZARDOUS GAS ACCUMULATIONS

Department of Conservation
Division of Oil and Gas
Roberti Bill, SB 1458, Methane Gas Study
Contract Number 2-5098

Contractor:

GeoScience Analytical, Inc.
4454 Industrial Street
Simi Valley, CA 93063
(805) 526-6532

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ACKNOWLEDGMENTS

A study of this scope is not just the result of one group's efforts. We are deeply appreciative of the assistance and guidance freely given to us by several people within the Division of Oil and Gas. First we must thank Mr. Murray Dosch of the Ventura Office who got us started with his generous assistance on the Summerland Site. Mr. Richard Manuel, the Technical Support Supervisor, in the Long Beach Office was most generous with his time and materials. He was always available whenever we needed advice or assistance in planning for a survey area. He was also invaluable as a liason between us and individual City governments. Mr. Ken Carlson was always available to help us locate an obscure site. Finally, we must thank Mr. William Guerard, Project Director, Mr. Marty Mefferd, State Oil and Gas Supervisor and Mr. Randall Ward, Director of the Conservation Department for their helpful discussion and support.

Of course, we are grateful to Senator David A. Roberti, without whose foresight and diligence this study would not have been possible.

EXECUTIVE SUMMARY

PROGRAM

In March 1985, a serious fire and explosion occurred at the Ross Dress-For-Less store in the Fairfax area of Los Angeles. The cause was seeping gas, not from a pipeline, but rather from a natural accumulation of gas from the soil. It was further found that the gas was almost certainly the result of bacterial activity (i.e., biogenic gas) and not associated with petroleum, which results from the heat-induced decomposition of organic matter. Such petroleum-related gas is called petrogenic or thermogenic gas.

In an effort to preclude further occurrences of such disasters, **California State Senator David A. Roberti** introduced legislation (SB 1458) directing the **Department of Conservation, Division of Oil and Gas,** to select areas thought to contain the greatest potential for such events and survey them for any signs of potential hazardous gas accumulations. Three criteria were used to identify such areas: 1) the areas must be urban; 2) the areas must have oil and gas wells that were abandoned prior to 1930; and 3) the areas must have a history of natural oil and/or

gas seepage.

Using the above criteria, the **State Oil and Gas Supervisor** designated the following as high-risk areas: Salt Lake oil field (City of Los Angeles - Fairfax-Wilshire District); Newport oil field (City of Newport Beach); Santa Fe Springs oil field (City of Santa Fe Springs); the Rideout Heights area of the Whittier oil field (City of Whittier); Los Angeles City oil field (City of Los Angeles); Brea-Olinda oil field (City of Brea); Summerland oil field (City of Summerland); and Huntington Beach oil field (City of Huntington Beach). The attached map (Figure 1: Page 14) outlines the study areas.

The majority of the sampling and analytical work at each area was accomplished on-site, utilizing a mobile field laboratory equipped with high-sensitivity, laboratory-grade gas chromatographs, which analyzed the gas samples for methane, ethane, ethylene, propane, propylene, iso-butane and n-butane. At each site, the soil gases were sampled at a nominal depth of three (3) feet using a stainless steel probe. The field laboratory was also equipped with a portable hydraulic auger to recover soil samples from greater depths. The auger samples provided sufficient gas

for isotopic measurements and could provide deeper samples when there were questions about the depth of a gas source.

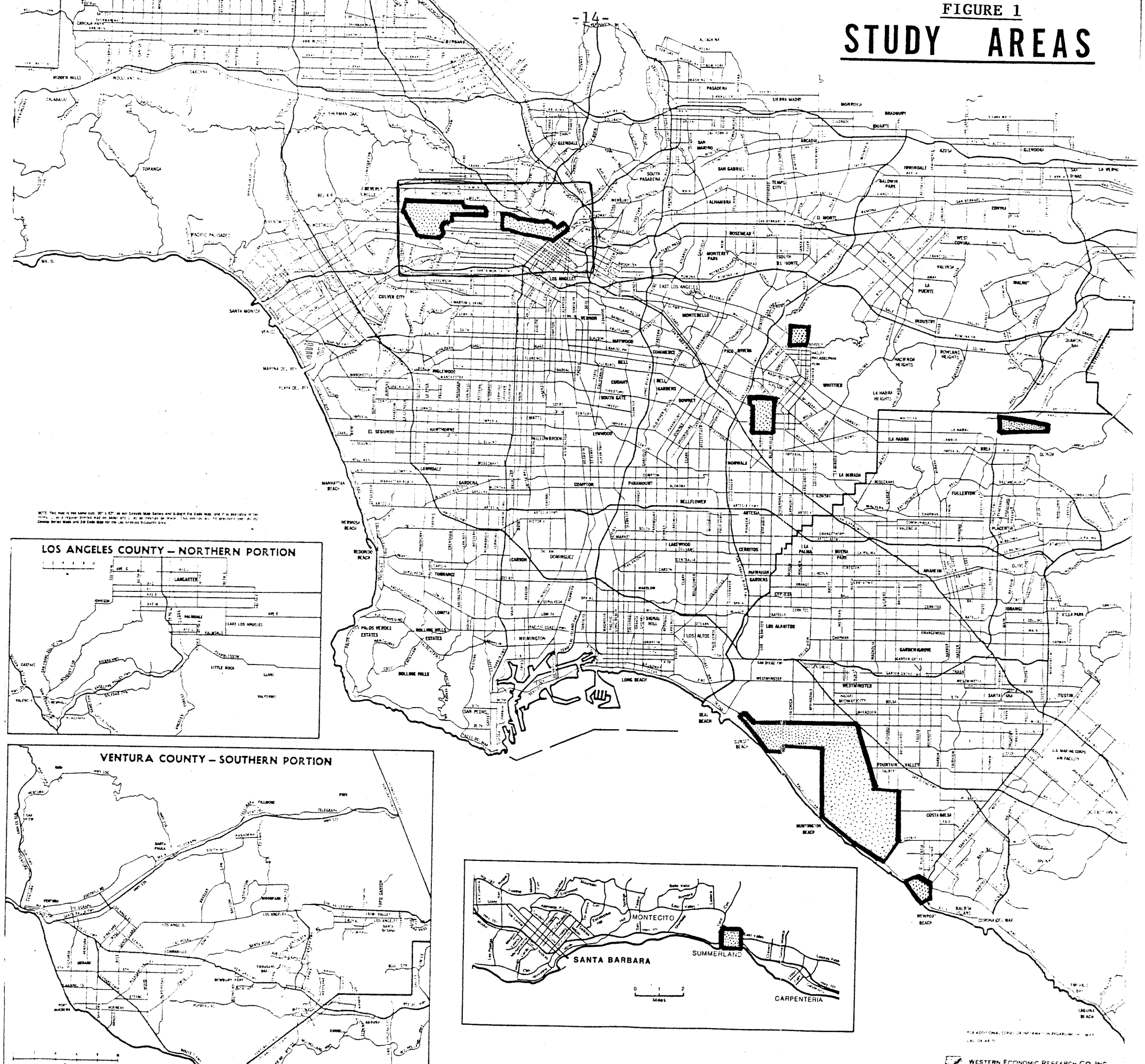
Gas samples were taken at 781 locations. In addition to analyzing the samples for hydrocarbon gas content, sufficient gas was recovered at many sites for isotopic analysis of the carbon contained in methane. The carbon isotope analyses, along with the gas compositions, were used to determine the origin of the soil gases.

The vast majority of the high-concentration gas samples taken during the study were biogenic in origin (i.e. not related to abandoned or producing oil or gas wells). The only area with significant concentrations of thermogenic gas was the Brea-Olinda oil field, which contains active, natural petroleum and gas seeps. Although the actual volumes of gas connot be determined from this study, the areas with high concentrations of methane gas (1,000 parts-per-million and above) could become hazardous if the gas is allowed to accumulate in building basements, subterranean parking areas, etc. Accumulation rates will vary from site to site, depending on the local water table and the faults, soil fractures, etc. that serve as conduits for gas migration.

All the sampling data were tabulated and mapped and comprise the main body of the final report. A brief discussion of the study areas and a short description of possible mitigation measures for each area follows.

FIGURE 1

STUDY AREAS



SUMMERLAND OIL FIELD

BACKGROUND

Summerland is a small, unincorporated, coastal resort community between Carpinteria and Santa Barbara. Around the turn of the century, hundreds of shallow producing wells were drilled both onshore and offshore. By 1915, most of these wells were abandoned. Currently, Summerland is undergoing residential development over these old producing areas. Since there are active natural gas seeps offshore, this area was selected for study to identify any potential problems.

FINDINGS

Fifty-five (55) sites were sampled by both probe and/or coring methods and analyzed for C_1-C_4* hydrocarbons. Numerous seeps (28) were identified, some characterized as biogenic in origin and some thermogenic in origin. Low concentrations of dry biogenic gas were encountered along Lillie Avenue, west of Olive and east of Colville. Along the bluff, there were four sites that had somewhat higher concentrations of gas in the soil, although

* Methane, ethane, propane, and butane gases.

all concentrations were low.

In the area south of Ortega Hill Road and west of Pierpont, in and surrounding a local trailer park, nearly every site contained high soil gas concentrations that were relatively wet (hydrocarbons, in addition to methane, abundantly present). Active gas seeps were observed directly offshore but were not sampled.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

The soil gas concentrations in the surveyed areas are such that construction can proceed without undue concern. However, future homeowners, especially in the neighborhood of the trailer park, should be made aware that there was oil production in the vicinity and that natural gas seeps could appear in the future.

NEWPORT OIL FIELD

BACKGROUND

Newport Beach is a developed area with a history of problems due to gas seepage. The Coves, an older development along the Pacific Coast Highway, has a history of methane and hydrogen sulfide seepage. In fact, some years ago a house burned due to accumulating gas from seepage. Across Pacific Coast Highway, there is a vent well that is flaring gas, which seems to have helped the seepage problem. Homeowners in the vicinity have reported intermittent occurrences of rotten egg odor (hydrogen sulfide gas).

FINDINGS

One hundred and eleven (111) sites were sampled by both probe and coring methods and analyzed for C_1-C_4 hydrocarbons. Thirty eight (38) seeps were identified and characterized. At many locations, the soils contained gases at high concentrations.

The area north of Pacific Coast Highway and west of Newport Boulevard was extremely high in methane,

with concentrations in excess of 10,000 ppm. Another twenty (20) sites of high concentrations were found spread randomly throughout the area of the Newport field. The high-concentration soil gases are primarily biogenic, which is consistent with the marshy soils underlying most of Newport.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

Judging from the survey results and past history, Newport Beach contains several potentially hazardous areas. Since it is already developed, only after-the-fact mitigation measures can be taken. As homes are involved almost exclusively, a program involving the installation of 24-hour methane monitors appears to be the most logical choice, coupled with shallow-vent wells, as appropriate.

RIDEOUT HEIGHTS AREA OF WHITTIER OIL FIELD

BACKGROUND

The Rideout Heights area of the Whittier oil field is quite small in area. It contains 16 active wells and accompanying storage tanks. The entire area is an older residential neighborhood. There have been some instances of oil seepage reported, but it is not known whether the oil is from an old sump or from a well.

FINDINGS

Twenty-six (26) sites were sampled by probe and/or coring methods and analyzed for C_1-C_4 hydrocarbons. One site, at the eastern end of Honolulu Terrace, was found to contain soil gases in varying amounts, but not at potentially hazardous levels. Apparently, the ground has been disturbed in the past and may contain buried organic matter, oilfield waste, or perhaps abandoned and failing piping that may contribute to an elevated level of methane in the soil gases.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

Since nothing dangerous was found, no neighborhood-wide program appears to be justified. However, individual home sites experiencing oil seepage should be monitored and, if there is an increase in seepage, sumps should be considered.

BREA-OLINDA OIL FIELD

BACKGROUND

The Brea-Olinda field is a large, producing oil field. An island in the midst of constantly-encroaching development, the field is spread over hills and would require extensive grading for major development. For the last 60 or more years, natural oil and gas seepage has been observed at several locations within the field that grading might affect easily.

FINDINGS

Seventy (70) sites were probed and/or cored and the resulting gas samples analyzed for C_1-C_4 hydrocarbons. Approximately one quarter (17) of the sites contained soils with high methane concentrations that could be potentially hazardous if they were subject to development. In fact, many of the higher gas concentrations were accompanied by oil seepage, increasing the danger associated with any future development. The potentially-hazardous sites conformed to a general geographic trend, extending from the extreme western end of the field, east along the southern flank of Tonner Canyon, then arcing up and over the edge of the canyon and

down onto the western portion of an active oil lease. Other isolated high concentrations were located, but most did not contain potentially troublesome amounts of gas. The gas found on the arc was petroleum-related, while the isolated high concentrations were at least partially biogenic in origin.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

If one considers all the instances of high soil-gas concentration and oil seepage found within the Brea-Olinda field, it must be concluded that this area probably should not be developed, at least for residential or commercial usage, without taking significant mitigation measures. At present, it is not clear whether or not there are economically-feasible methods to remove or mitigate the problems associated with the gas and oil seepage.

SANTA FE SPRINGS OIL FIELD

BACKGROUND

Santa Fe Springs is the site of historically abundant oil and gas production. Currently, the field's production is declining and the City of Santa Fe Springs has a very aggressive redevelopment program underway that is bringing in much new commercial and industrial development. Buildings are being constructed near producing wells and the field is being encroached upon by new projects and natural gas seepage has been reported.

FINDINGS

One-hundred and ten (110) sites were sampled by both probe and coring methods. About 50 percent of the sampled locations contained gas-charged soils, with concentrations as high as 150,000 ppm. Compositions were suggestive of both biogenic and thermogenic origins.

The thermogenic gases were generally associated with the still-producing oil field, while the biogenic gases were found outside the producing area. The biogenic gases may be partially the result of the

heavy watering and fertilizing of lawns and other plantings that provide particularly favorable conditions for the flourishing of methane-producing organisms.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

Since high concentrations were found throughout the Santa Fe Springs survey area, it would be prudent to require continuous methane gas monitors in newly-constructed buildings. Each new building site should be surveyed for soil gases and appropriate measures taken, based on findings.

LOS ANGELES CITY OIL FIELD

BACKGROUND

The Los Angeles City oil field is spread throughout much of downtown Los Angeles. Most of the oil wells were abandoned in the 1930's, although there are still a few producing wells in operation today. Several sites of oil seepage are known and are being monitored by the City of Los Angeles.

FINDINGS

Sixty-six (66) sites were sampled by both probe and coring methods and analyzed for C_1-C_4 hydrocarbons. Numerous seeps were identified and characterized according to composition. At many locations, gas concentrations were at levels which are extremely high. Methane concentrations as high as 370,000 ppm (v/v) were observed.

In general, most of the high gas concentrations identified appear to originate from biogenic sources. Some of the gas, however, may be of thermogenic origin. The sites identified as biogenic are associated with residential or landscaped commercial neighborhoods

throughout the surveyed area. As such, they are subject to watering and the application of fertilizers, which may be encouraging growth of methane-producing organisms within the soil at various depths.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

Since most of the sites found to be potentially hazardous had biogenic gas in unknown quantities, and the occurrences followed no recognizable geographic pattern, no clearcut recommendations are possible. In areas of known natural oil seepage, continuous methane monitors in the nearest buildings may be useful. For the other areas where potentially-hazardous soil gases were found, periodic ventilation of closed spaces is suitable.

SALT LAKE OIL FIELD

BACKGROUND

The Salt Lake oil field in West Los Angeles is mostly abandoned, although at one time it was a prolific producer. Also, it is the site of the Ross-Dress-For-Less fire and the area is heavily developed with residential and commercial neighborhoods throughout. There is also new construction taking place. Eventually, the Metro Rail may be built in parts of the Salt Lake oil field.

FINDINGS

One hundred and fifty-seven (157) sites were sampled by both probe and coring methods and analyzed for C_1-C_4 hydrocarbons. Several areas, about 25 percent of the sites, were identified and characterized as having soil-gas concentrations above normal. At several locations, levels of methane gas that are potentially hazardous were identified.

The majority of the high-concentration areas contained biogenic gas and were spread throughout all of Salt Lake field in commercial and residential developments.

Most of the potentially hazardous sites also had gas that was biogenic in nature. The gas found at the Ross Dress-For-Less store (Ogden and Third) was biogenic.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

Areas containing potentially hazardous oil gases were found throughout the Salt Lake region. Most of these areas had biogenic gas and it was impossible to determine the volume of gas or even make an estimate. In a situation such as at the Ross Dress-For-Less store, a vent well is feasible (and in place). At other locations, the best approach may be periodic or passive ventilation accompanied by methane monitors, if economically feasible. (As a result of the Ross Dress-For-Less incident, the City of Los Angeles has already proposed an ordinance that requires several mitigation measures in new construction; i.e., gas detectors, impermeable foundation barriers, etc.)

HUNTINGTON BEACH

BACKGROUND

Huntington Beach is comprised of low, marshy ground, including many areas with oil production. Homeowners have reported seepage, both oil and gas, and the local gas company has reported gas seepage that is not originating from their pipelines. In summary, Huntington Beach is quite similar to Newport Beach.

FINDINGS

One hundred and eighty-six (186) sites were probed and/or cored and the samples analyzed for C_1-C_4 hydrocarbons. Several high-concentration areas (almost half of the sites) were identified and characterized according to composition. Almost all were biogenic in nature and many of the soils contained potentially hazardous concentrations of methane.

The high-concentration areas were present throughout the study area in Huntington Beach, but were concentrated in the southern portion of the City. Some hydrogen sulfide seepage was also noted in this area. According

to anecdotal comments offered by some residents, the water table is very shallow and soils tend to be very black. The area is built over old river beds and marshland, a rich source of organic matter for bacterial production of methane.

CONTRACTOR'S RECOMMENDED MITIGATION MEASURES

There is no recognizable geographic pattern to the potentially-hazardous gas concentrations and the gases are biogenic, leaving it unclear as to how much gas is actually present at any one location. Since the soils are marshy and the water table shallow, new construction should probably be sealed because the soil is the gas source. For current structures, methane gas monitors and passive or active ventilation may be economically feasible. Vent wells must be considered as a last resort, because they are expensive and the areal extent of most seepage areas are smaller than those in Newport Beach, meaning vent wells may not be effective.

SUMMARY

GeoScience Analytical, Inc. has conducted a study of abandoned oil and gas fields located in areas of Southern California. The fields, each with substantial potential for methane and other hazardous gas accumulation, have been studied to determine the location and extent of gas and potential hazards. Furthermore, strategies have been developed to drain existing accumulations of gas in high-risk areas and for the management of hazardous gas to prevent future hazardous gas accumulations.

To accomplish these objectives **GeoScience Analytical, Inc.** has conducted both a REGIONAL survey and a FOCUSSED survey to locate areas with hazardous gas accumulation. The REGIONAL and FOCUSSED surveys of the eight high risk areas have been carried out with sampling grids devised through discussion with Division of Oil and Gas Personnel, the aid of maps (both well and geological), and on-site inspection.

The REGIONAL survey emphasized sampling sites as close as practicable to the known locations of abandoned wells, since many sites were only remotely accessible due to construction. The FOCUSSED grids included suspected seeps in the high-risk areas to identify possible further

hazardous accumulations.

The majority of the sampling and analytical work was accomplished on site with a mobile field laboratory operated by a field geologist and a petroleum geochemist. The mobile field laboratory is a fully equipped recreational vehicle modified to carry high sensitivity laboratory grade gas chromatographs equipped with flame ionization and thermal conductivity detectors.

The analytical gas chromatography quantitated methane, ethane, ethylene, propane, propylene, iso-butane and n-butane. Gas accumulation can be the result of seepage from abandoned wells, natural petroleum or gas seeps or shallow biogenic gas. In the three former cases one would expect to see that the C_2^+ hydrocarbons constituted several percent up to more than 30% of the total hydrocarbons, while in the latter case the methane would constitute 98% or more of the hydrocarbon gases. (Precisely this reasoning was used to help determine that the gas which caused the Fairfax explosions was biogenic in nature rather than petrogenic.) Methane can also be the result of thermogenic (heating) processes and can resemble biogenic gas in composition. However, isotope studies, see page 47, can differentiate them.

At each site, the geologist sampled the soil gases at a depth of three feet using a hand carried narrow diameter stainless steel probe. The recovered gas sample was analyzed by the geochemist in the mobile laboratory for its hazardous gas content.

This technique was ideal for urban soil sampling because it was rapid and mobile, did not require a truck mounted drill rig, and had no environmental impact. For instance, many survey sites were obstructed by parking lots or streets. However, all that was required was a short move to a nearby lawn, parkway or flower bed. For cemented areas, the sample was taken at the nearest edge, usually a lawn or flower bed again. For built over survey sites, samples were taken at the foundation edge or as close as practicable.

At many sites a hole was augered to five (5) feet to recover a soil sample which was canned for subsequent analysis of its hydrocarbon content. The holes were backfilled.

The concentration data from the REGIONAL and FOCUSSED surveys enabled **GeoScience** to identify the areas of hazardous gas concentrations while the compositional data permitted a reliable prediction of the source.

In areas devoid of hazardous gas concentrations, the sources of the gases present were decided based upon compositional data.

In areas of no hazardous accumulation, **GeoScience** recommends passive monitoring. Homes or other buildings with basements or ground level crawl spaces can be monitored internally with electronic sensors. Structures on slabs or paved areas can be monitored with periodic checks around edges or through small holes with the soil probe.

In areas of hazardous accumulations, mitigation procedures are a direct function of the gas source and its distribution in the soil column. If the gas source was seepage from an abandoned well, economics will determine whether the well should be properly sealed or the structure modified. If the source was shallow pockets of biogenic gas, either the structure will require modification so that it is self-venting or shallow wells will be required to vent the pockets followed by permanent venting as in land fills. Periodic monitoring is required, either with electonic sensors or with actual soil gas sampling. It is likely not all pockets will be vented.

If the hazardous accumulation was the result of seepage from a diffuse source as highly disseminated organic matter which is decaying, or a geological fault, the best strategy is modification of nearby structures so that they are self-venting. Periodic monitoring with either electronic sensors or soil gas sampling, is also a prudent measure.

SAMPLING AND ANALYTICAL PROGRAM
MITIGATION STRATEGIES
GOALS

The sampling and analytical aspects of the program were focused on the identification of hazardous accumulations of methane gas. The source of the gas was ascertained in order to choose the best mitigation strategies. Emphasis was placed on direct measurement of soil gases.

SAMPLING PROGRAM

In selecting the sites for sampling, we considered two (2) objectives: a REGIONAL set of data (general survey over each high-risk area); (2) a set of sites FOCUSSED on known or suspected areas of seepage. These data collected from these sampling sites were used to determine the extent of any dangerous, or potentially dangerous, methane accumulations and their possible origins.

Soil gases in which methane or heavier hydrocarbons constituted two percent or more of the total gas (vol/vol basis) were considered dangerous. Soil gases in which methane or methane and other hydrocarbons constituted less than 2% but more than 0.1% (v/v) of the total gas were judged potentially hazardous. Soil gas measurements from safe areas were used to determine background. Anything greater than two standard deviations from background was considered anomalous.

REGIONAL

A grid of sites was sampled in each hazardous area to establish background and provide a regional view of the area. The spacing and configuration was dependent on the surface physical features such as roads, parking lots, buildings and topography of the field to be surveyed. For the larger fields (Los Angeles City, Santa Fe Springs, Salt Lake, Brea-Olinda and Huntington Beach) a grid with 25 - 100 yard spacing was employed where practicable. Modifications were incorporated to make allowance for sites that were inaccessible due to urban features or rough terrain. For the lesser fields (Rideout Heights, Summerland, and Newport), smaller grids were experimented with but not found to offer any advantages. Consequently these fields were surveyed with the same gridding as in the larger areas. The regional aspects of the information obtained in this survey was compared with the more FOCUSSED grid.

FOCUSSED

Sites were selected to provide completer coverage over known or suspected migration pathways; i.e. seeps and abandoned wells. These features were identified through consultation with California Division of Oil and Gas Personnel.

Before sampling was actually carried out over the REGIONAL AND FOCUSSED grids, sites were reviewed with the contract Supervisor from the Divison of Oil and Gas to ensure that no oversights occurred. In addition, there was consultation with local municipal authorities to obtain necessary permits and to make sure that no inadvertant damage to buried utilities occurred.

ANALYTICAL PROGRAM

COLLECTION METHODS AND ON-SITE MEASUREMENTS

Methane is present in sediments as a free gas located in the effective porosity and as interstitial gas which is occluded in pore spaces between grains. Two rapid, inexpensive, and effective techniques are currently available for sampling these gases. Which one is used depends on the depth of sampling. Each will be described herein. Both make use of a mobile field laboratory which is a fully equipped recreational vehicle containing a laboratory. The laboratory is equipped with an independent regulated power supply and gas chromatographs for the detection and quantitation of hydrocarbon gases.

PROBE METHOD: C_1-C_4 HYDROCARBONS AND NON-HYDROCARBON GASES

The soil probe is a stainless steel rod with a 1/16" hole running its length. The tip of the probe is a screw-on chisel point which conceals a side port connected to the hollow center (see Fig. 2). The small bore size minimizes the atmospheric air contamination in the soil gas sample. To recover a soil gas sample, the probe is driven to a nominal depth of three (3) feet in the soil using a slide hammer.

At depth a gas tight syringe was used to remove air from the probe's hollow center and the probe rotated twice to expose the side port to soil gases. The soil gases were removed by syringe for immediate analysis of their hydrocarbon content (see Fig. 3 for a typical chromatogram) using FID chromatographs in the mobile laboratory. As little as 10 ppb vol/vol of hydrocarbon can be detected.

The advantages of the soil probe method were its rapidity, ability to access areas not possible with a drill truck, and little or no damage to the environment. When consolidated shale or clay was encountered, we were forced to move our sampling site a few yards at

most. It was generally not practicable to auger through the consolidated layer due to time constraints (1 hr/ft of consolidated sediment with no way of knowing the thickness beforehand).

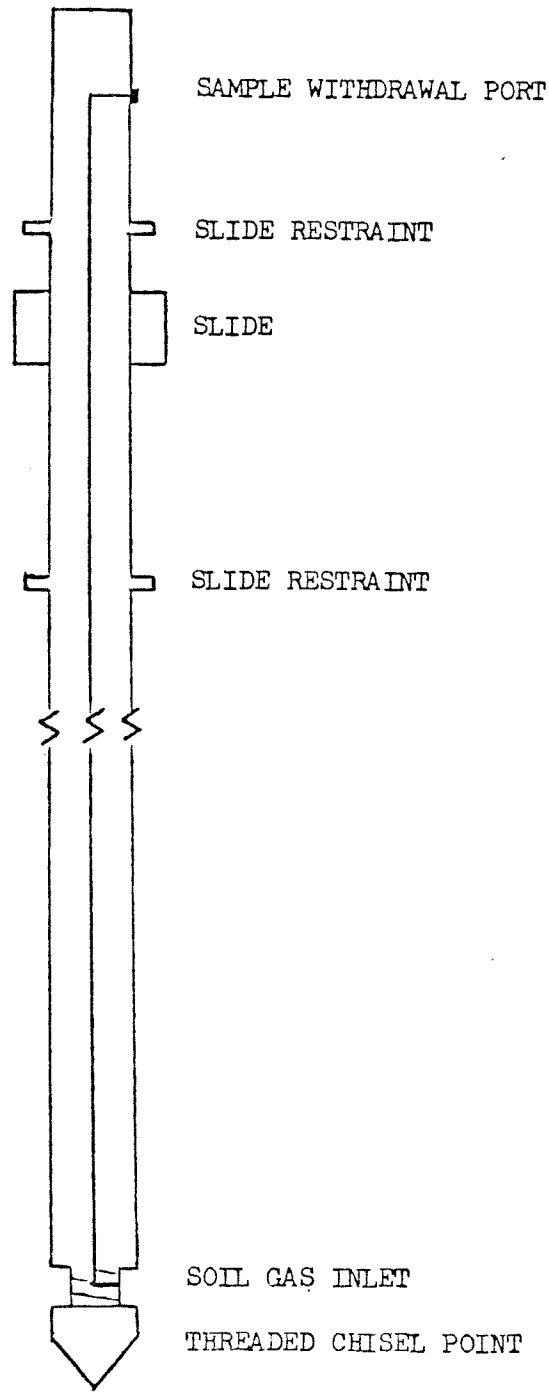


FIGURE 2: SOIL GAS PROBE

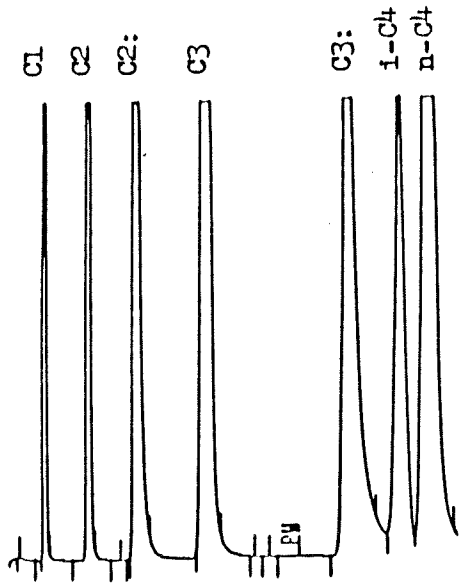


Figure 3: Hydrocarbon by Flame Ionization Detector Gas Chromatography: Methane: 250 ppb; ethane: 400 ppb; ethylene: 500 ppb; propane: 350 ppb; propylene: 300 ppb; iso-butane: 200 ppb; n-butane: 500 ppb.

CANNED HEADSPACE: C_1-C_4 HYDROCARBON GASES

In the canned headspace method, 300 - 400 cc of sediment was collected from the bottom of an augered hole by removing the auger and taking the sediment sample directly from the auger blade. The sediment was immediately canned with 200 cc of water in a No. 2½ can (860 cc volume). The lid is equipped with a silicon septum.

In the laboratory, each can was shaken for five (5) minutes on a disaggregation shaker to completely homogenize the sample and bring all hydrocarbons into equilibrium with the headspace gas (250 cc). An aliquot of the headspace gas was withdrawn for analysis by FID chromatography. This was carried out in the mobile laboratory or samples were returned to the laboratory for analyses depending on time availability. The data are reported as volume of hydrocarbon gas per volume headspace gas. The limit of detection is 10 ppb for the hydrocarbon analysis. Thus the canned samples served not only as confirmation of the probe results but also as a reservoir of gas for additional tests such as isotopic analysis in cases where it was necessary. The canned samples also provided information about the vertical extent of anomalies.

Although the methane measurements are of primary importance, quantitation of the heavier hydrocarbons is necessary with respect to determining the origin of the methane in anomalies since this information has a direct bearing on mitigation procedures. Once the hydrocarbon gas composition was known from the field analysis of a gas probe sample or confirmed with analysis of the canned sample headspace, it was possible to make a reliable decision regarding the source utilizing criteria established by the oil industry and organic geochemists. Although unusual situations may be encountered, certain guidelines are reliable. If the soil gas contains methane accompanied with unsaturates (ethylene and propylene) present in amounts comparable to the corresponding saturates (ethane and propane), the gas is bacterial in origin. In some cases, the methane can be very dry (less than 1% C_2^+) constituting more than 99% of the hydrocarbon gas. If the unsaturates are missing or present in only minor amounts and the C_2^+ gases constitute up to 20 or 30% of the hydrocarbon gases, the origin is petroleum related. If hydrocarbon gases are the result of thermal processes, the unsaturates are missing and methane constitutes 97% - 98% of the hydrocarbon fraction.

Besides the chemical composition of the hydrocarbons,

the stable carbon isotopic composition of the carbon in the methane can be measured and this information combined with the compositional information to unambiguously decide the hydrocarbon gas origin. Methane containing carbon with an isotopic ratio of less than $-55^{o}/oo$ is biogenic, while methane with an isotopic ratio greater than $-55^{o}/oo$ but less than $-40^{o}/oo$ is petroleum related. Methane with carbon measuring $-40^{o}/oo$ or greater is derived from thermal processes.

MITIGATION

The mitigation and prevention strategies are of two types. One is regional and the other is site specific both depending to some extent on the gas source (biogenic or petrogenic) as determined by the sampling and analytical program.

REGIONAL STRATEGIES

If the results of the field testing program revealed hazardous gas concentrations due to petrogenic gas, oil field pressure reduction is a possible strategy. Hydrostatic pressures generated by the ground water system control fluid pressures in the oil and gas bearing zones. As hydrocarbons are pumped out pressures drop. Once the field is abandoned, the producing zones will tend to repressurize as circulating ground water percolates back into them. Thus renewed pumping of hydrocarbons could eliminate problems at the surface by reducing pressures at depth. The cost of such a solution would be considerable since several wells would be required with continuing maintenance and upkeep into the foreseeable future.

Circulating ground water is also responsible in some degree for the transport and collection of oil and methane in shallow subterranean environments. Heavy winter rains in the last few years raised the water table level in many areas as does urban usage such as lawn watering. As the ground water level increases, it forces pockets of gas to the surface, creating serious hazards. If the water table could be lowered, many of these hazards, but probably not all, could be reduced.

If the removal of ground water is to be considered as a mitigating strategy, it is important to understand what is involved. The stratified and anisotropic character of the near surface soil types tends to inhibit the vertical flow of ground water to the surface. This inhibition of flow "confines" ground water that is under relatively high pressure and depth. Upward migration occurs slowly through "leakage" and can be a major source of shallow ground water. The exact nature and amount of hydraulic connection between shallow and deep ground water zones in the high risk areas is unknown, at least to us, at this time. It is possible that leakage between the two zones is concentrated in conduits of higher permeability caused by the arrangement of sediments or by changes in the structure of the earth's

crust. A program that would determine the feasibility of pumping to lower ground water tables that may be forcing methane "bubbles" to the surface is outlined below. The first part of the discussion describes how effective pumping rates may be estimated, while the second part of the discussion describes a simplified procedure for estimating the amount of water that will have to be pumped. Combining the two allows one to estimate the number of wells required to drain a region.

AQUIFER PUMPING

Pumping water out of wells under controlled conditions and monitoring of water levels in the pumped well and nearby observation wells can provide data on hydraulic characteristics of the underlying aquifer. Similarly, observing changes in water levels in a well in which a pump has recently been shut off can also provide important information on aquifer characteristics. Finally, any available well log data is very valuable in determining physical characteristics of the aquifer.

ANALYSIS OF AQUIFER PUMP TEST RESULTS

The observations made during the pump test can be used to evaluate the hydraulic properties of the underlying aquifer. Mathematical analysis of pump test results requires a number of simplifying assumptions. Among these assumptions is that the aquifer is effectively infinite to a real extent and is homogeneous and isotropic. These conditions are rarely, if ever, met in field applications.

Nevertheless, analysis of pump test results is helpful in predicting the aquifer response to various pumping rates. However, it must be recognized that these can only be regarded as estimates, if the assumptions are a reasonable approximation.

The water levels in the pumped well and nearby observation wells will form a more or less straight line when plotted on semi-logarithmic paper. Using a modification of the Theis non-equilibrium equation proposed by Cooper and Jacobs(1946), the transmissivity and storage coefficient of the aquifer may be estimated.

Cooper, H. H., Jr. and Jacob, D. E., 1946; A Generalized Graphical Method For Evaluating Formation Constraints and Summerizing Well-Field History: Am. Geophys. Union Trans. 27, No. 4.

This non-equilibrium method employs the relation:

$$S_2 - S_1 = \frac{2.3Q}{4\pi} \log \frac{t_2}{t_1}$$

where S_1 = water level in an observation well at time t_1

S_2 = water level in an observation well at time t_2

Q = pumping rate of well

T = transmissivity of the aquifer

Using this relation for the portions of the time-water level curves in test wells, it is possible to calculate transmissivity values for the well under recovery conditions and under pumped conditions.

A change in slopes of the time-water level curves suggests that a deep semi-confined aquifer is receiving recharge from a shallow perched layer after the cone of depression sufficiently reduces confined pressure head in the vicinity of the pumped well. As time increases after turning on the pump, the slopes of the time-water level curves will continue to decrease.

Figure 4 on page 54 depicts a hypothetical well with typical pumping conditions.

Schematic diagram of interpreted flow conditions in the vicinity of a well from well log pump test data

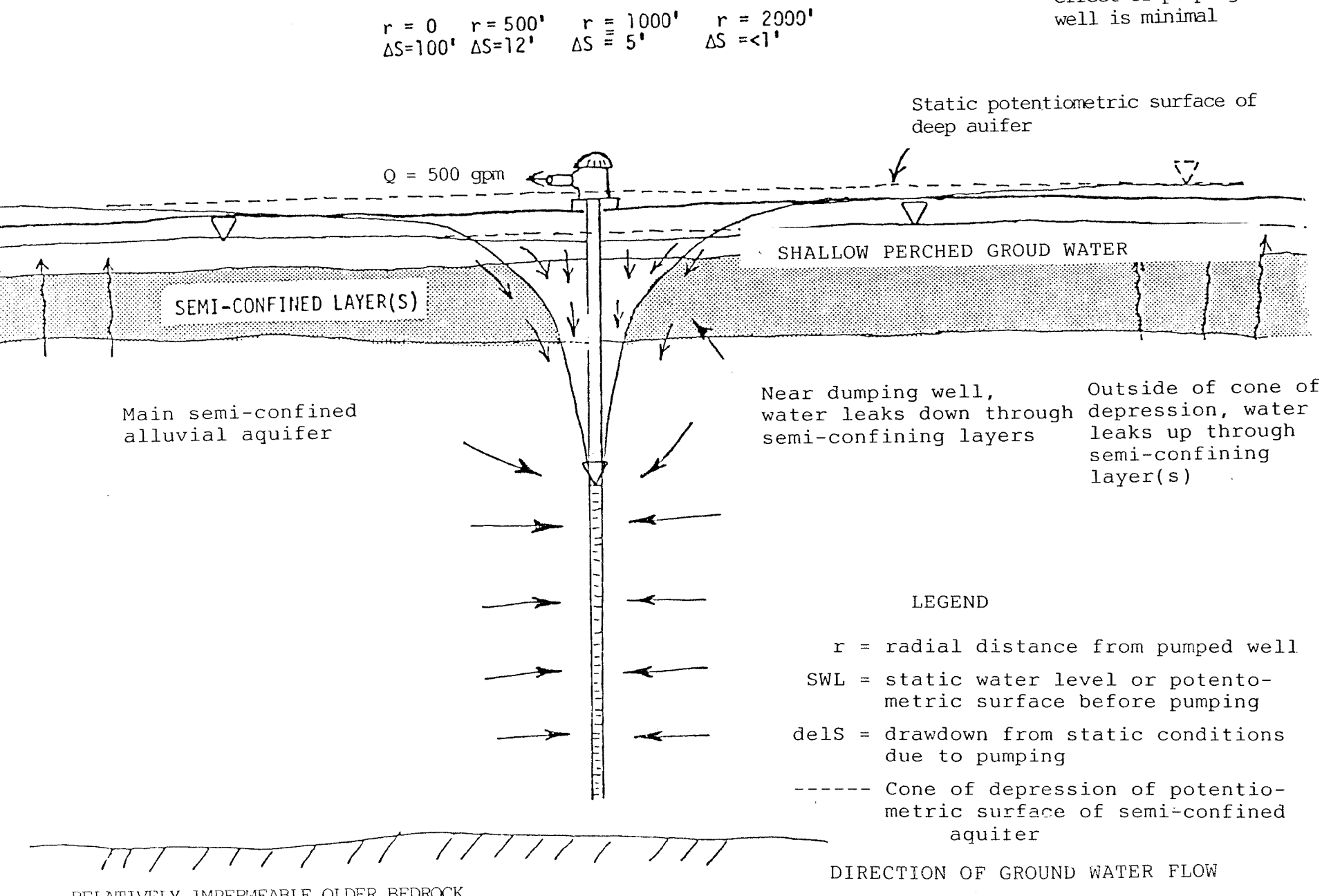


FIGURE 4

ESTIMATED WATER BUDGET

The sources of water and the rate at which ground water recharge occurs are important to an understanding of how a basin responds to changing conditions. One method of estimating the increase in ground water storage in the basin is to create a long-term water balance for the basin. This water balance is simply a budget of incoming, outgoing and stored water for the basin. It its simplest form:

P + I.W. = O + E + del (S), where

P = precipitation

I.W. = imported water

O = outflow

E = evapotranspiration

del (S) = change in storage

The model stated above assumes that ground water divides coincide with surface-water divides and there is no ground water flow into the basin, and that water stored in the upper soil zones remains essentially unchanged over many years.

Several of the terms in the model involve more

than one contributing element.

O = Stream Runoff + Ground Water Outflow + Sewage Outflow

E = Evaporation from Surface Waters + Transpiration from Plants

del (S) = Changes in Surface Storage + Changes in Ground Water

Some of the terms are directly measurable and records are available. Other terms must be estimated based on the characteristics of the basin.

PRECIPITATION:

Government agencies such as Flood Control Districts maintain gages throughout Los Angeles, Orange and Santa Barbara Counties. These records can be used to determine input over the last ten (10) years.

IMPORTED WATER:

Water is sold by suppliers that maintain records such that it will be possible to estimate the water imported over the last ten (10) years for each of the high-risk areas.

STREAM RUNOFF:

The Los Angeles, Orange and Santa Barbara County Flood Control Districts maintain records that will allow an accurate estimate to be made for the last ten (10) years.

GROUND WATER OUTFLOW:

Ground water flow may be influenced by the presence of faults and by the differing permeabilities of various strata through which flow occurs. For example, ground water outflow can be estimated by developing a cross-section at a narrow outlet at a downstream point. The topography on either side of the narrows is extended underground as an approximation of the interface between waterbearing alluvium and non-waterbearing rock. The flow across this area is calculated using the Darcy equation, $Q = kAi$. The permeability, k, can be estimated from results from pump tests. The hydraulic gradient can be estimated as equivalent to the ground slope in the area of high ground water immediately above the narrow outlet.

SEWAGE OUTFLOW:

Records are available for the amount of waste water treated at municipal treatment plants. Its flow represents a discharge in the water balance. Individual septic systems discharge into the ground water and are accounted for as ground water storage and outflow.

EVAPOTRANSPIRATION:

The total evaporative losses involve evaporation from open water and from plants. Both types of losses are estimated by reference to measured evaporation from a standardized pan of water in an open field. Several agencies maintain Class A evaporation pans.

The pan coefficint is the proportion of evaporation from a standard pan that will occur under natural conditions. The value of the pan coefficient depends upon the type of vegetation, how densely it grows, and the atmospheric conditions at the particular site as compared to conditions at the pan.

A pan coefficient of 0.8 for grass is accepted by local users. This coefficient is applied to the area covered by landscaping. A coefficient for undeveloped areas can be developed on the basis of 0.8 in the wet season when grass and brush is flourishing, 0.1 in the dry season when grass has died back and brush is at subsistence level, and varying coefficients in transition seasons. Open water in lakes and swamps is assumed to have a pan coefficient of 0.8.

STORAGE:

The change in ground water storage is the object of this water balance. To this end, the water balance equation can be rewritten as:

$$\Delta(S) = P + I.W. - O - E.$$

SENSITIVITY AND ACCURACY OF MODEL:

The variables most accurately measured or estimated for this model are precipitation, amount of imported water and sewage discharge. The outflow due to ground water flow depends on the aquifer's permeability, a factor that can be estimated by a pumping test.

Surface flow records are available. Sheet flow is probably minor since the area is urban. Evapotranspiration losses can be major but in the current instance are not since most of the areas of interest are urban.

The water balance is a good estimate of the recharge rate of the ground water aquifer and as such will allow the calculation of the approximate number of wells needed to drain a particular region. The time and effort required for these studies will be extensive and costly and must be taken into account when considering the possible mitigation strategies.

It has been estimated that a water drainage program in the Fairfax area alone could cost $138,000.

LOCAL OR SITE SPECIFIC STRATEGIES

Hazardous accumulations whose source was probably an abandoned well were encountered. Rather than depressurize the whole field, the one or two immediate wells might be reabandoned, according to current standards. There are serious drawbacks to this approach, however. Many wells' exact location is known imprecisely and their true locations are difficult to find at best and probably impossible in built-up areas without severe disturbance of existing structures. If a well can be located there is the problem of non-continuous casing, popular during the 1930's and earlier, which would render ineffective any new surface plugs. Finally, the legal and physical problems of gaining access to a well many be practically insurmountable. A lost well encountered during new construction should be reabandoned correctly to minimize the chances of future problems.

Hazardous accumulations that are biogenic in nature may be the result of pressure driven seepage from a reservoir or pocket (bubble) of gas. The depth of the bubble will depend on local subsurface conditions but its horizontal displacement should be no greater than 75 yards. Lacking surface or other clues about its position, the best strategy for locating a test

grid for shallow vent wells would be to move upstream on the ground water gradient. Since gas pockets are discontinuous, several vent wells should be attempted, even if an early one is successful. To be cost effective, a depth of 100 feet is sufficient. A successful vent well might cost $5,500 fully equipped (well hardware, vents, guard rails, etc.). There is no guarantee that all pockets will be vented.

Some of the fields are cut by faults which can act as conduits for hazardous gas that is either petrogenic or biogenic. Near the surface, the gas is apt to collect in pockets as previously described. The siting of a relief vent grid would be over the fault rather than upstream on the ground water gradient as in the case of local biogenic gas. The well cost would probably be the same with no guarantee that all pockets would be vented.

There are several less expensive ways to mitigate the hazards of methane accumulations. Structures (buildings or homes) may be equipped with methane gas sensors either in spots of likely accumulation or within a ventilation system at regions of heavy flow. The sensors monitor continuously and sound an evacuation alarm before an explosive mixture forms (5% or greater methane

in air). They can be wired into burglar alarm systems for 24 hour monitoring. Some technical expertise is required for their installation and costs are between $400 and $2000 for a system.

Vent systems can also be retrofitted to existing structures. One of the most prominent structures in and around Los Angeles is the paved parking lot which can act as a cap to upwardly moving gases, thus forcing them into nearby buildings. A parking lot vent system is essentially a series of small trenches (20" x 20") backfilled with a 3" or 4" slotted PVC pipe and gravel. Trench spacing is a function of soil porosity since the trenches must be paved over, small stand pipe vent outlets at the ends are necessary to relieve gas accumulations. The cost could be $0.50/foot.

Venting a structure is more complicated. Trenches can be dug against the building foundation and backfilled with a slotted PVC pipe surrounded by gravel placed on the foundation footings. The gas should be vented either above the building or at least 10 feet from it. At a new construction site cost would be $20.00 - $30.00 per foot while at a standing structure costs could be double or greater depending on accessibility.

Vents can be emplaced vertically also. Slotted steel pipes driven to a depth of eight to ten feet below the foundation or small holes drilled to the same depth and filled with slotted PVC pipe are both satisfactory. Each vent pipe could cost up to $300.00.

In new construction in any of the eight identified high-risk areas, the best approach seals the foundation with layers of reinforced chlorinated polyethylene below the concrete slab-on-grade. There should be a layer of sand beneath the plastic with slotted PVC pipes to vent methane and monitor for it. Inspectors must ensure that no punctures are allowed and that all seals are correctly made. Utility conduits can be passed through the sheeting using special seals that will maintain the sheeting integrity. These seals can be retrofitted to existing structures. The cost for sealing a new building is about $2.00 per foot^2 which includes materials, labor and inspection.

With time the vent systems may be plugged by dirt and debris. To ensure that this does not occur, the soils under the structure should be checked periodically with the soil probe or another method.

RESULTS AND DISCUSSION

SUMMERLAND

SUMMERLAND FIELD

Summerland is a small unincorporated resort community on the Pacific coast between Carpinteria and Santa Barbara. Around the turn of the century, hundreds of shallow producing wells were drilled both onshore and offshore. By 1915 most were abandoned, but not to current standards. Currently, Summerland is undergoing residential development over these old producing areas. Since there are active gas seeps offshore, this area was selected for study in order to identify any potential problems.

Fifty-five (55) sites were sampled by both probe and coring methods and analyzed for C_1-C_4 hydrocarbons. A hydrocarbon gas concentration level of 3 ppm (v/v) in the soil gases was determined to constitute background. Using this criteria numerous (28) seeps and/or anomalies were identified and characterized with respect to their most likely origin. See Table "S" for a list of these sites and their classification. Following Table "S" is a set of short site descriptions, the locations for each site in Lambert cordinates and a map showing all sites.

Low concentration anomalies of dry biogenic gas

were encountered along Lillie Avenue, east of Colville and west of Olive (one site, 5, is east of Olive). Along the bluff, there were four anomalous sites with high soil gas concentrations compared to background and an additional six (6) moderate anomalies.

In the area south of Ortega Hill Road and west of Pierpont, in and surrounding a local trailer park, a majority of the sites contained high soil gas concentrations that were relatively wet (hydrocarbons in addition to methane abundantly present). Active gas seeps were observed directly offshore but were not sampled. See the Summerland map, p.370, where all sampling sites are shown with anomalous sites differentiated.

The soil gas concentrations in the surveyed areas are such that construction can proceed. However, future homeowners, especially in the neighborhood of the trailer park, should be made aware that there was oil production in the vicinity and that it would be wise to be aware that natural gas seeps could appear in the future.

FIGURE 5

TABLE "S"

Identified Anomalies and/or Seeps with Suspected Origin

5(B)	21(B)	38(T)	57(B)
9(B)	23(B)	40(B)	58(B)
10(B)	27(B)	48(B)	61(B)
12(B)	29(B)	50(B)	
14(B)	30(B)	51(B)	
17(B)	32(B)	52(B)	
19(B)	33(B)	53(B)	
21(B)	34(B)	54(B)	
23(B)	37(B)	55(B)	

B = Biogenic

T = Thermogenic

NEWPORT BEACH

NEWPORT OIL FIELD

Newport Beach is a developed area with a history of problems due to gas seepage. The Coves, an older development along the Pacific Coast Highway, has a history of methane and hydrogen sulfide seepage. In fact, some years ago a house burned due to accumulating gas from seepage. Across Pacific Coast Highway, there is a vent well that is flaring gas which seems to have helped the problem some. Along Balboa (43rd St.), an abandoned well, under pressure, was opened and sprayed a nearby home with oil. Other homeowners in the immediate vicinity have reported intermittent occurrences of rotten egg odor (H_2S). Based on this history, Newport Beach was selected to be surveyed.

One hundred and twelve (112) sites were sampled by both probe and coring methods and analyzed for C_1-C_4 hydrocarbons. A hydrocarbon gas concentration level of approximately 2 ppm (v/v) in the soil gas was established as local background. Using this criteria, thirty-five (35) seeps and/or anomalies were identified and characterized as to origin. At many locations, the soils contained gases in concentrations that are very hazardous and, in addition, a very poisonous gas, hydrogen sulfide (H_2S), was present in several instances. See Table

"N" for a list of anomalies and/or seeps with classifications of origin and danger. Following Table "N" is a list of short site descriptions, the Lambert coordinates for each site, and maps of the sites.

The area west of Newport Boulevard and to the north and south of the Pacific Coast Highway (Balboa Coves and the land to the north to the top of the bluff) was extremely high in methane with some sites containing soil gases whose methane concentration was greater than 10,000 ppm (v/v). This level is greater by a factor of over 100 than the highest anomalies found in Summerland. Hydrogen sulfide was noted at some of these sites. This is an area of historic seepage and there is a vent well on the north side of Pacific Coast Highway that is being flared. According to local residents it has substantially mitigated gas seepage problems.

Anomalous concentrations of methane in soil gas were also located at 43rd Street and nearby sites including the park at the intersection of River Avenue and Channel Place. The park has had seepage problems in the past, and 43rd Street recently had a capped well blow out after it was improperly opened. Extremely high (more than 100,000 ppm (v/v) soil gas concentrations of methane

only a trace of ethane in addition to methane. In these respects, it is very similar to the surface gases detected in the current survey. However, the composition of the gas fits the description of a biogenic souce more closely than a petroliferous source. For this reason isotopic measurements were carried out,something not previously done, to make a final determination. The results were $-64^{o}/oo$ unambiguously biogenic. Of course, the source could be the layer of sour gas if it is biogenic. Or the source could be near surface current bacterial activity. The corresponding CO_2 delta ^{13}C value was $-13^{o}/oo$. In a biogenic system, the carbon isotopic difference between methane and associated carbon dioxide is usually approximately $70^{o}/oo$. Here it is only $50^{o}/oo$ indicating that the methane has been partially oxidized or consumed by methane oxidizing bacteria. Without samples of the deeper gas, the question of source can not be answered at present.

Judging from the survey results and past history, Newport Beach contains several hazardous or dangerous areas. Since it is developed, only after-the-fact measures can be taken, such as the recent installation of shallow vent pipes by the City of Newport Beach along Marcus. As homes are involved almost exclusively, a program involving the installation of 24 hour methane

monitors tied into a central alarm system appears to be the most logical choice, coupled with shallow vent pipes, as appropriate.

FIGURE 6

TABLE "N"

Identified Anomalies and/or Seeps with Suspected Origin

1(B)D 10,151	43(B)	72(B)
3(B)H 2651	44(B)	80(B)
18(B)	47(B)	85(B) ←
19(B)	48(B)	94(B)
20(B)	53(B)	95(B)
25(T)	55(B)	98(B)
29(B)	57(B)	99(B)
30(B)	60(B)	111(B)D 124,000
33(B)	61(B)	115(B)D 590,000 ppm
36(B)	62(B)H 2516	
39(B)	65(B)	
41(B)	67(B)	
42(B)	69(B)	

B = Biogenic

T = Thermogenic

H = Hazardous

D = Dangerous

RIDEOUT HEIGHTS AREA OF WHITTIER OIL FIELD

RIDEOUT HEIGHTS AREA OF WHITTIER OIL FIELD

The Rideout Heights area of the Whittier Oil Field is quite small in area. It contains the Mitchell Energy Company Lease comprised of 16 wells. There is another well nearby with accompanying storage tanks. The entire area is an older residential neighborhood. At one time in the past, a gas injection project on some wells may have leaked and damaged some vegetation. There have also been some instances of oil seepage reported but it is not known whether the oil is from an old sump or from a well. Due to these circumstances and the proximity of the homes to existing wells, this area was chosen as a survey site.

Twenty-six (26) sites were sampled by probe and/or coring methods and analyzed for C_1-C_4 hydrocarbons. A hydrocarbon gas concentration of about 1.5 ppm (v/v) in the soil was determined to be background. Using this as a guideline six sites were found to be anomalous but not hazardous.

The site at the Mitchell Energy Corporation well platform at the eastern end of Honolulu Terrace contained the highest concentration of soil gas methane. There are sixteen (16) wells here and associated pipelines.

The implication is that the ground has been disturbed in the past and may contain buried organic matter, oil field waste, or perhaps abandoned and failing piping which may contribute to an elevated level of methane in the soil gases.

Since nothing hazardous was located, no neighborhood-wide program is justified. The anomalous sites and their classification by origin are shown in Table "W". Following Table "W" are a list of short site descriptions, the Lambert coordinates for each site and site maps.

FIGURE 7

TABLE "W"

Identified Anomalies and/or Seeps with Suspected Origin

6(B)

12(B)

17(B)

20(B)

25(B)

26(B)

B = Biogenic

BREA-OLINDA FIELD

BREA-OLINDA OIL FIELD

The Brea-Olinda Field is a large producing oil field (Unocal). An island in the midst of a sea of constantly encroaching development, the field is spread over hills and would require extensive grading for major development. For the last 60 or more years, oil and gas seepage has been observed at several locations within the field which grading might easily affect. This area was an obvious choice to be surveyed.

Seventy (70) sites were probed and/or cored and the resulting gas samples analyzed for C_1-C_4 hydrocarbons. The background concentration of hydrocarbon gases in the soil gases was about 4 ppm (v/v). Using this value as a guideline, 37 anomalies and/or seeps were identified. About one-half of these sites contained methane at hazardous or greater concentration. These sites would not be appropriate for commercial, industrial or residential development. In several instances, active oil seepage accompanied the gas, further increasing danger for any future development.

There was a general trend to the hazardous sites in terms of their location. They began at the extreme western end of Unocal's Stearns Lease area on the southern

flank of Tonner Canyon, Sites 136 and 138 (wells 71 and 67). In fact by visual inspection, since physical access was not possible, actual oil seepage was noted in the vicinity of wells 58 and 35 on the Brea Canyon Oil Company area, immediately to the west of the Stearns Lease area.

Moving to the east along the southern flank of Tonner Canyon,methane seeps and/or oil seepage were found at sites 129 (well 112), 132 (well 175), 42 (well 119), 38 (well 111), 30 (well 63A), 26 (well 64), 22 (well 65A), 19 (well 83) and 17 (well 84). These last sites are moving up the hillside (going east) on the southern flank of Tonner Canyon. From site 17 to the vicinity of site 57 (well 128) further to the east and over the top of the hill, no anomalous concentrations of methane were detected. However, the road leading east down the hillside overlooking Brea to site 57 had small amounts of oil seeping through it with gas bubbles. Indeed, the entire area defined by sites 57, 61 (well 101), and 63 (well 137) was permeated by oil and/or gas seepage. Furthermore, by visual examination, there was oil seepage on the hillside beneath wells 101 and 49 and above site 116 (well 144). At site 116 itself there was no anomalous concentration of methane. The final area of anomalous methane in

the soil and oil seepage was at site 100 (well 50 on Shell Oil's Columbia Lease). There was visual indication of seepage in the past on hillside above site 100 and a methane anomaly (not hazardous) at site 93 (Shell well 43).

There were also isolated anomalies, not on the arc described above. At site 120 (well 173) anomalously high amounts of methane were found although not enough to be hazardous. The probe showed more methane than the auger sample. Small amounts of higher hydrocarbons were also present indicating a possible biogenic origin. The soil was layered at this site with several color changes noted as augering proceeded. The methane may have been generated in one layer and diffused into others. A similar occurrence was noted at sites 12 (well 76), 13 (well 109), 109 (well 37) and 136 (well 71) with the probe showing more methane than the auger sample. Other hydrocarbons were present in much smaller amounts. The soils at these sites were layered with one acting as a source or barrier. One other possiblity is widely varying porosities which would store different amounts of gas in the different layers.

described are certainly associated with petroleum while the other isolated seeps and/or anomalies have mixed origins. The gas seeps and soil gas anomalies identified in the Brea-Olinda field are listed in Table "B" along with their classification by origin and whether they are hazardous or dangerous. Following Table "B" are a list of short site descriptions, Lambert coordinates for each site and site maps.

If one considers all the instances of high soil gas concentration and oil seepage found within the Brea-Olinda Field, it must be concluded that this area probably should not be developed, at least for residential or commercial usage, without significant mitigation. At present, it is not clear that there are economically feasible methods to remove or mitigate the problems associated with the gas and oil seepage.

FIGURE 8

TABLE "B"

Identified Anomalies and/or Seeps with Probable Origin

1(B)	54(B)	95(B)
11(P)H 13,000 ppm	57(P)H 2000	100(P)H 1104
13(P)H 2700	60(B)	103(B)
17(P)	61(B)	109(P)
19(P)	63(P)H 14700	120(B)
22(P)	68(B)	128(P)H 5340
26(P)H 3870	69(B)	130(B)
30(P)D 19200	71(B)	132(B)
34(B)	73(B)H 1127	136(B)
38(B)	79(B)	138(P)H 7020
42(P)D 26280	86(B)	140(B)
52(B)	93(P)H 1272	142(B)
		144(B)

B = Biogenic

P = Petroleum

H = Hazardous

D = Dangerous

SANTA FE SPRINGS OIL FIELD

SANTA FE SPRINGS OIL FIELD

Santa Fe Springs is the site of historically abundant oil and gas production. Currently, the fields are in decline and the City has a very aggressive redevelopment program underway that is bringing in much new commercial and industrial development. Buildings are being constructed around producing wells and the fields are being encroached upon with new projects. There are reported seeps. Consequently, Santa Fe Springs was included in this study.

One hundred and ten (110) sites were sampled by both probe and/or coring methods. The background methane concentration in the soil gases was 5 ppm (v/v). With this guideline about 50% of the sampling locations were found to contain hydrocarbon charged soil gases, some as high as 150,000 ppm (v/v) in methane which is clearly dangerous. According to gas compositions some anomalies and/or seeps were clearly associated with petroleum while others were biogenic in nature. The biogenic gases were associated in many cases with lawns or other planting areas such as flower beds or trees in both commercial and residential areas. Thus the biogenic gases may be partly the result of the

heavy watering and fertilizing of lawns and other plantings which provide particularly favorable locations in which methane producing organisms can fluorish. The total amount of such gases is probably small.

The still producing oil fields between Bloomfield and Norwalk Boulevards on both sides of Telegraph contained most of the sites that were associated with petroleum by composition. The other sites that contained petroleum related gases were quite close to this area.

In many cases the high soil gas concentrations were close to the surface and beneath them, according to auger samples, concentrations were much lower. One possible explanation for this unusual behavior is that oil spills in the past have been buried. Thus there may be a foot or so of soil that is oil soaked which has trapped gases in it. Beneath this oil soaked layer, soil gas concentrations could be much lower. If this is the case, extensive removal of heavily contaminated soils will be required if it is decided to develop the remaining oil fields. This analysis also applies to the Powerine Refinery area which contained high soil gas concentrations of hydrocarbons.

Only four of the sites identified as biogenic

contained soil gases with hazardous hydrocarbon concentrations and they were not in developed areas. One (68) was in a producing field south of Telegraph and the other three (105, 106, and 109) were in one large weed grown plot of land between Norwalk Boulevard and Bell Ranch Drive just south of the trucking docks. The field shows evidence of disturbance through grading and dumping in the past. Thus these hazard sites could conceivably be the result of bacterial decay of buried organic matter as in a land fill. The old truck loading docks west of Norwalk Boulevard which might have been expected to show high soil gas concentrations of methane due to the large paved area and proximity to fields contained nothing hazardous according to the sampling. Small biogenic anomalies (74 and 77) were found.

Since mostly biogenic non-hazardous anomalies were found in the residential areas, no mitigation action is indicated for these areas. One exception is the area around site 45 (businesses and homes) which tested hazardous. Further testing in this area is recommended. As for the still undeveloped oil fields, it would be prudent to require continuous methane gas monitors in newly constructed buildings. Each new building site should be surveyed for hazardous soil gases and appropriate measures taken, such as removal

of contaminated soils, based on the findings. Other appropriate actions may include the sealing of building foundations with plastic or the installation of gas venting systems.

? what else

Table "SF" contains a listing of all anomalies found in the Santa Fe Springs area along with their probable origin. Following Table "SF" is a list of short site descriptions, Lambert coordinates for each site and site maps.

FIGURE 9

TABLE "SF"

Identified Anomalies and/or Seeps with Probable Origin

6(B) 12	54(P) 372/3.0	74(B)	113(B)
12(B) 11	56(P) 184	77(B)	117(B)
33(B) 11	57(P)D 19700/100	80(B)	121(B)
38(P)D 80700/300	*59(P)D 143,000	83(B)	125(P)H 12,2
40(P)H 1094	60(P) 911	85(B)	127(B)
41(B) 42	62(P) 324	86(B)	131(B)
42(P) 552	63(B) 12	89(B)	135(B)
43(P) 14000/3.0	65(B) 18	93(B)	137(P)D 43
45(P)H 1275	67(B) 18	105(B)H 2242	141(B)
46(B) 53	68(B)H 100	106(B)H 11,283	142(B)
47(P)H 1151	69(P)	107(B)	146(B)
50(B) 39	70(P)D 25,670	108(B)	
52(P) 556	72(B)	109(B)H 2416/7.0	

B= Biogenic

P = Petroleum associated

H = Hazardous

D = Dangerous

LOS ANGELES CITY OIL FIELD

LOS ANGELES CITY OIL FIELD

The Los Angeles City Oil field is spread through much of downtown Los Angeles. Much of it was abandoned in the 1930's, not to current standards, and there are still small producing wells in operation today. Several sites of oil seepage are known and are being monitored. Although there have been no serious problems reported, the area was chosen to be surveyed because it is densely populated.

Sixty-six (66) sites were sampled by probe and/or coring methods and analyzed for C_1-C_4 hydrocarbons. A soil gas background concentration of about 4 ppm (v/v) of hydrocarbon gases was found to exist. With this guideline about 40% of the sites were identified as anomalous. At many locations gas concentrations were at dangerous levels, as high as 370,000 ppm (v/v) methane. Gas composition was used to classify all sites with regard to probable origin.

One site (5) contained soil gases whose hydrocarbon content was clearly associated with petroleum. The site was the former location of an asphalt plant and in addition there were active wells closeby. It is not clear whether the soil gases are from a seep, leaking

well or buried asphalt wastes from the palnt. Buried wastes are the most probable source. All the other anomalies were biogenic by composition. The methane from the largest anomaly (60) was isotopically analyzed and found to contain carbon with an isotopic value of $-63^{o}/oo$ which clearly confirms its biogenic origins.

The sites identified as biogenic are associated with residential or commercial neighborhoods throughout the surveyed area. The sites are probably being watered presently or have been in the past and it is likely that there has been fertilizer application at many of the sites. It is quite possible that this treatment has, or is, encouraging bacterial growth of methane producing organisms within the soil at various depths.

Since most of the sites found to be hazardous were biogenic in nature, of unknown size, and followed no recognizable geographic pattern, there are no clearcut recommendations possible. For the areas in which hazardous soil gases were discovered, periodic ventilation of closed spaces is suitable. If some of the older housing is removed in the future to make way for new construction, the site should be surveyed for the presence of hazardous gases and/or unknown abandoned wells. The appropriate action will be dictated by the findings.

Table "LA" is a listing of all anomalies found with most probable origin noted. Following Table "LA" is a listing of short site descriptions, Lambert coordinates for each site, and site maps.

FIGURE 10

TABLE "LA"

Identified Anomalies and/or Seeps with Probable Origin

1(B)H 184000	19(B)	43(B)	62(B)
4(B)	20(B)	48(B)	63(B)
5(P)D 41000	22(B)	49(B)D 34000	68(B)
7(B)	29(B)	50(B)	70(B)
9(B)	30(B)	51(B)	75(B)
10(B)	32(B)	54(B)	
11(B)	37(B)	60(B)D 364,400	
16(B)D 27,000	39(B)H 1026	61(B)	

B = Biogenic

P = Petroleum associated

(H) = Hazardous

(D) = Dangerous

SALT LAKE OIL FIELD

SALT LAKE FIELD

The Salt Lake Oil Field in West Los Angeles is mostly abandoned, although at one time it was a prolific producer. Currently, it is the site of the Ross Dress-For-Less fire. The area is heavily built-up with residential and commercial neighborhoods throughout. There is also new construction going on. Eventually, the Metro Rail may be built in parts of the Salt Lake Oil Field. The choice of this area for a survey is obvious.

One hundred fifty seven (157) sites were sampled by probe and/or coring methods and analyzed for C_1-C_4 hydrocarbons. A background soil gas concentration of 4 ppm (v/v) for hydrocarbons was determined. Using this guideline, several anomalies, about 30% of the sites, were identified and characterized by composition as to their most probable source. At several locations methane concentrations that were at least hazardous were identified.

The majority of the anomalies were biogenic and spread throughout all of the surveyed area of the Salt Lake Field with "no easily recognizable pattern." They occurred in both residential and commercial areas and were associated with well-tended lawns or other types

of plantings. As such they are quite likely to be the result of plentiful water and fertilizer (nutrients) percolating down to bacteria in the soil. There were two non-hazardous anomalies located (139 and 141) that were not biogenic by compositon but appeared to be thermogenic in origin. The area is close to known seeps. In addition, the gas from Anthony 1, the vent well at the Ross Dress-For-Less site contained methane gas with an isotopic value of $-37^{o}/oo$, within the thermogenic range. This does not agree with the original conclusion that the gas which caused the original fire at Ross Dress-For-Less was biogenic in origin. However, there was no positive pressure noted at the well and it is drilled to a depth of 80 feet whereas the gas which caused the fire came from a depth of 42 feet.

If composition ratios of the gas are considered there is a definite difference between what is observed now and what was originally observed at the time of the fire and in nearby wells. The vent well was sampled on April 1 & 2, 1985, and contained gas whose ethane was 1.0% of the methane and whose propane was approximately one third this concentration. The ratio of n-butane to isobutane was about 1. Gases from producing wells nearby (Gillmore Lease, U-93 Lease, Oakwood Lease,

Metro Lease) contained ethane at levels of 4.0 - 5.0% of the methane and almost equal amounts of propane. The ratio of n-butane to isobutane was between one and two. Currently, the vent well is producing gas whose ethane is 1.2% of the methane and whose propane is 1/5 the amount of the ethane. The ratio of n-butane to isobutane is about 0.25. Thus, the current well gas is different from the gas that caused the original fire. Soil probes taken at the surface only found low levels of biogenic gas. Currently, the vent well is the source of immature thermogenic gas, but at the time of the fire, it could very well have been biogenic. Nearby sites are currently biogenic, at or near background levels.

All the hazardous or dangerous gas concentrations except one (49) were associated with, or in areas of known seeps. The anomaly at site 49 (2nd and Formosa) was in a well maintained lawn and compositionally biogenic. Two other hazardous biogenic seeps were also located. Site 125, Orange Grove and Genesee, had biogenic gas at a dangerous concentration level and there is a known seep at or near this site. At site 161 (8th and Carson) hazardous concentrations of biogenic has were also encountered. No known seep

exists here, but there are seeps nearby. The other four hazardous or dangerous soil gas concentrations located were not biogenic. One (130, Massellin and 6th, a known seep) was definitely related to petroleum. The other three sites are not associated with known seeps. Two (144 and 148) are similar in composition and are most likely associated with petroleum. One is on the corner of La Brea and Olympic at a gas station while the other is at 8th and Ridgely. The last site (142) is thermogenic in nature and located at 6th and Burnside. All three sites are close to the La Brea Tar Pits.

The area near Ross Dress-For-Less and the La Brea Tar Pits is the only part of the Salt Lake Field that might require home or commercial owners to take precautions. Probably the most effective measures would be the installation of electronic methane gas detectors coupled with periodic or passive ventilation of closed-in spaces. Throughout the rest of the Salt Lake Field area only non-hazardous biogenic anomalies were located. No precautions are necessary.

Table "SL" contains a listing of all the anomalous sites encountered as well as their probable origin. Due to a machine malfunction, the methane measurements

from sites 153 to 170 were randomly disturbed at levels below 80 ppm (v/v). For this reason only measurements above 80 ppm (v/v) were treated as reliable. Following Table "SL" is a list of short site descriptions, Lambert coordinates for each site and site maps.

FIGURE 11

TABLE "SL"

Identified Anomalies and/or Seeps with Probable Origin

5(B) 175	55(B)	109(B)	139(T)
6(B) 4606	58(B)	112(B)	141(T)
8(B)	59(B)	117(B)	142(T)H
9(B)	60(B)	118(B)	144(P)D
10(B)	61(B)	120(B)	148(P)D
11(B)	62(B)	124(B)	157(B)
14(B)	64(B)	125(B)D 10997	161(B)H
16(B)	65(B)	126(B)	162(B)
20(B)	80(B)	128(B)	163(B)
39(B)	97(B)	129(B)	165(B)
49(B)H	98(T)H	130(P)D	168(B)
50(B)	102(B)	131(B)	
52(B)	103(B)	132(B)	158
53(B)	107(B)	135(B)	159

B = Biogenic

T = Thermogenic

H = Hazardous

D = Dangerous

HUNTINGTON BEACH

HUNTINGTON BEACH

Huntington Beach is comprised of low, marshy ground including many areas with oil production. Homeowners have reported seepage, both oil and gas, and the local gas company has reported gas seepage not from their pipelines. In sum, Huntington Beach is quite similar to Newport Beach. Once this was recognized Huntington Beach was included in the study as an eighth area.

One hundred eighty-six (186) sites were probed and/or cored for gas samples which were then analyzed for C_1-C_4 hydrocarbons. A background hydrocarbon concentration in the soil gases of 5 ppm (v/v) was determined. With this as a guide line, approximately half the sites were classified as anomalies or seeps. According to compositional analysis, almost all sites contained biogenic gas. Several hazardous or dangerous sites were noted.

The anomalies were present throughout all areas of concern in Huntington Beach but were concentrated in the southern portion of the City (south of Indianapolis). Along Christine (23) hydrogen sulfide was found at one hazardous area. According to anecdotal comments offered by some residents, the water table throughout

this area is quite shallow and black clay-like soils are abundant. The area was formerly river channels and marsh, a rich source of organic matter for production of methane. However, the Newport-Inglewood fault system also runs through this area and may be offering conduits for deeper gas to rise to the surface as in Newport Beach which is only a few miles away. Isotopic measurements on gas recovered at Christine (23), Harborbreeze (62), Tidewater (109), Hagerstown (126) and Algonquin (199) were all in the biogenic range. (See Table exact values). Only at one site (96) on Barbados was an anomaly that appeared non-biogenic discovered. Unfortunately it was not possible to recover enough gas to make an isotopic measurement.

There is no recognizable geographic pattern to the anomalies in general or the hazardous ones in particular. Since they are biogenic in origin the absolute gas amounts are not clearly calculable at present although it must be assumed the gases are being generated or renewed on a continuing basis. If it is assumed that the soils are acting as a diffuse source, then new construction should have foundations sealed with plastic and be equipped with methane monitors and ventilation systems. For current structures, methane monitors and passive or active ventilation systems are economically

feasible. If noxious hydrogen sulfide odors become a problem (on Christine perhaps), a shallow system of perforated pipe might be installed without undue economic hardship, perhaps by the City, as in Newport Beach.

Table "HB" contains a listing of all anomalies classified as to origin and potential for harm. Following Table "HB" is a list of short site descriptions, Lambert coordinates for each site and site maps.

CARBON ISOTOPIC MEASUREMENTS OF METHANE IN SELECTED SOIL GASES FOUND IN HUNTINGTON BEACH

Christine (23)	-69 $^{o}/oo$
Harborbreeze (62)	-72
Tidewater (109)	-68
Hagerstown (126)	-69
Algonquin (199)	-77

CONCLUSION

The purpose of this survey was to determine if leaking gas from abandoned or active oil wells, gas seepage along fault systems such as the Third Street Fault in Salt Lake Field, and seepage from concentrations (bubbles) of biogenic gas are, or could be, serious community hazards. The Division of Oil and Gas identified eight areas that are especially prone to this problem because they are urban, have a history of seeps, and have old abandoned wells within their boundaries.

Only two instances of possible well leakage were found, one in Newport Beach on Marcus Street and one in Huntington Beach on Algonquin. In both cases it is known that the house or apartment building present is built over at least one abandoned well. Both seeps contained biogenic gas, however, indicating that if the wells were responsible, they were only acting as conduits for shallow gas generated in the near vicinity.

The Salt Lake Field has several fault systems running through it as do both Newport Beach and Huntigton Beach. In none of these three areas was there any evidence for wide-spread occurrence of petrogenic

gas. Rather, the detected gas was overwhelmingly biogenic in nature and showed no systematic pattern in its placement. Thus, if there is seepage along faults, it is because they are acting as conduits for recently generated near surface biogenic gas.

It is true that the La Brea Tar Pits are petrogenic and contain gas. However, even sampling close to the Tar Pits revealed no preponderance of petrogenic sites. Perhaps the Tar Pits act as a convenient safety valve, limiting the occurrence of other petrogenic seeps. The Ross Dress-For-Less fire occurred very near to the Tar Pits yet was probably caused by escaping biogenic gas.

The Brea-Olinda Oil Field is also faulted and there are indeed several active oil and associated gas seeps. However, this area is currently being operated solely as an oil field and poses no community hazard. Santa Fe Springs is another currently producing oil field and may be subject to development in the near future. Evidence of petrogenic gas was found at some locations but appeared to be the result of spillage rather than seepage based on gas variation with depth. There do not appear to be leaking wells.

No convincing evidence was found for the widespread occurrence of shallow high pressure gas bubbles. Biogenic gas was the result of local in situ processes and appeared to be venting itself in a diffuse manner. In three instances (two in Newport Beach and one in Huntington Beach) point sources were found. However, they are associated with known wells as previously discussed. The third instance is on Broad Street in Newport Beach. A well is suspected here and is probably behaving as in the other two instances.

Even though there are no widespread problems associated with leaking wells, fault associated seeps, or gas bubbles, problems do exist as documented by the detection of numerous instances of hazardous soil gases. Fortunately, the discovered problems are amenable to practical and economical solutions.

In Summerland, awareness of the problem of soil gases and possibly the installation of methane detectors is sufficient. For Brea-Olinda, the best solution is to restrict development. In Santa Fe Springs development is possible if conscientious efforts are made to install warning systems, to seal foundations against gas penetration, and to provide adequate ventilation. Some removal

of contaminated soils may also be required at some construction sites. In Newport Beach and Huntington Beach the installation of methane monitors and provisions for ventilating enclosed spaces in existing structures is cost effective. New construction should probably try to seal foundations in addition to installing methane detectors and providing for ventilation. The Cities might also consider financing the installation of shallow perforated pipes to drain soils if noxious gases are a problem. In the Los Angeles City Field, the sites for new construction should be surveyed for possible gas hazards and apropriate action taken based on the findings. Residents near the hazardous sites identified should be notified and made aware of the availability of methane detectors and the benefits of ventilating enclosed areas. In the area of the Salt Lake Field near Ross Dress-For-Less and the La Brea Tar Pits, methane detectors should be installed accompanied with ventilation procedures. New construction sites must be surveyed and foundations sealed against gas intrusion depending on the results of the soil gas survey. If the Metro Rail adds underground lines here, the construction must be sealed and equipped with methane detectors, and efficient ventilation systems. These are, or should be, standard practices

in the construction of subways. Los Angeles is proposing such measures be added to its construction ordinances. In Whittier no problems were encountered and no mitigation is necessary.

SAMPLING SITE COORDINATES

SAMPLING SITE COORDINATES

FIELD: SUMMERLAND

LOCATION NO.	X	Y
1	1517302	338639
2	1517502	338567
3	1517726	338512
4	1518040	338418
5	1519975	338378
7	1519825	338450
8	1519502	338521
9	1519269	338510
10	1518990	338693
11	1518555	338855
12	1518196	339026
13	1517782	339286
14	1517434	339405
16	1517426	339566
17	1517414	339745
18	1519530	338654
19	1519313	338723
20	1519060	338839
21	1518979	338796
22	1518231	339258
23	1519371	338185
25	1516910	339486
26	1517151	339432
27	1516791	339248
28	1516535	339311
29	1516381	339169
30	1516156	339106
31	1516316	339644
32	1516044	339586
33	1516325	339112
34	1516281	339109
35	1516766	339599
36	1516524	339720
37	1517285	339436
38	1516052	338722
39	1516379	338784

SAMPLING SITE COORDINATES

FIELD: SUMMERLAND

LOCATION NO.	X	Y
40	1516596	338802
41	1516958	338841
45	1520106	337887
46	1519747	338016
47	1519141	338193
48	1519925	338015
49	1519658	338077
50	1517434	338851
51	1518766	338335
52	1519081	338252
53	1518847	338464
54	1518420	338432
55	1518204	338572
56	1518246	338491
57	1518552	338510
58	1518065	338607
59	1517791	338706
60	1517611	338821
61	1517769	338880

SAMPLING SITE COORDINATES

FIELD: NEWPORT BEACH

LOCATION NO.	X	Y
1	1487489	533480
3	1488529	533217
5	1488821	533111
7	1487739	533453
8	1487788	533344
9	1487970	533439
10	1488283	533332
11	1487340	533381
12	1488454	533161
13	1487231	533520
14	1487087	533300
15	1486988	533528
16	1487581	533372
17	1488088	533393
18	1487625	533757
19	1487828	533749
20	1487246	533784
21	1486196	533547
22	1485991	533701
23	1486279	533367
24	1485739	533753
25	1485494	534269
26	1485118	534144
27	1485448	533932
28	1485280	534031
29	1487458	532021
30	1487181	532146
31	1487074	532289
32	1487739	531955
33	1487248	532425
34	1487925	532128
35	1486932	532473
36	1487975	531983
37	1487115	532621
38	1486801	532633

SAMPLING SITE COORDINATES

FIELD: NEWPORT BEACH

LOCATION NO.	X	Y
39	1486708	533302
40	1487007	532893
41	1486418	533142
42	1486640	533012
43	1486638	532847
44	1486862	532969
45	1488047	532764
46	1487316	532725
47	1487901	532582
48	1487515	532880
49	1487789	532796
50	1487676	532422
51	1487140	532992
52	1487485	532559
53	1487309	534047
55	1487848	534009
57	1487848	534009
59	1488573	533969
60	1488189	533980
61	1487522	534038
62	1487925	533559
65	1487761	533582
67	1487434	533637
69	1489432	528961
70	1488876	529731
71	1489154	529113
72	1488997	529563
73	1489039	529326
74	1489679	529168
75	1489306	529955
76	1489284	530417
77	1489188	530708
78	1489471	530954
79	1489170	531418
80	1489176	531174

SAMPLING SITE COORDINATES

FIELD: NEWPORT BEACH

LOCATION NO.	X	Y
81	1489177	530937
82	1489697	531545
83	1489326	531827
84	1489000	531869
85	1488696	531512
86	1488691	532828
87	1488361	532588
88	1488506	532374
89	1488506	532374
90	1488140	532381
91	1488453	531976
92	1488269	532209
93	1487998	531999
94	1487615	531606
95	1487747	531366
96	1488136	531455
97	1487847	531229
98	1428298	531832
99	1488167	531997
100	1487857	531812
101	1488271	531541
102	1487979	530994
103	1488862	529893
104	1488745	529990
105	1488745	529990
106	1488654	530229
107	1488654	530229
108	1488430	530443
109	1488339	530641
110	1488137	530823
111	1487975	531988
115	1490225	535250

SAMPLING SITE COORDINATES

FIELD: WHITTIER - RIDEOUT HEIGHTS

LOCATION NO.	X	Y
1	4272719	4110705
2	4272774	4111094
3	4273101	4110669
4	4273039	4110925
5	4273155	4111254
6	4273383	4110509
7	4273567	4110612
8	4273382	4110714
9	4273248	4110810
10	4273438	4111020
11	4273944	4111069
12	4273685	4110916
13	4274092	4110925
14	4273925	4110802
15	4274080	4110701
16	4274599	4110514
17	4274343	4110473
18	4274524	4110634
19	4273783	4110491
20	4273935	4110404
21	4274061	4110203
22	4274598	4110209
23	4274409	4110161
24	4274980	4110308
25	4275182	4110427
26	4275155	4110240
28	4275140	4110255
29	4273925	4110404

SAMPLING SITE COORDINATES

FIELD: BREA-OLINDA FIELD

LOCATION NO.	X	Y
1	2038951	156694
3	2039132	157044
6	2039465	157390
9	2040683	157258
11	2041113	157388
13	2041435	157424
17	2041993	157910
19	2041505	157945
22	2041059	158108
26	2040653	158108
28	2040439	157602
30	2040353	158196
34	2040271	158138
36	2039951	158192
38	2039181	158242
40	2038789	158400
42	2038221	158492
43	2038195	158562
46	2042273	157194
48	2041880	157110
50	2042879	156908
52	2042889	157226
54	2043234	157170
56	2043705	157090
57	2044183	156993
60	2044321	157108
61	2044813	157108
63	2044545	157038

SAMPLING SITE COORDINATES

FIELD: BREA-OLINDA

LOCATION NO.	X	Y
66	2039503	156633
68	2040303	156250
69	2039805	155753
71	2040433	156560
73	2040931	156971
77	2041597	156853
78	2040967	156244
79	2040419	155903
81	2041015	155354
82	2041849	156370
84	2042193	156338
85	2041971	155154
86	2041892	155610
89	2042339	155272
90	2042067	155838
92	2042725	154742
93	2045591	156828
95	2045771	156518
98	2045563	156422
100	2045625	155928
103	2045351	154828
105	2045274	155500
107	2045105	154868
109	2043581	156278
111	2043609	155916
114	2044133	156444
116	2045041	156720
118	2044227	155766
120	2044105	155324
122	2044593	155358

SAMPLING SITE COORDINATES

FIELD: BREA-OLINDA

LOCATION NO.	X	Y
124	2043657	155368
126	2038059	158994
128	2037727	158899
130	2037727	158899
132	2036537	159402
134	2036029	159808
136	2034999	159848
138	2034935	160078
140	2035777	159498
142	2036505	159266
144	2037369	159044
146	2038513	157558
148	2038045	158024

SAMPLING SITE COORDINATES

FIELD: SANTA FE SPRINGS

LOCATION NO.	X	Y
1	4254278	4087522
3	4263875	4087392
4	4264000	4087900
5	4264187	4088468
6	4264346	4089003
7	4262612	4087104
9	4262400	4087565
10	4262943	4087565
11	4263125	4088143
12	4262381	4088143
13	4262446	4088631
14	4263125	4088631
15	4262525	4088925
16	4261968	4088400
17	4261773	4087811
18	4261654	4088925
19	4262331	4088443
20	4261490	4087392
21	4262140	4093562
22	4262343	4094031
23	4262606	4094678
24	4262312	4095475
25	4263750	4095718
26	4263571	4095281
27	4263315	4094790
28	4263046	4094103
29	4262700	4093487
30	4263381	4093325
31	4264175	4094146
33	4264746	4095146
34	4268059	4089375
35	4268346	4089068
36	4267325	4089162
37	4267225	4089662
38	4268787	4089609
40	4268000	4087709

SAMPLING SITE COORDINATES

FIELD: SANTA FE SPRINGS

LOCATION NO.	X	Y
41	4267362	4088400
42	4267384	4087728
43	4268000	4087709
45	4265950	4087681
46	4265146	4087600
47	4265956	4088895
48	4266075	4089475
49	4265671	4088393
50	4265265	4088900
51	4265100	4089687
52	4265246	4087078
53	4265978	4087081
54	4268637	4090162
56	4267988	4090334
57	4267246	4090331
59	4266721	4090337
60	4266728	4091047
62	4267321	4090931
63	4268071	4090931
65	4268515	4090921
67	4268531	4091950
68	4267600	4092075
69	4267663	4092778
70	4268515	4092684
71	4265753	4090156
72	4265118	4090159
73	4265900	4091146
74	4265912	4090900
75	4265943	4090346
76	4265678	4091025
77	4265696	4090493
79	4266187	4091803
80	4267221	4091750
82	4266725	4092443
83	4266178	4093043
85	4265809	4092140

SAMPLING SITE COORDINATES

FIELD: SANTA FE SPRINGS

LOCATION NO.	X	Y
86	4265818	4092434
89	4265884	4092693
90	4265368	4091925
91	4265368	4092268
92	4265368	4092268
93	4265371	4093165
94	4265371	4092871
95	4265371	4093806
96	4265371	4093550
97	4265953	4093828
98	4265896	4093443
101	4266512	4094043
102	4266556	4093209
105	4266990	4093150
106	4267675	4093113
107	4268390	4093081
108	4267250	4093665
109	4268237	4093500
114	4268696	4094200
116	4268031	4095771
118	4266712	4095465
120	4270753	4089078
122	4270315	4089068
124	4270043	4089978
127	4271178	4089528
129	4271806	4090750
131	4271021	4090900
134	4271284	4091568
136	4270478	4091362
138	4270125	4091637
139	4270203	4090662
140	4265987	4094787
141	4266250	4095250
142	4266987	4095025

SAMPLING SITE COORDINATES

FIELD: SANTA FE SPRINGS

LOCATION NO.	X	Y
143	4267800	4095070
144	4268562	4095200
145	4270850	4092800
146	4270203	4090662

SAMPLING SITE COORDINATES

FIELD: LOS ANGELES CITY

LOCATION NO.	X	Y
1	4214875	4136950
4	4214975	4136325
5	4216125	4136925
7	4215850	4137450
8	4214000	4136500
9	4213625	4136175
10	4212900	4136350
11	4212250	4136725
14	4211400	4135900
15	4211000	4135350
16	4209900	4135400
17	4209225	4135925
19	4210650	4136325
20	4210275	4135725
21	4209050	4136275
22	4208650	4135850
24	4209300	4135150
25	4199250	4138825
26	4198800	4137575
27	4199175	4137600
28	4199525	4138150
29	4199750	4137525
30	4200250	4137800
31	4199975	4138450
32	4200100	4138050
33	4200275	4138775
37	4207775	4135275
38	4200700	4137600
39	4200750	4138075
40	4200800	4137025
41	4201425	4137100
42	4201425	4137450
43	4201425	4138000
44	4201775	4198925
45	4201850	4137275
46	4202125	4137350

SAMPLING SITE COORDINATES

FIELD: LOS ANGELES CITY

LOCATION NO.	X	Y
47	4201775	4135825
48	4201375	4136175
49	4201425	4136600
50	4204150	4135450
51	4202500	4136050
52	4200600	4136625
53	4200525	4136050
54	4200400	4134450
55	4199550	4135475
56	4199250	4136150
57	4203100	4135250
58	4203450	4135825
59	4203650	4136250
60	4203875	4135825
61	4203975	4135375
62	4204725	4135625
63	4204500	4135425
66	4204325	4135900
67	4204925	4135400
68	4205225	4135825
69	4205750	4135600
70	4206400	4135350
71	4206150	4135825
72	4206025	4135425
73	4206550	4135875
74	4206850	4135475
75	4207150	4135950
76	4207100	4135100
77	4207975	4135550
78	4204700	4137550

SAMPLING SITE COORDINATES

FIELD: SALT LAKE

LOCATION NO.	X	Y
1	4185775	4140175
2	4185750	4141525
4	4186750	4140175
5	4186650	4141525
6	4188100	4141100
8	4189275	4141075
9	4190300	4141050
10	4190800	4141075
11	4191625	4141075
12	4192650	4140850
13	4193625	4140450
14	4194275	4140450
15	4195075	4141050
16	4185425	4141525
17	4185425	4140900
18	4185425	4140200
19	4184325	4141525
20	4184325	4140800
21	4184325	4140200
23	4183625	4141600
24	4183625	4140950
25	4183625	4140175
26	4183100	4141550
27	4183100	4140800
28	4183100	4140300
29	4182275	4141550
30	4182275	4140325
31	4182275	4140900
34	4141600	4141600
35	4181625	4140300
36	4181625	4140800
37	4181025	4141525
38	4180025	4140300
39	4181000	4140900
42	4181025	4139125
43	4180900	4138200

SAMPLING SITE COORDINATES

FIELD: SALT LAKE

LOCATION NO.	X	Y
44	4181625	4138300
45	4181625	4139100
47	4182400	4138200
48	4182325	4139100
49	4183125	4138300
50	4183100	4138275
52	4183625	4138250
53	4183500	4139150
54	4184450	4138300
55	4184325	4139125
58	4185000	4138300
59	4185075	4139150
60	4185750	4137575
61	4185725	4139075
62	4185800	4138300
63	4186575	4138300
64	4186500	4137550
65	4186700	4139275
66	4186600	4140075
67	4188150	4139925
68	4188725	4139925
69	4189625	4140000
70	4190225	4140000
71	4190825	4139900
72	4191550	4140000
73	4187075	4139875
74	4187225	4140000
75	4187700	4140100
76	4185100	4141500
77	4174700	4138000
78	4174650	4137475
79	4175650	4137850
80	4175600	4137350
81	4175550	4136750
82	4174825	4136800
83	4176600	4137700

SAMPLING SITE COORDINATES

FIELD: SALT LAKE

LOCATION NO.	X	Y
84	4176550	4137150
85	4176500	4136550
86	4176525	4138525
87	4176675	4138125
88	4176525	4140000
89	4176525	4139375
90	4175850	4139025
91	4175850	4139475
92	4175175	4139525
93	4174600	4139525
94	4174600	4140000
95	4174600	4139075
96	4174600	4139525
97	4179300	4137150
98	4179275	4137150
99	4179300	4137100
100	4178600	4136800
101	4177900	4137400
102	4178300	4137450
103	4175725	4138250
104	4174850	4138350
105	4173675	4138850
106	4173550	4138225
107	4173300	4139475
108	4173075	4139850
109	4173000	4140350
110	4173975	4140125
111	4174225	4140825
112	4174525	4140775
113	4175575	4140275
114	4175275	4140775
115	4175675	4140775
116	4176425	4140775
117	4177400	4136900
118	4176825	4137100
119	4176000	4137750

SAMPLING SITE COORDINATES

FIELD: SALT LAKE

LOCATION NO.	X	Y
120	4176000	4137200
121	4176700	4137500
122	4177225	4137425
123	4179800	4136800
124	4179300	4136450
125	4179700	4136250
126	4179275	4135250
127	4179750	4136025
128	4178700	4136025
129	4178675	4135325
130	4181175	4136050
131	4181250	4135300
132	4180850	4135925
133	4183250	4135125
134	4183350	4135925
135	4183350	4136650
136	4183350	4137300
137	4182800	4135950
138	4182700	4135275
139	4182775	4137350
140	4182775	4136675
141	4182150	4135300
142	4182175	4136075
143	4182550	4133325
144	4183150	4133300
145	4183350	4134450
146	4182900	4134400
147	4182300	4134450
148	4181600	4134425
149	4181900	4133300
150	4181225	4133350
151	4181450	4135325
152	4181500	4135950
153	4181750	4136400
154	4180925	4136450
155	4182025	4137175

SAMPLING SITE COORDINATES

FIELD: SALT LAKE

LOCATION NO.	X	Y
156	4181500	4137675
157	4180900	4137600
158	4180350	4137750
159	4179650	4136975
160	4180200	4136125
161	4180125	4134400
162	4179750	4133300
163	4179650	4133300
164	4179675	4134425
165	4179150	4134400
166	4178575	4134400
167	4178775	4133325
168	4178225	4133575
169	4180775	4134325
170	4180450	4133300

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
1	1479400	539500
2	1479500	539950
3	1479450	540250
4	1479400	541050
5	1479700	540500
6	1479950	540250
7	1480300	540800
8	1480650	541100
9	1480000	540900
10	1479800	541150
11	1480950	541150
12	1480950	541150
13	1480550	540600
14	1480550	540600
15	1477650	541150
16	1477900	540050
17	1477900	540050
18	1477800	540400
19	1477300	540450
20	1477150	540900
21	1477350	540850
22	1477050	540600
23	1476850	540700
24	1476850	540700
25	1476650	540850
26	1476650	540850
27	1474650	544000
28	1474100	543700
29	1475050	543300
30	1476450	543750
31	1476450	543750
32	1476450	541300
33	1477300	542450
34	1477550	541950
35	1477550	541950

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
36	1477600	541450
37	1476750	541750
38	1476750	542200
39	1477550	542200
40	1476650	543450
41	1476650	542950
42	1477150	542750
43	1477150	542750
44	1477350	543300
45	1478500	542950
46	1478050	542950
47	1478050	543650
48	1479000	543650
49	1479000	543200
50	1479000	542700
51	1478900	542200
52	1478800	541600
53	1478100	541350
54	1478050	542450
55	1479350	541500
56	1479400	542100
57	1479600	542050
58	1479750	542000
59	1480000	541900
60	1480250	541750
61	1480600	542200
62	1480750	541500
63	1481300	542100
64	1481550	542450
65	1480750	542400
66	1481000	542200
67	1480250	542400
68	1480000	542450
69	1479750	543050
70	1479500	542650

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
71	1480250	543050
72	1480500	542600
73	1480500	543700
74	1480750	543350
75	1481300	543800
76	1481150	543250
77	1481100	542950
78	1479700	543300
79	1479500	543300
80	1479350	543500
81	1479700	543450
82	1480100	543350
83	1472400	546400
84	1472400	546400
85	1473800	545800
86	1473200	545650
87	1473250	545150
88	1473250	544800
89	1475850	546250
90	1476150	546050
91	1476350	545650
92	1476100	545150
93	1476050	544800
94	1476100	545750
95	1475350	545700
96	1475150	546250
97	1474900	545300
98	1474400	545300
99	1474550	546200
100	1474650	546200
101	1474250	545000
102	1474150	544300
103	1474650	544250
104	1475150	544250
105	1475150	544750

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
106	1475650	544400
107	1477100	544400
108	1478100	544050
109	1478300	544650
110	1478150	544850
111	1478700	544650
112	1478900	544850
113	1478550	544250
114	1478900	544000
115	1478300	544400
116	1478700	546350
117	1478700	546350
118	1478950	545400
119	1478950	545400
120	1476750	546350
121	1479900	545800
122	1480200	546250
123	1480500	546200
124	1480650	546250
125	1480650	546200
126	1480900	546350
127	1481150	546350
128	1481650	546250
129	1481650	545300
130	1481400	545750
131	1482000	546000
132	1482450	545750
133	1482400	545450
134	1482000	544600
135	1482000	545000
136	1479450	546250
137	1479500	545750
138	1479400	545250
139	1479400	545250
140	1479450	544050

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
141	1480200	544000
142	1480200	544600
143	1479950	544400
144	1479500	544850
145	1480400	544300
146	1480650	544450
147	1481150	544550
148	1481650	544850
149	1481000	544050
150	1480850	544900
151	1482300	546750
152	1482700	546650
153	1482100	547250
154	1482650	547450
155	1482200	547750
156	1482650	547750
157	1482650	548250
158	1482200	548450
159	1482700	548700
160	1481600	548850
161	1481400	548600
162	1480650	548850
163	1453000	569900
164	1452950	569150
165	1446400	568650
166	1446700	568950
167	1461850	569750
168	1461900	569250
169	1464250	562250
170	1464700	562200
171	1464600	562050
172	1476750	559300
173	1476750	558800
174	1476750	558900
175	1466700	556850

SAMPLING SITE COORDINATES

FIELD: HUNTINGTON BEACH

LOCATION NO.	X	Y
176	1466700	556150
177	1469350	555300
178	1469350	555600
179	1472250	555650
180	1472000	555400
181	1479450	555500
182	1479450	555250
183	1479450	554800
184	1481750	555400
185	1464200	552650
186	1463850	552900
187	1463950	552450
188	1465900	553150
189	1465950	552250
190	1465850	552050
191	1468500	551750
192	1467950	550550
193	1468400	549800
194	1468800	551900
195	1469250	551700
196	1469250	552300
197	1469250	552950
198	1470800	551700
199	1452950	569150

SAMPLING SITE CONDITIONS

FIELD: SUMMERLAND FIELD

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 2.0′	TALUS AT BASE OF CLIFF
2, PROBE, 3.0′	TALUS AT BASE OF CLIFF
3, PROBE, 3.5′	HARD PACKED SAND W/ WATER; BASE OF CLIFF
4, PROBE, 3.0′	TALUS AT BASE OF CLIFF
5, PROBE, 3.0′	6′ FROM ROAD
6, AUGER, 5.0′	NEXT TO ROAD, DARK CLAY
7, PROBE, 3.0′	10′ ABOVE ROAD
8, PROBE, 3.0′	4′ FROM ROAD
9, PROBE, 2.5′	ON ROAD; CLAY
10, PROBE, 2.5′	HARD CLAY
11, PROBE, 2.5′	NEXT TO FENCE
12, PROBE, 2.0′	HARD CLAY; IN GARDEN
13, PROBE, 2.5′	HARD STICKY CLAY
14, PROBE, 2.0′	HARD CLAY, BY GULLEY
15, AUGER, 5.0′	DRY CLAY
16, PROBE, 2.0′	HARD CLAY
17, PROBE, 3.0′	LOOSE SOIL
18, PROBE, 2.0′	HARD CLAY
19, PROBE, 2.5′	HARD CLAY
20, PROBE, 3.0′	HARD CLAY
21, PROBE, 2.5′	HARD CLAY AT 2′
22, PROBE, 2.5′	HARD CLAY; 2.0′
23, PROBE, 2.0′	HARD CLAY
24, AUGER, 5.0′	EDGE OF CLIFF; UNCONSOLIDATED
25, PROBE, 3.0′	SOFT SOIL
26, PROBE, 3.0′	SOFT SOIL
27, PROBE, 3.0′	SOFT SOIL
28, PROBE, 3.0′	SOFT SOIL
29, PROBE, 2.0′	HARD CLAY; BETWEEN TRAILER PARK AND FRWY.
30, PROBE, 2.5′	SOFT SOIL;BELOW TRAILER PARK
31, PROBE, 3.0′	IN GARDEN 6′ ABOVE ROAD
32, PROBE, 2.0′	SIDE OF ROAD
33, AUGER, 4.0′	SOFT UNCONSOLIDATED SOIL: THEN HARD CLAY
34, AUGER, 4.0′	SOFT UNCONSOLIDATED SOIL; THEN HARD CLAY
35, PROBE, 2.0′	LEFT OF DRIVEWAY
36, PROBE, 2.5′	6′ UP TRIAL OFF ROAD; HARD CLAY

FIELD: SUMMERLAND FIELD

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
37, AUGER, 3.5'	CORNER LILLIE & EVANS; CLAY
38, PROBE, 3.0'	TOP EDGE OF SEA CLIFF; HARD CLAY
39, PROBE, 3.0'	TOP EDGE OF SEA CLIFF; VERY SOFT SOIL
40, PROBE, 3.0'	TOP EDGE OF SEA CLIFF; WEST END OF PARK
41, PROBE, 3.0'	ALONG RAILROAD TRACKS; SOFT SOIL
42, AUGER, 5.0'	TOP EDGE OF SEA CLIFF
43, AUGER, 8.0'	DARK SANDY SOIL AT 7'
44, PROBE, 2.5'	TOP EDGE OF SEA CLIFF; HARD LAYER
45, PROBE, 3.0'	NEAR BASE OF SEA CLIFF, SOFT SOIL
46, PROBE, 3.0'	NEAR BASE OF SEA CLIFF, SOFT SOIL
47, PROBE, 3.0'	NEAR BASE OF SEA CLIFF, SOFT SOIL
48, PROBE, 2.0'	HARD PACKED CLAY; END OF DRIVEWAY
49, PROBE, 1.5'	TOP EDGE OF SEA CLIFF
50, AUGER, 6.0'	HARD STICKY CLAY; BETWEEN PARKING LOT & TRACKS
51, AUGER, 4.0'	FLAT AREA BETWEEN CLIFF EDGE & BEND IN ROAD
52, PROBE, 3.0'	EDGE OF SEA CLIFF TOP; SOFT SOIL
53, PROBE, 2.5'	BETWEEN RAILROAD TRACKS AND ROAD; SOFT SOIL
54, PROBE, 2.5'	NEAR TOP OF SEA CLIFF
55, PROBE, 3.0'	GARDEN INSIDE FENCE; CURVE IN ROAD
56, PROBE, 3.0'	TOP OF SEA CLIFF; FRON OF NEW HOUSE; SOFT SOIL
57, PROBE, 2.5'	HARD SOIL ALONG ROAD
58, PROBE, 2.5'	GARDEN BY EDGE OF CANYON
59, PROBE, 2.5'	ON EDGE OF CANYON; DEBRIS FILL
60, PROBE, 1.5'	EAST EDGE OF PARK ON HORSE TRAIL
61, PROBE, 2.0'	ROAD AT BASE OF FREEWAY SLOPE

FIELD: NEWPORT BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, AUGER, 5.0'	SANDY SOIL
2, AUGER, 10.0'	SANDY CLAY
3, AUGER, 5.0'	SANDY SOIL
4, AUGER, 7.0'	SANDY CLAY; H2S
5, AUGER, 5.0'	SANDY SOIL
6, AUGER, 8.0'	SANDY SOIL
7, PROBE, 3.0'	ENTRANCE TO COVES
8, PROBE, 3.0'	EASY SOIL
9, PROBE, 3.0'	H2S; STRONG ODOR
10, PROBE, 2.0'	EASY SOIL
11, PROBE, 3.0'	SOFT SOIL
12, PROBE, 4.0'	SOFT SOIL
13, PROBE, 3.0'	MODERATE SAND
14, PROBE, 3.0'	MODERATE SAND
15, PROBE, 3.0	EASY SAND
16, PROBE, 3.0'	EASY SAND
17, PROBE, 3.0'	EASY SAND
18, AUGER, 5.0'	OILY SMALL TO CUTTINGS
19, PROBE, 2.5'	NEXT TO FLARE AT HOGG MEMORIAL #5
20, AUGER 5.0'	OILY SMELL; HARD CLAY
21, PROBE, 4.0'	EASY SAND
22, PROBE, 2.0'	HARD INTO SAND
23, PROBE, 3.0'	SOFT SAND
24, PROBE, 4.0'	VERY SOFT SAND
25, PROBE, 3.0'	SOFT SAND
26, PROBE, 4.0'	SAND; CRACK IN SIDEWALK
27, PROBE, 3.0'	SAND
28, PROBE, 4.0'	SAND
29, PROBE, 3.0'	SANDY CLAY
30, PROBE, 3.0'	HARD, SANDY CLAY; MIDDLE OF INTERSECTION
31, PROBE, 3.0'	SANDY CLAY
32, PROBE, 4.0'	SANDY
33, PROBE, 3.0'	SANDY
34, PROBE, 3.0'	SANDY; MARCUS & 36TH
35, PROBE, 3.5'	SANDY CLAY; HARD
36, PROBE, 3.0'	BLACK CLAY; H2S ODOR IN AREA
37, PROBE, 3.5'	40TH & RIVER; SNDY CLAY
38, PROBE, 3.5'	BALBOA & 41ST; SNDY CLAY; NEAR PALM
39, PROBE, 2.0'	BLACK CLAY; H2S
40, PROBE, 3.5'	41ST & RIVER IN FLOWERS; SAND

FIELD: NEWPORT BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
41, PROBE, 2.0'	HARD CLAY; NEAR OLD WELL 44TH & BALBOA
42, PROBE, 3.0'	SAND; 43RD ST. NEAR OLD SEEP
43, PROBE, 3.0'	HARD CLAY; 42ND & BALBOA; PALM TREE
44, PROBE, 4.0'	SAND IN FLOWER GARDEN; 42ND & RIVER
45, PROBE, 3.0	CHANNEL & 38TH; CLAY
46, PROBE, 4.0'	MARCUS & 40TH; SAND
47, PROBE, 3.0'	SAND
48, PROBE, 4.0'	SAND
49, PROBE, 3.0'	CLAY; 39TH & CHANNEL
50, PROBE, 4.0'	STIFF SILTY CLAY; 38TH & MARCUS
51, PROBE, 3.0	END OF CHANNEL AND CANNEL; SAND
52, PROBE, 4.0'	CLAY
53, AUGER, 5.0'	LIGHT SAND
54, AUGER, 7.0'	SILTY SAND
55, AUGER, 5.0'	SILTY SAND; ABOVE FLARE
56, BLANK	AIR UPWIND OF FLARE AT SITE #55
57, AUGER, 7.0'	CLAY, SITE #55
58, AUGER, 7.0'	CLAY, 2ND TRY; CLAY
59, PROBE, 2.0'	HARD SANDY CLAY
60, PROBE, 1.5'	VERY HARD; TIGHT SANDY CLAY
61, PROBE, 2.0'	HARD SANDY CLAY
62, AUGER, 5.0'	SOFT WET CLAY
63, AUGER, 7.0'	SOFT WET CLAY
64, PROBE, 2.0'	SOFT STICKY CLAY
65, AUGER, 5.0'	SANDY MUD & CLAY; UNMAPPED WELL
66, PROBE, 1.5'	HARD STICKY WET CLAY
67, AUGER, 4.0'	WET SAND WITH SOME CLAY
68, PROBE, 1.0'	HARD STIFF WET CLAY
69, PROBE, 3.0'	21ST & NEWPORT; SAND
70, PROBE, 2.5'	25TH & BALBOA; HARD SAND
71, PROBE, 3.0'	SAND
72, PROBE, 1.5'	SAND; BY PALM TREE
73, PROBE, 1.0'	TREE ROOTS
74, PROBE, 3.0'	21ST.; NEAR BOAT DOCKS
75, PROBE, 3.0'	28TH ST.; SAND
76, PROBE, 3.0'	28TH & VILLA; SAND
77, PROBE, 3.0'	29TH & VILLA; SAND
78, PROBE, 2.0'	30TH & LAFAYETTE; SAND IN FLOWER BOX
79, PROBE, 3.0'	32ND & VILLA; SAND
80, PROBE, 4.0'	31ST & VILLA; CLAY

FIELD: NEWPORT BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
81, PROBE, 3.0′	30TH & VILLA; SAND
82, PROBE, 3.0′	LAFAYETTE & 32ND; SAND
83, PROBE, 3.5′	VIA OPORTO; SAND
84, PROBE, 3.5′	CITY HALL LAWN NORTH; SAND
85, PROBE, 3.0′	CITY HALL LAWN SW CORNER; SAND BY PALM TREE
86, PROBE, 3.0′	36TH & CLUBHOUSE; WET, HARD SAND
87, PROBE, 2.5′	36TH AND SHORT; SAND
88, PROBE, 2.0	35TH & SHORT; SAND
89, BLANK	AIR BLANK; FINLEY & 35TH
90, PROBE, 2.0′	36TH & FINLEY; HARD LAYER
91, PROBE, 3.0′	34TH & FINLEY; SAND
92, PROBE, 2.0′	35TH & FINLEY; CLAY
93, PROBE, 2.0′	36TH & MARCUS; WET SAND
94, PROBE, 2.0′	BALBOA & 35TH; CLAY
95, PROBE, 3.0′	BLABOA & 34TH; CLAY
96, PROBE, 2.0′	33RD & LAKE; SAND
97, PROBE, 2.0′	BALBOA & 33RD; SAND
98, PROBE, 3.0′	34TH & CANAL; SAND
99, PROBE, 3.0′	35TH & CANAL; HARD SAND
100, PROBE, 2.0	35TH & LAKE; HARD SAND
101, PROBE, 3.0	MARCUS & 33RD; SAND
102, PROBE, 1.5	32ND & BALBOA; SAND; FLOWER BED
103, PROBE, 3.0	BALBOA & 26TH; SAND
104, PROBE, 3.0	BALBOA & 27TH; SAND
105, BLANK	32ND & BALBOA; PARKING LOT; AIR BLANK
106, BLANK	AIR BLANK; SAME AS SITE #105
107, PROBE, 3.0	28TH & BALBOA; SAND
108, PROBE, 3.0	29TH & BALBOA; SAND
109, PROBE, 2.0	30TH & BALBOA; SAND
110, PROBE, 3.0	31ST & BALBOA; SAND
111, PROBE, 0.5	CATV BOX IN ALEY BETWEEN 35TH & 36TH NEAR MARCUS
112, PROBE, 0.5	WATER METER BOX 20′ W OF 111
113, PROBE, 3.0	3505 MARCUS; BLACK SAND
114, PROBE, 0.5	10TH BOX IN ALLEY AT 3505 MARCUS
115, PROBE, 3.0	3112 BROAD, W SIDE BROAD & HOLMWOOD; NEXT TO TORCH
116, PROBE, 0′	GAS FROM TIKI TORCH AT 115

FIELD: WHITTIER - RIDEOUT HEIGHTS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 3.5'	SILTY CLAY; DRY
2, PROBE, 3.5'	SILTY CLAY, DRY
3, PROBE, 3.0'	DRY SILT
4, PROBE, 3.0'	SILTY CLAY, DRY
5, PROBE, 3.0'	CLAY
6, PROBE, 3.0'	SILTY CLAY
7, PROBE, 3.0'	SILTY CLAY
8, PROBE, 3.5'	SILTY CLAY
9, PROBE, 3.0'	SILTY CLAY
10, PROBE, 3.0'	SANDY
11, PROBE, 3.0'	SILTY CLAY, DAMP
12, PROBE, 3.0'	HARD CLAY
13, PROBE, 2.5	SOFT SANDY SILT
14, PROBE, 3.0'	HARD CLAY
15, PROBE, 3.5'	SILTY CLAY
16, PROBE, 3.5'	SILTY CLAY
17, PROBE, 3.5'	CLAY
18, PROBE, 3.5'	CLAY
19, PROBE, 4.0'	SANDY SILT
20, PROBE, 4.0'	SANDY SILT
21, PROBE, 3.5'	SILTY CLAY
22, PROBE, 3.0'	SILTY CLAY
23, PROBE, 4.0'	SILTY SAND
24, PROBE, 4.0'	SANDY SILT
25, PROBE, 3.0'	SANDY SILT
26, PROBE, 4.0'	SILTY CLAY; WELL SITE
27, AUGER, 5.0'	SANDY SILT
28, SURFACE, 0'	OIL FROM SITE #26
29, AUGER, 5.0'	CLAY & SILT

FIELD: BREA-OLINDA

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 2.0'	SAND AT WELL #254
1, AUGER, 5.0'	70' SW WELL #254; HARD SAND
3, AUGER, 5.0'	35' SW WELL #45; CLAY
3, AUGER 9.0'	35' SW WELL #45; STIFF WET CLAY
3, PROBE, 3.0'	WELL #45; SILT
6, AUGER, 5.0'	25' N OF WELLS #181 & 191
6, PROBE, 2.5'	WELLS #181 & 191; HARD SILT
6, PROBE, 0'	AIR BLANK AT WELLS #181 & 191
9, AUGER, 5.0'	50' SW WELL #146; YELLOW CLAY & SILT
9, PROBE, 2.5'	WELL #146; STIFF SILT & SAND
11, AUGER, 5.0'	20' E WELL #176; SILT TO STICKY CLAY
11, PROBE, 3.0'	WELL #176; SILT TO STICKY CLAY
13, PROBE, 2.5'	30' N WELL #109
13, PROBE, 0'	AIR BLANK AT #109
13, AUGER, 5.0'	30' N WELL #109; DRY SILT
17, PROBE, 3.0'	30' E WELL #84; SAND
17, AUGER, 5.0'	30' E WELL #84; BLACK CLAY
19, PROBE 3.0'	30' W WELL #83
19, AUGER, 5.0'	30' W WELL #83; LOOSE SILT
19, AUGER, 0'	WATER BLANK
22, PROBE, 3.0'	60' W WELL #65A; SANDY SILT
22, AUGER, 5.0'	60' W OF WELL #65A; BLACK CLAY W/OIL
22, AUGER, 0'	ON HILL BETWEEN 63A & 64. SURFACE SEEP; HARD.
22, AUGER, 0'	ON HILL BETWEEN 64 & 63A. SURFACE SEEP; H2O
26, PROBE, 3.0'	50' SW OF WELL #64; SILT
26, AUGER, 5.0'	50' SW OF WELL #64; SILT
28, PROBE, 2.5'	75' SE OF WELL #167; SANDY SILT
28, AUGER, 5.0'	75' SE OF WELL #167; SANDY SILT; HARD
30, PROBE, 2.5'	40' NE OF WELL #63A; HARD SILT
30, AUGER, 5.0'	30' E OF WELL #63A; SEEP SITE
30, PROBE, 5.0'	GAS; FROM AUGER HOLE AT WELL #63A
30, PROBE, 3.0'	NEXT TO AUGER HOLE AT WELL #63A
34, AUGER, 0'	?BETWEEN WELLS #63A & 106. SEEP.
34, PROBE, 0'	AIR BLANK BETWEEN 63A & 106
36, AUGER, 5.0'	50' E OF WELL #62; SILT
36, PROBE, 2.5'	50' E OF WELL #62; SILT-CLAY
38, AUGER, 5.0'	50' W OF WELL #111; BLACK SILT; SEEP
38, PROBE, 2.5'	50' W OF WELL #111; BLACK SILT; HARD

FIELD: BREA-OLINDA

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
40, AUGER, 5.0'	20' N OF WELL #114; SANDY SILT
40, PROBE, 3.0'	20' N OF WELL #114; SANDY SILT
42, AUGER, 0'	75' S OF WELL #119; GAS FROM SEEP
43, AUGER, 5.0'	50' SW OF WELL #119; SILT
43, AUGER, 9.0'	50' SW OF WELL #119; SILT
43, PROBE, 3.0'	50' SW OF WELL #119; SILT W/SAND
46, PROBE, 2.5'	50' W OF WELL #211; SANDY SILT
46, AUGER, 5.0'	50' W OF WELL #211; SILT
48, AUGER, 5.0'	75' W OF WELL #251; SILT
48, PROBE, 3.0'	75' W OF WELL #251; SANDY SILT
50, AUGER, 5.0'	20' N OF WELL #81; BROWN SILT
50, PROBE, 3.0'	WELL #81; FINE SILT
52, PROBE, 3.0'	100' SE OF WELL #143
54, PROBE, 2.5'	75' NW OF WELL #134; DAMP SAND
54, AUGER, 4.0'	75' NW OF WELL #134; VERY ROCKY
56, PROBE, 3.0'	75' W OF WELL #131; DRY SAND
57, AUGER, 2.5'	100' W OF WELL #128; VISIBLE SEEPAGE
57, AUGER, 0'	30' N OF WELL #128; SEEP POOL
57, PROBE, 1.5'	100' W OF WELL #128; GAS FROM AUGER HOLE
60, PROBE, 3.5'	300' E OF WELL #136; SANDY SILT
60, AUGER, 5.0'	300' E OF WELL #136; BROWN SILT
61, AUGER, 3.0'	30' W OF WELL #101; SEEPAGE VISIBLE
61, PROBE, 1.0'	30' W OF WELL #101; HARD SILT
63, AUGER, 2.5'	25' N OF WELL #137; BLACK OILY SILT
63, PROBE, 3.0'	45' N OF WELL #137; SILTY CLAY

FIELD: BREA-OLINDA

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
66, AUGER, 5.0'	20' N OF 182; DAMP FINE SILT
67, PROBE, 2.5'	20' N OF 182; SILT
68, PROBE, 1.5'	50' W OF 154; VERY HARD SILT
69, AUGER, 5.0'	30' SW OF A56; FINE SILT
70, PROBE, 2.0'	30' SW OF 156; DAMP FINE SILT
71, PROBE, 2.5'	BETWEEN 180 & 178; DAMP, SILTY CLAY
72, PROBE, 2.0'	BETWEEN 178 & 180; (CHISEL POINT NOT FULLY OPEN)
73, AUGER, 5.0'	25' S OF 80; SILT; POSSIBLE OIL SPILL
75, PROBE, 2.5'	25' S OF 80; DARK SILT
77, PROBE, 3.0'	25' N OF 87; HARD DAMP SILT
76, AUGER, 5.0'	25' N OF 87; LOOSE SILT
78, PROBE, 3.0'	100' S OF 72; DAMP SILT
79, AUGER, 5.0'	20' N OF 43A; SILT
80, PROBE, 3.0'	20' N OF 43A; BLACK, SILT
81, PROBE, 3.0'	30' N OF 153; DAMP CLAY
82, AUGER, 5.0'	100' N OF 170; YELLOW SILT
83, PROBE, 3.0'	100' N OF 170; HARD SILT
84, PROBE, 3.0'	30' S OF 214; DRY SANDY SILT
85, PROBE, 3.5'	40' S OF 207; LOOSE SANDY SILT
86, PROBE, 2.0'	25' E OF 208; HARD SANDY SILT
87, AUGER, 0.0'	AIR BLANK AT 208
88, AUGER, 5.0'	25' E OF 208; DAMP SANDY SILT
89, PROBE, 3.5'	100' N OF 90; DRY SILT
90, AUGER, 5.0'	30' N OF 52A; LOOSE SAND AND SILT
91, PROBE, 1.5'	30' N OF 52A; HARD FINE SAND & SILT
92, PROBE, 3.0'	40' S OF 46; DRY SILT
93, AUGER, 5.0'	SHELL #43; ORANGE SILT
94, PROBE, 2.0'	SHELL #43; HARD SILT
95, AUGER, 5.0'	200' W OF SHELL #44
96, PROBE, 3.0'	200' W OF SHELL #44; SILT
97, AUGER, 0.0'	AIR BLANK; 200' W OF SHELL #44
98, AUGER, 5.0'	100' W OF SHELL #31; SAND & SILT
99, PROBE, 2.0'	100' W OF SHELL #31; HARD SANDY SILT
100, AUGER, 4.0	200' E OF SHELL #50; ACTIVE SEEP
101, PROBE, 2.0	SHELL #50; BLACK SILT
102, AUGER, 0.0	SEEP MATERIAL; SHELL #50
103, AUGER, 5.0	30' E OF SHELL #21; SILTY; ORANGE CLAY
104, PROBE, 3.0	30' E OF SHELL #21; SILTY CLAY

FIELD: BREA-OLINDA

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
105, AUGER, 5.0	30′ E OF SHELL #27; SILT
106, PROBE, 2.0	30′ E OF SHELL #27; HARD SILT
107, AUGER, 5.0	20′ E OF #32; SILT
108, PROBE, 3.0	20′ E OF #32; HARD SILT
109, AUGER, 5.0	100′ S OF #37; DAMP SILTY CLAY
109, AUGER, 5.0	200′ S OF #37; SILTY DAMP CLAY
110, PROBE, 2.5	200′ S OF #37; HARD SILT
111, AUGER, 5.0	10′ S OF #78; DAMP SILTY CLAY
112, PROBE, 2.5	10′ S OF #78; HARD SILT
113, AUGER, 0.0	AIR BLANK; 30′ S OF #78
114, AUGER, 5.0	20′ N OF #174; YELLOW SILTY SAND
115, PROBE, 2.0	20′ N OF #174; HARD SILT
116, AUGER, 5.0	50′ N OF #144; YELLOW SILT
117, PROBE, 3.0	50′ N OF #144; SILT
118, AUGER, 5.0	40′ W OF #36; DAMP SILT
119, PROBE, 2.0	40′ W OF #36; HARD SILT
120, AUGER, 5.0	20′ W OF #173; YELLOW SILT & SAND
121, PROBE, 3.0	20′ W OF #173; YELLOW SILT & SAND
122, AUGER, 5.0	50′ N OF #89; DRY SILT
123, PROBE, 2.0	50′ N OF #89; HARD SILT
124, AUGER, 5.0	20′ N OF #77; DRY YELLOW ORANGE SILT
125, PROBE, 2.0	20′ N OF #77; SILT
126, AUGER, 5.0	50′ E OF #57; DRY BROWN SILT
127, PROBE, 3.0	50′ E OF #57; HARD SILT
128, AUGER, 0.0	SEEP MATERIAL; 20′ E OF #112
129, AUGER, 4.0	20′ E OF #112; OIL SOAKED SILT
130, PROBE, 2.0	20′ E OF #112; OIL SOAKED SILT
131, AUGER, 0.0	GAS BUBBLING FROM SEEP; #112
132, AUGER, 5.0	20′ S OF #175; CLAY WITH GRAVEL
133, PROBE, 3.0	20′ S OF #175; HARD CLAY
134, AUGER, 3.5	100′ W OF #115; VERY ROCKY
135, PROBE, 1.0	100′ W OF #115; VERY ROCKY
136, AUGER, 4.0	50′ E OF #71; ROCKY DRY SILT
137, PROBE, 1.5	50′ E OF #71; VERY ROCKY
138, AUGER, 4.0	20′ SE OF #67; OIL SOAKED SILT
139, PROBE, 2.0	20′ E OF #67; OIL SOAKED SILT
140, AUGER, 2.5	20′ S OF #117; HARD AND ROCKY
141, PROBE, 1.0	20′ S OF #117; VERY HARD AND ROCKY

FIELD: BREA-OLINDA

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
142, AUGER, 5.0	30' W OF 121; SAND AND SILTY CLAY
143, PROBE, 2.0	30' W OF #121; SILT
144, AUGER, 4.0	30' W OF #118; SILT AND ROCK
145, PROBE, 2.0	30' W OF #118; HARD SILT
146, AUGER, 5.0	30' W OF #102, ORANGE SILT
147, PROBE, 3.0	30' W OF #102; SILT
148, AUGER, 3.5	10' S OF #127; RED SILT AND ROCK
149, PROBE, 3.0	10' S OF #127; SILT

FIELD: SANTA FE SPRINGS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 3.0'	FINE SAND; PRESUMED SEEP
2, AUGER, 5.0'	DRY FINE SAND
3, PROBE, 3.0'	50' N WELL #4; DARK SILT
4, PROBE, 3.0'	RR TRACK BERM: DARK SILT
5, PROBE, 3.0'	200' N SLUSHER #29: SANDY BROWN SILT
6, PROBE, 3.0'	100' E PEDRO PET #3: BROWN SANDY SILT
7, PROBE, 3.0'	SCHOOL PARKING LOT: TREE WELL; SANDY BROWN SILT
8, AUGER, 5.0'	SCHOOL PARKING LOT; FINE SILTY SAND
9, PROBE, 3.0'	LAWN SIDE S OF STREET; SILTY CLAY
10, PROBE, 3.0'	LAWN SIDE S OF STREET; SILTY SAND
11, PROBE, 3.0'	LAWN SIDE S OF STREET; FINE DRY SILT
12, PROBE, 3.0'	SW SIDE OF STREET LAWN; FINE DRY SILT
13, PROBE, 3.0'	SW CORNER OF ALBURTIS & DUNNING; DRY SILT
14, PROBE, 3.0'	S SIDE AT CORNER OF PIONEER & DUNNING; SILTY SAND
15, PROBE, 3.0'	SE CORNER OF RINGWOOD & FLORENCE; DAMP SILTY CLAY
16, PROBE, 3.0'	SW CORNER OF JERSEY & BUELL; DAMP SILTY CLAY
17, PROBE, 3.0'	N SIDE OF STREET; SANDY SILT
18, PROBE, 3.0'	PARKWAY BETWEEN MAIDSTONE & FLORENCE; MOIST SILT
19, PROBE, 3.0'	SW CORNER OF FLALLON & RINGWOOD; DRY SILT
20, PROBE, 3.0'	N CORNER OF KINGHORN & ROSETON;DRY SAND
21, PROBE, 3.0'	S CORNER OF CLAYMORE & JERSEY; SILT
22, PROBE, 2.5'	S CORNER OF FLOSSMOOR & JERSEY; DRY SANDY SILT
23, PROBE, 3.0'	SW CORNER OF PIONEER & JERSEY; DRY SANDY SILT
24, PROBE, 3.0'	NW CORNER OF HOUGHTON & DANBY; DRY CLAY
25, PROBE, 3.0'	SE OF CHARLESWORTH & ALBURTIS; MOIST SILT
26, PROBE, 2.0'	N OF SUNGLOW & ALBURTIS;HARD DRY FINE SILT
27, PROBE, 3.0'	SE CORNER OF ROMA & ALBURTIS; HARD DRY CLAY
28, PROBE, 3.0'	ONE BLOCK S OF SMITH & ALBURTIS; DAMP SILT
29, PROBE, 3.0'	W SIDE OF ALBURTIS; FINE DAMP SILT
30, PROBE, 3.0'	END OF WILLAKE; SILTY DAMP CLAY
31, PROBE, 2.0'	NW OF SMITH & ARLEE; HARD DRY SILT
32, PROBE, 3.0'	NW OF NOVA & ARLEE; COARSE MOIST SILT
33, PROBE, 3.0'	100' E OF CORNER OF ARLEE & TERRADELL; SLIGHTLY DA
34, PROBE, 3.0'	300' N OF FLORENCE ON FOREST; SILT
35, PROBE, 2.5'	INBETWEEN FOREST & BLOOMFIELD; CLAY
36, PROBE, 2.5'	IN LAWN NEAR CORNER OF SPRINGDALE & FLORENCE; DAMP

FIELD: SANTA FE SPRINGS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
37, PROBE, 2.5'	600' FROM SPRINGDALE & FLORENCE; DAMP SILT
38, PROBE, 3.0'	70' W OF MOBIL WELL #516P; SILTY DAMP CLAY
39, AUGER, 5.0'	70' W OF MOBIL #516P
40, PROBE, 2.5'	OUTSIDE DIKE SURROUNDING TANKS; SILTY CLAY
41, PROBE, 3.0'	INSIDE DIKE AT POWERINE REFINERY; SILTY CLAY
42, PROBE, 3.0'	10' FROM CURB AT POWERINE; CLAY
43, PROBE, 3.0'	10' CURB ON FENCE LINE AT POWERINE; SILT
44, AUGER, 5.0'	SITE #42; CLAY
45, PROBE, 2.5'	NW CORNER OF NORWALK & LAKELAND; FINE SILT
46, PROBE, 3.0'	SW CORNER OF KALNOR & LAKELAND; DAMP SILT
47, PROBE, 3.0'	SW CORNER OF FLORENCE & NORWALK; DAMP SILT
48, PROBE, 1.5'	20' FROM STREET IN VACANT LOT; DRY SILT
49, PROBE, 2.0'	W END OF CULDESAC; DRY SILT
50, PROBE, 2.0'	20' S FROM FLORENCE; DRY SILT
51, PROBE, 3.0'	10' E OF JALK #117(PYRAMID OIL); DRY SILT
52, PROBE, 1.0'	S CORNER OF KALNOR & ACHILLES; DRY SILT
53, PROBE, 3.0'	S CORNER OF ACHILLES & NORWALK; DAMP SILT
54, PROBE, 3.0'	100' S MOBIL #535E, BLOOMFIELD & CLARK; DRY SAND
55, AUGER, 5.0'	100' S MOBIL #535E, BLOOMFIELD & CLARK; DAMP SILT
56, PROBE, 3.0'	20' N INTERSECTION FOREST & CLARK; DAMP SANDY SILT
57, PROBE, 2.0'	100' N INTERSECTION FOREST & CLARK; SILT
58, AUGER, 4.0'	100' N INTERSECTION FOREST & CLARK; BLACK SILT
59, PROBE, 3.0'	50' N CLARK & 10' E WILLIS; DAMP SILT
60, PROBE, 1.5'	50' N PARK & 50' E OF WILLIS; DAMP SILT
61, AUGER, 3.5'	50' N PARK & 50' E WILLIS; DAMP SILT
62, PROBE, 3.0'	SE CORNER SPRINGDALE & PARK; WET CLAYEY SILT
63, PROBE, 2.5'	SE CORNER FOREST & PARK; DRY SILT
64, AUGER, 4.5'	SE CORNER FOREST & PARK; DAMP CLAY & SILT
65, PROBE, 3.0'	100' W OF BLOOMFIELD & PARK; DAMP SILTY CLAY
66, AUGER, 0.0'	AIR SAMPLE AT SITE #65
67, PROBE, 2.0'	30' W OF #452C; DRY COARSE SILT
68, PROBE, 3.0'	20' W OF #446L; SILTY DAMP CLAY
69, PROBE, 2.0'	20' N OF #425C; DAMP SILT
70, PROBE, 1.5'	100' E OF #420C; OIL SOAKED SILT
71, PROBE, 3.0'	300' N CORNER CLARK & NORWALK; VERY WET SILT
72, PROBE, 2.0'	550' N CORNER CLARK & NORWALK; WET SILT

FIELD: SANTA FE SPRINGS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
73, PROBE, 3.0'	100' SW OF NORWALK & TELEGRAPH; DAMP SILT
74, PROBE, 2.5'	20' S OF PARK & NORWALK; FLOWER BED
75, PROBE, 3.0'	ACROSS & N OF CLARK & NORWALK; MOIST SILT
76, PROBE, 3.0'	100' W OF PARK & NORWALK; MOIST SILT
77, PROBE, 2.0'	100' W & 30' N OF CLARK & NORWALK; MOIST SILT
78, AUGER, 5.0'	SAME AS SITE #77; MOIST SILT
79, PROBE, 2.0'	30' N OF JORDAN #30; MOIST SILT
80, PROBE, 2.5'	100' S OF ALEXANDER #38
81, AUGER, 5.0'	SAME AS SITE #80; DRY FINE SILT
82, PROBE, 2.0'	50' N OF ALEXANDRA #39; DRY SILT
83, PROBE, 1.5'	100' S OF HOWARD #4; DRY SILT
84, AUGER, 5.0'	SAME AS SITE #83; ALMOST DRY FINE SILT
85, PROBE, 2.0'	50' N OF DEWINTER #7; HARD DAMP SILT
86, PROBE, 2.5'	50' E OF 50H; DRY SILT
87, AUGER, 5.0'	SAME AS SITE #86; SLIGHTLY DAMP FINE SILT
88, AUGER, 0.0'	AIR SAMPLE FROM SITE #87
89, PROBE, 3.0'	30' E OF 48C; DAMP SILT
90, PROBE, 3.0'	W OF DEWINTER #5; DRY SILT
91, PROBE, 2.0'	200' N OF SITE #90 ON GEARY; DRY SILT
92, PROBE, 3.0'	100' N OF 51B NEXT TO GEARY; DAMP SILT
93, PROBE, 3.0'	100' W OF 27C ON GEARY; WET SILT
94, PROBE, 3.0'	200' S OF SITE #93; MOIST SILT
95, PROBE, 3.0'	SE CORNER OF SMITH & GEARY; MOIST SILT
96, PROBE, 3.0'	100' S OF SITE #95; MOIST SILT
97, PROBE, 3.0'	CORNER OF SMITH & NORWALK; DAMP SILT
98, PROBE, 3.0'	20' N OF 21B; SANDY SILT
99, AUGER, 5.0'	SAME AS SITE #98; MOIST SILT
100, AUGER, 0.0	AIR SAMPLE FROM SITE #99
101, PROBE, 3.0	300' NE OF SMITH & NORWALK; DRY FINE SILT
102, PROBE, 3.0	50' N OF HOWARD #5; MOIST SILT
103, AUGER, 5.0	SAME AS SITE #102; FAIRLY DAMP SILT
104, AUGER, 0.0	AIR SAMPLE FROM SITE #103
105, PROBE, 3.0	50' N OF 217B; DAMP SILT
106, PROBE, 1.5	50' N OF 413M; SILT
107, PROBE, 3.0	30' N OF 415E; ALMOST DRY SILT
108, PROBE, 3.0	10' E OF 405C; DRY COARSE SILT

FIELD: SANTA FE SPRINGS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
109, PROBE, 1.5'	75' N OF 409C; SILT
110, AUGER, 5.0'	15' S OF SITE #106; ALMOST DRY SILT
111, AUGER, 0.0'	AIR SAMPLE AT SITE #110
112, AUGER, 2.5'	100' E OF 420C; BLACK OIL SOAKED SILT
113, PROBE, 1.5'	SAME AS SITE #112; BLACK SILT
114, AUGER, 5.0'	50' S OF CORNER OF BELL RANCH; DAMP SILT
115, PROBE, 2.0'	SAME AS SITE #114; SILT
116, AUGER, 5.0'	DAMP SILT
117, PROBE, 3.0'	SAME AS SITE #116; SILT
118, AUGER, 5.0'	DAMP SILT
119, PROBE, 2.5'	SAME AS SITE #118; HARD SILT
120, AUGER, 5.0'	30' S OF 710C; SILT, CLAY, SILT
121, PROBE, 3.0'	SAME AS SITE #120; SILT
122, AUGER, 5.0'	30' N OF FLORENCE; SILT TO SANDY SILT
123, PROBE, 2.0'	SAME AS SITE #122; SILT
124, AUGER, 5.0'	100' N OF 714CR; LOOSE DAMP SILT
125, PROBE, 2.5'	SAME AS SITE #124; SILT
126, AUGER, 0.0'	AIR SAMPLE AT SITE #124
127, AUGER, 5.0'	30' N OF 712C; FINE POWDERY SILT
128, PROBE, 3.0'	SAME AS SITE #127; DRY SILT
129, AUGER, 5.0'	50' S OF 103C; DAMP SILT
130, PROBE, 1.5'	SAME AS SITE #129; DAMP SILT
131, AUGER, 4.5'	LOOSE ALMOST DRY SILT
132, PROBE, 2.0'	SAME AS SITE #131; DRY SILT
133, AUGER, 0.0'	AIR SAMPLE AT SITE #131
134, AUGER, 5.0'	50' E OF 820C & 50' W OF 819C; SILT TO CLAY
135, PROBE, 2.5'	SAME AS SITE #134; SILT
136, AUGER, 5.0'	100' W OF 846S; DRY FINE SILT
137, PROBE, 1.5'	SAME AS SITE #136; DRY SILT
138, AUGER, 4.0'	20' N OF 763E; OIL SOAKED SILT
139, AUGER, 5.0'	30' S OF J47; VERY ROCKY SILT
140, PROBE, 3.0'	W SIDE OF ROAD BETWEEN SMITH & PACIFIC; SILT
141, PROBE, 3.0'	SE OF PACIFIC & NORWALK; DAMP SILTY CLAY
142, PROBE, 3.0'	MIDDLE OF GREEN BELT; WET SILT
143, PROBE, 1.5'	END OF PIKE STREET; WET SILTY CLAY
144, PROBE, 3.0'	200' S OF JOHN & LOS NIETOS; DAMP SILT

FIELD: SANTA FE SPRINGS

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
145, PROBE, 3.0'	300' FROM LOS NIETOS & GREENLEAF; DRY SILT
146, PROBE, 2.5'	30' S OF J47; SILT

FIELD: LOS ANGELES CITY

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 3.0'	CORNER OF STADIUM & CORONEL; STICKY BLACK CLAY
2, AUGER, 5.0'	SAME AS SITE #1; GREY CLAY
3, AUGER, 0.0'	AIR SAMPLE AT SITE #1
4, PROBE, 3.0'	12' S OF FONG #1; STICKY CLAY
5, PROBE, 3.0'	IN DIRT PARKING LOT; STICKY CLAY
6, AUGER, 5.0'	NEAR SITE #5 BY CURB; DARK STICKY CLAY
7, PROBE, 3.0'	NEXT TO CURB; DAMP SILTY CLAY
8, PROBE, 3.0'	FIGUEROA TERRACE & COLLEGE; DAMP BROWN SILTY CLAY
9, PROBE, 3.0'	NEW DEPOT & FIGUEROA TERRACE; SLIGHTLY DAMP SILT
10, PROBE, 3.0'	NEAR SIDEWALK ON BEAUDRY; DAMP CLAY
11, AUGER, 5.0'	SUNSET & WHITE KNOLL; DAMP YELLOW SILT
12, AUGER, 0.0'	AIR SAMPLE FROM SITE #11
13, PROBE, 2.0'	SAME AS SITE #11; DAMP YELLOW SILTY CLAY
14, PROBE, 3.0'	TEMPLE & BOYLESTON; DAMP SILTY CLAY
15, PROBE, 2.5'	BOYLESTON & COURT; DAMP SILT
16, PROBE, 1.5'	SW CORNER OF TOLUCA & COLTON; HARD DRY CLAY & SILT
17, PROBE, 3.0'	SE CORNER OF COURT & DOUGLAS; DRY SILT
18, AUGER, 5.0'	ACROSS STREET FROM #17; SLIGHTLY DAMP YELLOW SILT
19, PROBE, 2.5'	E CORNER OF CORTEZ & EDGEWARE; DRY SILT
20, PROBE, 2.5'	NW CORNER OF EDGEWARE & COURT; DRY HARD SILT
21, PROBE, 3.0'	W CORNER OF COURT & GLENDALE; WET SILTY CLAY
22, PROBE, 2.5'	NE CORNER OF COLTON & WELCOME; DRY SILT & SAND
23, AUGER, 4.5'	SAME AS SITE #22; SILTY CLAY
24, PROBE, 3.0'	NE CORNER OF GLENDALE & BEVERLY; WET SILTY CLAY
25, PROBE, 3.0'	SW CORNER OF 1ST & NEW HAMPSHIRE; DRY SILTY SAND
26, PROBE, 3.0'	NW CORNER OF BERENDO & 3RD; DAMP SILT TO CLAY
27, PROBE, 3.0'	NW CORNER OF NEW HAMPSHIRE & 3RD; WET SILT
28, PROBE, 3.0'	150' N ON W SIDE OF 2ND & VERMONT; DAMP CLAY
29, PROBE, 3.0'	150' FROM SE CORNER OF VERMONT & 3RD; DAMP SILT
30, PROBE, 3.0'	E SIDE OF JUANITA, 200' S OF 2ND; MOIST SILT
31, PROBE, 2.5'	350' N OF 2ND & BIMINI,ON E SIDE; DRY SILT
32, PROBE, 3.0'	130' E OF BIMINI ON N SIDE OF 2ND; DAMP COARSE SI
33, AUGER, 5.0'	30' N OF END OF WHITE HOUSE PLACE; CLAY
34, AUGER, 0.0'	AIR SAMPLE FROM SITE #33
35, PROBE, 2.0'	SAME AS SITE #33; MOIST CLAY OR FINE SILT THEN ROC
36, AUGER, 0.0'	AIR SAMPLE FROM SITE #33

FIELD: LOS ANGELES CITY

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
37, PROBE, 1.5'	100' N OF 2ND & UNION; DRY SILT
38, PROBE, 3.0'	50' NW OF 3RD & WESTMORELAND; SANDY SILT
39, PROBE, 2.0'	30' N OF 2ND & WESTMORELAND; WET CLAY
40, PROBE, 2.5'	40' E OF GENEVA & WESTMORELAND; SLIGHTLY DAMP SILT
41, PROBE, 3.0'	NE CORNER OF COMMONWEALTH & GENEVA; WET CLAY
42, PROBE, 3.0'	SE CORNER OF 3RD & COMMONWEALTH; WET SILTY CLAY
43, PROBE, 2.5'	SE CORNER OF 2ND & COMMONWEALTH; BLACK STICKY CLAY
44, PROBE, 3.0'	NW CORNER OF HOOVER & 4TH; WET STICKY SILTY CLAY
45, PROBE, 2.0'	SE CORNER OF 3RD & HOOVER; DRY ORANGE SILT
46, PROBE, 1.5'	50' N OF 3RD & RENO; HARD DRY ORANGE SILT
47, PROBE, 3.0'	200' FROM HOOVER & 6TH; STICKY SILTY CLAY
48, PROBE, 3.0'	NW CORNER OF COMMONWEALTH & 6TH; STICKY WET SILT
49, PROBE, 2.5'	SE CORNER OF 4TH & COMMONWEALTH; DAMP STICKY SILT
50, PROBE, 3.0'	NW CORNER OF LAFAYETTE & 6TH; DAMP SILTY CLAY
51, PROBE, 3.0'	600' N OF LAFAYETTE & 6TH; WET STICKY SILT
52, PROBE, 2.0'	SE OF 4TH & WESTMORELAND; STIFF STICKY SILT & CLAY
53, PROBE, 2.5'	SW CORNER OF 5TH & WESTMORELAND
54, PROBE, 3.0'	250' S OF WILSHIRE & WESTMORELAND; DAMP SANDY SILT
55, PROBE, 3.0'	40' S OF SW CORNER OF 6TH & VERMONT
56, PROBE, 3.0'	30' FROM 5TH & NEW HAMPSHIRE; SLIGHTLY DAMP SILT
57, PROBE, 2.0'	W SIDE OF OCEAN VIEW & CORONADO; DAMP SILTY CLAY
58, PROBE, 2.0'	SW CORNER OF 4TH & CORONADO; MOIST CLAY
59, PROBE, 3.0'	SW CORNER OF 3RD & CORONADO; DRY SILT
60, PROBE, 3.0'	300' W OF PARK VIEW & 4TH; WET CLAY
61, PROBE, 3.0'	SW CORNER OF PARK VIEW & 5TH
62, PROBE, 3.0'	SW CORNER OF 3RD & GRAND VIEW; DRY YELLOW SILT
63, PROBE, 3.0'	30' S OF 4TH & 40' W OF GRAND VIEW; WET SILTY CLA
64, AUGER, 5.0'	SAME AS SITE #63; STICKY DARK CLAY
65, AUGER, 0.0'	AIR SAMPLE FROM SITE #64
66, PROBE, 3.0'	S SIDE OF PARK VIEW & 3RD; DAMP SILTY CLAY
67, PROBE, 2.5'	SW CORNER OF 3RD & LAKE; DRY YELLOW CLAY
68, PROBE, 2.5'	SE CORNER OF LAKE & MIRAMAR; STICKY FINE SILT
69, PROBE, 3.0'	NE CORNER OF MOUNTAIN VIEW & MIRAMAR; DRY SILT
70, PROBE, 2.0'	SE MOUNTAIN VIEW & BONNIE BRAE; DAMP STICKY SILT
71, PROBE, 2.5'	SW CORNER OF WESTLAKE & 2ND; DRY FINE SILT
72, PROBE, 2.5'	S OF MIRAMAR AT WESTLAKE; MOIST STICKY SILT

FIELD: LOS ANGELES CITY

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
73, PROBE, 3.0′	NW CORNER OF 2ND & BONNIE BRAE; WET STICKY SILT
74, PROBE, 2.5′	130′ FROM MIRAMAR & BURLINGTON; DAMP SILT & CLAY
75, PROBE, 3.0′	75′ FROM BEVERLY & BURLINGTON; WET COARSE SILT
76, PROBE, 2.0′	200′ N OF MIRAMAR & UNION; HARD DRY YELLOW SILT
77, PROBE, 2.5′	SW CORNER OF UNION & BEVERLY; DRY YELLOW SILT
78, PROBE, 3.0′	150′ NW FROM CARONDELET & BEVERLY; DRY COARSE SILT

FIELD: SALT LAKE

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 3′	NE CORNER MCCADDEN & BEVERLY; WET STICKY CLAY
2, PROBE, 2.5′	SE CORNER MCCADDEN & ROSEWOOD; DRY COARSE SILT
3, AUGER, 5′	SAME AS SITE #2; WET COARSE SILT
4, PROBE, 1′	NE CORNER OAKWOOD & JUNE; DRY COARSE SILT
5, PROBE, 3′	SW CORNER ROSEWOOD & JUNE; WET SANDY SILT
6, AUGER, 5′	50′ W ON S CAHUENGA & ROSEWOOD; SILT TO CLAY
7, PROBE, 2.5′	SAME AS SITE #6; BROWN ALMOST DRY SILT
8, PROBE, 2.5′	SE CORNER ARDEN & ROSEWOOD; STICKY WET CLAY
9, PROBE, 3′	SE CORNER GOWER & ROSEWOOD; DAMP SILTY CLAY
10, PROBE, 3′	SW CORNER PLYMOUTH & ROSEWOOD; DAMP SILTY CLAY
11, PROBE, 2.5′	SW CORNER BRONSON & ROSEWOOD; DRY SILT
12, PROBE, 2′	SW CORNER ELMWOOD & RIDGEWOOD; DRY SILT
13, PROBE, 3′	NW CORNER OAKWOOD & ST ANDREWS; POWDERY SILT
14, PROBE, 1.5′	W OF WESTERN & OAKWOOD ON N SIDE; STICKY CLAY
15, PROBE, 2.5′	50′ FROM SW CORNER SERRANO & BEVERLY; DRY SILT
16, PROBE, 2.5′	SE CORNER ROSEWOOD & HIGHLAND; WET SILTY CLAY
17, PROBE, 2.5′	SE CORNER OAKWOOD & HIGHLAND; WET SILTY CLAY
18, PROBE, 3′	NW CORNER BEVERLY & HIGHLAND; DAMP BLACK CLAY
19, PROBE, 2′	SW CORNER ROSEWOOD & ORANGE; DRY SILT
20, PROBE, 3′	SW CORNER OAKWOOD & ORANGE; WET STICKY SILT
21, PROBE, 3′	NW CORNER BEVERLY & ORANGE; MOIST CLAY
22, AUGER, 5′	SAME AS SITE #20; VERY STICKY WET CLAY & SILT
23, PROBE, 3′	NW CORNER LABREA & ROSEWOOD; DAMP STICKY SILT
24, PROBE, 2′	100′ N OF NW CORNER LABREA & OAKWOOD;DAMP SILT
25, PROBE, 2.5′	NW CORNER LABREA & BEVERLY; DAMP SILT
26, PROBE, 2.5′	SE CORNER ROSEWOOD & FORMOSA; WET STICKY CLAY
27, PROBE, 3′	SE CORNER OAKWOOD & FORMOSA; WET STICKY CLAY
28, PROBE, 3′	NE CORNER ALLEY & FORMOSA NEAR BEVERLY; SILT
29, PROBE, 2.5′	SW CORNER ROSEWOOD & POINSETTIA; SILT & CLAY
30, PROBE, 1.5′	NW CORNER ALLEY & POINSETTIA NEAR BEVERLY;SILT
31, PROBE, 3′	NW CORNER OAKWOOD & POINSETTIA; CLAY & SILT
32, AUGER, 5′	SAME AS SITE #31; BLACK SILT TO DAMP CLAY
33, AUGER, 0.0′	AIR SAMPLE AT SITE #31
34, PROBE, 3′	SE CORNER ROSEWOOD & MARTEL; DAMP SILT & CLAY
35, PROBE, 3′	NE CORNER ALLEY & MARTEL NEAR BEVERLY; CLAY
36, PROBE, 2.5′	NW CORNER OAKWOOD & MARTEL; SLIGHTLY DAMP SILT

FIELD: SALT LAKE

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
37, PROBE, 2.5'	SW CORNER ROSEWOOD & GARDNER; BLACK CLAY
38, PROBE, 1.5'	NW CORNER ALLEY & GARDNER NEAR BEVERLY; SILT
39, PROBE, 3'	NE CORNER OAKWOOD & GARDNER; DRY SILT
40, AUGER, 5'	SAME AS SITE #39; DRY CLAY WITH SILT
41, AUGER, 0.0'	AIR SAMPLE AT SITE #40
42, PROBE, 2.5'	SE CORNER 1ST & GARDNER; COARSE SAND & SILT
43, PROBE, 2'	NW CORNER ALLEY & GARDNER NEAR 3RD; DRY CLAY
44, PROBE, 2'	NW CORNER 2ND & MARTEL; MOIST BLACK CLAY
45, PROBE, 3'	SE CORNER MARTEL & 1ST; DAMP CLAY & SILT
46, AUGER, 5'	SAME AS SITE #45; CLAY TO DAMP COARSE SILT
47, PROBE, 2'	SE CORNER 2ND & POINSETTIA; ALMOST DRY SILT
48, PROBE, 6'	20' S OF 1ST & POINSETTIA; BLACK STICKY CLAY
49, PROBE, 3'	NE CORNER 2ND & FORMOSA; DAMP STICKY SILT
50, PROBE, 3'	SE CORNER 1ST & FORMOSA; DAMP BLACK CLAY
51, AUGER, 4.5'	SAME AS SITE #50; ALMOST DRY SILT & SILT
52, PROBE, 2'	50' W OF SW CORNER LABREA & 2ND; DRY SILT
53, PROBE, 3'	ALLEY & 1ST NEAR LABREA; STICKY CLAY & SILT
54, PROBE, 2.5'	NE CORNER 2ND & ORANGE; SANDY COARSE SILT
55, PROBE, 2.5'	SW CORNER 1ST & ORANGE; DAMP STICKY SILT
56, AUGER, 5'	SAME AS SITE #55
57, AUGER, 0.0'	AIR SAMPLE FROM SITE #56
58, PROBE, 2'	NW CORNER 2ND & CITRUS; DRY BLACK CLAY
59, PROBE, 3'	SE CORNER CITRUS & 1ST; BLACK STICKY CLAY
60, PROBE, 3'	NW CORNER 3RD & MCCADDEN; DAMP COARSE SILT
61, PROBE, 3'	50' S OF NW MCCADDEN & 1ST; WET STICKY SILT
62, PROBE, 2.5'	SW CORNER 2ND & MCCADDEN; COARSE DAMP SILT
63, PROBE, 3'	NE CORNER JUNE & 2ND; STICKY DAMP SILTY CLAY
64, PROBE, 3'	NW CORNER JUNE & 3RD; DAMP BLACK CLAY
65, PROBE, 3'	NE CORNER 1ST & JUNE; BLACK STICKY DAMP CLAY
66, PROBE, 3'	SE CORNER BEVERLY & JUNE; WET CLAY & SILT
67, PROBE, 2.5'	EDGE OF GOLF COURSE W HALF WAY IN; DRY SILT
68, PROBE, 2.5'	SE CORNER ROSEWOOD & BEVERLY; DRY SILT
69, PROBE, 3'	70' S OF SE LUCERNE & BEVERLY; WET STICKY CLAY
70, PROBE, 3'	50' S OF SW GOWER & BEVERLY; COARSE DAMP SILT
71, PROBE, 3'	70' S OF SE PLYMOUTH & BEVERLY; WET SILT
72, PROBE, 2.5'	150' S OF SW IRVING & BEVERLY; DAMP SILT

FIELD: SALT LAKE

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
73, PROBE, 3'	100' S OF SE HUDSON & BEVERLY; DAMP SILT
74, PROBE, 2.5'	70' E OF SE HUDSON & BEVERLY; WET STICKY SILT
75, PROBE, 3'	300' E OF N HUDSON & BEVERLY; WET SILT
76, PROBE, 2'	SE CITRUS & ROSEWOOD; SLIGHTLY DAMP SILT
77, PROBE, 3'	SW CORNER ORLANDO & COLGATE; WET SILT
78, PROBE, 3'	NW CORNER ORLANDO & 5TH; DRY SILT
79, PROBE, 3'	SE CORNER SWEETZER & COLGATE; DAMP COARSE SILT
80, PROBE, 2'	NW CORNER 5TH & SWEETZER; DRY CRUMBLY SILT
81, PROBE, 3'	NW CORNER LINDENHURST & SWEETZER; WET SILT
82, PROBE, 2.5'	NW LINDERHURST & ALLEY NEAR SAN VICENTE; SILT
83, PROBE, 2.5'	SW CORNER LAJOLLA & COLGATE; WET SILT
84, PROBE, 2.5'	SW LAJOLLA & 5TH; BLACK DAMP SILTY CLAY
85, PROBE, 2.5'	SW LINDENHURST & LAJOLLA; WET STICKY SILT
86, PROBE, 2'	SE CORNER ALLEY & LAJOLLA NEAR 3RD; DRY SILT
87, PROBE, 2.5'	NE CORNER LAJOLLA & 4TH; DAMP STICKY SILT
88, PROBE, 2.5'	SE LAJOLLA & BEVERLY; DRY BLACK SILT
89, PROBE, 2.5'	SE CORNER 1ST & LAJOLLA; ALMOST DRY SILT
90, PROBE, 2.5'	NE ALLEY & SWEETZER NEAR 3RD; DRY STIFF SILT
91, PROBE, 2.5'	NE CORNER 1ST & SWEETZER; ALMOST DRY SILT
92, PROBE, 2.5'	NW 1ST & KINGS; STIFF ALMOST DRY SILT
93, PROBE, 2'	NE 1ST & CROFT; BLACK VERY STIFF HARD SILT
94, PROBE, 2.5'	SE CROFT & BEVERLY; DRY HARD SILT
95, PROBE, 2.5'	NE 3RD & CROFT; DRY SILT
96, PROBE, 0.0'	AIR SAMPLE AT SITE #93
97, PROBE, 3'	SE 3RD & OGDEN, 20' W OF RELIEF WELL; DRY SILT
98, DRILL, 72'	SAMPLE FROM ANTHONY 1 WELL NEXT TO SITE #97
99, PROBE, 3'	MIDDLE TREE BOX, 50' S OF WELL; SILT
100, PROBE, 2'	E FAIRFAX & 4TH; DRY SILT
101, PROBE, 3'	80' S OF SE 3RD & EDINBURGH; SANDY DAMP SILT
102, PROBE, 3'	80' W OF SW ALLEY & 3RD NEAR FAIRFAX; CLAY
103, PROBE, 3'	NE SWEETZER & 4TH; MOIST STICKY SILT
104, PROBE, 3'	NE ORLANDO & 4TH; DAMP BLACK CLAY
105, PROBE, 1.5	E ALLEY ON SAN VICENTE NEAR BURTON; DRY SILT
106, PROBE, 2.5	NW COLGATE & LEDOUX; ALMOST DRY BLACK SILT
107, PROBE, 2.5	PARKWAY ON SAN VICENTE NEAR CHEVRON FIED; SILT
108, PROBE, 1.5	NW ALDEN & SAN VICENTE; DRY HARD SILT

FIELD: SALT LAKE

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
109, PROBE, 2'	NW SAN VICENTE & BEVERLY
110, PROBE, 2.5	NE BEVERLY & LA CIENEGA; DAMP STICKY SILT
111, PROBE, 3'	NW ALFRED & OAKWOOD; DRY SILT
112, PROBE, 3'	SW CROFT & OAKWOOD; STICKY DAMP SILT
113, PROBE, 3'	120' N OF NE BEVERLY & FLORES; DRY SILT
114, PROBE, 3'	SE KINGS & OAKWOOD; DRY SILT
115, PROBE, 2'	SW SWEETZER & OAKWOOD; DAMP BLACK CLAY
116, PROBE, 3'	SW LAJOLLA & OAKWOOD; ALMOST DRY SILT
117, PROBE, 2'	SW 4TH & CRESCENT HEIGHTS; WET SANDY SILT
118, PROBE, 3'	NE 4TH & LAJOLLA; WET STICKY SILT
119, PROBE, 1.5	100' S OF SW SWEETZER & 3RD; DRY SILT
120, PROBE, 3'	SW 4TH & SWEETZER; DAMP SILT
121, PROBE, 3'	100' S OF SE LAJOLLA & 3RD; WET FINE SILT
122, PROBE, 3'	100' S OF SW CRESCENT HEIGHTS & 3RD; DRY SILT
123, PROBE, 3'	SW BLACKBURN & GENESEE; DAMP STICKY CLAY
124, PROBE, 3'	SW COLGATE & OGDEN; DAMP STICKY CLAY
125, PROBE, 3'	NE ORANGE GROVE & GENESEE; WET SILTY CLAY
126, PROBE, 2.5	NE OGDEN & WILSHIRE; DRY TAR & CLAY
127, PROBE, 2.5	N EDGE OF LABREA TAR PITS NEAR OGDEN; DRY SILT
128, PROBE, 3'	50' E OF 6TH & FAIRFAX ON N SIDE; WET SILT
129, PROBE, 2.5	MEDIAN ON WILSHIRE, 100' E OF FAIRFAX; SILT
130, PROBE, 1.5	N MASSELIN & 6TH; ALMOST DRY SILT
131, PROBE, 2'	120' N OF NE WILSHIRE & MASSELIN; DRY CLAY
132, PROBE, 1'	S SIDE OF SIERRA BONITA & 6TH; DRY SANDY SILT
133, PROBE, 3'	100' W OF DETROIT & WILSHIRE; DAMP SILT
134, PROBE, 3'	SW 6TH & DETROIT; WET STICKY SILT
135, PROBE, 3'	100' S OF SW 3RD & DETROIT; VERY WET SILT
136, PROBE, 2'	SW 4TH & DETROIT; ALMOST DRY SILT
137, PROBE, 3'	SE COCHRAN & 6TH; WET SILT
138, PROBE, 3'	300' N OF COCHRAN & WILSHIRE; STICKY CLAY
139, PROBE, 2.5	100' S OF SE COCHRAN & 3RD; ALMOST DRY SILT
140, PROBE, 2'	NE 4TH & COCHRAN; DRY BLACK CLAY
141, PROBE, 2.5	100' N OF NE BURNSIDE & WILSHIRE;
142, PROBE, 3'	NE 6TH & BURNSIDE; WET CLAY

FIELD: SALT LAKE

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
143, PROBE, 2.5	NE CORNER CLOVERDALE & OLYMPIC; DRY SILT
144, PROBE, 3'	NW CORNER LABREA & OLYMPIC; DRY SANDY SILT
145, PROBE, 2.5	120' W OF NW 8TH & LABREA; BLACK CLAY
146, PROBE, 2.5	SE 8TH & CLOVERDALE; BLACK DAMP SILTY CLAY
147, PROBE, 3'	NW 8TH & DUNSMUIR; DAMP SOFT BLACK CLAY
148, PROBE, 3'	SE 8TH & RIDGELEY; BLACK ALMOST DRY CLAY
149, PROBE, 3'	NW DUNSMUIR & OLYMPIC; WET SILT
150, PROBE, 3'	NE OLYMPIC & RIDGELEY; WET SILT
151, PROBE, 2'	150' N OF NW HAUSER & WILSHIRE; DRY CLAY
152, PROBE, 1.5	SE HAUSER & 6TH; DRY CLAY
153, PROBE, 3'	SE BURNSIDE & HAUSER; WET BLACK CLAY
154, PROBE, 3'	NE FULLER & LINDENHURST; WET BROWN SILT
155, PROBE, 3'	SE DREXEL & HAUSER; WET SILT
156, PROBE, 1.5	NW COLGATE & MARTEL; DAMP SILTY CLAY
157, PROBE, 3'	W SIDE COLGATE & GARDNER; WET SILTY CLAY
158, PROBE, 3'	INTER. OF ORANGE, CURSON & BURNSIDE; WET CLAY
159, PROBE, 3'	E OF INTER. ORANGE, ALANDALE & METRO.; SAND
160, PROBE, 2.5	W OF ALANDALE & 6TH; GREY CLAY
161, PROBE, 2.5	SW 8TH & CURSON; ALMOST DRY SILTY CLAY
162, PROBE, 3'	NW OLYMPIC & ALANDALE; DAMP SANDY SILT
163, PROBE, 2'	NE ALANDALE & OLYMPIC; SANDY DRY SILT
164, PROBE, 2'	SW ALANDALE & 8TH; DRY SILT
165, PROBE, 3'	SE 8TH & GENESEE; WET SILTY CLAY
166, PROBE, 3'	SE 8TH & ORANGE GROVE; DRY SANDY SILT
167, PROBE, 3'	NE GENESEE & OLYMPIC; SILTY CLAY
168, PROBE, 3'	100' N OF NE ORANGE GROVE & OLYMPIC; SILT
169, PROBE, 3'	SW MASSELIN & 8TH; SILTY SAND
170, PROBE, 3'	NW OLYMPIC & MASSELIN; SILTY SAND

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
1, PROBE, 1.5'	N BUSHARD & BROOKHURST; DRY SILT
2, PROBE, 2.5'	SW CORNER CASTINE & KITTERY; DAMP SILT
3, PROBE, 3.0'	E SIDE OF WOOD ISLAND LANE AT 22172; DAMP CLAY
4, PROBE, 3.0'	W CAPE MAY & PORT CLYDE; WET COARSE SILT
5, PROBE, 3.0'	NW CAPE MAY & CAPE SPLIT; WET SAND
6, PROBE, 3.0'	W JONESPORT & CAPE MAY; WET CLAY
7, PROBE, 2.5'	SE ALISON & JONESPORT; WET SILT
8, PROBE, 3.0'	E END OF MELINDA COURT; WET SILTY CLAY
9, PROBE, 3.0'	W WOODSHOLE & ROCKPORT; ALMOST DRY FINE SILT
10, PROBE, 3.0'	SE BANNING & MARBLEHEAD; STICKY SILT
11, AUGER, 5.0'	50' N OF CHEVRON KAR 5, E OF MELINDA; FILL
12, PROBE, 2.0'	SAME AS SITE #11; DAMP SILT
13, AUGER, 5.0'	10' N OF CHEVRON KAR 2; STICKY CLAY
14, PROBE, 2.0'	SAME AS SITE #13; WET SILT
15, PROBE, 3.0'	50' S OF SW BANNING & CAPISTRANO; WET SILT
16, PROBE, 3.0'	CUL DE SAC AT END OF CHRISTINE; SOFT WET SILT
17, AUGER, 5.0'	SAME AS SITE #16
18, PROBE, 3.0'	LAGUNA CUL DE SAC; DAMP SILT
19, PROBE, 3.0'	NW ISLANDER & CHRISTINE; ALMOST DRY SILT
20, PROBE, 3.0'	100' S OF SE PLAYA & SURFRIDER; FINE DRY SILT
21, PROBE, 3.0'	75' S OF SW PLAYA & ISLANDER; WET SILTY CLAY
22, PROBE, 3.0'	NW CHRISTINE & SURFRIDER; STICKY WET CLAY
23, PROBE, 3.0'	9062 CHRISTINE, ACROSS FROM SUSAN; WET CLAY
24, PROBE, 3.0'	10' W OF SITE #23; BLACK STICKY CLAY
25, AUGER, 5.0'	40' E OF #23 AT 9072 CHRISTINE; BLACK SOIL
26, PROBE, 3.0'	100' N OF NW HULA & CHRISTINE; FINE SILT
27, PROBE, 3.0'	NE HAMILTON & SEAFORTH; ALMOST DRY SANDY SILT
28, PROBE, 2.5'	30' E OF SE HAMILTON & NEWLAND; STICKY CLAY
29, PROBE, 3.0'	END OF SURVEYOR CIRCLE; STICKY WET CLAY
30, PROBE, 2.5'	SW MAGNOLIA & HAMILTON; DAMP SILT
31, AUGER, 5.0'	SAME AS SITE #30; CLAY TO FINE WET SAND
32, PROBE, 3.0'	W BANNING & MAGNOLIA; WET SAND
33, PROBE, 3.0'	50' W OF SW BERMUDA & KANEOHE
34, PROBE, 2.5'	NW MAHALO & KANEOHE; DRY SANDY SILT
35, PROBE, 0.0'	AIR SAMPLE AT SITE #34
36, PROBE, 2.5'	NW KANEOHE & ALOHA; WET STICKY SILT

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
37, PROBE, 3.0'	NE KAPAA & KIOWA; SOFT WET CLAY
38, PROBE, 2.5'	NE KAHULUI & KIOWA; WET CLAY
39, PROBE, 3.0'	N KANEOHE & REGATTA; WET CLAY
40, PROBE, 2.0'	W END OF BOBBIE CIRCLE; FINE SILTY SAND
41, PROBE, 2.5'	W END OF ADELIA; MOIST SILTY CLAY
42, PROBE, 2.5'	NE POLYNESIAN & RHODESIA; WET SILTY CLAY
43, PROBE, 0.0'	AIR SAMPLE AT SITE #42
44, PROBE, 2.5'	75' S OF SE HAITI & BAHAMA; ALMOST DRY SILT
45, PROBE, 3.0'	NW KALAHINE & HANAKAI; WET SILTY CLAY
46, PROBE, 3.0'	NE KALAHINE & IMPALA; WET CLAY
47, PROBE, 2.5'	SE NEOLANI & IMPALA; CLAY
48, PROBE, 3.0'	END OF CUL DE SAC ON NEOLANI; DRY SILT
49, PROBE, 3.0'	CUL DE SAC AT END OF ALII CIRCLE; DRY SILT
50, PROBE, 3.0'	30' W OF NW BUSHARD & MOKIHANA; WET SILTY CLAY
51, PROBE, 2.5'	100' N OF NE ALLEY & RAMBLER; FINE DAMP SILT
52, PROBE, 3.0'	END OF CUL DE SAC ON DAYTONA; FINE DAMP SILT
53, PROBE, 3.0'	20' E OF N MALIBU & BANNING; WET SILTY CLAY
54, PROBE, 3.0'	NE IMPALA & HUDSON; SLIGHTLY MOIST SILTY CLAY
55, PROBE, 3.0'	100' N OF NE BANNING & BUSHARD; DRY SILT
56, PROBE, 2.0'	NW RAMBLER & OCEANVIEW; DAMP STICKY SILT
57, PROBE, 3.0'	50' E OF S HIGHTIDE & OCEANVIEW; MOIST CLAY
58, PROBE, 3.0'	100' S OF W BEACHSIDE & SEACREST; MOIST SILT
59, PROBE, 2.0'	10' S OF W SURFCREST & SEASIDE; DAMP SILT
60, PROBE, 3.0'	END OF CUL DE SAC ON SUMMER COURT; MOIST SILT
61, PROBE, 3.0'	?100' N & 50' E OF VACATION & SURFCREST; SAND
62, PROBE, 3.0'	N HARBORBREEZE & SUMMERWIND; DAMP CLAY
63, PROBE, 3.0'	ISLAND AT BAYBREEZE & SUMMERWIND; SILTY CLAY
64, PROBE, 3.0'	E END OF CUL DE SAC ON OCEANCREST; DAMP SILT
65, PROBE, 3.0'	W END OF CUL DE SAC ON OCEANCREST; BLACK CLAY
66, PROBE, 3.0'	SW SHOREBREEZE & OCEANBREEZE; SILTY DAMP CLAY
67, PROBE, 3.0'	CUL DE SAC ON WINSONG CIRCLE; DAMP SANDY SILT
68, PROBE, 3.0'	NW ROCKPOINT & SEASIDE; BLACK DAMP CLAY
69, PROBE, 2.5'	SE LANDFALL & SALUDA; STICKY DAMP SILT
70, PROBE, 3.0'	END OF CUL DE SAC ON HILARIA; DAMP FINE SILT
71, PROBE, 2.0'	SW DIRIGO & LANDFALL; ALMOST DRY STIFF SILT
72, PROBE, 3.0'	END OF CUL DE SAC ON BRANTA; WET SILT

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
73, PROBE, 3.0′	ARCHER CUL-DE-SAC; DAMP SILT
74, PROBE, 3.0′	S CLEARBROOK & ST.JOHN; DAMP SILT
75, PROBE, 3.0′	MIDWAY ST. JOHN TO BROOKHURST; DRY SILT
76, PROBE, 3.0′	FLOWER BED IN APT. COMPLEX; WET SAND
78, PROBE, 2.5′	BORBA CUL-DE-SAC; DRY SILT
79, PROBE, 3.0′	BORBA & DAKAR; MOIST SILT
80, PROBE, 2.5′	SE CORNER DRUMBEAT & BUSHARD;DRY SILT
81, PROBE, 2.5′	DRUMBEAT CUL-DE-SAC; FINE SILT
82, PROBE, 2.5′	N CLEARBROOK; DRY SILT
83, PROBE, 2.5′	SW CORNER SURFWOOD & ATLANTA; DRY SILT
84, AIR BLANK	LOCATION 83 AIR BLANK
85, PROBE, 3.5′	SW JENNY & NEWLAND; WET SILT
86, PROBE, 3.0′	NW CORNER LOCHLEA & CREW; DRY CLAY
87, PROBE, 3.0′	SW CORNER HILLHEAD & LOCHLEA; DAMP SILT
88, PROBE, 2.5′	SE CORNER DONCASTER & LOCHLEA; STIFF CLAY
89, PROBE, 3.0′	BOLIN CUL-DE-SAC; WET CLAY
90, PROBE, 2.0′	NE CORNER KAUCH & SATTERFIELD; SILT
91, PROBE, 2.5′	SW CORNER SATTERFIELD & SHAW; WET SILT
92, PROBE, 3.0′	NE CORNER POSTON & STILLWELL; WET SILT
93, PROBE, 2.0′	EDISON COM. PARK; WET SILT
94, PROBE, 2.5′	NW CORNER POSTON & DORSETT; WET SILT
95, PROBE, 3.0′	80′ FROM NE CORNER BARBADOS & DORSETT, WET SILT
96, PROBE, 3.0′	BARBADOS CUL-DE-SAC; SILT
97, PROBE, 2.0′	S CORNER MIRAMAR & SABLE; SILT
98, PROBE, 1.5′	NE CORNER GREENBORO & SABLE, WET CLAY
99, PROBE, 3.0′	NW CORNER MARTINEQUE & SHEPHERD; WET SANDY SILT
100, PROBE, 3.0	N CORNER WHITE HORSE & MARTINIQUE; WET CLAY
101, PROBE, 3.0	?NW CORNER CHELSEA & ST. AUGUSTINE, WET SILT
102, PROBE, 3.0	W MILNE & ANTIQUA, DRY SILTY CLAY
103, PROBE, 3.0	SW CORNER HATTERAS & SEAFORTH; WET SILT
104, PROBE, 3.0	SE CORNER HATTERAS & BRETON; WET SILT
105, PROBE, 3.0	21302 BRETON; WET SILT
106, PROBE, 2.0	EDISON PARK; WET SILT
107, PROBE, 2.0	EDISON PARK; WET CLAY
108, PROBE, 3.0	NE CORNER PIER & FLEET; SOFT CLAY
109, PROBE, 2.0	9322 TIDEWATER; WET CLAY
110, PROBE, 3.0	NE CORNER SOUTHSHORE & FLEET; SOFT CLAY
111, PROBE, 3.0	21321 COMPASS; WET SILT
112, PROBE, 3.0	BULKHEAD CUL-DE-SAC; WET SILT
113, PROBE, 2.5	W BREAKWATER & BOWSPRIT; WET SILT
114, PROBE, 2.5	RIER CUL-DE-SAC; WET SILT

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
115, PROBE, 3.0	DOCKSIDE CUL-DE-SAC; WET SILT
116, PROBE, 2.5	ATLANTA STORAGE TANKS; WET SILTY SAND
117, AUGER, 5.0	SAME AS 116; WET DAMP CLAY
118, PROBE, 3.5	50´ NE OF DERNVILLE OIL WELL; SANDY SILT
119, AUGER, 5.0	SAME AS 118; FINE SANDY SILT
120, PROBE, 2.5	100´ E SE CORNER ATLANTA & MAGNOLIA
121, PROBE, 3.0	RED JACKET CUL-DE-SAC; WET SILT
122, PROBE, 3.5	NW SIDE INDIGO & ORIENT; WET SILT
123, PROBE, 3.5	SW CORNER COCOBANA & ORIENT; WET SILT
124, PROBE, 0´	GAS IN WATER METER BOX AT 21031 STRATHMORE
125, PROBE, 0´	HOLE IN SIDEWALK AT 21021 STRATHMOOR
126, PROBE, 2.0	HAGERSTOWN CUL-DE-SAC; WET SILT
127, PROBE, 3.0	SHACKLEFORD CUL-DE-SAC; WET SILT
128, PROBE, 3.0	GAS IN WATER METER BOX AT 21042 AMBERWICK
129, PROBE, 3.5	SW CORNER AMBERWICK & EFFINGHAM; SOFT WET SILTY CL
130, PROBE, 3.0	BINGHAMPTON CUL-DE-SAC; WET SILT
131, PROBE, 2.0	NE CORNER BROOKHURST & DANA; WET SILT
132, PROBE, 1.0	SPRIT CUL-DE-SAC; WET SILT
133, PROBE, 0´	SPAR CUL-DE-SAC; MANHOLE COVER IN STREET
134, PROBE, 2.0	?BROOKHURST S. OF EDISON SUBSTATION; WET SILT
135, PROBE, 1.5	BROOKHURST E SIDE AT EDISON SUB.; WET SILT
136, PROBE, 2.5	SW CORNER CHUBASCO & ORIENT; WET SILT
137, PROBE, 2.0	W SIDE VOLANTE & CHUBASCO; WET SILT
138, PROBE, 2.0	SW CORNER PONACEO & CHUBASCO; DAMP CLAY
139, PROBE, 0´	AIR BLANK AT SITE 138
140, PROBE, 1.5	NW CORNER PINETREE & PEPPER; DRY SILT
141, PROBE, 2.0	SE CORNER PEPPERTREE & LEMONTREE; WET CLAY
142, PROBE, 3.0	NW CORNER INDIAN WELLS & LEMONTREE; DAMP SILTY CLA
143, PROBE, 3.0	SE PINETREE & CHEVY CHASE; WET SILTY CLAY
144, PROBE, E.0	SE PINETREE & CHEVY CHASE; WET SILTY CLAY
145, PROBE, 3.0	?MEDIAN ON VIA STRAITS; WET SILTY CLAY
146, PROBE, 3.0	E MEDIAN AGEAN & VILLA PACIFIC, WET SILTY CLAY
147, PROBE, 3.0	SE CORNER VILLA PACIFIC & GREESPRAY; WET CLAY
148, PROBE, 2.5	75´ FROM END OF MONACO CIRCLE, EAST; WET CLAY
149, PROBE, 3.0	100´ W FROM SW CORNER CARRIBEAN & VERDE MAR; SILT
150, PROBE, 3.0	SE CORNER BLUEREEF & SEASPRITE, DAMP SILTY CLAY
151, PROBE, 3.0	10061 STARBOARD, CUL-DE-SAC; DAMP SILTY CLAY
152, PROBE, 3.0	END OF SPINDRIFT CUL-DE-SAC AT 20912; DAMP CLAY
153, PROBE, 2.5	SE CORNER AQUATIC & SIGNET; DAMP CLAY

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
154, PROBE, 3.0	10172 SUNTAN; DAMP CLAY
155, PROBE, 1.5	SE CORNER AQUATIC & CLIFF; DAMP SILTY CLAY
156, PROBE, 3.0	S OF CLIFF & OYSTER BED; DAMP SILTY CLAY
157, PROBE, 3.0	N SIDE OF THESEUS AT 10131; WET SILTY CLAY
158, PROBE, 2.0	NE CORNER BEVERLY & SUBURBIA; WET SLTY CLAY
159, PROBE, 2.0	S SIDE CYNTHIA AT 10122; WET CLAY
160, PROBE, 3.0	20511 SALT AIR; WET CLAY
161, PROBE, 3.0	SW CORNER SALINE & PEBBLE; WET CLAY
162, PROBE, 3.0	END OF CUL-DE-SAC AT 9762 LA CRESTA; DAMP SILTY CL
163, PROBE, 3.0	SW CORNER ALGONQUIN AND HEIL; SILT
164, PROBE, 0.5	16642 ALGONQUIN; HOLE IN DRIVEWAY
165, PROBE, 3.0	CORNER CANBY & BAY VIEW; SAND & WATER
166, PROBE, 1.5	E CORNER BAYVIEW & 16TH; SAND & WATER
167, PROBE, 1.5	CHRIS CARR PARK 200´ S OF SE CORNER HEIL & SPRINGD
168, PROBE, 2.0	50´ S ON SE CORNER HEIL & SPRINDALE; SILT
169, PROBE, 1.5	S SIDE LUCIENTO & SALAMANCA AT 6822; SILT
170, PROBE, 1.5	6722 CALPE CIRCLE; SANDY SILT
171, PROBE, 1.0	END OF SHORE VIEW; SILT
172, PROBE, 2.0	SW CORNER ELLIS & NEWLAND; SILT
173, PROBE, 2.5	CORNER NEWLAND & TRAILER PARK W; SANDY CLAY
174, PROBE, 2.5	NW CORNER ELLIS & NEWLAND; WET SAND
175, PROBE, 1.5	SW CORNER GARFIELD & STEWARD; DRY SILT
176, PROBE, 2.0	STEWART W SIDE 300´ S OF CANFIELD; SILT
177, PROBE, 3.0	SE CORNER CLEVELAND & HUNTINGTON
178, PROBE, 2.0	SE CORNER CLAY & HUNTINGTON; SILT
179, PROBE, 2.5	SE CORNER W OF WEYMOUNT & FALMOUNT; WET CLAY
180, PROBE, 2.0	19271 WESCHESTER; SILT
181, PROBE, 3.0	?SW CORNER FLOUNDER & WEAKFISH; WET SILT
182, PROBE, 3.0	W CORNER WEAKFISH & POLLACK; WET SILT
183, PROBE, 3.0	W CORNER TARPON & WEAKFISH; WET SLT
184, PROBE, 2.5	OFF BROOKHURST; SILT
185, PROBE, 3.0	QUIETSURF CUL-DE-SAC; SILT
186, PROBE, 3.0	ISLAND BAY LANE; WET SANDY SILT
187, PROBE, 2.5	NE CORNER ISLAND BAY & PALM; WET SILT
188, PROBE, 2.5	W CORNER SEA GULL & LITTLE HARBOR;
189, PROBE, 2.5	W CORNER LITTLE HARBOR & COASTLINE; WET SILT
190, PROBE, 2.5	COAST LINE CUL-DE-SAC; SAND
191, PROBE, 3.0	100´ N NE CORNER LAKE & ADAMS; SILT
192, PROBE, 3.0	N CORNER 12TH & PARK; SILT
193, PROBE, 3.5	SW CORNER LAKE & 10TH; SOFT SAND
194, PROBE, 3.0	NE CORNER ALABABA & ADAMS; SANDY SILT
195, PROBE, 3.0	NE CORNER HUNTINGTON & ADAMS; WET

FIELD: HUNTINGTON BEACH

SAMPLING SITE CONDITIONS

SITE NO.	SITE DESCRIPTION
196, PROBE, 2.5	SE CORNER HUNTINGTON & SPRINGFIELD, SILT
197, PROBE, 2.0	SE CORNER UTICA & HUNTINGTON; SILT
198, PROBE, 3.0	100' W OF NW CORNER ADAMS & BEACH; WET CLAY
199, PROBE, 0.5	16642 ALGONQUIN; HOLE IN CEMENT REAR UNIT GAS METE

C_1 - C_4 HYDROCARBON DATA

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (1)

SITE NO. (1) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
4.92	0.13	0.4	0.29	0.07	0	0.06

SITE NO. (2) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.25	0	0	0	0	0	0

SITE NO. (3) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.16	0	0	0	0	0	0

SITE NO. (4) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.74	0.06	0.03	0.06	0	0.06	0.1

SITE NO. (5) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.09	0	0	0	0	0	0
			AUGER (5 FT)			
6.34	0.93	0.76	0.52	0.54	0.08	0.42

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (2)

SITE NO. (7) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.37	0.06	0.04	0.04	0	0.01	0.05

SITE NO. (8) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.13	0	0	0	0	0	0
			AUGER (5 FT)			
2.1	0.72	0.65	0.2	0.16	0.04	0.06

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.36	0.4	0.27	0.14	0.19	0	0.1
			AUGER (5 FT)			
27.62	3.11	2.56	0.86	0.41	0.13	0.49

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.69	0.2	0.15	0.62	0.08	0	0.05
			AUGER (5 FT)			
11.22	1.43	1.17	1.02	0.36	0.08	0.62

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (3)

SITE NO. (11) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.36	0.77	0.6	0.26	0.37	0	0.14

SITE NO. (12) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
4.5	0.48	0.39	0.21	0.19	0.02	0.06
			AUGER (5 FT)			
21.93	2.95	2.31	1.02	0.71	0.18	0.72

SITE NO. (13) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.19	0.73	0.07	0.04	0.36	0	0.07

SITE NO. (14) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.62	0.03	0.03	0.04	0	0	0.04
			AUGER (5 FT)			
6.17	0.97	0.83	0.44	0.46	0.06	0.21

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (4)

SITE NO. (16) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.86	0.7	0.11	0.1	0	0	0.13

SITE NO. (17) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.63	0.67	0.7	0.31	0.51	0.03	0.15
			AUGER (5 FT)			
20.31	3.02	2.41	1.78	0.61	0.15	0

SITE NO. (18) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.91	0.64	0.03	0.03	0	0	0

SITE NO. (19) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.05	0.11	0.09	0.05	0.12	0.02	0.07
			AUGER (5 FT)			
6.32	0.85	0.72	0.46	0.32	0.03	0.19

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (5)

SITE NO. (20) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.49	0.57	0.18	0.05	0.18	0	0.13

SITE NO. (21) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.89	0.07	0.49	0.21	0.32	0.03	0.11
			AUGER (5 FT)			
10.11	1.16	1.03	0.88	0.41	0.03	0.19

SITE NO. (22) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.74	0.31	0.27	0.13	0.19	0.03	0.11

SITE NO. (23) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.26	0.5	0.05	0.02	0.09	0	0.08
			AUGER (5 FT)			
18.2	4.3	3.09	1.84	1.82	0.14	0.66

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (6)

SITE NO. (25) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.22	0.09	0.03	0.2	0.08	0.03	0.11

SITE NO. (26) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.29	0.08	0.05	0.15	0.21	0.02	0.05
			AUGER (5 FT)			
3.2	0.82	0.67	0.21	0.17	0.03	0.08

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.76	1.56	1.55	0.58	0.81	0	0

SITE NO. (28) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.11	0.06	0.01	0.01	0.02	0	0
			AUGER (5 FT)			
4.97	1.02	0.76	0.57	0.33	0.06	0.21

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (7)

SITE NO. (29) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
16.4	0.76	0.78	0.8	0.66	0.09	0.14

SITE NO. (30) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.7	0.08	0.07	0.34	0.08	0.04	0.1
			AUGER (5 FT)			
27.9	9.21	5.83	2.31	1.67	0.21	1.54

SITE NO. (31) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.31	0.88	0.1	0.87	0.03	0.1	0.22

SITE NO. (32) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
4.11	0.81	0.41	0.49	0.22	0.05	0.11
			AUGER (5 FT)			
11.02	1.23	0.93	0.31	0.24	0.04	0.18

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (8)

SITE NO. (33) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
33.9	10.8	6.42	4.52	3.54	0.24	1.33

SITE NO. (34) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
60.1	17.2	11.2	7.85	7.75	0.69	2.62

SITE NO. (35) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.07	0.19	0.06	0	0	0.02	0.09

SITE NO. (36) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
1.95	0.01	0	0.01	0	0.01	0.06

SITE NO. (37) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
10.7	0	0.04	0	0	0	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (9)

SITE NO. (38) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.31	0	0	0	0.11	0.01	0.07
			PROBE (3 FT)			
10.2	2.4	0	1.61	0.01	0.42	0.73

SITE NO. (39) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.41	0.16	0.08	0.14	0.08	0.03	0.08

SITE NO. (40) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.15	0.54	0	0.07	0.07	0	0.04
			AUGER (5 FT)			
17.6	4.41	3.12	2.19	1.76	0.24	0.61
			AUGER (8 FT)			
24.3	5.77	3.59	2.46	2.45	0.23	1.13

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (10)

SITE NO. (41) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.11	0.76	0	0.21	0.06	0.04	0.08

SITE NO. (45) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.35	0.1	0.07	0.05	0.04	0.01	0.02

SITE NO. (46) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.05	0	0	0	0	0	0
			AUGER (5 FT)			
3.42	0.32	0.25	0.13	0.15	0.01	0.03

SITE NO. (47) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.44	0.07	0.07	0.03	0	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (11)

SITE NO. (48) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.26	0.36	0.03	0.1	0.07	0	0.03

AUGER (5 FT)

6.31	0.85	0.61	0.21	0.09	0.02	0.05

SITE NO. (49) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.46	0.39	0.57	0.22	0.4	0.03	0.09

SITE NO. (50) AUGER (6 FT)

M	E	E:	P	P:	I-B	N-B
93.1	0.4	1.03	0.26	0.57	0.04	0.07

SITE NO. (51) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
7.06	1.33	1.01	0.53	0.56	0.1	0.25

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (12)

SITE NO. (52) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.06	1.29	0.93	0.61	0.52	0.08	0.23

SITE NO. (53) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.06	0.75	0.05	0.25	0.11	0.05	0.12
			AUGER (5 FT)			
23.6	2.89	1.73	1.93	1.18	0.24	0.59

SITE NO. (54) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11.02	0.78	1.02	0.53	0.97	0.08	0.18

SITE NO. (55) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.12	0.67	0.69	0.26	0.45	0.03	0.09
			AUGER (5 FT)			
23.61	4.63	3.29	1.98	1.12	0.24	0.71

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (13)

SITE NO. (56) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.99	0.27	0.21	0.91	0.09	0	0.03

SITE NO. (57) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.25	0.88	0.23	0.41	0.16	0.08	0.12
			AUGER (5 FT)			
12.2	2.11	1.36	0.97	0.54	0.15	0.48

SITE NO. (58) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
15.4	0.16	0.19	0.11	0.1	0	0.02

SITE NO. (59) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.58	0.29	0.04	0.07	0.15	0	0.02
			AUGER (5 FT)			
4.12	0.54	0.46	0.13	0.17	0.05	0.13

C1 - C4 HYDROCARBON DATA

FIELD: SUMMERLAND (14)

SITE NO. (60) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.04	0	0	0	0	0	0

SITE NO. (61) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.64	0.35	0.18	0.3	0.1	0.04	0.11
			AUGER (5 FT)			
9.63	1.02	0.55	0.28	0.21	0.08	0.15

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (1)

SITE NO. (1) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
2.89	0.27	0.58	0.24	0.87	0.02	0.31
			AUGER (10 FT)			
10151	1.71	1.09	1.22	0.29	0.08	0.33

SITE NO. (3) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
2.13	0.05	0.15	0.06	0.39	0.12	0.17
			AUGER (7 FT)			
2651	0.28	0.31	0.14	0.02	0.01	0.07

SITE NO. (5) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.46	0.19	0.46	0.31	0.29	0.29	0.47
			AUGER (8 FT)			
3.93	0.11	0.22	0	0	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (2)

SITE NO. (7) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.67	0.28	0.21	0.05	0.05	0	0.07

SITE NO. (8) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.08	0.06	0.09	0.01	0.03	0	0

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.04	0.06	0.06	0.03	0.04	0	0

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.69	0.17	0.14	0.04	0.09	0	0

SITE NO. (11) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.42	0.01	0.01	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (3)

SITE NO. (12) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.61	0.04	0.04	0.04	0	0	0

SITE NO. (13) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.55	0.06	0.05	0.03	0.03	0	0.01

SITE NO. (14) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.11	0.1	0.06	0.04	0.07	0	0

SITE NO. (15) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.4	0.13	0.21	0.05	0.06	0	0

SITE NO. (16) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.92	0.08	0.12	0.01	0.02	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (4)

SITE NO. (17) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.68	0.11	0.09	0.04	0.06	0	0.01

SITE NO. (18) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
529	7.91	1.61	1.92	1.32	0.26	0.33

SITE NO. (19) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
11.7	0.38	0.67	0.46	0.46	0.06	0.18

SITE NO. (20) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
6.6	1.15	0.72	0.71	0.16	0.02	0.17

SITE NO. (21) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
1.01	0.12	0.16	0.08	0.13	0.01	0.04

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (5)

SITE NO. (22) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.74	0.39	0.26	0.23	0.05	0	0

SITE NO. (23) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.05	0.17	0.18	0.05	0.06	0	0

SITE NO. (24) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.52	0.08	0.07	0	0	0	0

SITE NO. (25) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
12.4	1.03	0	5.04	0	1.04	1.4

SITE NO. (26) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
2.87	0	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (6)

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.94	0.3	0	1.04	0	0.23	0.32

SITE NO. (28) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
1.69	0.02	0.01	0	0	0	0

SITE NO. (29) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.76	0.66	0	0.33	0.03	0.05	0.14

SITE NO. (30) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
886	43.3	2.2	8.43	1.34	1.37	1.69

SITE NO. (31) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.09	0.3	0.1	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (7)

SITE NO. (32) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.26	0.02	0	0	0	0	0

SITE NO. (33) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
15.3	0.69	0.05	0.22	0.02	0.06	0.12

SITE NO. (34) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.64	0	0	0	0	0	0

SITE NO. (35) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
2.52	0.81	0	0.16	0.01	0.02	0.02

SITE NO. (36) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
256	9.72	0	0.65	0.54	0.36	0.55

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (8)

SITE NO. (37) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.11	0.05	0.01	0	0	0	0

SITE NO. (38) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.03	0.05	0.05	0.01	0.02	0	0

SITE NO. (39) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
5.71	0.13	0.15	0.03	0.06	0	0

SITE NO. (40) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.4	0.09	0	0	0	0	0

SITE NO. (41) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
175	1.35	0.15	0.3	0.03	0.07	0.12

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (9)

SITE NO. (42) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
689	1.1	0.01	0.46	0.08	0.19	0.23

SITE NO. (43) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.7	0	0	0.03	0.08	0.01	0.03

SITE NO. (44) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
14.3	0	0	0.07	0.17	0	0.01

SITE NO. (45) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.55	0.25	0	0	0	0	0

SITE NO. (46) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
1.44	0.04	0.05	0.01	0.02	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (10)

SITE NO. (47) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
19.4	0	0.08	0.06	0.08	0	0

SITE NO. (48) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
5.34	0.38	0.01	0.02	0	0	0.01

SITE NO. (49) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.43	0	0	0	0	0	0

SITE NO. (50) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.71	0.09	0	0	0	0	0

SITE NO. (51) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.39	0.08	0.05	0.02	0.02	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (11)

SITE NO. (52) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
3.68	0.07	0.11	0.04	0.05	0	0

SITE NO. (53) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
9.01	2.13	1.64	1.38	0.59	0.09	0.42

AUGER (7 FT)

95.2	31.8	15.6	14.8	15.9	1.57	6.51

SITE NO. (55) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
10.6	1.53	0.94	1.5	1.6	0.13	0.65

SITE NO. (57) AUGER (7 FT)

M	E	E:	P	P:	I-B	N-B
36.2	12.6	6.65	6.55	5.8	0.63	2.8

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (12)

SITE NO. (59) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.59	0.27	0.13	0.02	0.06	0	0

SITE NO. (60) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
16.5	0	1.23	2.18	1.95	0.17	0.46

SITE NO. (61) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
4.75	0	0	0.61	0	0	0

SITE NO. (62)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
291	3.15	1.64	1.35	0.35	0.57	0.38
			AUGER (7 FT)			
2516	7.49	1.06	2.26	0.42	0.8	1.24
			PROBE (2 FT)			
7.64	0.47	0.13	0.01	0.04	0.28	0.01

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (13)

SITE NO. (65) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
16	1.36	1.37	0.92	1.18	0.23	0.47
			PROBE (1.5 FT)			
108	0	0.02	0.07	0.07	0	0.04

SITE NO. (67) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
4.39	0.47	0.46	0.23	0.66	0.02	0.12
			PROBE (1 FT)			
9.7	0.29	0.17	0.14	0.09	0.01	0.06

SITE NO. (69) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.2	0.07	0.06	0.05	0.02	0.01	0.02

SITE NO. (70) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.17	0.35	0.11	0.65	0.1	0.08	0.53

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (14)

SITE NO. (71) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.04	0.06	0.05	0	0	0	0

SITE NO. (72) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
6.62	0.06	0.06	0.05	0.02	0.01	0.02

SITE NO. (73) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
2.24	0.12	0.06	0.02	0	0	0

SITE NO. (74) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.25	0.06	0.03	0.04	0.01	0	0

SITE NO. (75) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.27	0.07	0.04	0.14	0.09	0.05	0.07

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (15)

SITE NO. (76) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.41	0.09	0.06	0.05	0.06	0	0

SITE NO. (77) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.27	0.02	0.01	0	0	0	0

SITE NO. (78) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.82	0.1	0.07	0.03	0.04	0	0

SITE NO. (79) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.72	0.03	0.01	0.04	0.03	0	0

SITE NO. (80) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
21.1	0.67	0.98	0.51	0.65	0.06	0.18

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (16)

SITE NO. (81) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.4	0.15	0.01	0.02	0.03	0	0

SITE NO. (82) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.86	0.18	0.21	0.07	0.13	0	0.01

SITE NO. (83) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.55	0.08	0.05	0.04	0.05	0	0

SITE NO. (84) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.31	0.13	0.13	0.06	0.04	0	0

SITE NO. (85) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.39	0.07	0.05	0.05	0.04	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (17)

SITE NO. (86) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.47	0.03	0.01	0.01	0.01	0	0

SITE NO. (87) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.31	0.04	0	0.01	0	0	0

SITE NO. (88) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.39	0.16	0.15	0.15	0.13	0	0

SITE NO. (89) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
0.49	0.03	0.01	0.03	0	0.03	0.09

SITE NO. (90) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.31	0.05	0.01	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (18)

SITE NO. (91) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.41	0.04	0.1	0.07	0.11	0	0.01

SITE NO. (92) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.06	0.21	0.17	0.08	0.06	0	0

SITE NO. (94) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
402	0.62	0.37	0.22	0.24	0.02	0.06

SITE NO. (95) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.51	0	0	0	0	0	0

SITE NO. (96) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.42	0	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (19)

SITE NO. (97) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.37	0	0.04	0	0	0	0

SITE NO. (98) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.84	0.09	0.07	0.03	0.02	0	0

SITE NO. (99) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
61.5	1.41	1.09	1.22	1.33	0.11	0.32

SITE NO. (100) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.07	0.1	0.03	0.07	0	0	0

SITE NO. (101) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.1	0	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (20)

SITE NO. (102) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.89	0.07	0.01	0.02	0.03	0	0

SITE NO. (103) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.08	0.01	0	0	0.03	0	0

SITE NO. (104) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.86	0	0	0	0	0	0

SITE NO. (105) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
1.21	0	0	0	0	0	0

SITE NO. (106) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
2.4	0.05	0.03	0.04	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (21)

SITE NO. (107) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.67	0.01	0.01	0	0.01	0	0

SITE NO. (108) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.05	0	0	0	0	0	0

SITE NO. (109) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.88	0.01	0.01	0.01	0	0	0

SITE NO. (110) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.75	0	0	0	0	0	0

SITE NO. (111) PROBE (0.5 FT)

M	E	E:	P	P:	I-B	N-B
124550	126	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: NEWPORT BEACH (22)

SITE NO. (112) PROBE (0.5 FT)

M	E	E:	P	P:	I-B	N-B
220000	98	0	0	0	0	0

SITE NO. (113) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
294000	98	0	0	0	0	0

SITE NO. (114) PROBE (0.5 FT)

M	E	E:	P	P:	I-B	N-B
17.9	0	0	0	0	0	0

SITE NO. (115) PROBE (5 FT)

M	E	E:	P	P:	I-B	N-B
590000	182	0	0	0	0	0

SITE NO. (116) PROBE (5 FT)

M	E	E:	P	P:	I-B	N-B
641000	190	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (1) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.57	0.05	0.07	0.01	0.01	0	0

SITE NO. (2) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.27	0.03	0.03	0	0.01	0	0

SITE NO. (3) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.66	0.05	0.05	0.01	0.01	0	0

SITE NO. (4) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.82	0.08	0.1	0.02	0.04	0	0

SITE NO. (5) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.94	0.1	0.15	0.05	0.05	0	0

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (6) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.46	0.33	0.58	0.19	0.35	0.06	0.13

SITE NO. (7) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.81	0.08	0.07	0.04	0.03	0	0

SITE NO. (8) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.42	0.04	0.03	0	0	0	0

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.61	0.04	0.06	0.03	0.05	0	0.08

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.46	0.14	0.28	0.05	0.09	0	0

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (11) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.48	0.04	0.03	0.01	0.04	0	0.07

SITE NO. (12) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.11	0.31	0.78	0.24	0.5	0.06	0.14

SITE NO. (13) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
0.49	0.05	0.05	0.01	0.03	0	0

SITE NO. (14) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.65	0.3	0.35	0.27	0.32	0.06	0.17

SITE NO. (15) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.8	0.39	0.11	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (16) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.6	0.15	0.17	0.05	0.06	0	0

SITE NO. (17) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
3.43	0.15	0.22	0.08	0.13	0.02	0.13

SITE NO. (18) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
2.96	0.19	0.18	0.06	0.08	0.02	0.04

SITE NO. (19) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.82	0.18	0.18	0.07	0.1	0	0.06

SITE NO. (20) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.69	0.09	0.07	0.03	0.03	0	0

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (21) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
0.34	0.02	0.03	0	0	0	0

SITE NO. (22) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.48	0.11	0.16	0.06	0.11	0	0.09

SITE NO. (23) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.68	0.13	0.28	0.12	0.15	0	0.07

SITE NO. (24) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
0.75	0.05	0.24	0.07	0.08	0	0

SITE NO. (25) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
18.6	3.11	0.88	2.24	1.05	0.54	0.96

C1 - C4 HYDROCARBON DATA

FIELD: RIDEOUT - HEIGHTS

SITE NO. (26) PROBE (4 FT)

M	E	E:	P	P:	I-B	N-B
1.41	0.33	0.09	0.19	0.27	0.05	0.11

SITE NO. (27) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
17.1	2.49	1.61	0.97	0.5	0.21	0.61

SITE NO. (29) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
7.56	1.62	1.34	0.78	0.61	0.08	0.38

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (25)

SITE NO. (148)

M	E	E:	P	P:	I-B	N-B
			AUGER (3.5 FT)			
5.36	0	0	0.29	0.21	0.03	0.15
			PROBE (3 FT)			
1.17	0.18	0	0.06	0.09	0.01	0.08

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (1)

SITE NO. (1) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.64	0.83	0.67	0.48	0.24	0	0
			AUGER (5 FT)			
9.91	2.06	1.45	0.92	0.84	0.21	0.36

SITE NO. (3) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
5.17	0.39	0.36	0.2	0.1	0.01	0.05
			AUGER (9 FT)			
2.62	0.23	0.03	0.17	0.08	0	0.29
			PROBE (3 FT)			
1.05	0.74	0.67	0.33	0.3	0	0

SITE NO. (6) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.29	0.4	0.44	0.15	0.21	0	0.1
			PROBE (2.5 FT)			
5.67	0.39	0.32	0.11	0.14	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (2)

SITE NO. (6) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
1.41	0	0	0	0	0	0

SITE NO. (9) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
0.51	0.13	0.11	0.05	0.04	0	0
			AUGER (5 FT)			
4.38	0.27	0.11	0.25	0.51	0	0.37

SITE NO. (11) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7073	3960	0	2577	0	151	90.4
			AUGER (5 FT)			
262	25.4	0	8.16	0	0.3	0.33

SITE NO. (13) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2332	313	0	77.4	16.8	0	1.01

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (3)

SITE NO. (13) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
1.28	1.02	0	0.21	0	0	0
			AUGER (5 FT)			
6.04	0.42	0.37	0.25	0.3	0	0.25

SITE NO. (17) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
911	171	0	18.3	0.31	0.32	0.38
			AUGER (5 FT)			
11.8	2.35	2.03	1.25	1.18	0.12	0.53

SITE NO. (19) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
565	31.2	0	26.2	0	0.22	0
			AUGER (5 FT)			
4.63	0.33	0.18	0.15	0.09	0	0.06

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (4)

SITE NO. (19) AUGER (0 FT)

M	E	E:	P	P:	I-B	N-B
4.14	0.15	0	0.02	0	0	0.26

SITE NO. (22) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
44.5	9.96	0	9.68	0	0	0
			AUGER (5 FT)			
10.8	0.57	0.87	0.24	0.42	0.01	0.15
			AUGER (0 FT)			
3.35	0.13	0.15	0.11	0	0.01	0.03
			AUGER (0 FT)			
6.61	0.63	1.39	0.41	0.11	0.1	0.17

SITE NO. (26) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3864	685	0	66.4	0.63	0.86	0.68
			AUGER (5 FT)			
7.66	0.82	0.72	0.33	0.24	0.03	0.16

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (5)

SITE NO. (28) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.21	0.18	0.21	0	0	0	0
			AUGER (5 FT)			
7.67	1.07	0.99	0.5	0.27	0.05	0.24

SITE NO. (30) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.45	0.14	0.29	0.07	0.14	0.03	0.06
			AUGER (5 FT)			
2330	11.9	0.87	2.21	0.41	0.57	0.63
			PROBE (5 FT)			
357	0	0	0	0	0	0
			PROBE (3 FT)			
19171	0	0	2.47	0.21	0.8	0.9

SITE NO. (34) AUGER (0 FT)

M	E	E:	P	P:	I-B	N-B
56.2	0.95	0.8	0.5	1	0.14	0.59
			PROBE (0 FT)			
1.1	0.04	0.09	0.05	0.01	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (6)

SITE NO. (36)

			AUGER (5 FT)			
M	E	E:	P	P:	I-B	N-B
3.18	0.01	0.02	0.03	0	0	0.03
			PROBE (2.5 FT)			
1.42	0.27	0.42	0.09	0.18	0	0.03

SITE NO. (38)

			AUGER (5 FT)			
M	E	E:	P	P:	I-B	N-B
627	2.42	2.12	2.12	1.06	0.28	0.64
			PROBE (2.5 FT)			
2.57	0.83	0.67	0.34	0.33	0.06	0.21

SITE NO. (40)

			AUGER (5 FT)			
M	E	E:	P	P:	I-B	N-B
3.31	0.23	0.06	0.08	0.07	0	0.05
			PROBE (3 FT)			
0.48	0.1	0.3	0.11	0.07	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (7)

SITE NO. (42) AUGER (0 FT)

M	E	E:	P	P:	I-B	N-B
26279	52.5	0	1.02	0	0.35	0.12

SITE NO. (43) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
1.51	0	0	0.01	0	0	0.03
			AUGER (9 FT)			
3.3	0.23	0.44	0.18	0.03	0.03	0.16
			PROBE (3 FT)			
0.56	0.11	0.17	0.08	0.15	0	0.1

SITE NO. (46) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
0.79	0.13	0.18	0.08	0.14	0	0.15
			AUGER (5 FT)			
5.04	0.85	0.89	0.34	0.5	0	0.16

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (8)

SITE NO. (48) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.66	0.23	0.21	0.1	0.05	0	0.1
			PROBE (3 FT)			
0.36	0.07	0.1	0.05	0.09	0	0.14

SITE NO. (50) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.92	0.31	0.01	0.37	0.03	0.1	0.24
			PROBE (3 FT)			
1.04	0.21	0.29	0.14	0.19	0	0.25

SITE NO. (52) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
13.8	2.1	0.1	0.19	0.06	0	0.12

SITE NO. (54) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.44	1.56	0.71	0.29	0.5	0.02	0.36

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (9)

SITE NO. (54) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
8.97	2.08	1.4	1.38	1.18	0.14	1.06

SITE NO. (56) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.94	0.8	0.36	0.15	0.2	0.03	0.21

SITE NO. (57) AUGER (2.5 FT)

M	E	E:	P	P:	I-B	N-B
557	29.2	0.61	16.1	0.35	6.77	1.23
			AUGER (0 FT)			
437	7.54	0.96	10.3	1.55	1.57	2.12
			PROBE (1.5 FT)			
2000	12.5	0	5.38	0	2.86	0.41

SITE NO. (60) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
11.9	2.68	1.62	0.23	0.7	0.02	0.29

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (10)

SITE NO. (60) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
7.7	1.79	2.3	0.65	1.06	0.03	0.2

SITE NO. (61) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
22.8	0	0	0	0	0	0
			AUGER (3 FT)			
538	1.71	2.63	1.07	1.23	0.1	0.34

SITE NO. (63) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
14663	405	0	253	0	36.6	57.5
			AUGER (2.5 FT)			
3972	38.9	2.01	113	1.04	179	390

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (11)

SITE NO. (66) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.45	0.44	0	0.33	0.26	0.02	0.21
			PROBE (2.5 FT)			
2.4	1.16	0	0.62	0.37	0.09	0.1

SITE NO. (68) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
14.9	0.72	0	0.33	0.42	0.02	0.04

SITE NO. (69) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.98	0.16	0	0	0	0	0.18
			PROBE (2 FT)			
22.2	1.49	0	0.64	0.69	0.31	0.44

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (12)

SITE NO. (71) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
10.1	0.7	0	0.29	0.47	0.13	0.37
			PROBE (2 FT)			
3.66	0.57	0	0.21	0.29	0.01	0.07

SITE NO. (73) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
21.1	0.34	0	0.34	0.2	0	0.4
			PROBE (2.5 FT)			
3146	0	0	0	0.52	1.85	1.23
			PROBE (2.5 FT)			
11272	0	0	0	0.08	0.3	0.43

SITE NO. (77) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.47	0.56	0	0.19	0.37	0.07	0.17
			AUGER (5 FT)			
3.7	0.04	0	0	0	0	0.18

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (13)

SITE NO. (78) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.78	0.46	0	0.2	0.25	0.08	0.13

SITE NO. (79) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
15.5	5.34	0	2.99	2.87	0.26	1.27
			PROBE (3 FT)			
1.09	0.27	0	0	0	0	0
			PROBE (3 FT)			
1.34	0.35	0	0.08	0.08	0	0.13

SITE NO. (81) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.21	0.35	0	0.07	0.14	0.02	0.06

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (14)

SITE NO. (82) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.64	1.12	0	0.11	0.24	0	0.32
			AUGER (5 FT)			
5.56	1.29	0	0.17	0.2	0	0.28
			PROBE (3 FT)			
0.94	0.06	0	0	0	0	0.02

SITE NO. (84) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.38	0.23	0	0.16	0.1	0	0

SITE NO. (85) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.48	0.12	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (15)

SITE NO. (86)

M	E	E:	P	P:	I-B	N-B
			PROBE (2 FT)			
3.93	1.48	0	0.16	0.12	0.06	0.12
			AUGER (5 FT)			
17.7	2.68	0	1.85	0.75	0.18	0.89
			AUGER (0 FT)			
1.54	0.02	0	0	0	0	0

SITE NO. (89)

M	E	E:	P	P:	I-B	N-B
			PROBE (3.5 FT)			
0.23	0.1	0	0	0	0	0

SITE NO. (90)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
5.43	0.74	0	0.49	0.4	0	0.1
			PROBE (1.5 FT)			
1.02	0.14	0	0.07	0.09	0.03	0.04

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (16)

SITE NO. (92) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.52	0.14	0	0.08	0.09	0	0

SITE NO. (93) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
18.7	0.31	0	0.77	0.57	0.16	0.39
			PROBE (2 FT)			
1272	0.35	0	40.5	0.3	25.4	8.51

SITE NO. (95) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.17	0.3	0	0.15	0.17	0.01	0.12
			PROBE (3 FT)			
11.5	0.11	0	0.05	0.03	0	0
			AUGER (0 FT)			
5.25	0.02	0	0.01	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (17)

SITE NO. (98)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
3.31	0	0	0.04	0	0	0.11
			PROBE (2 FT)			
1.02	0	0	0.04	0	0	0

SITE NO. (100)

M	E	E:	P	P:	I-B	N-B
			AUGER (4 FT)			
241	0	0	4.49	0.21	3.08	1.09
			PROBE (2 FT)			
946	0	0	12.4	0.36	4.2	2.4
			AUGER (0 FT)			
1104	0.55	0	0.47	0.87	0.4	1.16

SITE NO. (103)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
10.4	2.09	0	1.29	0.9	0.1	0.59
			PROBE (3 FT)			
0.57	0.08	0	0.07	0.07	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (18)

SITE NO. (105) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.08	0	0	0	0	0	0.14
			PROBE (2 FT)			
3.18	0	0	0.16	0.22	0.03	0.1

SITE NO. (107) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
5.11	0	0	0.32	0.1	0.03	0.16
			PROBE (3 FT)			
3.39	0	0	0.14	0.17	0	0

SITE NO. (109) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.67	0	0	0.16	0	0.03	0.2
			AUGER (5 FT)			
3.48	0	0	0.19	0	0.04	0.22
			PROBE (2.5 FT)			
66.4	0	0	7.7	0.1	0.82	1.09

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (19)

SITE NO. (111)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
3.87	0.15	0	0.08	0	0	0.09
			PROBE (2.5 FT)			
0.6	0.07	0	0.04	0	0	0
			AUGER (0 FT)			
1.6	0.01	0	0	0	0	0.03

SITE NO. (114)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
3.9	0.44	0	0.23	0.19	0	0.19
			PROBE (2 FT)			
0.79	0.05	0	0.03	0.03	0	0.01

SITE NO. (116)

M	E	E:	P	P:	I-B	N-B
			AUGER (5 FT)			
3.13	0.08	0	0.14	0	0	0.2
			PROBE (3 FT)			
2.37	0.05	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (20)

SITE NO. (118) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
2.63	0.02	0	0.01	0.01	0	0.08
			PROBE (2 FT)			
1.04	0.05	0	0.04	0.04	0	0.01

SITE NO. (120) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
20.2	0	0	0.05	0	0	0.03
			PROBE (3 FT)			
623	0.09	0	0.86	0.11	0.06	0.05

SITE NO. (122) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
2.47	0.08	0	0.07	0.04	0.02	0.11
			PROBE (2 FT)			
1.04	0.02	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (21)

SITE NO. (124) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
5.52	0.38	0	0.19	0.3	0	0.2
			PROBE (2 FT)			
1.07	0.02	0	0.04	0	0	0

SITE NO. (126) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
5.33	0.32	0	0.15	0.1	0	0.05
			AUGER (5 FT)			
5.25	0.26	0	0.06	0	0	0
			PROBE (3 FT)			
4.9	0.22	0	0.13	0.12	0.01	0.06

SITE NO. (128) AUGER (0 FT)

M	E	E:	P	P:	I-B	N-B
5340	0	0	7.01	0	1.4	3.26
			AUGER (4 FT)			
3109	0	0	4.36	0.44	2.31	1.08

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (22)

SITE NO. (130) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
516	0	0	0.5	0	0	0.1

SITE NO. (132) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
18	4.59	0	2.57	2.01	0.2	0.91
			PROBE (3 FT)			
6.76	0.73	0	0.25	0.43	0.03	0.1

SITE NO. (134) AUGER (3.5 FT)

M	E	E:	P	P:	I-B	N-B
4.1	0.56	0	0.16	0.14	0	0.09
			PROBE (1 FT)			
2.56	0.06	0	0.01	0.04	0	0

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (23)

SITE NO. (136) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
11.5	0.58	0	0.28	0.24	0.06	0.42
			PROBE (1.5 FT)			
307	0.28	0	0.1	0.22	0.04	0.07

SITE NO. (138) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
7019	0	0	3.28	0.28	2.24	0.58
			PROBE (2 FT)			
2434	0	0	0.45	0	0.5	0.1

SITE NO. (140) AUGER (2.5 FT)

M	E	E:	P	P:	I-B	N-B
33.6	5.11	0	4.03	3.27	0.3	1.36
			PROBE (1 FT)			
6.95	0.85	0	0.38	0.54	0.03	0.11

C1 - C4 HYDROCARBON DATA

FIELD: BREA-OLINDA (24)

SITE NO. (142) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
7.89	1.08	0	0.76	0.38	0.13	0.31
			PROBE (2 FT)			
2.78	0.16	0	0.07	0.12	0.01	0.03

SITE NO. (144) AUGER (4 FT)

M	E	E:	P	P:	I-B	N-B
9.97	2.25	0	1.13	0.48	0.09	0.47
			PROBE (2 FT)			
1.7	0.42	0	0.17	0.2	0.03	0.08

SITE NO. (146) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
2.59	0.06	0	0.04	0.01	0	0.03
			PROBE (3 FT)			
1.55	0.01	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (1) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.29	0.86	0.63	0.48	0.48	0.34	0.42

AUGER (5 FT)

5.2	0.44	0.51	0.36	0.25	0.03	0.33

SITE NO. (3) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.04	1.51	1.34	0.69	0.92	0.23	0.64

SITE NO. (4) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.12	0.27	0.52	0.16	0.25	0.02	0.07

SITE NO. (5) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.18	1.05	0.52	0.08	0.06	0.02	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (6) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11.9	0.79	0.77	0.38	1	0.01	0.03

SITE NO. (7) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.53	0.11	0.11	0.03	0.04	0.01	0.09
			AUGER (5 FT)			
2.73	0.17	0.06	0.1	0.1	0.01	0.16

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.47	0.24	0.07	0.09	0.06	0	0.12

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.63	0.32	0.47	0.25	0.2	0.05	0.06

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (11) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.01	0.03	0.07	0	0	0	0

SITE NO. (12) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11.4	0.43	0.65	0.3	0.34	0.03	0.1

SITE NO. (13) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.79	0.19	0.37	0.08	0	0	0

SITE NO. (14) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.15	0.04	0.05	0.01	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (15) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.51	0.13	0.12	0.05	0.03	0	0

SITE NO. (16) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.36	0.16	0.18	0.1	0.15	0.02	0.07

SITE NO. (17) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.89	0.1	0.08	0.03	0.03	0	0

SITE NO. (18) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.11	0.22	0.22	0.08	0.12	0.5	1.01

SITE NO. (19) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.41	0.4	0.37	0.11	0.16	0	0.03

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (20) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.1	0.2	0.29	0.13	0.17	0.1	0.16

SITE NO. (21) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.12	0.21	0.21	0.07	0.13	0.03	0.12

SITE NO. (22) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.91	0.35	0.37	0.82	0.25	0.42	0.35

SITE NO. (23) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.1	0.03	0.04	0.01	0	0	0

SITE NO. (24) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.68	0.21	0.31	0.13	0.2	0.06	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (25) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.05	0.16	0.17	0.07	0.1	0	0.03

SITE NO. (26) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.16	0.18	0.35	0.09	0.21	0.02	0.03

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.75	0.12	0.19	0.08	0.12	0.05	0.03

SITE NO. (28) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.97	0.1	0.17	0.03	0.05	0	0

SITE NO. (29) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.74	0.13	0.2	0.19	0.1	0.08	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (30) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.98	0.15	0.2	0.08	0.14	0.07	0.05

SITE NO. (31) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.37	0.14	0.17	0.07	0.1	0	0.06

SITE NO. (32) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.46	0.11	0.19	0.05	0.09	0.01	0.02

SITE NO. (33) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
10.7	0.69	0.99	0.46	0.7	0.31	0.29

SITE NO. (34) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.91	0.08	0.11	0.04	0.06	0.02	0.03

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (35) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.29	0.36	0.49	0.14	0.31	0.04	0.06

SITE NO. (36) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5.63	0.47	0.62	0.37	0.44	0.03	0.12

SITE NO. (37) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.54	0.15	0.15	0.07	0.98	0.05	0.06

SITE NO. (38) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
80700	5495	0	4706	0	1831	4345
			AUGER (5 FT)			
297	26.7	1.24	28.3	0.98	20.2	9.71

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (40) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1094	25.3	0.06	0.7	0.52	1.17	0.3

SITE NO. (41) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
41.9	3.15	1.94	2.21	1.55	1.87	1.83

SITE NO. (42) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
552	39	0	36.1	0	20.4	25.2

SITE NO. (43) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
14621	245	0	84.8	0	45.6	58.7
			AUGER (5 FT)			
3.01	0.03	0	0.15	0	0.26	0.25

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (45) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1276	113	0	115	0	52.1	49.5

SITE NO. (46) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
53	4.14	3.01	4.17	2.36	1.49	3.47

SITE NO. (47) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1151	128	0.44	144	0.65	64.3	70.1

SITE NO. (48) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
5.27	0.71	0.59	0.63	0.32	0.29	0.37

SITE NO. (49) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.44	0.24	0.05	0.34	0.06	0.31	0.29

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (50) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
38.6	2.67	0.23	1.9	0.33	1.26	2.16

SITE NO. (51) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.18	0.6	0.43	6.28	0.23	0.16	0.45

SITE NO. (52) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
556	55.2	1.4	61.2	1.42	26.4	25.6

SITE NO. (53) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.75	0.2	0.17	0.11	0.12	0.03	0.11

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (54) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
372	18.9	1.06	15.2	0	5.37	5.87
			AUGER (5 FT)			
3.09	0.21	0.05	0.17	0.12	0.09	0.19

SITE NO. (56) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
184	14.2	0.7	12.8	0.38	5.15	5.34

SITE NO. (57) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
19723	8765	0	2979	0	7980	189
			AUGER (4 FT)			
60.1	10.2	1.03	4.05	0.65	48.4	1.1

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (59) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
142900	12501	0	7452	0	3469	1215

SITE NO. (60) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
911	208	0	53.9	0	168	20.9
			AUGER (3.5 FT)			
252	23.7	4.21	72.6	1.06	94.1	258

SITE NO. (62) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
524	51.7	4.07	47.9	0	24.9	10.1

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (63) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
11.8	1.53	1.01	1.72	0	0	0
			AUGER (4.5 FT)			
6.89	0.84	1.07	0.41	0.6	0.08	0.24

SITE NO. (65) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
188	24.9	5.54	10.9	4.37	22.8	3.56

SITE NO. (66) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
2.85	0.27	0	0.15	0	0	0

SITE NO. (67) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
18.1	4.27	0.41	1.1	0.74	7.57	0.54

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (68) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1007	8.53	3.22	6.74	2.58	3.7	3.9

SITE NO. (69) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
96	13.2	0.11	3	0.03	10.9	0.79

SITE NO. (70) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
25650	355	5	102	3.1	196	9.8

SITE NO. (71) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.09	0.01	0	0.01	0	0	0

SITE NO. (72) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
13.5	0.08	0.1	0.08	0	0.18	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (73) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.22	2.37	0.41	0.83	0.26	2.84	0.27

SITE NO. (74) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
9.98	1.12	1.23	0.7	0.85	0.15	0.19

SITE NO. (75) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.88	0.25	0.25	0.12	0.19	0.07	0.11

SITE NO. (76) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.96	0.67	0.78	0.41	0.51	0.07	0.16

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (77) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
20.4	2.42	2.42	1.77	1.72	0.44	1.07
			AUGER (5 FT)			
6.82	0.99	1.11	0.46	0.35	0.03	0.05

SITE NO. (79) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.01	0.43	0.49	0.29	0.35	0.15	0.13

SITE NO. (80) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
18.2	2.98	2.36	1.8	1.79	1.59	0.66
			AUGER (5 FT)			
10.1	2.44	1.97	1.26	1.39	0.18	0.56

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (82) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.19	0.42	0.36	0.31	0.26	0.39	0.23

SITE NO. (83) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
20	3.1	2.99	1.96	2.31	0.38	0.83
			AUGER (5 FT)			
23.3	5.19	3.88	2.8	2.21	0.33	1.31

SITE NO. (85) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
13.8	2.16	1.96	1.32	1.48	0.32	0.71

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (86) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
7.94	1.12	1.05	0.61	0.74	0.16	0.24
			AUGER (5 FT)			
23.5	1.61	0.52	0.7	0.16	0.13	0.32

SITE NO. (88) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
8.77	0.95	0.08	0.64	0.06	0.31	0.45

SITE NO. (89) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
60.5	9.85	7.01	5.61	5.49	0.9	2.32

SITE NO. (90) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.78	0.39	0.44	0.15	0.23	0.13	0.11

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (91) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
6.23	1.02	0.53	0.4	0.35	0.99	0.24

SITE NO. (92) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.38	0.59	0.53	0.27	0.35	0.07	0.14

SITE NO. (93) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
42.5	7.67	5.22	4.24	4.07	0.7	1.83

SITE NO. (94) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.49	0.45	0.15	0.2	0.05	0.84	0.05

SITE NO. (95) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.71	0.29	0.4	0.2	0.21	0.1	0.1

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (96) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.05	0.26	0.32	0.11	0.14	0.05	0.05

SITE NO. (97) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.32	0.67	0.24	0.28	0.12	0.55	0.06

SITE NO. (98) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.58	0.66	0.45	0.5	0.21	0.37	0.4
			AUGER (5 FT)			
6.45	1.06	0.87	0.5	0.51	0.05	0.5

SITE NO. (100) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
2.62	0.23	0.14	0.13	0.08	0.16	0.14

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (101) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.21	0.39	0.28	0.26	0.2	0.11	0.13

SITE NO. (102) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.46	0.6	0.34	0.51	0.15	0.29	0.25
			AUGER (5 FT)			
3.49	0.53	0.44	1.3	0.58	0.1	0.2

SITE NO. (104) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
3.06	0.38	0.1	0.13	0.06	0.21	0.04

SITE NO. (105) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2242	12.6	5.37	6.45	6.25	1.25	2.16

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (106) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
11283	4.2	1.77	2.16	1.52	0.31	0.38

SITE NO. (107) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
683	0.51	0.41	0.23	0.24	0	0

SITE NO. (108) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
230	0.48	0.39	0.25	0.25	0.16	0.15

SITE NO. (109) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2416	4.14	2.39	1.93	2.06	0.23	0.67
			AUGER (5 FT)			
7.23	1.5	1.29	0.82	0.89	0.06	0.21

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (111) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
4.67	0.37	0.31	0.22	0.11	0.22	0.07
			AUGER (2.5 FT)			
41.5	1.72	1.71	1.73	0.83	17.4	0.93

SITE NO. (113) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
347	3.76	0	1.34	0	4.46	0
			AUGER (5 FT)			
6.98	1.09	1.38	0.59	0.67	0.07	0.55

SITE NO. (115) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.86	0.13	0.21	0.08	0.02	0.03	0.08
			AUGER (5 FT)			
6.92	1.07	1.19	0.54	0.69	0.2	1.22

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (117) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.26	0.18	0.27	0.38	0.07	0.04	0.11
			AUGER (5 FT)			
11.1	1.79	1.55	0.84	0.44	0.04	0.19

SITE NO. (119) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.85	0.32	0.33	0.13	0.15	0.03	0.05
			AUGER (5 FT)			
5.97	0.91	0.85	0.48	0.6	0.16	0.59

SITE NO. (121) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.27	0.3	0.34	0.13	0.15	0.04	0.12
			AUGER (5 FT)			
10.1	2.16	2.15	1.12	1.39	0.06	0.69

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (123) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.66	0.3	0.22	0.09	0.07	0.01	0.04

AUGER (5 FT)

4.4	0.3	0.15	0.14	0.06	0.11	0.18

SITE NO. (125) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
12226	1015	0	105	0	33.6	6.43

SITE NO. (126) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
10.8	1.74	0	0.3	0	0.12	0.08

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (127) PROBE (5 FT)

M	E	E:	P	P:	I-B	N-B
33.2	3.93	0.18	0.56	0.08	0.2	0.09
			AUGER (3 FT)			
21.8	7.19	5.39	3.63	2.66	0.31	1.59

SITE NO. (129) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
3.21	0.42	0.54	0.34	0.23	0.23	0.66
			PROBE (1.5 FT)			
5.67	5.5	0.18	1.15	0.09	0.41	0.22

SITE NO. (131) AUGER (4.5 FT)

M	E	E:	P	P:	I-B	N-B
8.87	2.65	0.41	2.89	1.25	0.61	2.89
			PROBE (2 FT)			
18.8	1.02	0.47	0.32	0.29	0.07	0.12

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (133) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
3.34	0.26	0.03	0.11	0	0.04	0.06
			AUGER (5 FT)			
3.65	0.2	0.19	0.29	0.24	0.19	0.04

SITE NO. (135) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.64	0.41	0.31	0.29	0.15	0.16	0.16
			AUGER (5 FT)			
24.5	0.7	0.72	0.25	0.08	0.13	0.42

SITE NO. (137) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
43177	198	8.59	3.07	0.22	0.37	0.17
			AUGER (4 FT)			
7228	118	2.58	72.1	1.8	222	585

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (139) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
4.82	0.32	0.21	0.33	0.12	0.07	0.47

SITE NO. (140) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.93	0.58	0.39	0.49	0.23	0.06	0.22

SITE NO. (141) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
30.5	0.36	0.18	0.18	0.16	0.05	0.16

SITE NO. (142) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
36.8	0.91	0.72	0.4	0.47	0.07	0.24

SITE NO. (143) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.58	0.12	0.17	0.09	0.08	0.02	0.11

C1 - C4 HYDROCARBON DATA

FIELD: SANTA FE SPRINGS

SITE NO. (144) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.32	0.52	0.53	0.19	0.26	0.05	0.17

SITE NO. (145) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.43	0.82	0.66	0.32	0.45	0.05	0.21

SITE NO. (146) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
28.3	0.51	0.05	0.05	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (1)

M	E	E:	P	P:	I-B	N-B
			PROBE (3 FT)			
12390	53.9	0.72	0.58	0.63	0.45	0.28
			AUGER (5 FT)			
32.7	0.55	0.86	0.44	0.49	0.2	0.53
			AUGER (0 FT)			
26	22	0	0	0	0	0

SITE NO. (4)

M	E	E:	P	P:	I-B	N-B
			PROBE (3 FT)			
82.7	0.88	0.4	0.15	0	0	0

SITE NO. (5)

M	E	E:	P	P:	I-B	N-B
			PROBE (3 FT)			
41435	98.6	0	10.1	0.41	3.3	0.36
			AUGER (5 FT)			
4184	14.3	1.69	2.16	0.69	0.34	0.5

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (7) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
10.7	0.39	0.27	0.14	0.15	0.1	0.28

SITE NO. (8) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.66	0.62	0.53	0.35	0.37	0.06	0.15

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
14.4	0.86	0.88	0.43	0.61	0.07	0.11

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
10.6	0.24	0.14	0.1	0.03	0.01	0.09

SITE NO. (11) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
19.8	5.6	5.21	2.68	3.26	0.3	1.42
			AUGER (0 FT)			
4.93	0.15	0.1	0.08	0	0	0
			PROBE (2 FT)			
4.24	0.13	0.46	0.09	0.06	0	0.11

SITE NO. (14) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.68	0.14	0.17	0.09	0.11	0.03	0.07

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (15) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.38	0.11	0.1	0.05	0	0	0

SITE NO. (16) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
27366	10.2	0	0.34	0.06	0.93	0.16

SITE NO. (17) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.3	0.17	0.09	0.09	0	0	0
			AUGER (5 FT)			
2.93	0	0	0.09	0	0.02	0.1

SITE NO. (19) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
9.83	0.36	0.24	0.17	0.09	0	0.05

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (20) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
33	0.21	0.16	0.08	0	0	0

SITE NO. (21) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.64	0.24	0.18	0.1	0.05	0	0.03

SITE NO. (22) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
8.97	0.14	0.15	0.04	0.06	0	0
			AUGER (4.5 FT)			
7.39	0.44	0.5	0.22	0.31	0.03	0.14

SITE NO. (24) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.31	0.24	0.21	0.07	0.13	0.03	0.09

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (25) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.43	0.09	0.12	0.08	0.1	0.04	0.12

SITE NO. (26) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.28	0.23	0.36	0.1	0.12	0.02	0.08

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.64	0.09	0.29	0.05	0.12	0.03	0.11

SITE NO. (28) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.84	0.02	0.05	0	0	0	0

SITE NO. (29) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
224	19.2	195	3.61	46	0.17	0.75

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (30) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26.7	3.57	29.4	1.16	13.4	0.1	0.39

SITE NO. (31) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.54	0.78	1.38	0.33	0.81	0.03	0.15

SITE NO. (32) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
10.9	1.03	8.2	0.3	3.16	0.03	0.12

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (33) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
6.21	1.21	1.07	0.82	0.39	0.25	0.71
			AUGER (0 FT)			
2.24	0.03	0	0	0	0	0
			PROBE (2 FT)			
6.65	1.61	4.91	0.29	1.97	0.05	0.1
			AUGER (0 FT)			
1.96	0	0	0	0	0	0

SITE NO. (37) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
23.7	3.41	5.04	1.59	3.04	0.19	0.45

SITE NO. (38) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.02	0.06	0.37	0.03	0.91	0	0

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (39) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1026	130	1156	25.9	276	1.87	5.63

SITE NO. (40) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.48	0.16	1.2	0.04	0.56	0	0.02

SITE NO. (41) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.56	0.12	0.87	0.07	0.44	0	0.05

SITE NO. (42) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.1	0.22	0.58	0.11	0.23	0	0

SITE NO. (43) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
155	21.5	182	4.37	49.8	0.22	1.97

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (44) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.74	0.1	0.12	0.05	0.05	0	0.04

SITE NO. (45) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.89	0.16	0.86	0.06	0.31	0	0.05

SITE NO. (46) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.26	0.15	0.81	0.05	0.28	0	0.02

SITE NO. (47) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.84	0.25	1.31	0.08	0.72	0.01	0.06

SITE NO. (48) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
199	23.6	191	4.12	29.1	0.18	0.81

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (49) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
33982	51.2	84.1	1.98	15.8	0.13	0.52

SITE NO. (50) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
49.1	0.52	1.23	0.16	0.77	0.14	0.43

SITE NO. (51) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
226	0.86	1.54	0.24	0.92	0.04	0.1

SITE NO. (52) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.02	0.21	0.18	0.07	0.12	0.01	0.06

SITE NO. (53) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
7.53	0.45	0.43	0.15	0.09	0.01	0.05

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (54) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
107	0.58	0.81	0.13	0.32	0.02	0.08

SITE NO. (55) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.15	0.2	1.07	0.06	0.34	0	0.12

SITE NO. (56) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.85	0.15	0.2	0.05	0.12	0	0.04

SITE NO. (57) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.61	0.26	0.77	0.09	0.26	0.06	0.25

SITE NO. (58) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.56	0.14	0.63	0.06	0.21	0	0.03

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (59) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.63	0.06	0.17	0.03	0.04	0	0.04

SITE NO. (60) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
364400	2314	0	22.4	0	7.48	0.87

SITE NO. (61) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
58.1	1.3	0.16	0.09	0.07	0.06	0.12

SITE NO. (62) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
735	6.51	0.15	0.17	0.19	0.11	0.06

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (63) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
54.2	1.32	0.48	0.22	0.19	0.07	0.57
			AUGER (5 FT)			
4.43	0.49	1.17	0.36	2.12	0.16	0.78
			AUGER (0 FT)			
285	5.43	0	0	0	0	0

SITE NO. (66) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.41	0.22	0.18	0.08	0.14	0.03	0.09

SITE NO. (67) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.4	0.17	0.17	0.07	0.05	0	0

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (68) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
65.6	6.05	7.19	2.84	4.47	0.63	3.19

SITE NO. (69) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.94	0.17	0.22	0.08	0.13	0.02	0.06

SITE NO. (70) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
22.4	0.9	0.33	0.12	0.16	0.05	0.14

SITE NO. (71) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.47	0.52	0.28	0.32	0.18	0.16	0.33

SITE NO. (72) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.69	0.82	1.14	0.32	0.66	0.08	0.29

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (73) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.67	0.15	0.21	0.06	0.1	0.02	0.09

SITE NO. (74) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.92	0.42	0.35	0.1	0.18	0.01	0.03

SITE NO. (75) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.76	1.7	2.05	0.72	1.3	0.08	0.23

SITE NO. (76) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.65	0.1	0.15	0.03	0.07	0.01	0.03

SITE NO. (77) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.88	0.17	0.18	0.08	0.18	0	0.02

C1 - C4 HYDROCARBON DATA

FIELD: LOS ANGELES CITY

SITE NO. (78) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.62	0.2	0.29	0.08	0.13	0.03	0.05

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (1) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3	0.07	0.11	0.07	0.05	0.03	0.05

SITE NO. (2) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.22	0.2	0.16	0.11	0.08	0.02	0.07
			AUGER (5 FT)			
4.4	0.89	0.49	1.12	0.6	0.01	0.93

SITE NO. (4) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
6.77	0.73	0.87	0.28	0.58	0.1	0.13

SITE NO. (5) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.1	1.96	3.31	0.93	2.01	0.2	0.43

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (6) AUGER (5 FT)

M	E	E:	P	P:	I-B	N-B
42.4	11.9	7.55	4.29	3.84	0.25	1.33
			PROBE (2.5 FT)			
20.4	2.98	4.93	1.33	2.92	0.15	0.46

SITE NO. (8) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
13.7	2.13	3.1	0.93	1.96	0.13	0.46

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
12.6	2.25	2.91	0.98	1.73	0.08	0.42

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11.5	1.89	2.82	0.81	1.74	0.08	0.31

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (11) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
12.5	2.11	2.89	0.86	1.82	0.06	0.29

SITE NO. (12) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.42	0.08	0.23	0.07	0.15	0	0.06

SITE NO. (13) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.26	0.13	0.18	0.04	0.17	0.12	0.09

SITE NO. (14) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
14	2.47	3.69	0.99	2.62	0.07	0.4

SITE NO. (15) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
7.11	1.23	1.62	0.5	1.12	0.07	0.18

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (16) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
16.7	3.18	3.95	1.21	2.55	0.11	0.44

SITE NO. (17) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5.54	1.06	1.15	0.42	0.74	4	0.21

SITE NO. (18) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.41	0.27	0.35	0.21	0.32	0.05	0.11

SITE NO. (19) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.7	0.45	0.62	0.23	0.44	0.05	0.13

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (20) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.48	0.31	0.47	0.18	0.37	0.03	0.08
			AUGER (5 FT)			
9.11	2.04	1.57	1	0.96	0.06	0.38

SITE NO. (21) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.77	0.17	0.18	0.08	0.08	0.02	0.03

SITE NO. (23) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.46	0.43	0.62	0.25	0.38	0.12	0.16

SITE NO. (24) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
4	0.34	0.53	0.18	0.38	0.02	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (25) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.91	0.21	0.23	0.1	0.07	0.04	0.1

SITE NO. (26) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.88	0.76	0.94	0.27	0.46	0.06	0.19

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.89	0.11	0.18	0.05	0.12	0.05	0.14

SITE NO. (28) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.82	0.53	0.98	0.29	0.91	0.1	0.23

SITE NO. (29) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
7.44	0.87	0.53	0.31	0.35	0.05	0.17

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (30) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.32	0.17	0.16	0.06	0.05	0	0

SITE NO. (31) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.48	0.53	0.91	0.28	0.69	0.08	0.17
			AUGER (5 FT)			
5.02	0.58	0.54	0.5	0.22	0.06	0.18
			PROBE (0 FT)			
1.97	0.15	0.1	0.06	0.06	0	0.09

SITE NO. (34) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.84	0.2	0.14	0.04	0.08	0	0.03

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (35) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.75	0.31	0.41	0.15	0.22	0.03	0.11

SITE NO. (36) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.99	0.35	0.25	0.12	0.1	0.02	0.09

SITE NO. (37) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.13	0.2	0.27	0.09	0.07	0.04	0.11

SITE NO. (38) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
3.55	0.18	0.12	0.07	0.07	0	0.03

BREA-OLINDA OIL FIELD

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (39) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.03	0.23	0.14	0.1	0.07	0	0.09
			AUGER (5 FT)			
24.8	5.77	3.5	2.72	1.38	0.22	1.23
			PROBE (0 FT)			
3.12	0.5	0.33	0.15	0.2	0.04	0.1

SITE NO. (42) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.01	0.28	0.26	0.06	0.1	0	0.06

SITE NO. (43) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.19	0.27	0.26	0.09	0.18	0.02	0.07

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (44) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.09	0.22	0.21	0.11	0.08	0.01	0.09

SITE NO. (45) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.3	0.34	0.52	0.19	0.33	0.04	0.09
			AUGER (5 FT)			
3.8	0.67	0.5	0.4	0.08	0.06	0.36

SITE NO. (47) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.15	0.3	0.2	0.08	0.07	0.01	0.05

SITE NO. (48) PROBE (6 FT)

M	E	E:	P	P:	I-B	N-B
5.5	0.45	0.92	0.22	0.49	0.03	0.1

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (49) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
14782	0	1.01	0.21	0.78	0.03	0.13

SITE NO. (50) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
23.6	0.04	0.09	0.02	0.03	0	0.07
			AUGER (4.5 FT)			
51.4	12.9	8.35	6.72	6.18	0.63	2.78

SITE NO. (52) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
11	0.89	0.75	0.3	0.37	0.06	0.1

SITE NO. (53) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
207	0.2	0.64	0.13	0.33	0.04	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (54) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.45	0.16	0.18	0.05	0.06	0	0

SITE NO. (55) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
46.2	0.18	0.27	0.07	0.15	0.02	0.06
			AUGER (5 FT)			
26.6	7.81	4.73	4.12	3.38	0.38	1.4
			PROBE (0 FT)			
5.51	0.58	0.43	0.18	0.24	0.01	0.09

SITE NO. (58) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
26.7	0.92	0.7	0.29	0.32	0.04	0.12

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (59) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
320	8.48	0.22	0.65	0.07	0.06	0.14

SITE NO. (60) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
35	0.29	0.58	0.12	0.3	0.03	0.08

SITE NO. (61) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
34.4	1.23	0.3	0.23	0.08	0.02	0.08

SITE NO. (62) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
22.8	0.98	0.71	0.32	0.45	0.04	0.16

SITE NO. (63) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.71	0.31	0.23	0.1	0.15	0.03	0.1

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (64) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
45.8	0.47	1.01	0.23	0.73	0.05	0.13

SITE NO. (65) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
22.1	0.37	0.71	0.15	0.4	0.02	0.13

SITE NO. (66) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.99	0.16	0.16	0.08	0.11	0	0.09

SITE NO. (67) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.44	0.28	0.33	0.1	0.15	0.02	0.1

SITE NO. (68) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.07	0.14	0.1	0.04	0.15	0.09	0.08

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (69) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3	0.12	0.27	0.06	0.05	0.04	0.2

SITE NO. (70) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.51	0.17	0.25	0.05	0.1	0.06	0.1

SITE NO. (71) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.32	0.14	0.34	0.09	0.15	0.03	0.18

SITE NO. (72) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.96	0.21	0.29	0.06	0.16	0	0.07

SITE NO. (73) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.05	0.27	0.62	0.05	0.23	0.55	0.41

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (74) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.42	0.42	0.69	0.12	0.24	0.01	0.03

SITE NO. (75) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.37	0.15	0.31	0.08	0.22	0.03	0.13

SITE NO. (76) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.53	0.13	0.2	0.05	0.1	0	0

SITE NO. (77) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.96	0.17	0.34	0.08	0.19	0	0.04

SITE NO. (78) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.29	0.33	0.28	0.09	0.17	0	0

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (79) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.62	0.1	0.17	0.04	0.05	0	0

SITE NO. (80) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
8.25	0.15	0.31	0.07	0.13	0	0.01

SITE NO. (81) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.82	0.1	0.31	0.05	0.14	0	0

SITE NO. (82) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.77	0.43	0.35	0.14	0.22	0	0.05

SITE NO. (83) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.72	0.24	0.42	0.09	0.19	0.01	0.02

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (84) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.22	0.07	0.13	0.07	0.07	0	0.09

SITE NO. (85) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.59	0.19	0.3	0.08	0.18	0.01	0.05

SITE NO. (86) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.64	0.17	0.13	0.06	0.05	0	0.05

SITE NO. (87) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.15	0.34	0.51	0.12	0.27	0.03	0.1

SITE NO. (88) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.1	0.04	0.12	0.07	0.07	0	0

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (89) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.19	0.08	0.09	0.07	0.03	0	0

SITE NO. (90) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.5	0.18	0.21	0.08	0.13	0	0.05

SITE NO. (91) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
0.99	0.04	0.19	0.01	0.05	0	0

SITE NO. (92) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.44	0.08	0.07	0.07	0.01	0	0

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (93) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.02	0.04	0.1	0.04	0.09	0	0.07

PROBE (0 FT)

2.05	0	0	0	0	0	0

SITE NO. (94) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.19	0.04	0.1	0.01	0.05	0	0

SITE NO. (95) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
0.96	0.05	0.09	0	0	0	0

SITE NO. (97) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.72	0.22	0.14	0.1	0.07	0.05	0.17

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (98) AUGER (72 FT)

M	E	E:	P	P:	I-B	N-B
6824	81	0	17.7	0	3.56	0.97

SITE NO. (99) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.07	0.2	0.12	0.14	0.1	0.06	0.15

SITE NO. (100) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.39	0.29	0.13	0.08	0.05	0.04	0.1

SITE NO. (101) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.34	0.11	0.13	0.06	0.07	0.02	0.06

SITE NO. (102) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.09	0.81	0.47	0.36	0.24	0.09	0.24

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (103) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.43	0.44	0.38	0.21	0.33	0.07	0.21

SITE NO. (104) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.35	0.13	0.21	0.06	0.08	0.02	0.07

SITE NO. (105) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
4.09	0.65	0.77	0.29	0.45	0.04	0.11

SITE NO. (106) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.53	0.34	0.07	0.09	0.05	0.04	0

SITE NO. (107) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
10.1	2.23	0.26	0.81	0.28	0.13	0.23

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (108) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
3.69	0.44	0.2	0.22	0.13	0.05	0.11

SITE NO. (109) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
9.66	1.58	0.92	0.65	0.59	0.1	0.19

SITE NO. (110) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.97	0.21	0.26	0.14	0.27	0.03	0.07

SITE NO. (111) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.65	0.09	0.07	0.05	0.1	0	0

SITE NO. (112) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
13	2.22	5.01	1.63	4.46	0.2	0.68

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (113) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.19	0.14	0.1	0.08	0.07	0.03	0.1

SITE NO. (114) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.31	0.07	0.11	0.04	0.04	0	0.05

SITE NO. (115) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.38	0.08	0.13	0.02	0.03	0	0

SITE NO. (116) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.11	0.13	0.1	0.05	0.08	0	0

SITE NO. (117) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
39.8	1.86	3.6	1.5	3.17	0.15	0.49

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (118) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.9	1.33	2.43	1.07	2.17	0.11	0.41

SITE NO. (119) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
4.75	0.36	0.47	0.24	0.43	0.03	0.11

SITE NO. (120) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26.2	2.82	5.02	1.94	3.88	0.29	0.67

SITE NO. (121) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.42	0.15	0.2	0.17	0.09	0	0.05

SITE NO. (122) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.59	0.13	0.17	0.06	0.26	0.03	0.09

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (123) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.79	0.18	0.25	0.11	0.31	0.08	0.27

SITE NO. (124) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11.4	1.58	2.69	1.35	2.16	0.15	0.52

SITE NO. (125) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
51558	55.8	0	3.81	0.45	13.3	2.21

SITE NO. (126) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
398	0.97	0.39	0.23	0.26	0.14	0.16

SITE NO. (127) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.52	0.09	0.22	0.06	0.05	0.03	0.11

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (128) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.8	0.35	0.34	0.15	0.38	0.06	0.17

SITE NO. (129) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3041	6.73	2.76	1.74	2.18	1.41	0.61

SITE NO. (130) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
144350	2486	0	1335	0	655	19.1

SITE NO. (131) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
191	0.83	0.15	1.21	0	0.32	0.17

SITE NO. (132) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
16.4	0.19	0.3	0.13	0.19	0.05	0.08

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (133) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.65	1.17	2.13	0.38	3.05	0.06	0.2

SITE NO. (134) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.98	0.28	0.89	0.2	1.45	0.06	0.27

SITE NO. (135) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.9	0.42	1.04	0.23	1.69	0.06	0.19

SITE NO. (136) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.06	0.37	0.35	0.14	0.17	0.03	0.05

SITE NO. (137) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.89	0.46	0.97	0.25	1.35	0.05	0.19

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (138) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.25	0.44	1.03	0.31	1.67	0.09	0.24

SITE NO. (139) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
253	5.26	0.16	3.24	0.1	1.78	0.08

SITE NO. (140) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.35	0.19	0.18	0.08	0.12	0.07	0.19

SITE NO. (141) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
218	4.03	0.01	2.35	0.1	1.23	0.09

SITE NO. (142) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8170	181	0.27	112	0.34	61.7	0.96

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (143) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5.96	0.18	0.21	0.3	0.3	5.77	35.5

SITE NO. (144) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
31192	138	0	1626	113	7574	25014

SITE NO. (145) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.49	0.12	0.14	0.14	0.08	0.6	2.25

SITE NO. (146) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5.85	0.98	0.3	17.2	1.32	112	577

SITE NO. (147) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.31	0.08	0.2	0.09	0.17	0.28	1.28

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (148) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
108	1.21	0.38	24	1.53	146	1019

SITE NO. (149) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.87	0.37	0.17	0.25	0.08	0.17	1.26

SITE NO. (150) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.03	0.2	0.33	0.18	0.13	0.37	1.95

SITE NO. (151) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.53	0.18	0.13	0.08	0.04	0.07	0.77

SITE NO. (152) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
3.29	0.38	0.09	0.43	0.05	0.19	0.84

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (163) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
76.7	2.47	1.14	0.77	0.89	1.38	3.92

SITE NO. (164) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
72.2	2.95	1.58	1.14	1.01	1.27	4.22

SITE NO. (165) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
323	5.42	1.77	1.64	1.54	1.04	1.52

SITE NO. (166) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
61.9	1.46	0.51	0.43	0.31	0.71	1.95

SITE NO. (167) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26.6	0.96	0.26	0.18	0.15	0.14	0.42

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (153) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.39	1.16	0.53	0.41	0.58	0.46	0.69

SITE NO. (154) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
29.9	1.26	0.64	0.46	0.47	0.43	0.58

SITE NO. (155) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
78.3	2.44	1.08	0.93	0.63	1.96	10.9

SITE NO. (156) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
59.9	2.62	0.9	1.68	1.04	0.8	2.95

SITE NO. (157) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
87	3.1	1.56	1.1	1.01	1.27	1.16

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (158) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
23.7	0.76	0.34	0.37	0.29	1.2	5.73

SITE NO. (159) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
43.5	1.31	0.91	0.47	0.3	1.33	6.72

SITE NO. (160) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
35.2	1.11	0.49	0.38	0.38	0.86	4.08

SITE NO. (161) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1659	4.92	1.36	1.08	0.99	1.29	4.65

SITE NO. (162) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
85.6	2.29	1.42	1.13	1.12	2.04	9.74

C1 - C4 HYDROCARBON DATA

FIELD: SALT LAKE

SITE NO. (168) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
85	3.16	0.98	1.09	0.88	2.62	12.4

SITE NO. (169) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
39.5	1.21	0.57	0.36	0.4	0.42	0.59

SITE NO. (170) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26.9	1.21	0.05	0.34	0.38	0.2	0.22

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (1)

PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
39	1.57	1.17	0.65	1.06	0.38	0.63

SITE NO. (2)

PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
52.1	1.5	0.7	0.49	0.52	0.51	0.7

SITE NO. (3)

PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
52.7	1.5	0.79	0.42	0.64	0.55	0.65

SITE NO. (4)

PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2612	5.24	2.47	1.64	1.73	1.62	1.71

SITE NO. (5)

PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
175	0.89	0.53	0.31	0.34	0.31	0.47

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (6) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4606	2.53	1.42	0.73	1.14	0.68	1.03

SITE NO. (7) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
951	0.54	0.55	0.25	0.4	0.11	0.39

SITE NO. (8) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
112	3.34	1.78	1.31	1.32	1.04	1.37

SITE NO. (9) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
66.8	1.87	0.9	0.63	1.39	1.65	1.61

SITE NO. (10) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
53	1.73	0.91	0.74	0.8	0.58	0.72

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (11)

			AUGER (5 FT)			
M	E	E:	P	P:	I-B	N-B
8.15	1.02	0.8	0.78	0.63	0.05	0.41
			PROBE (2 FT)			
56.3	1.37	0.74	0.43	0.63	0.5	0.68

SITE NO. (13)

			AUGER (5 FT)			
M	E	E:	P	P:	I-B	N-B
35.8	6.72	3.86	3.06	2.14	0.21	1.12
			PROBE (2 FT)			
1181	3.42	2.86	1.37	1.77	0.63	1.05

SITE NO. (15)

			PROBE (3 FT)			
M	E	E:	P	P:	I-B	N-B
32.9	1	0.54	0.35	0.45	0.39	0.6

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (16) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
593	5.98	3.29	1.8	2.47	1.85	1.82
			AUGER (5 FT)			
38.2	0.07	0.83	0.17	0.29	0.03	0.2

SITE NO. (18) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
83.2	2.09	0.89	0.56	1.14	0.95	0.9

SITE NO. (19) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
48.8	1.31	0.73	0.38	0.66	0.47	0.7

SITE NO. (20) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
48.9	1.29	0.56	0.37	0.45	0.46	0.68

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (21) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
625	2.06	1.48	0.81	1.06	0.58	1.18

SITE NO. (22) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
535	5.88	2.82	3.82	3.58	2.56	4.58

SITE NO. (23) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2730	6.19	2.4	1.56	1.73	1.83	2.04
			PROBE (3 FT)			
5042	15.2	1.92	3.66	1.79	0.86	2.41
			AUGER (5 FT)			
10633	1.85	0.53	0.41	0.17	0.11	0.23

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (26) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
52.3	0.99	0.54	0.37	0.24	0.32	0.71

SITE NO. (27) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6536	3.4	1.44	1.23	1	0.72	1.05

SITE NO. (28) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
37.8	1.72	0.98	0.71	0.79	0.55	0.66

SITE NO. (29) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.4	0.97	0.86	0.53	0.78	0.31	0.53

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (30) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
24.3	0.62	0.51	0.24	0.53	0.27	0.41
			AUGER (5 FT)			
6846	0.61	0.5	0.29	0.34	0.37	0.23

SITE NO. (32) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
68.8	2.97	1.91	1.43	1.64	0.87	1.24

SITE NO. (33) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
35	1.11	0.75	0.47	0.58	0.58	0.68

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (34) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
50.3	1.75	0.93	0.63	0.75	0.57	0.69

PROBE (0 FT)

99.8	2.81	1.25	0.75	0.94	0.96	0.91

SITE NO. (36) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
30.2	1.34	0.43	0.39	0.37	0.38	0.51

SITE NO. (37) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
36.3	1.1	0.54	0.33	0.43	0.41	0.49

SITE NO. (38) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
54.7	1.75	0.84	0.62	0.62	0.59	0.7

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (39) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
64.9	0.11	0.09	0.07	0.09	0.05	0.2

SITE NO. (40) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
6.03	0.11	0.29	0.18	0.1	0.04	0.16

SITE NO. (41) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.09	0.15	0.16	0.07	0.09	0.05	0.11

SITE NO. (42) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5.17	1.83	1.92	0.43	0.58	0.08	0.19

PROBE (0 FT)

2.28	0	0	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (44) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.18	0.19	0.13	0.15	0.11	0.03	0.07

SITE NO. (45) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.03	0	0	0	0.05	0.03	0.2

SITE NO. (46) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.98	0.55	0.57	0.52	0.5	0.1	0.43

SITE NO. (47) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.02	0.03	0.02	0.02	0.01	0.03	0.21

SITE NO. (48) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.08	0.03	0.01	0	0	0.02	0.11

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (49) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.15	0.02	0.03	0.03	1.01	0.03	0.29

SITE NO. (50) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.3	0.01	0.03	0.02	0.21	0.03	0.21

SITE NO. (51) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.62	0.02	0.03	0.01	0	0	0.23

SITE NO. (52) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
60.3	0.05	0.04	0.02	1.43	0.05	0.26

SITE NO. (53) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5920	464	3.53	1.56	0.93	0.4	0.53

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (54) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5820	240	1	1.39	1.42	0.35	1.09

SITE NO. (55) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
14.9	0.75	0.65	0.52	0.23	0.09	0.37

SITE NO. (56) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
544	22.8	1	0.54	0.75	0.2	0.76

SITE NO. (57) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.71	0.4	0.15	0.11	0.13	0.02	0.22

SITE NO. (58) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
162	6.13	0.71	0.46	1.1	0.04	0.5

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (59) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
7617	321	0.79	2.22	0.66	1.55	0.55

SITE NO. (60) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
81.4	2.78	0.16	0.02	0.08	0.03	0.21

SITE NO. (61) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26414	1224	0.3	7.53	1.19	10	1.51

SITE NO. (62) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4719	239	0.6	2.22	0.37	1.56	0.33

SITE NO. (63) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5561	227	0.63	1.89	0.34	1.29	0.63

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (64) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5057	237	1.99	2.46	1.31	1.56	0.82

SITE NO. (65) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
591	16.4	0.62	0.6	0.36	0.31	0.61

SITE NO. (66) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
122	6.18	0.81	1.12	1.19	0.17	1.02

SITE NO. (67) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
162	6.74	0.3	0.33	0.38	0.09	0.43

SITE NO. (68) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
41043	396	0	0	0.83	0.15	0.25

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (69) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
5336	42.2	0.56	0.39	1.28	0.12	0.71

SITE NO. (70) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
52.9	1.21	0.37	0.17	0.1	0.06	0.3

SITE NO. (71) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
259	5.99	0.77	0.49	0.37	0.02	0.03

SITE NO. (72) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.71	0.28	0.04	0.02	0.04	0.03	0.24

SITE NO. (73) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
22.7	0.94	0.5	0.51	0.71	0	0.07

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (74) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
11	0.16	0.25	0.15	0.27	0.02	0.15

SITE NO. (75) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17.7	0.52	0.34	0.11	0.26	0.04	0.22

SITE NO. (76) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.53	0.08	0.14	0.07	0.2	0	0.22

SITE NO. (77) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
426	1.67	0.86	0.46	2.59	0.14	0.58

SITE NO. (78) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.21	0.16	0.08	0.06	0.15	0.03	0.13

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (79) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
269	2.14	1.31	0.75	1.09	0.06	0.3

SITE NO. (80) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.78	0.34	0.38	0.15	0.21	0.03	0.18

SITE NO. (81) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
53.8	1.98	1.07	0.57	0.55	0.17	0.27

SITE NO. (82) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
7.21	0.89	1.36	0.6	0.85	0.08	0.41

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (83) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.13	0.03	0.02	0.01	0.29	0.02	0.12

PROBE (0 FT)

1.51	0	0	0	0	0	0

SITE NO. (85) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
10.6	0.56	0.97	0.26	0.59	0.04	0.27

SITE NO. (86) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.76	0.13	0.19	0.07	0.1	0.02	0.11

SITE NO. (87) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.51	0.26	0.24	0.13	0.08	0.04	0.25

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (93) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
9.13	0.27	0.29	0.11	0.04	0.01	0.05

SITE NO. (94) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
24.1	0.34	0.4	0.24	0.28	0.07	0.19

SITE NO. (95) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
603	27.3	0.51	0.02	0.01	0	0.03

SITE NO. (96) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
40290	2089	0	5.34	0	4	0.75

SITE NO. (97) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1244	68.2	0	0.33	0.2	0.18	0.18

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (98) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
237	12.2	0	0.21	0.22	0.04	0.19

SITE NO. (99) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
31.5	1.63	0.3	0.19	0.06	0.02	0.05

SITE NO. (100) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
26.9	1.62	0.4	0.28	0.25	0	0

SITE NO. (101) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.73	0.72	0.27	0.1	0.36	0	0

SITE NO. (102) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.32	0.42	0.04	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (103) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
15.6	0.42	0.26	0.17	0.13	0	0.06

SITE NO. (104) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
61.1	0.74	0.38	0.26	0.25	0.05	0.18

SITE NO. (105) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4.44	0.06	0	0	0	0	0

SITE NO. (106) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
0.53	0.03	0	0.02	0.02	0	0.03

SITE NO. (107) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
12.2	0.83	0.69	0.32	0.5	0.05	0.18

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (108) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.86	0.09	0.1	0.08	0.16	0.05	0.12

SITE NO. (109) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
66625	12.7	0	0	0	0	0

SITE NO. (110) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
30126	5.03	0.41	0.19	0.18	0.03	0.12

SITE NO. (111) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
56.5	0.87	0.61	0.52	0.26	0	0.09

SITE NO. (112) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
808	0.15	0.12	0.04	0.22	0.02	0.09

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (113) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
475	0.16	0.05	0.03	0	0	0

SITE NO. (114) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
26.2	0.03	0.03	0.02	0.15	0.01	0.07

SITE NO. (115) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
47.3	0.07	0.07	0.02	0.17	0.12	0.14

SITE NO. (116) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
65.4	0.24	0.23	0.11	0.05	0	0
			AUGER (5 FT)			
2.18	0.06	0.17	0.05	0.11	0	0.06

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (118) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
214	0.39	0.22	0.08	0.17	0	0.11
			AUGER (5 FT)			
23	4.08	2.01	2.08	2.22	0.15	0.57

SITE NO. (120) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.6	0.69	0.51	0.16	0.27	0.02	0.07

SITE NO. (121) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
8.78	0.4	0.59	0.26	0.55	0.06	0.25

SITE NO. (122) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
4.43	0.15	0.13	0.11	0.08	0	0.06

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (123) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
32.5	0.23	0.23	0.11	0.14	0.04	0.09

SITE NO. (124) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.4	0.02	0.01	0	0.16	0	0
			PROBE (0.5 FT)			
164540	68	0	3.65	0.2	0.37	0

SITE NO. (126) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
10197	2.45	0	0.13	0.2	0.04	0.13

SITE NO. (127) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
4534	2.71	0.42	0.13	0.32	0.03	0.14

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (128) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.64	0.09	0.11	0.06	0.03	0	0.04

SITE NO. (129) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
389	0.39	0.15	0.2	0.08	0.09	0.11

SITE NO. (130) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.59	0	0	0	0	0	0

SITE NO. (131) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
7.91	0.08	0.05	0.03	0.1	0.01	0.06

SITE NO. (132) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
4.58	0.1	0.05	0.07	0.09	0.03	0.11

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (133) PROBE (5 FT)

M	E	E:	P	P:	I-B	N-B
4.92	0	0	0	0.01	0	0.03

SITE NO. (134) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
3.89	0.06	0.09	0.04	0.03	0.02	0.06

SITE NO. (135) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
98.8	1.38	1.14	0.22	0.29	0.05	0.13

SITE NO. (136) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
58.4	0.27	0.33	0.13	0.21	0.03	0.1

SITE NO. (137) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
20.6	0.01	0.01	0.02	0.03	0.01	0.03

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (138) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
158	0.15	0.11	0.1	0.12	0.02	0.07

SITE NO. (139) PROBE (0 FT)

M	E	E:	P	P:	I-B	N-B
3.48	0	0	0	0	0	0

SITE NO. (140) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
26.6	1.41	3.31	1.93	0.83	0.03	0.1

SITE NO. (141) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
8.28	0.02	0.02	0	0	0	0

SITE NO. (142) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.13	0.06	0.05	0	0	0	0

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (143) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
6.13	0.16	0.18	0.07	0.09	0.03	0.11

SITE NO. (144) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
93.9	0.59	1.72	0.51	0.65	0.1	0.35

SITE NO. (145) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
154	1.91	1.61	0.91	1.03	0.07	0.31

SITE NO. (146) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
27.7	0.8	0.83	0.41	0.47	0.1	0.39

SITE NO. (147) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
9.21	0.12	0.55	0.13	0.09	0.02	0.05

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (148) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
73.3	1.06	1.44	0.92	1.91	0.41	1.01

SITE NO. (149) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
38.5	1.35	2.51	0.66	0.84	0.05	0.13

SITE NO. (150) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
13.1	0.22	0.45	0.12	0.24	0.07	0.29

SITE NO. (151) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.5	0.05	0.07	0.02	0.06	0	0.05

SITE NO. (152) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
41.2	1.26	1.68	0.49	1.11	0.03	0.14

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (153) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
11.5	0.41	0.57	0.17	0.35	0.06	0.28

SITE NO. (154) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
17	0.42	0.59	0.18	0.41	0.01	0.07

SITE NO. (155) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
2.58	0.08	0.08	0.02	0.04	0.01	0.02

SITE NO. (156) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
0.87	0.07	0.08	0.06	0.1	0	0.05

SITE NO. (157) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
46.6	0.63	0.85	0.27	0.57	0.03	0.1

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (158) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
1.41	0.06	0.09	0.03	0.06	0.03	0.04

SITE NO. (159) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
28.5	1.15	1.47	0.46	1.05	0.04	0.13

SITE NO. (160) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.78	0.07	0.08	0.06	0.05	0.01	0.03

SITE NO. (161) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.33	0.06	0.06	0.04	0.03	0	0.03

SITE NO. (162) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
7.3	0.11	0.11	0.06	0.07	0	0.01

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (163) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.26	0.15	0.19	0.11	0.27	0.05	0.29

SITE NO. (164) PROBE (0.5 FT)

M	E	E:	P	P:	I-B	N-B
1.82	0.01	0.03	0.02	0.02	0.03	0.12

SITE NO. (165) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.64	0.01	0.02	0	0	0	0.03

SITE NO. (166) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
4.9	0.2	0.3	0.16	0.21	0.05	0.35

SITE NO. (167) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
6.22	0.29	0.45	0.19	0.24	0.13	0.19

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (168) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.86	0.2	0.25	0.07	0.16	0	0.22

SITE NO. (169) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
5.42	0.72	0.17	0.27	0.43	0.05	0.24

SITE NO. (170) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
3.75	0.22	0.3	0.1	0.21	0.02	0.15

SITE NO. (171) PROBE (1 FT)

M	E	E:	P	P:	I-B	N-B
4.42	0.22	0.09	0.12	0.02	0.05	0.23

SITE NO. (172) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.17	0.12	0.13	0.02	0.18	0.01	0.14

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (173) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.39	0.12	0.16	0.04	0.03	0.02	0.14

SITE NO. (174) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
2.01	0.11	0.13	0.03	0.07	0	0.17

SITE NO. (175) PROBE (1.5 FT)

M	E	E:	P	P:	I-B	N-B
476	0.24	0.21	0.26	0.01	0.6	0.37

SITE NO. (176) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
11.3	0.42	0.35	0.18	0.15	0.03	0.12

SITE NO. (177) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
3.65	0.12	0.16	0.19	0.12	0.02	0.14

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (178) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.86	0.15	0.15	0.07	0.28	0.01	0.07

SITE NO. (179) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
10.9	0.3	0.35	0.2	0.27	0.03	0.24

SITE NO. (180) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
2.27	0.23	0.24	0.18	0.24	0.28	0.63

SITE NO. (181) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
6.8	0.31	0.39	0.14	0.23	0.02	0.11

SITE NO. (182) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1.45	0.08	0.07	0.11	0.07	0.02	0.08

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (183) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.79	0.12	0.11	0.13	0.11	0.03	0.13

SITE NO. (184) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
1.62	0.13	0.17	0.07	0	0	0

SITE NO. (185) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.07	0.55	0.38	0.28	0.15	0.08	0.4

SITE NO. (186) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
1370	58	0.64	0.3	0.29	0.12	0.41

SITE NO. (187) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
42.2	2.26	0.55	0.27	0.31	0.06	0.27

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (188) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
26.3	1.77	0.97	0.37	0.24	0.05	0.19

SITE NO. (189) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.48	0.17	0.02	0.16	0.03	0.07	0.29

SITE NO. (190) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
3.22	0.28	0.22	0.08	0.15	0.04	0.07

SITE NO. (191) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.34	0.76	0.51	0.32	0.28	0.07	0.25

SITE NO. (192) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.15	0.3	0.24	0.13	0.08	0.04	0.21

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (193) PROBE (3.5 FT)

M	E	E:	P	P:	I-B	N-B
1.05	0.11	0.03	0.05	0.04	0.06	0.24

SITE NO. (194) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
2.42	0.28	0.22	0.08	0.19	0.03	0.07

SITE NO. (196) PROBE (2.5 FT)

M	E	E:	P	P:	I-B	N-B
4.2	0.33	0.22	0.12	0.1	0.01	0.1

SITE NO. (197) PROBE (2 FT)

M	E	E:	P	P:	I-B	N-B
6.15	0.56	0.56	0.27	0.35	0.03	0.14

SITE NO. (198) PROBE (3 FT)

M	E	E:	P	P:	I-B	N-B
5.75	0.32	0.39	0.16	0.1	0.04	0.19

C1 - C4 HYDROCARBON DATA

FIELD: HUNTINGTON BEACH

SITE NO. (199) PROBE (0.5 FT)

M	E	E:	P	P:	I-B	N-B
247680	9.9	0	4.1	0	3.5	10.9

SAMPLING SITE MAPS

SUMMERLAND FIELD

5	6
9	10

SHEET INDEX

TOPOGRAPHIC MAP
OF
MONTECITO & SUMMERLAND AREA

SANTA BARBARA, CALIFORNIA

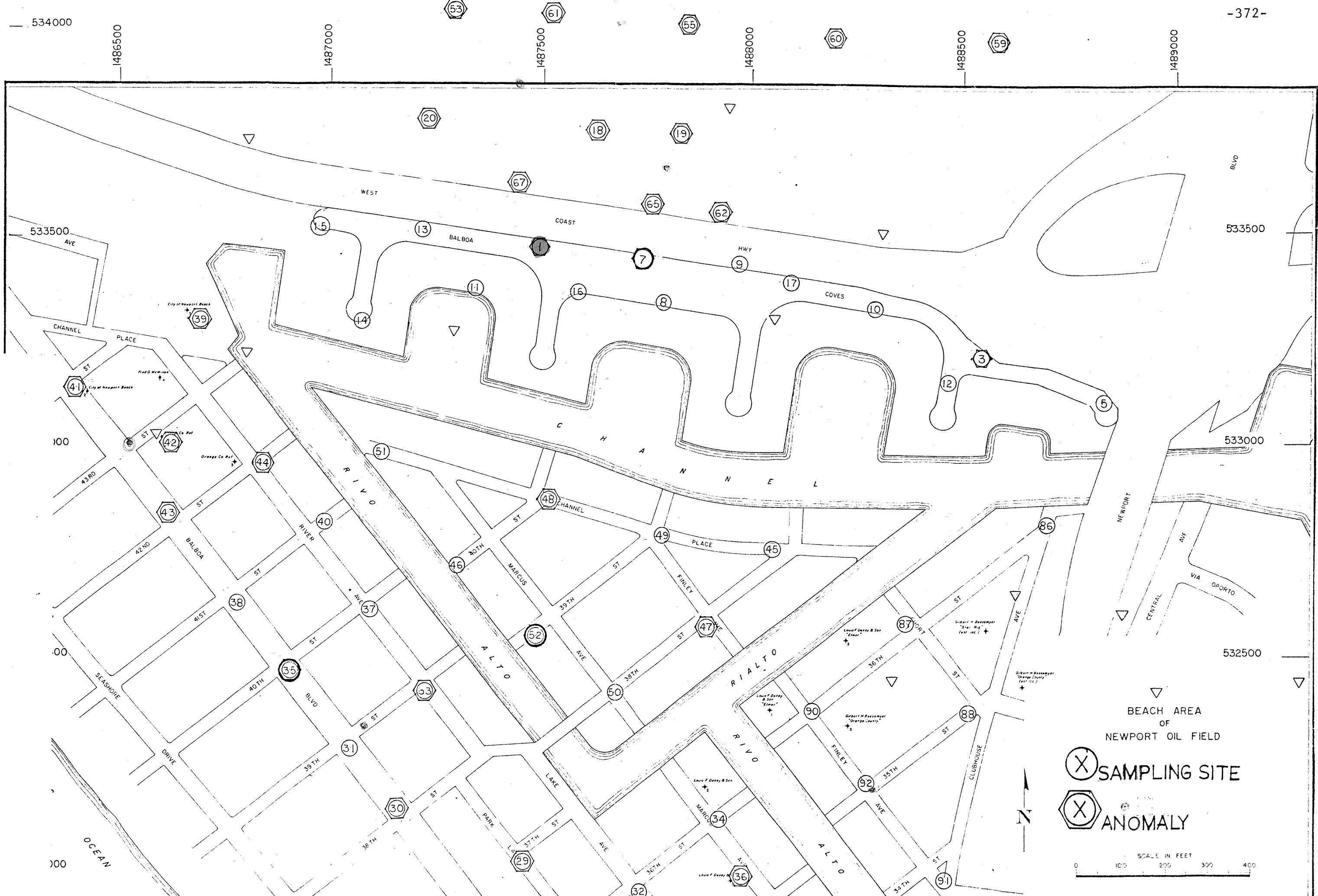
MAP PREPARED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED MARCH 17, 1960
1000' GRID IS BASED ON THE CALIFORNIA STATE COORDINATE SYSTEM, ZONE 5
ALL HORIZONTAL CONTROL STATIONS SHOWN HEREON WERE ESTABLISHED BY THE CALIFORNIA DIVISION OF HIGHWAYS AS SHOWN ON MAPS V-5B-2-J.
VERTICAL DATUM IS MEAN SEA LEVEL.

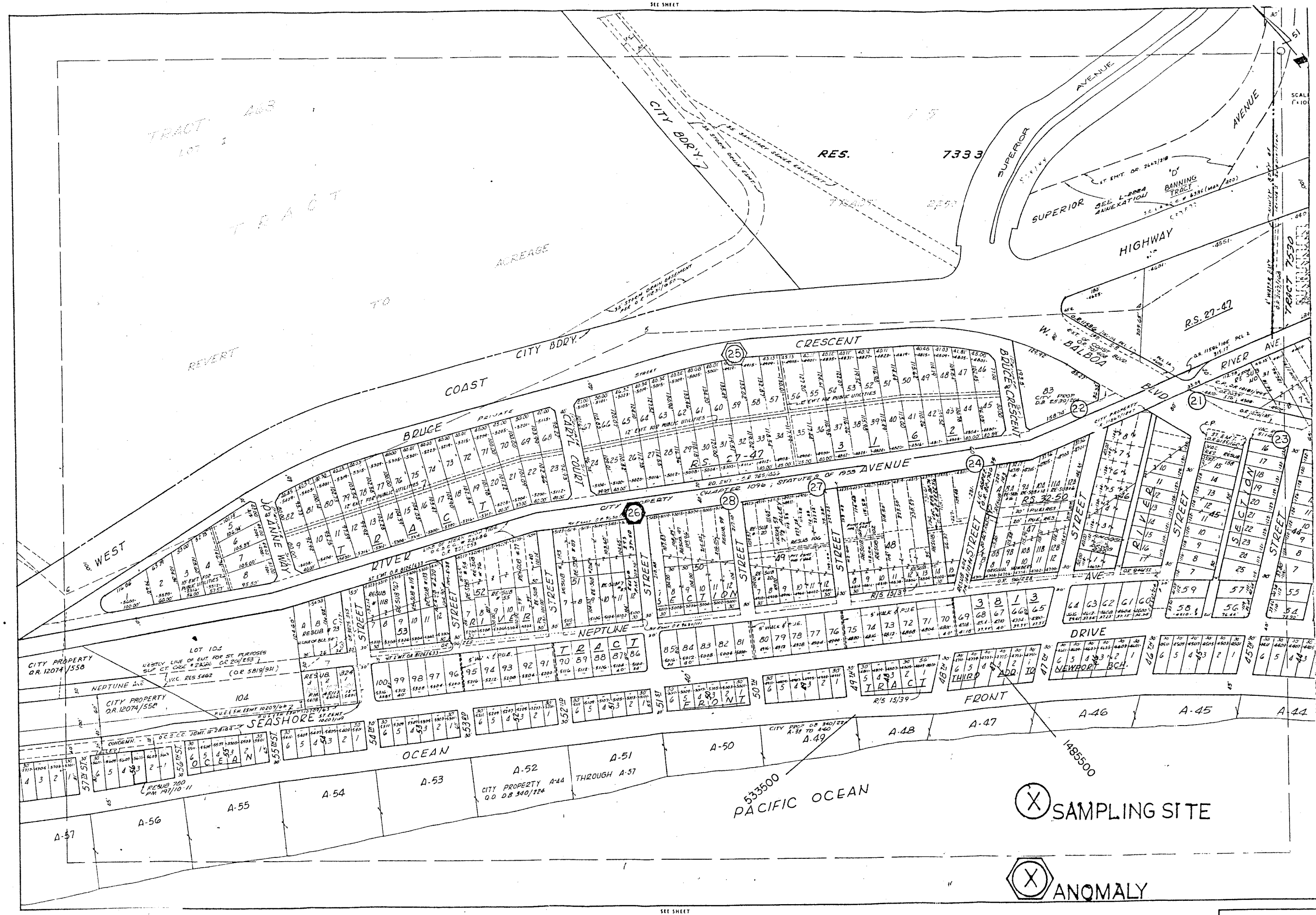
N

0 200 400 600

SCALE = 1:2400
CONTOUR INTERVAL = 5 FEET

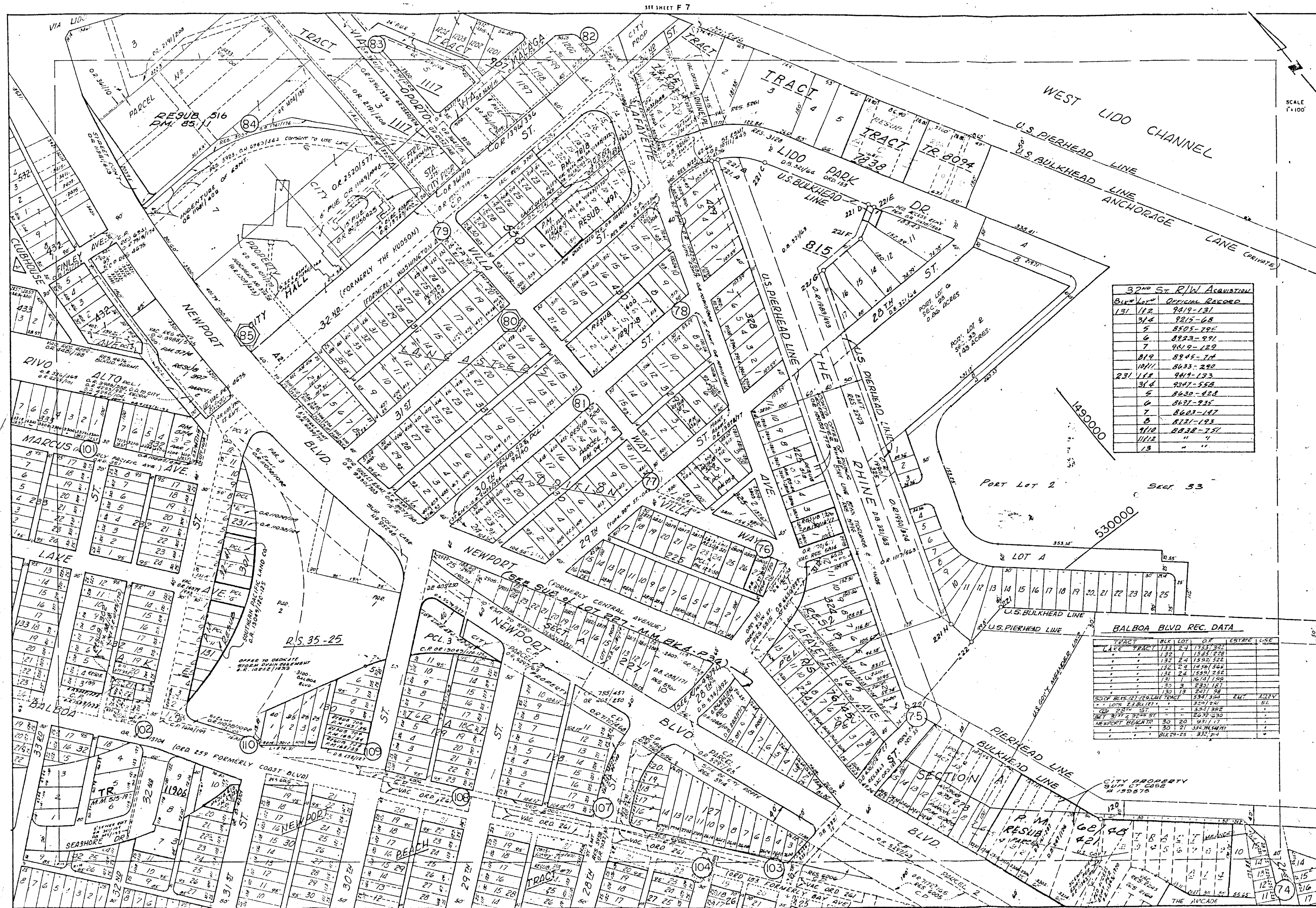
NEWPORT BEACH FIELD


534000
1486500
1487000
1487500
1488000
1488500
1489000
533500
533000
532500
WEST
COAST
HWY
BALBOA
COVES
CHANNEL
PLACE
RIVO
ALTO
RIALTO
OCEAN
NEWPORT
CENTRAL
VIA OPORTO
CLUBHOUSE
BEACH AREA
OF
NEWPORT OIL FIELD
SAMPLING SITE
ANOMALY
N
SCALE IN FEET
0
100
200
300
400



CITY OF NEWPORT BEACH
PUBLIC WORKS DEPARTMENT

E 5



32ND ST R/W ACQUISITION		
BLK#	LOT#	OFFICIAL RECORD
131	1&2	9419-131
	3/4	9215-68
	5	8505-795
	6	8923-991
	7	9419-129
	8/9	8945-714
	10/11	8633-290
231	1&2	9419-133
	3/4	9347-558
	5	8630-428
	6	8697-935
	7	8603-147
	8	8721-193
	9/10	8838-751
	11/12	" "
	13	" "

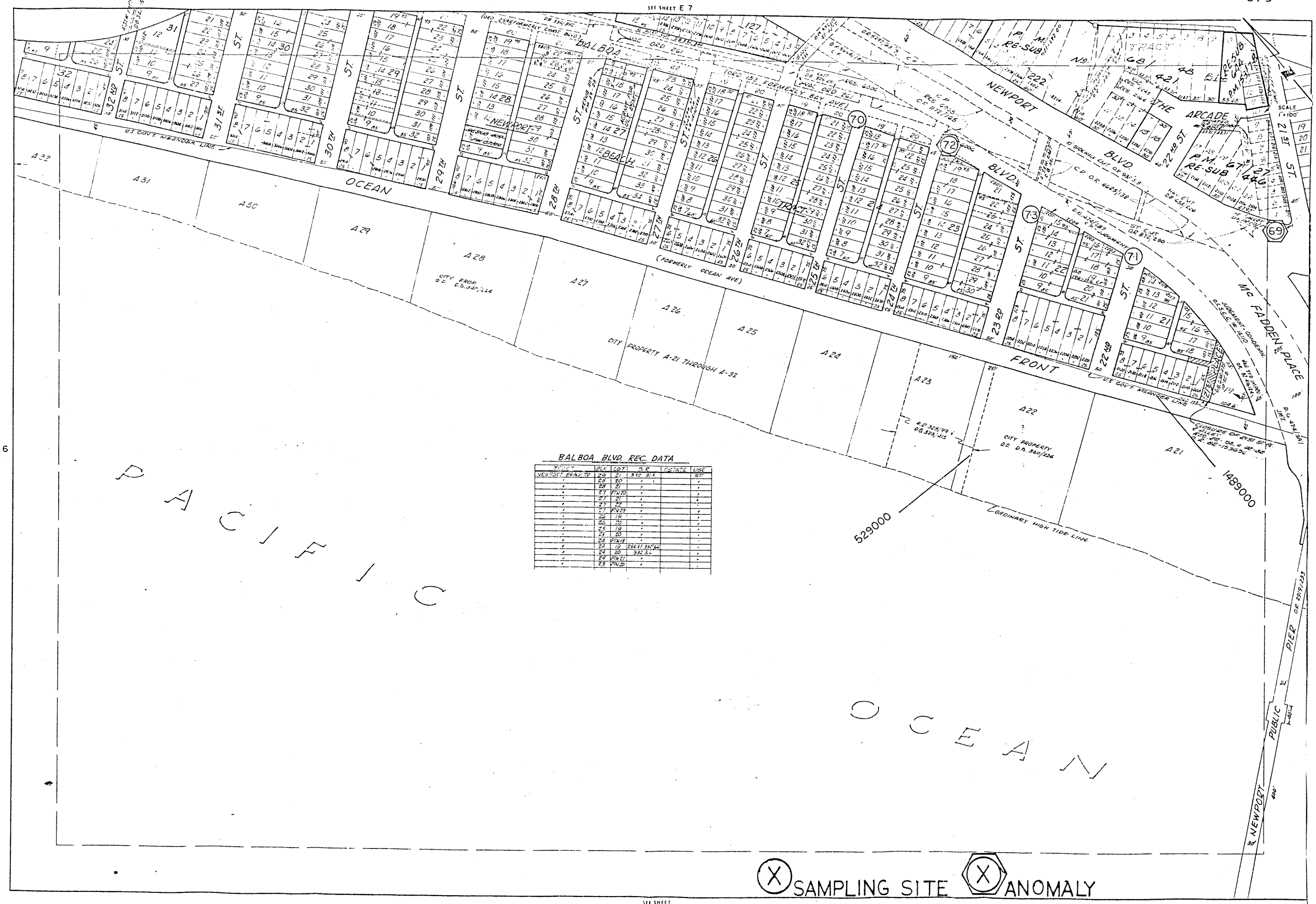
BALBOA BLVD REC. DATA

TRACT	BLK	LOT	O.R.	ESTATE	USE
LAKE TRACT	133	24	1753/342		
" "	132	1	1585/228		
" "	132	24	1592/522		
" "	132	24	1456/566		
" "	132	24	1559/252		
" "	131	1	1614/199		
" "	130	3	233/167		
" "	130	13	247/98		
SO OF BLKS. 127-129, LAKE TRACT			534/394	EMT	ALLEY
" " LOTS 2,3, BLK 127 "	"		329/241		ST.
@ 28TH ST.	-	-	534/392		"
BET 31ST & 32ND ST.	-	-	2632/630		"
NEWPORT BEACH TR.	30	20	931/17		"
" " "	30	21	534/394, 548/157		"
" " "	BLK 29-25		332/314		"

CITY OF NEWPORT BEACH
PUBLIC WORKS DEPARTMENT

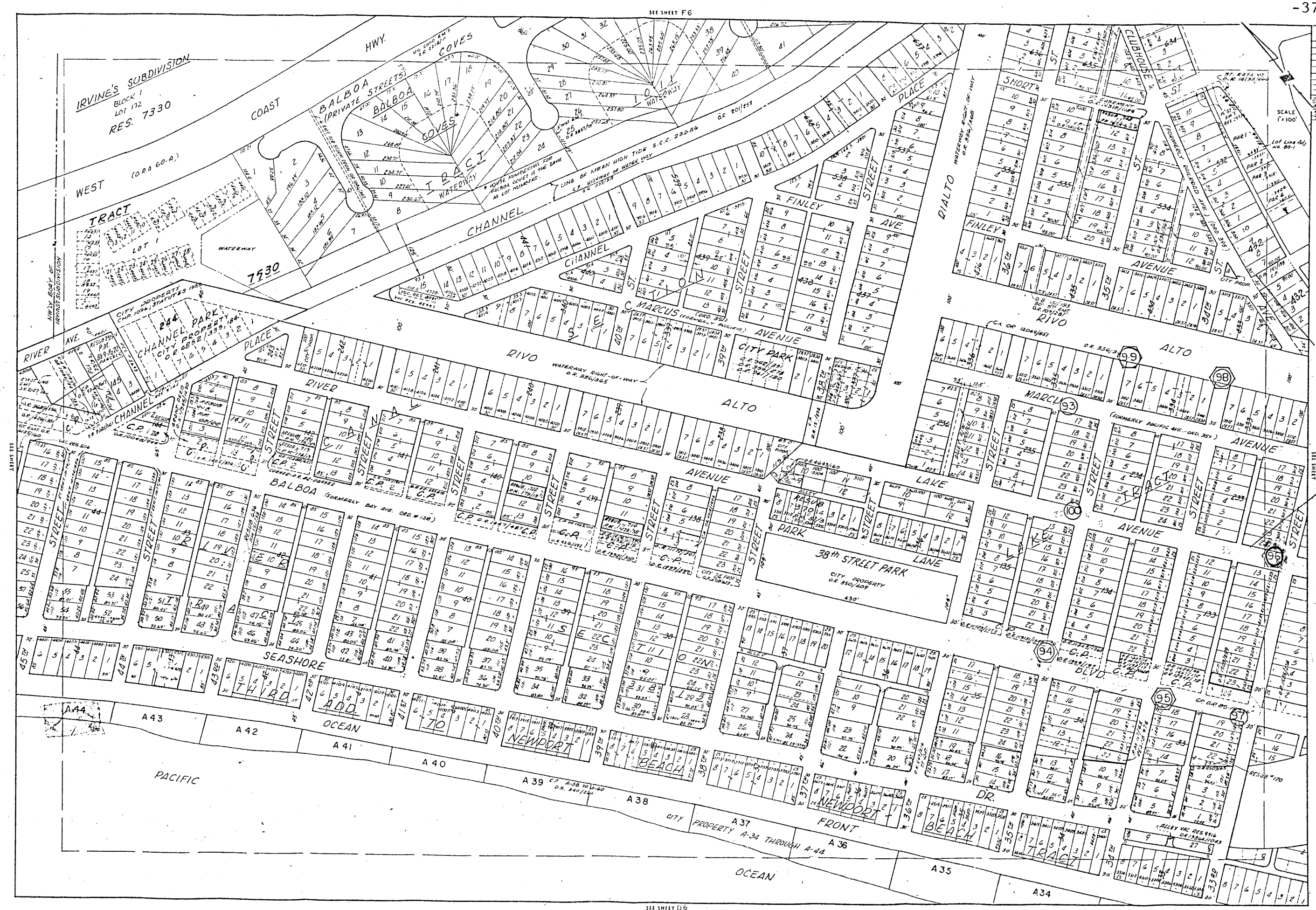
(X) SAMPLING SITE (X) ANOMALY

E 7

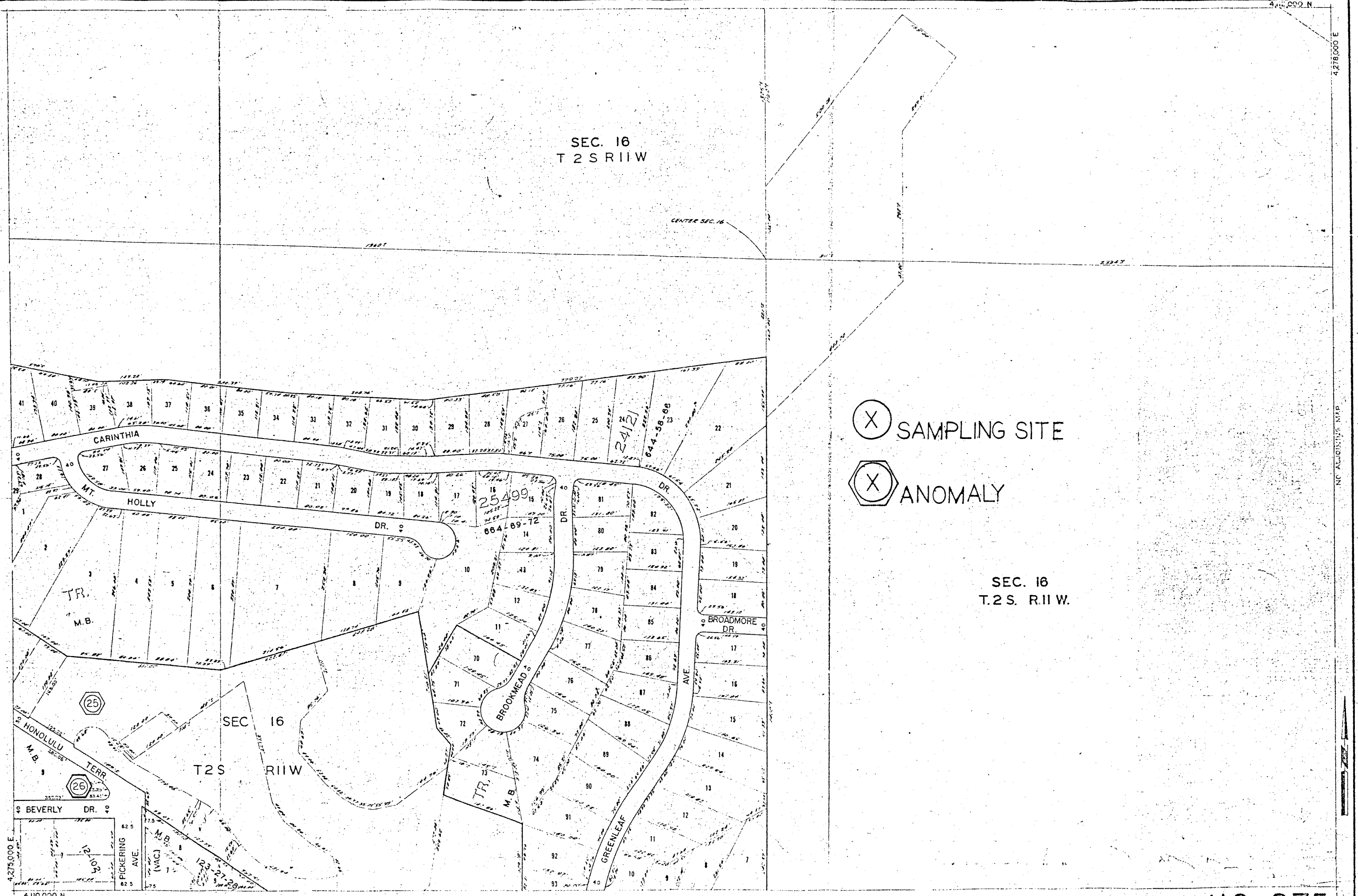


CITY OF NEWPORT BEACH
PUBLIC WORKS DEPARTMENT

D 7


SEE SHEET F6
SEE SHEET D6
SEE SHEET E5
SEE SHEET E7
IRVINE'S SUBDIVISION
BLOCK 1
LOT 172
RES. 7330
COAST HWY.
WEST TRACT
(O.R.A 60-A)
LOT 1
WATERWAY
7330
BALBOA COVES
(PRIVATE STREETS)
BALBOA COVES
WATERWAY
* HOUSE NUMBERING FOR BALBOA COVES IS THE SAME AS LOT NUMBERS.
LINE OF MEAN HIGH TIDE S.C.C. 2356
C.L. HIGHWAY OR WATER WAY
CHANNEL
CITY PROPERTY CHP. 1004, STATUTES 1955
CHANNEL PARK
CITY PROPERTY
O.R. 6852/339
RIVER AVE.
RIVER STREET
CHANNEL STREET
C.P. 1
C.P. 2
C.P. 3
C.P. 4
C.P. 5
C.P. 6
C.P. 7
C.P. 8
C.P. 9
C.P. 10
C.P. 11
C.P. 12
C.P. 13
C.P. 14
C.P. 15
C.P. 16
C.P. 17
C.P. 18
C.P. 19
C.P. 20
C.P.

RIDEOUT HEIGHTS AREA OF THE WHITTIER OIL FIELD



JULY 1964
CALIFORNIA STATE COORDINATE SYSTEM - ZONE VII
PREPARED BY CREST ENGINEERING COMPANY INC.

CITY OF WHITTIER

VERGIL C. HAIGHT - CITY ENGINEER

110-275

SCALE: 1 INCH = 100 FEET

JULY 1964
CALIFORNIA STATE COORDINATE SYSTEM - ZONE VII

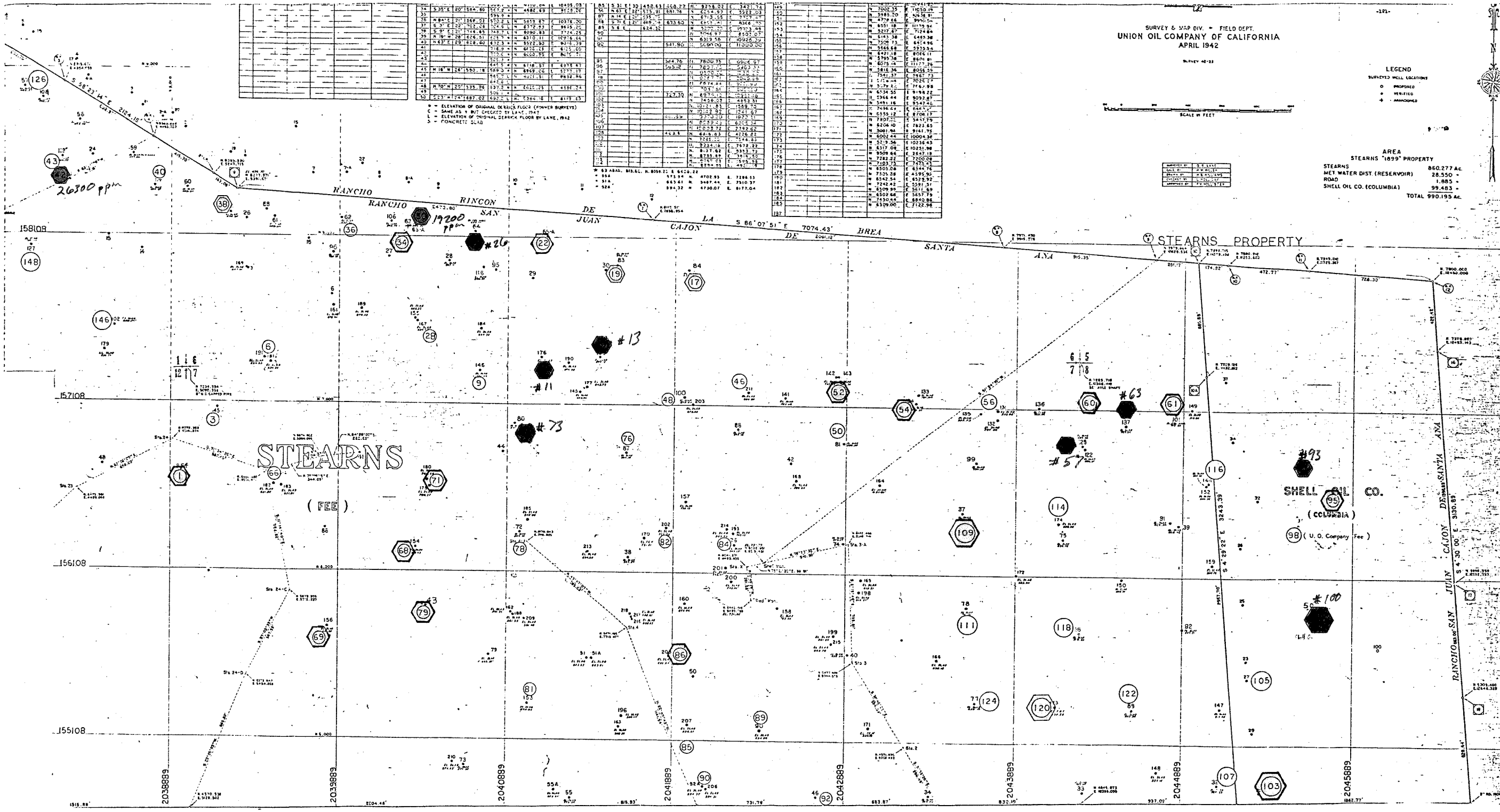
CITY OF WHITTIER (X) SAMPLING SITE (X) ANOMALY

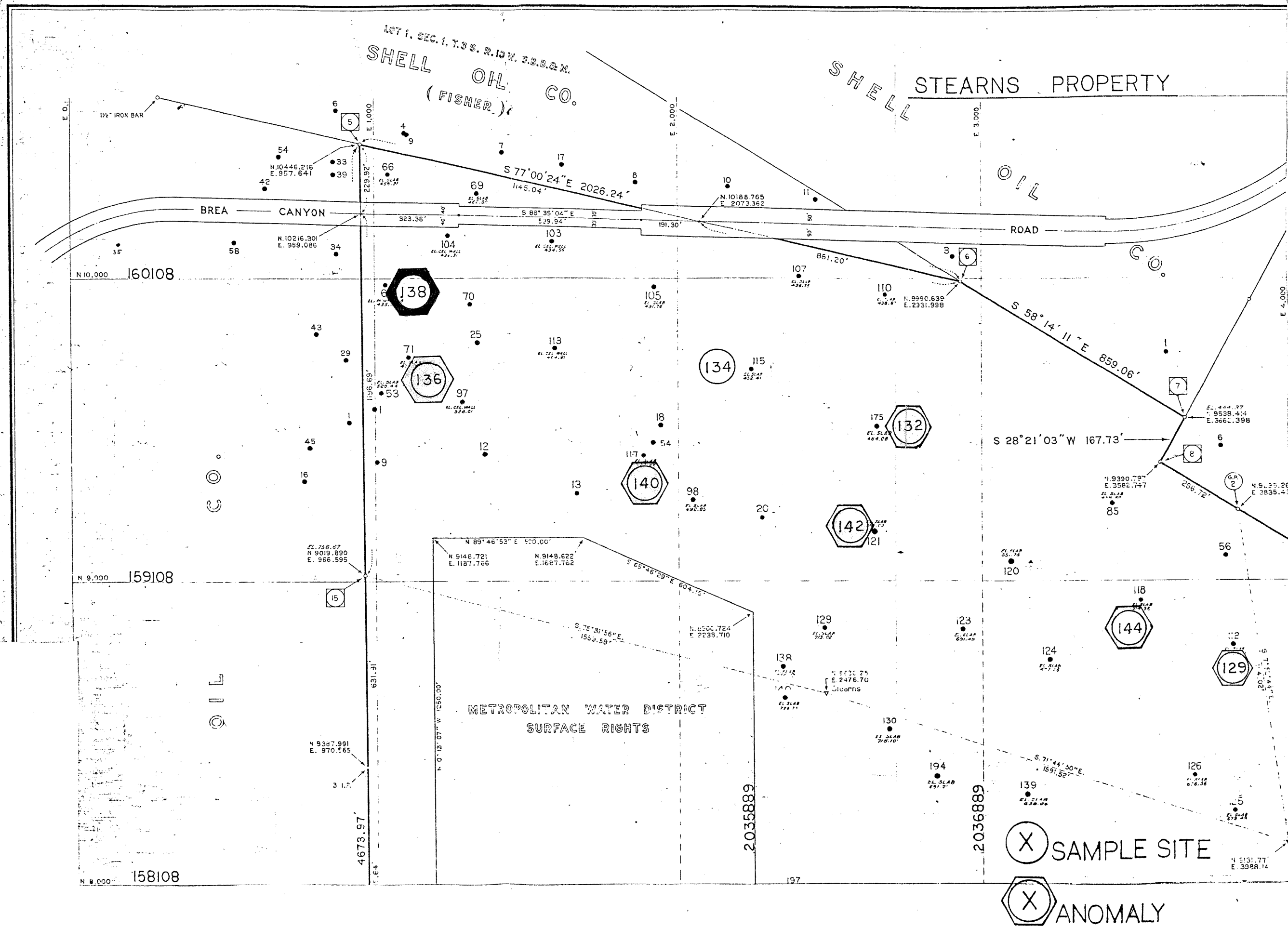
VERGIL C. HAIGHT - CITY ENGINEER

110 - 272

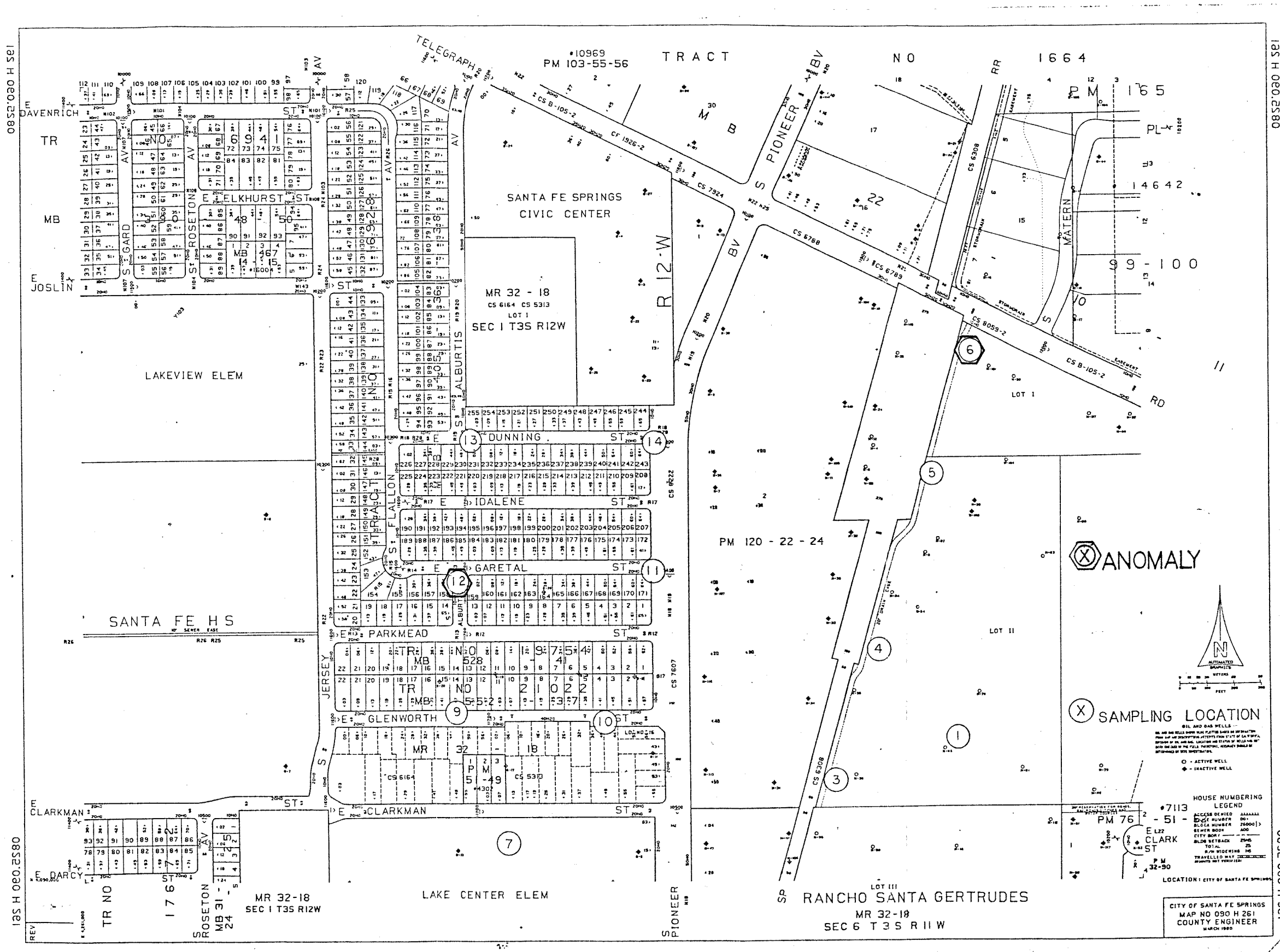
SCALE: 1 INCH = 100 FEET

Brea-Olinda Oil Field

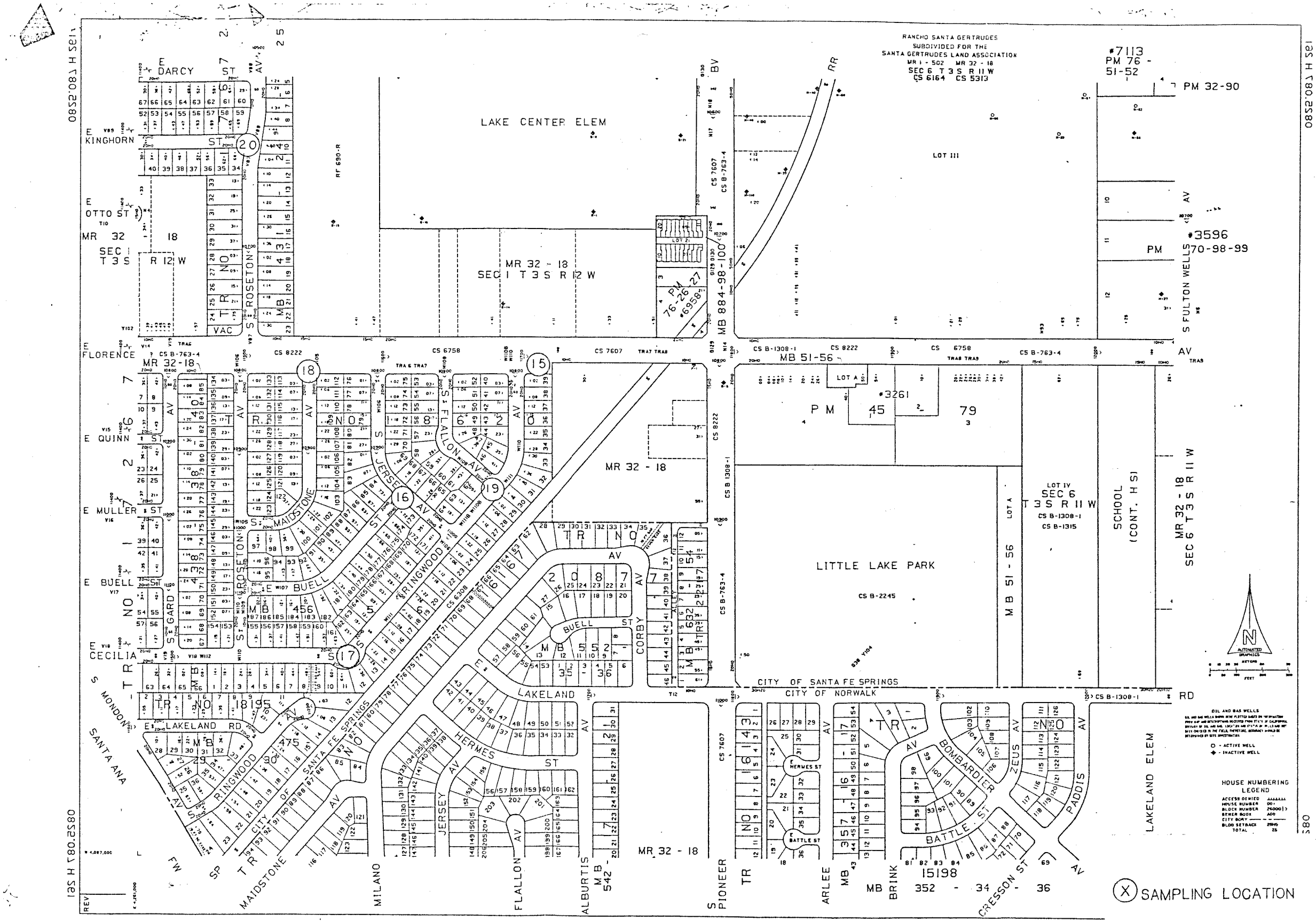

SURVEY & MAP DIV. - FIELD DEPT.
UNION OIL COMPANY OF CALIFORNIA
APRIL 1942
LEGEND
SURVEYED WELL LOCATIONS
PROPOSED
VERIFIED
ABANDONED
SCALE IN FEET
AREA
STEARNS "1899" PROPERTY
STEARNS 860.277 Ac.
MET. WATER DIST. (RESERVOIR) 28.550 "
ROAD 1.885 "
SHELL OIL CO. (COLUMBIA) 99.483 "
TOTAL 990.195 Ac.
RANCHO SAN JUAN DE LA CAÑON DE SANTA ANA
RANCHO RINCON DE BREA
S 58°23'14" E 2124.10'
S 86°07'51" E 7074.43'
26300 ppm
19200 ppm
#26
#13
#11
#73
#63
#57
#93
#100
STEARNS PROPERTY
STEARNS
(FEE)
SHELL OIL CO.
(COLUMBIA)
(U.O. Company Fee)
158108
157108
156108
155108
2038889
2039889
2040889
2041889
2042889
2043889
2044889
2045889
SAMPLING SITE
ANOMALY

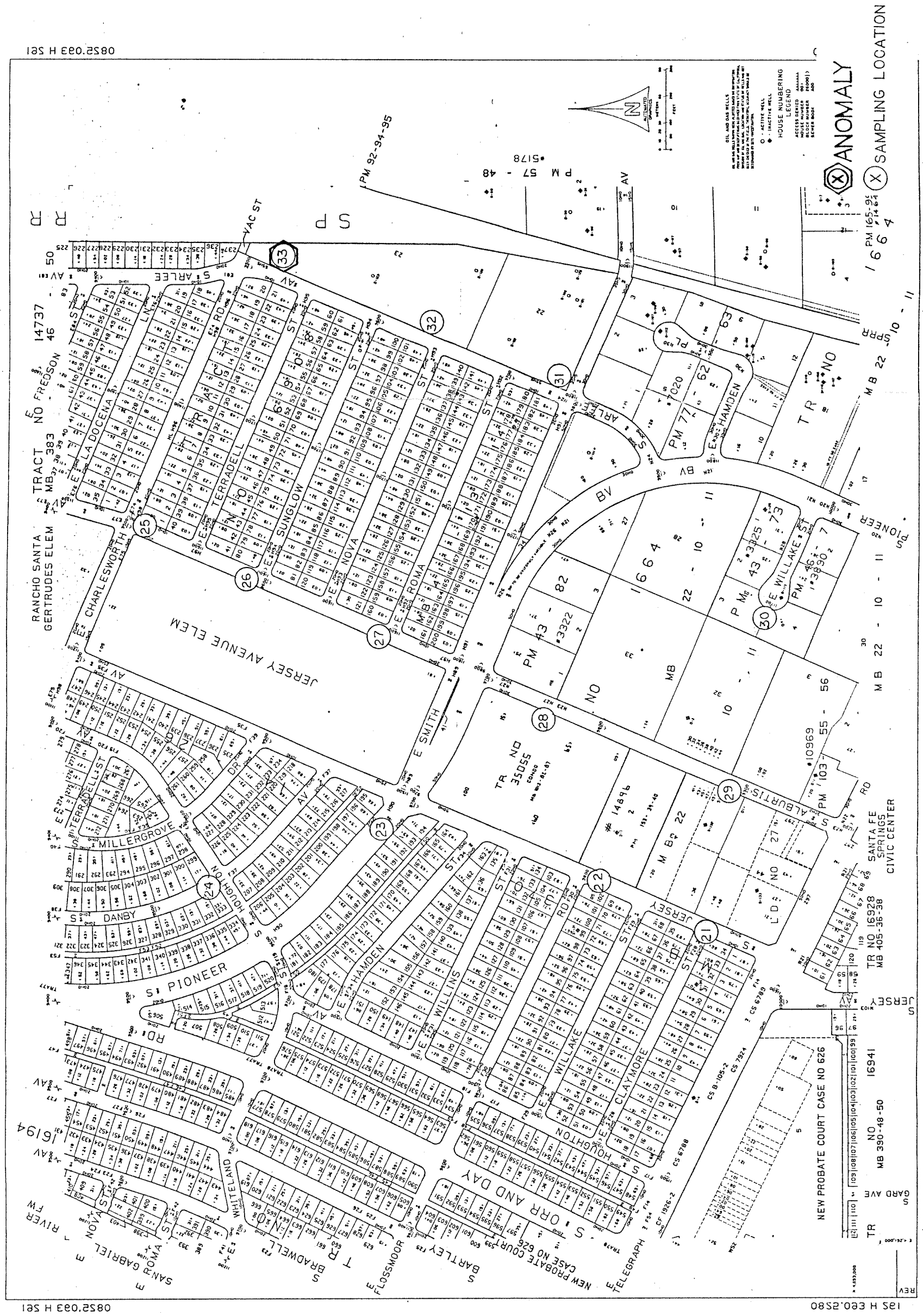

STEARNS PROPERTY
SHELL OIL CO.
(FISHER)
SHELL OIL CO.
BREA CANYON ROAD
S 77°00'24"E 2026.24'
S 58°14'11"E 859.06'
S 28°21'03"W 167.73'
N 10,000
160108
159108
158108
N 9,000
N 8,000
METROPOLITAN WATER DISTRICT
SURFACE RIGHTS
2035889
2036889
4673.97'
SAMPLE SITE
ANOMALY

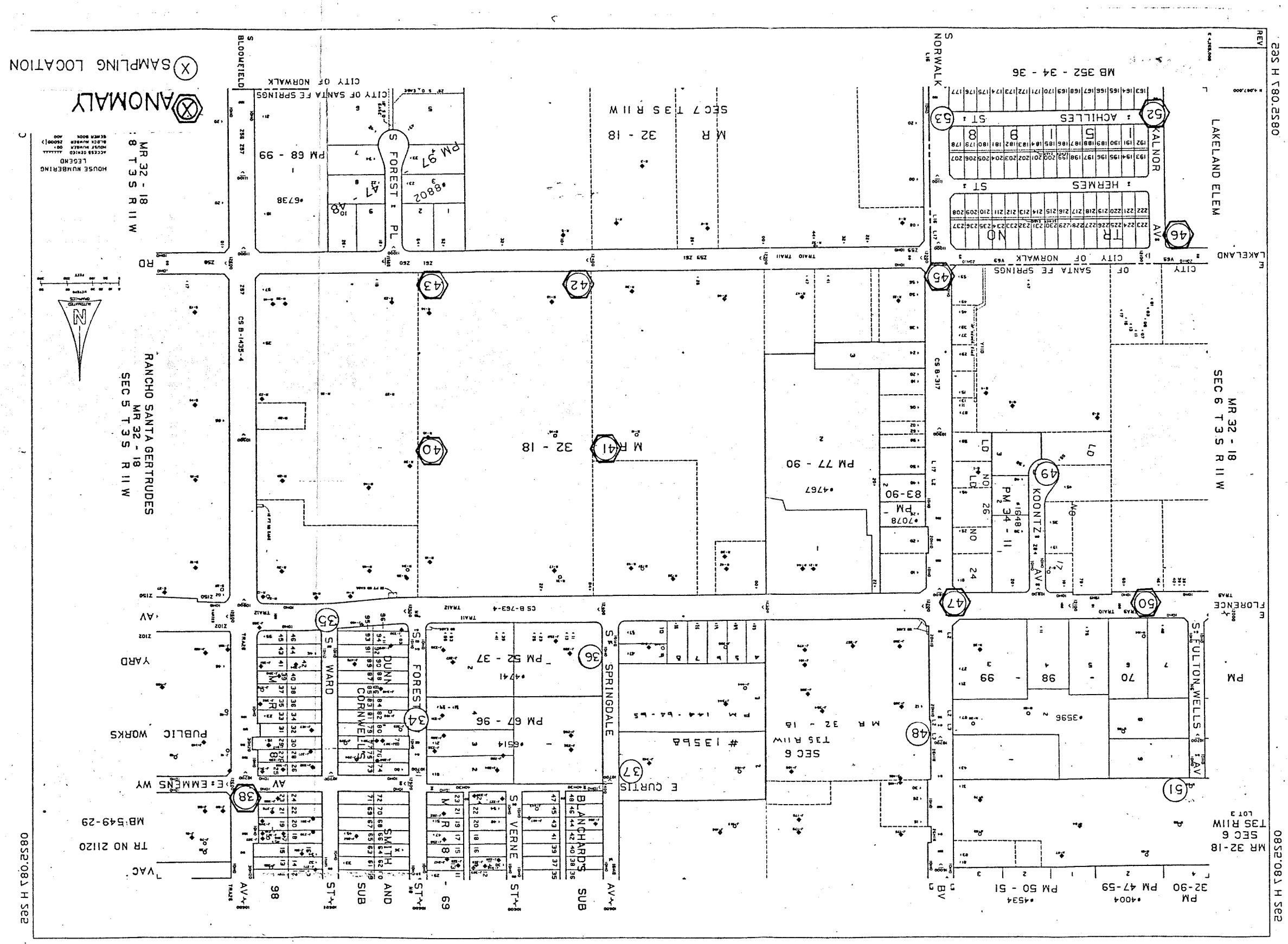
SANTA FE SPRINGS OIL FIELD



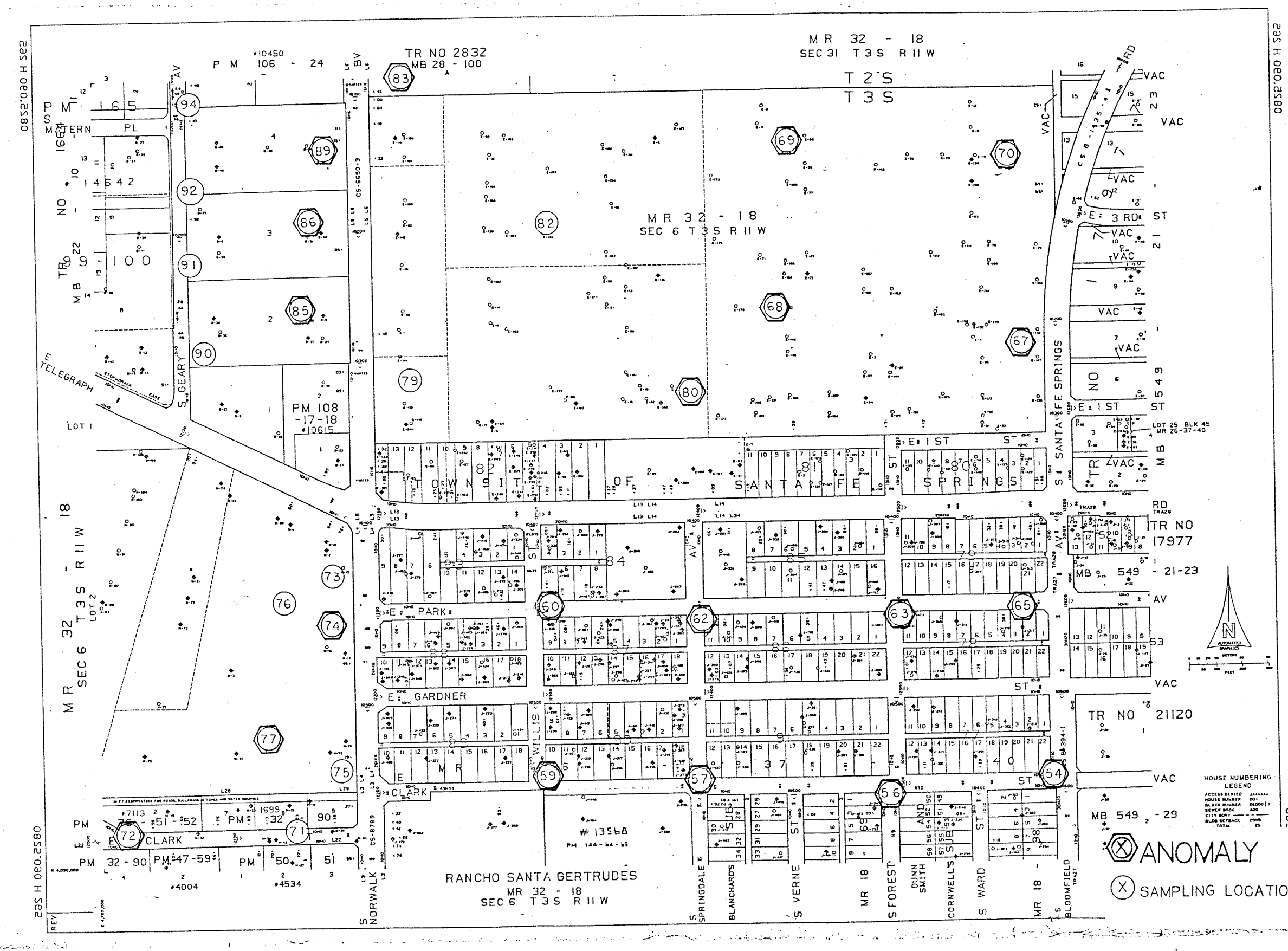
TELEGRAPH
TRACT NO 1664
PM 165
PM 103-55-56
SANTA FE SPRINGS CIVIC CENTER
MR 32 - 18
CS 6164 CS 5313
LOT 1
SEC 1 T3S R12W
R 12 W
LAKEVIEW ELEM
SANTA FE H S
LAKE CENTER ELEM
PM 120 - 22 - 24
ANOMALY
SAMPLING LOCATION
HOUSE NUMBERING LEGEND
LOCATION: CITY OF SANTA FE SPRINGS
RANCHO SANTA GERTRUDES
MR 32-18
SEC 6 T 3 S R 11 W
CITY OF SANTA FE SPRINGS
MAP NO 090 H 261
COUNTY ENGINEER
MARCH 1980

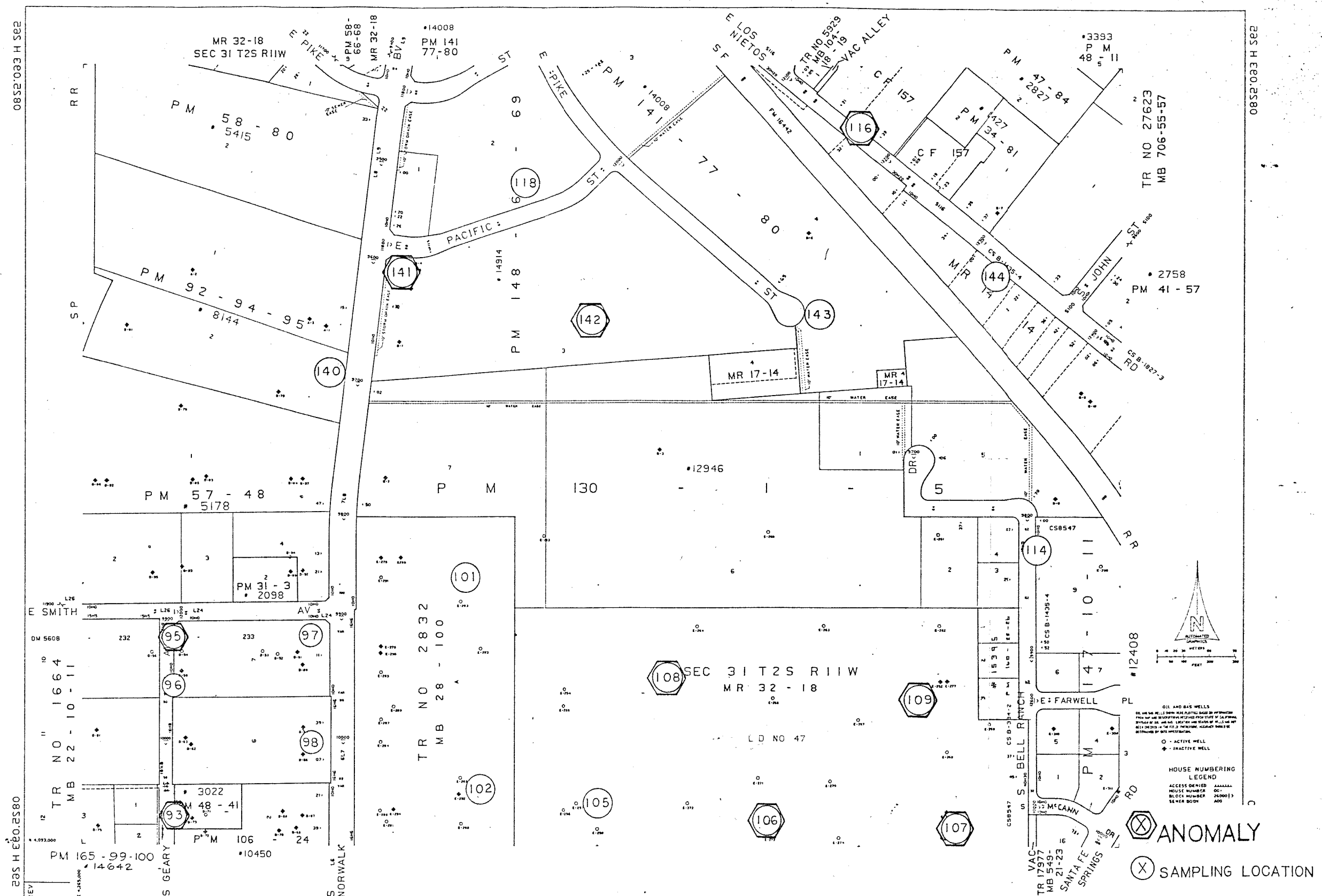

LAKE CENTER ELEM
LITTLE LAKE PARK
CITY OF SANTA FE SPRINGS
CITY OF NORWALK
E DARCY ST
E KINGHORN ST
E OTTO ST
E FLORENCE
E QUINN ST
E MULLER ST
E BUELL ST
E CECILIA
E LAKELAND RD
S MONDON
SANTA ANA
MAIDSTONE
MILANO
FLALLON
ALBURTIS
S PIONEER
ARLEE
BRINK
CRESSON ST
LAKELAND ELEM
S FULTON WELLS
SCHOOL (CONT. H S)
RANCHO SANTA GERTRUDES
SUBDIVIDED FOR THE
SANTA GERTRUDES LAND ASSOCIATION
MR 32 - 18
SEC 1 T 3 S R 12 W
MR 32 - 18
SEC 6 T 3 S R 11 W
LOT III
LOT IV
SEC 6
T 3 S R 11 W
CS B-2245
CS B-1308-1
CS B-1315
MB 51-56
MB 884-98-100
PM 32-90
PM 76-26-27
#6958
#7113
PM 76 - 51-52
#3596
70-98-99
#3261
PM 45 79
HOUSE NUMBERING LEGEND
ACTIVE WELL
INACTIVE WELL
SAMPLING LOCATION


ANOMALY
SAMPLING LOCATION
HOUSE NUMBERING LEGEND
JERSEY AVENUE ELEM
RANCHO SANTA GERTRUDES ELEM
SANTA FE SPRINGS CIVIC CENTER
NEW PROBATE COURT CASE NO 626
S PIONEER
S HOUGHTON
S ORR AND DAY
E WILLINS
E CLAYMORE
E WILLAKE
E HAMDEN
E SMITH
E ROMA
E NOVA
E SUNGLOW
E TERRADELL
E LA DOCENA
E CHARLESWORTH
E MILLERGROVE
S DANBY
S ALBURTIS
S JERSEY
S ARLEE
S GARD AVE
E TELEGRAPH
S BARTLEY
E FLOSSMOOR
S BRADWELL
E WHITELAND
E SAN GABRIEL RIVER FW
TR NO 16928 MB 405-36-38
TR NO 16941 MB 390-48-50
TR NO 14737 MB 383
PM 77-62
PM 43-82
PM 43-3322
PM 43-3325-73
PM 46-7-3890
PM 103-55-56
PM 165-95
PM 92-94-95
PM 57-48
MB 22-10-11
TR NO 35055
LD NO 27
CS 6788
CS 6789
CS 7924
CS B-105-2
CF 1926-2
1664
1694
#14896
#10969
#5178
#7020
REV

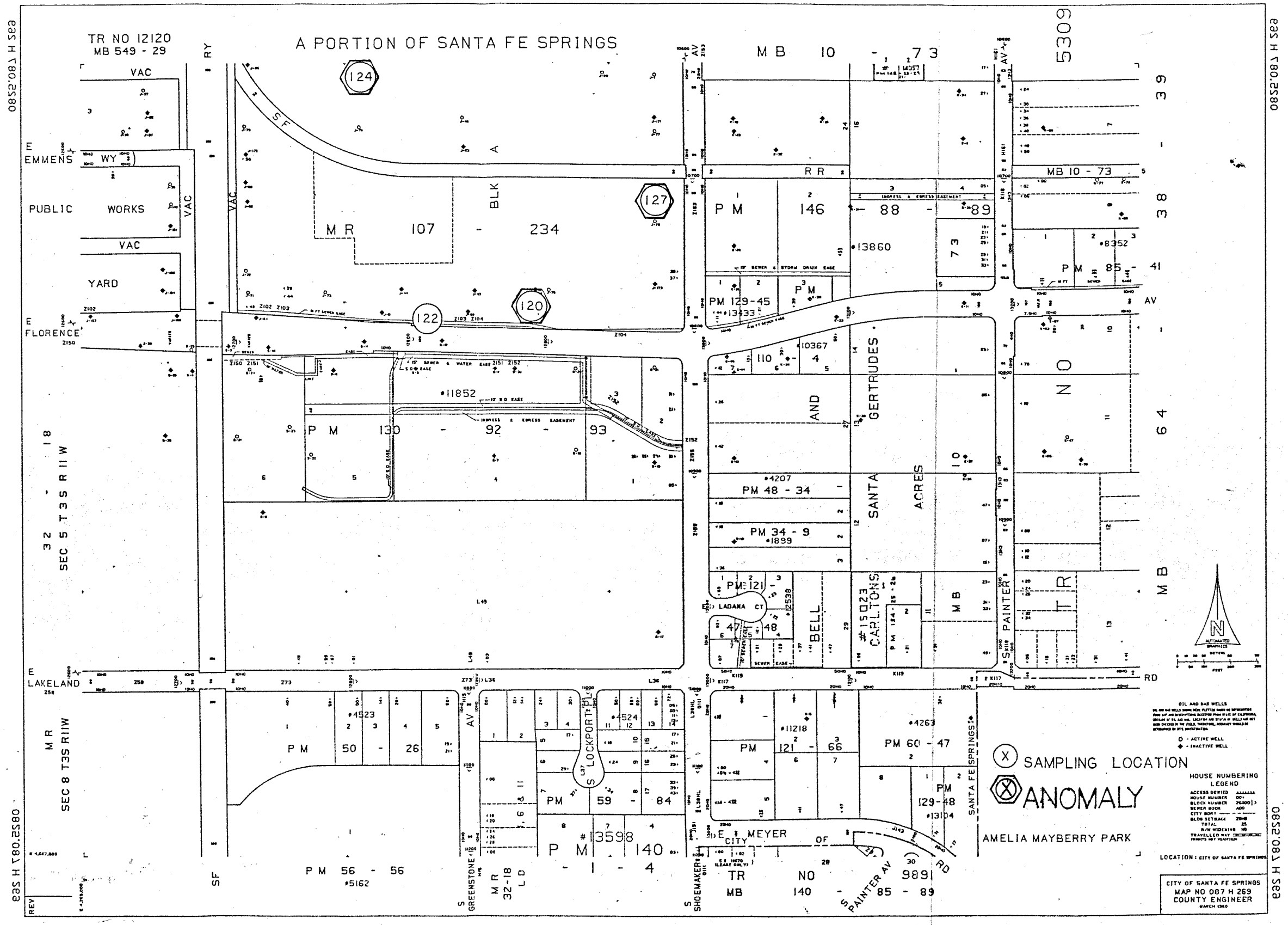


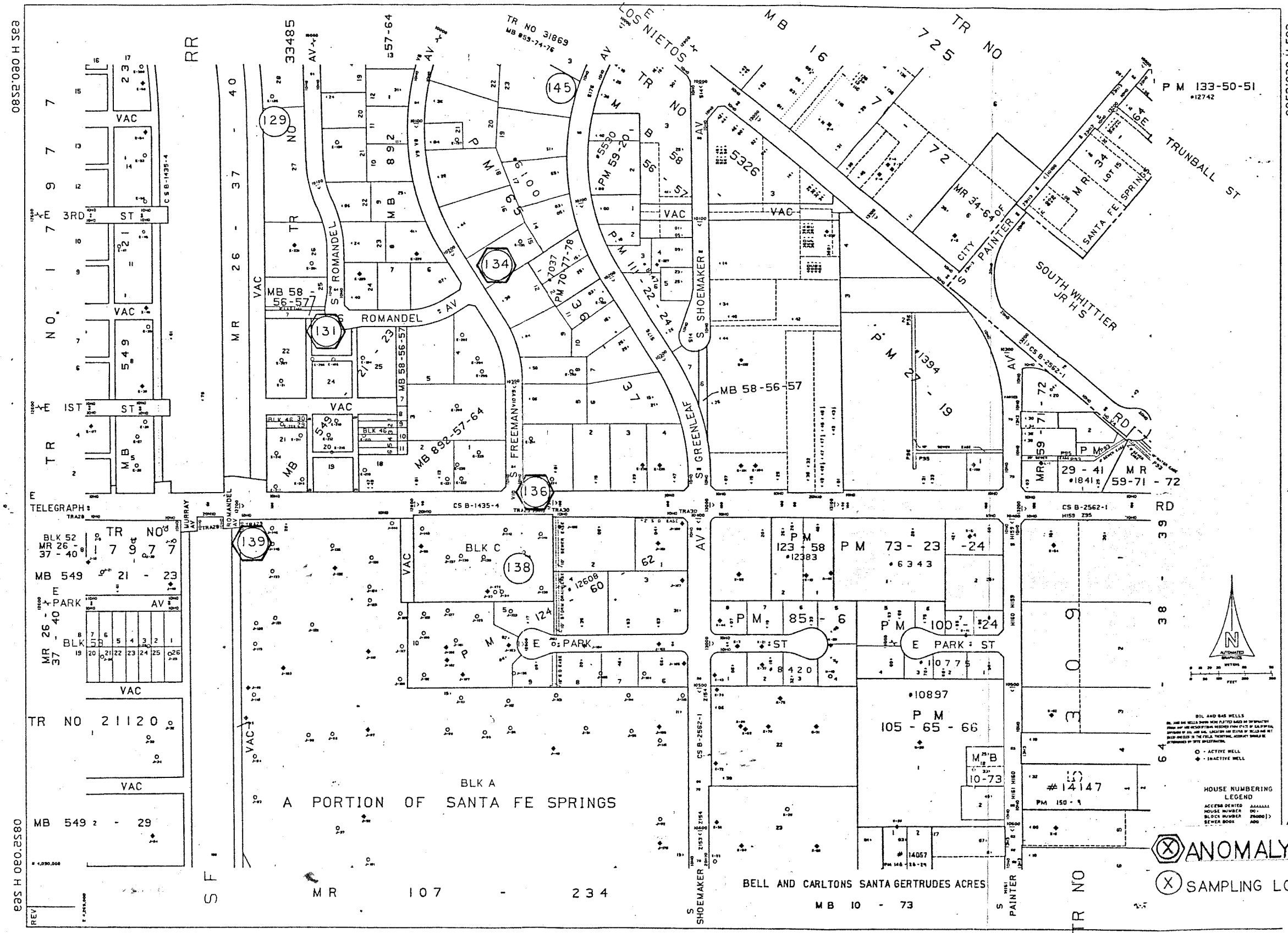
SAMPLING LOCATION
ANOMALY
HOUSE NUMBERING
LEGEND
MR 32 - 18
8 T 3 S R 11 W
RANCHO SANTA GERTRUDES
MR 32 - 18
SEC 5 T 3 S R 11 W
MR 32 - 18
SEC 6 T 3 S R 11 W
MR 32-18
SEC 6
T3S R11W
LOT 3
MB 352 - 34 - 36
LAKELAND ELEM
CITY OF NORWALK
CITY OF SANTA FE SPRINGS
S BLOOMFIELD
S NORWALK
S FOREST PL
S SPRINGDALE
S FULTON WELLS AV
S WARD
S VERNE
E CURTIS
E EMMENS WY
PUBLIC WORKS
YARD
VAC
TR NO 21120
MB 549-29
MR 32-18
SEC 6
T3S R11W
PM 32-90
PM 47-59
PM 50 - 51
PM 52 - 37
PM 67 - 96
PM 77 - 90
PM 83-90
PM 34 - 11
PM 68 - 99
PM 97
PM 98 - 99
PM 70 - 98
PM 32 - 18
SEC 7 T 3 S R 11 W
SEC 6
T3S R11W
13568
CS B-1435-4
CS B-317
CS B-763-4


MR 32 - 18
SEC 31 T3S R11W
T2S
T3S
TR NO 2832
MB 28 - 100
PM 106 - 24
MR 32 - 18
SEC 6 T3S R11W
PM 108
-17-18
TOWNSITE OF SANTA FE SPRINGS
E PARK
E GARDNER
E CLARK
E TELEGRAPH
S GEARY
S NORWALK
S SPRINGDALE
BLANCHARD'S
S VERNE
MR 18
S FOREST
DUNN SMITH
CORNWELL'S
S WARD
MR 18
S BLOOMFIELD
S SANTA FE SPRINGS
E 3RD ST
E 1ST ST
TR NO 17977
MB 549 - 21-23
TR NO 21120
MB 549 - 29
MB 549
LOT 25 BLK 45
MR 26-37-40
RANCHO SANTA GERTRUDES
MR 32 - 18
SEC 6 T3S R11W
PM 32 - 90
PM 47-59
PM 50 - 51
PM 32 - 90
PM 51 - 52
PM 76 - 51
PM 32 - 90
PM 1699
#13568
#4004
#4534
HOUSE NUMBERING LEGEND
ANOMALY
SAMPLING LOCATION



MR 32-18
SEC 31 T2S R11W
E PIKE
PM 58-66-68
MR 32-18
BV
PM 141
77-80
14008
E LOS NIETOS
TR NO 5929
MB 104-18-19
VAC ALLEY
C F 157
PM 47-84
2827
3393
PM 48-11
TR NO 27623
MB 706-55-57
PM 58-80
5415
PM 92-94-95
8144
PM 148-66-69
14914
PM 141-77-80
14008
PACIFIC
ST
MR 14
JOHN
2758
PM 41-57
CS B-1827-3
RD
MR 17-14
PM 57-48
5178
PM 130-1-5
12946
DR
CS8547
PM 31-3
2098
E SMITH
AV
TR NO 1664
MB 22-10-11
TR NO 2832
MB 28-100
SEC 31 T2S R11W
MR 32-18
LD NO 47
PM 147-10-11
12408
E FARWELL
PL
S BELL RANCH
McCANN
RD
3022
PM 48-41
PM 106-24
10450
PM 165-99-100
14642
S GEARY
S NORWALK
VAC
TR 17977
MB 549-21-23
S SANTA FE SPRINGS
ANOMALY
SAMPLING LOCATION
HOUSE NUMBERING LEGEND


A PORTION OF SANTA FE SPRINGS
TR NO 12120
MB 549 - 29
VAC
E EMMENS
WY
PUBLIC
WORKS
YARD
E FLORENCE
SF
RY
BLK A
M R 107 - 234
124
127
122
120
P M 130 - 92 - 93
#11852
P M 146 - 88 - 89
#13860
PM 129-45
#13433
MB 10 - 73
5309
P M 85 - 41
#8352
110 - 4
#10367
AND
GERTRUDES
SANTA
ACRES
#4207
PM 48 - 34
PM 34 - 9
#1899
PM 121 - 47 - 48
LADANA CT
BELL
#15023
CARLTONS
PAINTER
TR
MB
N
AUTOMATED GRAPHICS
DETENTS
FEET
E LAKELAND
RD
M R
SEC 8 T3S R11W
P M 50 - 26
#4523
LOCKPORT
#4524
PM 59 - 84
#13598
P M 140 - 1 - 4
PM 56 - 56
#5162
GREENSTONE
M R 32-18 LD
SHOEMAKER
E MEYER
CITY OF
TR NO 9891
MB 140 - 85 - 89
PAINTER AV
PM 121 - 66
#11218
PM 60 - 47
#4263
PM 129-48
#13104
SANTA FE SPRINGS
SAMPLING LOCATION
ANOMALY
AMELIA MAYBERRY PARK
OIL AND GAS WELLS
O - ACTIVE WELL
◆ - INACTIVE WELL
HOUSE NUMBERING LEGEND
LOCATION: CITY OF SANTA FE SPRINGS
CITY OF SANTA FE SPRINGS
MAP NO 087 H 269
COUNTY ENGINEER
MARCH 1960
T3S R11W
SEC 5
32 - 18
SEC 8 T3S R11W
64 - 38 - 39



A PORTION OF SANTA FE SPRINGS
BLK A
BLK C
BELL AND CARLTONS SANTA GERTRUDES ACRES
MB 10 - 73
MR 107 - 234
TR NO 21120
TR NO 17977
TR NO 725
TR NO 31869
MB 549 - 29
MB 549 21 - 23
MB 58 - 56-57
MB 892-57-64
PM 59-20-1
PM 70-77-78
PM 111-22-24
PM 123 - 58
PM 73 - 23 -24
PM 85 - 6
PM 100 - 24
PM 105 - 65 - 66
PM 27 - 19
PM 133-50-51
MR 34-64
MR 59-71 - 72
MR 29 - 41
MR 26 - 37 - 40
MR 33485
SOUTH WHITTIER JR H S
SANTA FE SPRINGS
TRUNBALL ST
S PAINTER
S SHOEMAKER
S GREENLEAF
S FREEMAN
S ROMANDEL
LOS NIETOS
E 3RD ST
E 1ST ST
E TELEGRAPH
E PARK AV
E PARK ST
RD
VAC
129
131
134
136
138
139
145
#14147
#10897
#10775
#8420
#6343
#12383
#12608
#1394
#1841
#12742
HOUSE NUMBERING LEGEND
ANOMALY
SAMPLING LOCATION

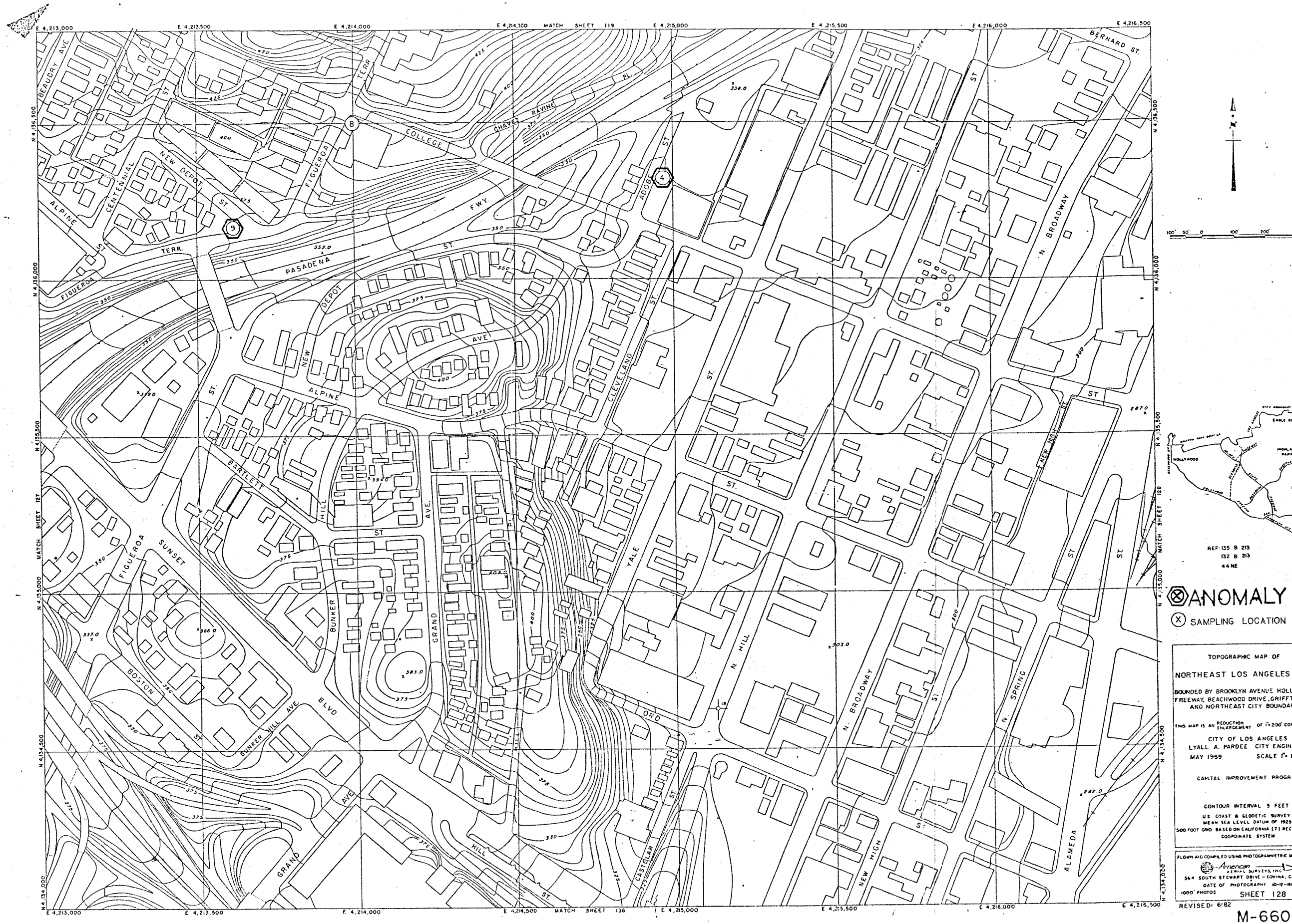
LOS ANGELES CITY OIL FIELD

Los Angeles City

M-660

(X) SAMPLING LOCATION

(X) ANOMALOUS HIGH


MATCH SHEET 119
MATCH SHEET 136
MATCH SHEET 127
MATCH SHEET 129
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E 4,213,500
E 4,214,000
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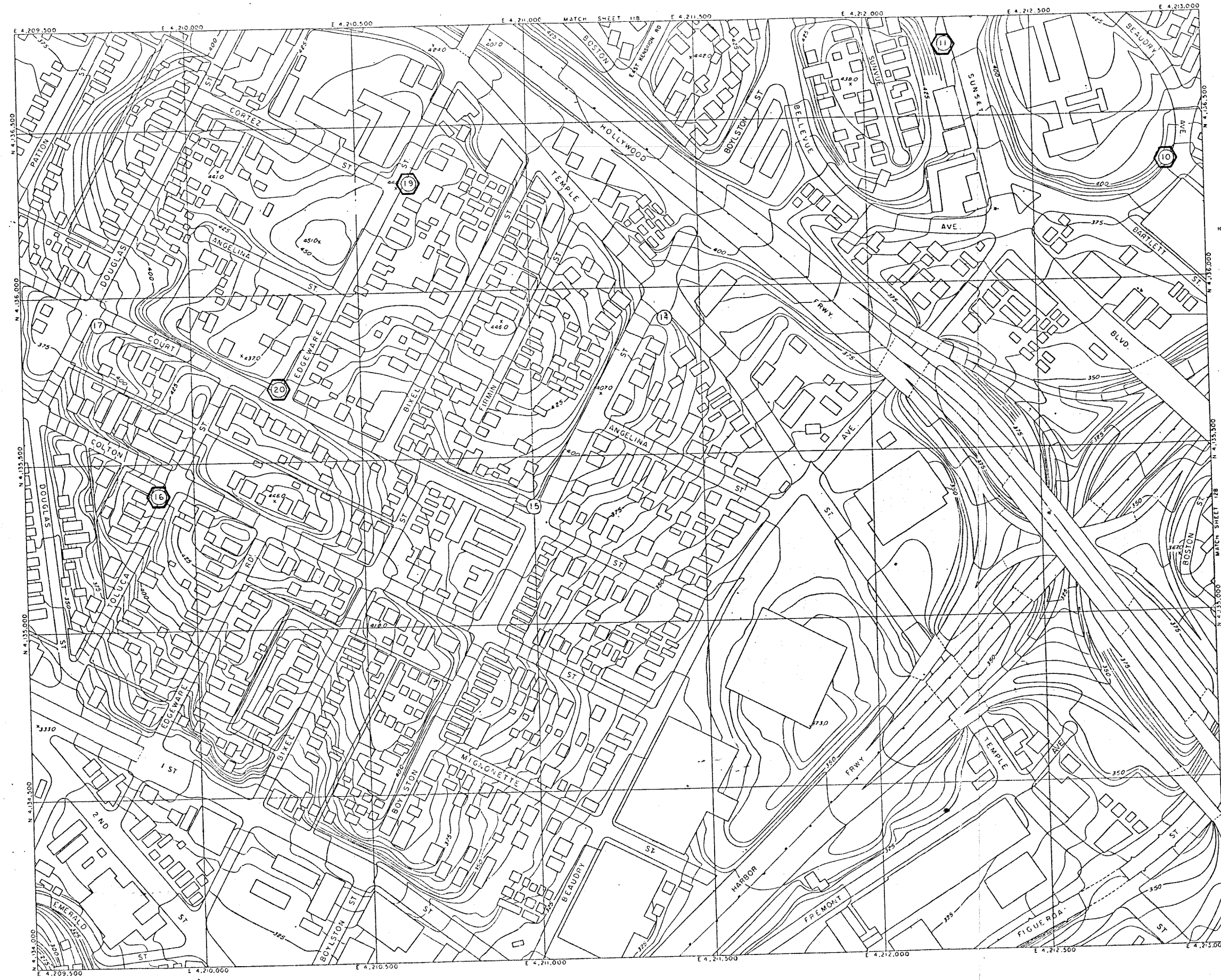
E 4,215,500
E 4,216,000
E 4,216,500
N 4,136,500
N 4,136,000
N 4,135,500
N 4,135,000
N 4,134,500
N 4,134,000
BEAUDRY AVE
CENTENNIAL
NEW DEPOT ST
ALPINE ST
FIGUEROA TERR
FIGUEROA
COLLEGE
CHAVEZ RAVINE PL
FWY
PASADENA ST
NEW DEPOT
AVE
ALPINE
BARTLETT
HILL ST
GRAND AVE
BUNKER
SUNSET
BOSTON ST
BUNKER HILL AVE
BLVD
GRAND AVE
HILL ST
CASTELAR ST
ORD
YALE
CLEVELAND ST
ADOBE ST
N. HILL
N. BROADWAY
NEW HIGH ST
N. SPRING
ALAMEDA
BERNARD ST
N. BROADWAY
NEW HIGH ST
HOLLYWOOD
REF: 135 B 213
132 B 213
44 NE
ANOMALY
SAMPLING LOCATION
TOPOGRAPHIC MAP OF
NORTHEAST LOS ANGELES
BOUNDED BY BROOKLYN AVENUE HOLL
FREEWAY, BEACHWOOD DRIVE, GRIFFT
AND NORTHEAST CITY BOUNDA
THIS MAP IS AN REDUCTION ENLARGEMENT OF 1"=200' CO
CITY OF LOS ANGELES
LYALL A. PARDEE CITY ENGIN
MAY 1969 SCALE 1"=
CAPITAL IMPROVEMENT PROGR
CONTOUR INTERVAL 5 FEET
U.S. COAST & GEODETIC SURVEY
MEAN SEA LEVEL DATUM OF 1929
500 FOOT GRID BASED ON CALIFORNIA (7) REC
COORDINATE SYSTEM
FLOWN AND COMPILED USING PHOTOGRAMMETRIC M
American AERIAL SURVEYS, INC.
564 SOUTH STEWART DRIVE – COVINA, C
DATE OF PHOTOGRAPHY 10-12-19
1000' PHOTOS
SHEET 128
REVISED: 6-82
M-660


MATCH SHEET 118
MATCH SHEET 128
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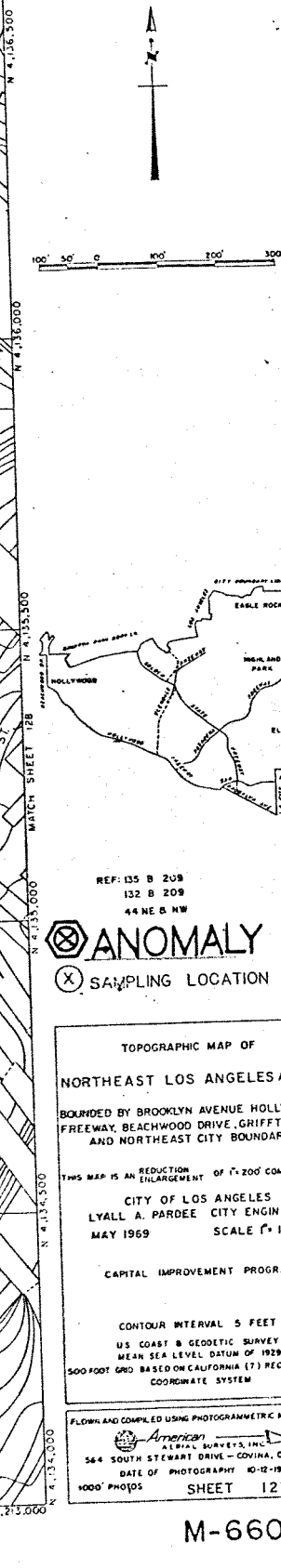
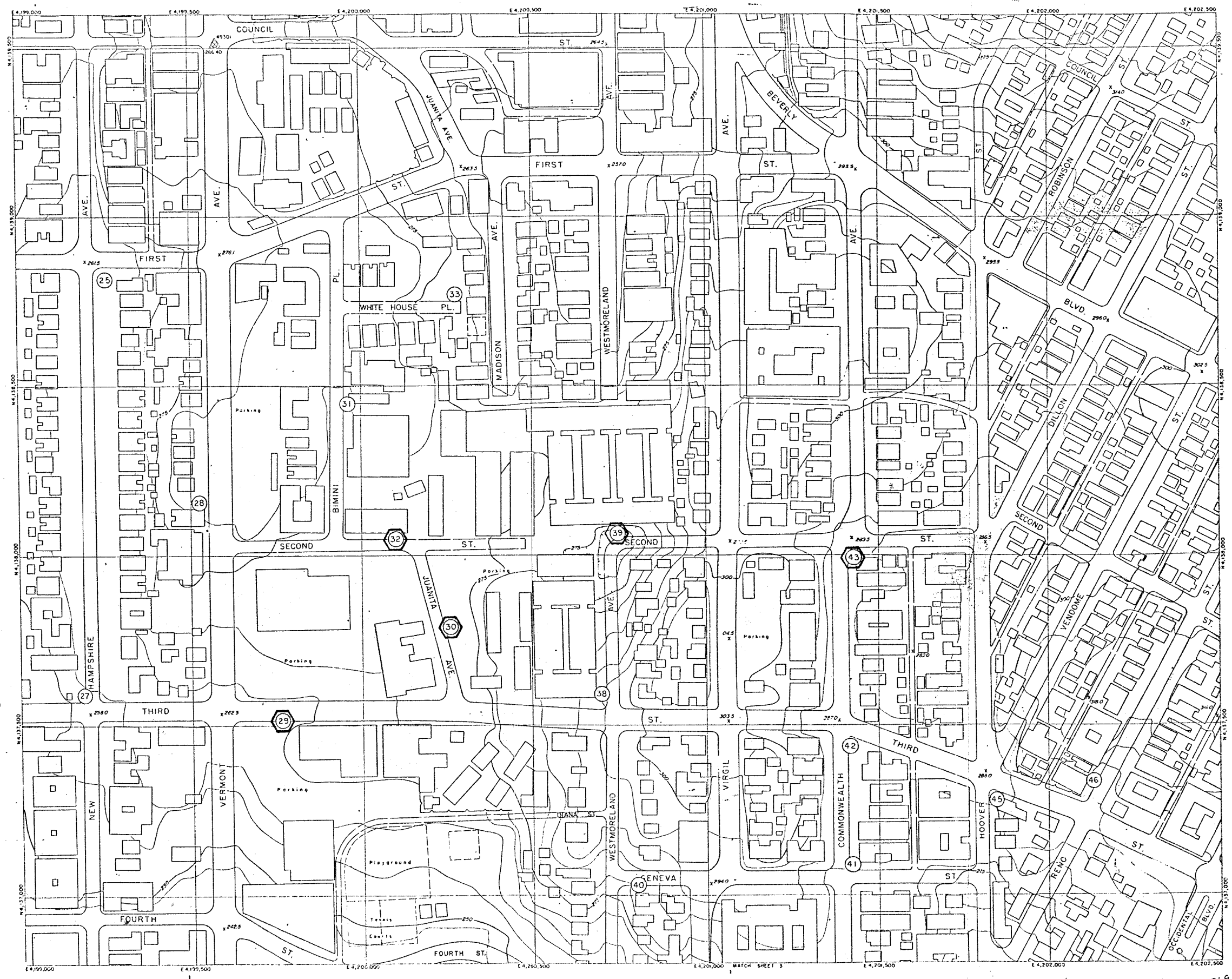
E 4,210,500
E 4,211,000
E 4,211,500
E 4,212,000
E 4,212,500
E 4,213,000
N 4,136,500
N 4,136,000
N 4,135,500
N 4,135,000
N 4,134,500
N 4,134,000
PATTON
CORTEZ
DOUGLAS
ANGELINA
COURT
COLTON
TOLUCA
EDGEWARE
BIXEL
FIRMIN
TEMPLE
HOLLYWOOD
BOSTON
EAST KOSCIUSKO RD
BOYLSTON
BELLEVUE
SUNVUE
SUNSET
AVE
BEAUDRY
BARTLETT
BLVD
FRWY
HARBOR
FREMONT
FIGUEROA
MICHIGANETTE
SIXEL
1 ST
2 ND
EMERALD
ST
RD
(10)
(11)
(12)
(14)
(15)
(16)
(17)
(19)
(20)
3330
3730
3620
4360
4420
4460
4370
4510
4610
4070
4080
4240
2070


N
100' 50' 0 100' 200' 300'
HOLLYWOOD
EAGLE ROCK
REF: 135 B 209
132 B 209
44 NE & NW
ANOMALY
SAMPLING LOCATION
TOPOGRAPHIC MAP OF
NORTHEAST LOS ANGELES
BOUNDED BY BROOKLYN AVENUE HOLL
FREEWAY, BEACHWOOD DRIVE, GRIFFT
AND NORTHEAST CITY BOUNDAR
THIS MAP IS AN REDUCTION ENLARGEMENT OF 1"=200' CON
CITY OF LOS ANGELES
LYALL A. PARDEE CITY ENGIN
MAY 1969 SCALE 1"= 1
CAPITAL IMPROVEMENT PROGR
CONTOUR INTERVAL 5 FEET
US COAST & GEODETIC SURVEY
MEAN SEA LEVEL DATUM OF 1929
500 FOOT GRID BASED ON CALIFORNIA (7) REC
COORDINATE SYSTEM
FLOWN AND COMPILED USING PHOTOGRAMMETRIC
American AERIAL SURVEYS, INC.
564 SOUTH STEWART DRIVE - COVINA, C
DATE OF PHOTOGRAPHY 10-12-19
1000' PHOTOS SHEET 12

M-660



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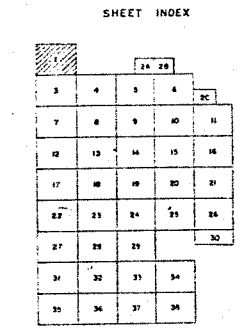


ANOMALY

SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES ARE

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

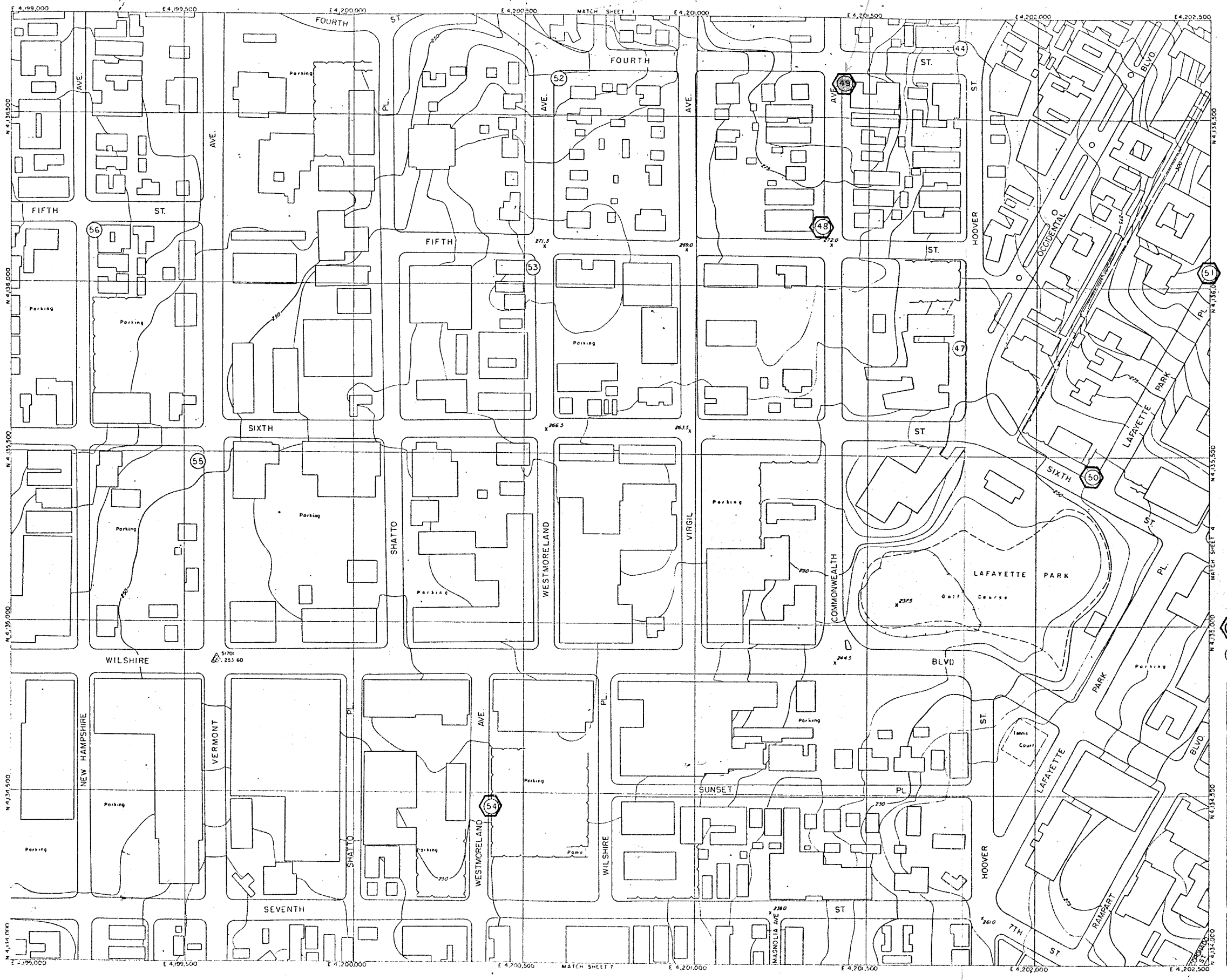
COMPILED BY: METREX LOS ANGELES, CALIF.

USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22,

SHEET 1 OF

M-769

M-769



SHEET INDEX

1						
	4	5	6			
7	8	9	10	11		
12	13	14	15	16		
17	18	19	20	21		39
22	23	24	25	26		40
27	28	29		30		41
31	32	33	34			42
35	36	37	38			

ANOMALY

(X) SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

COMPILED BY

METREX

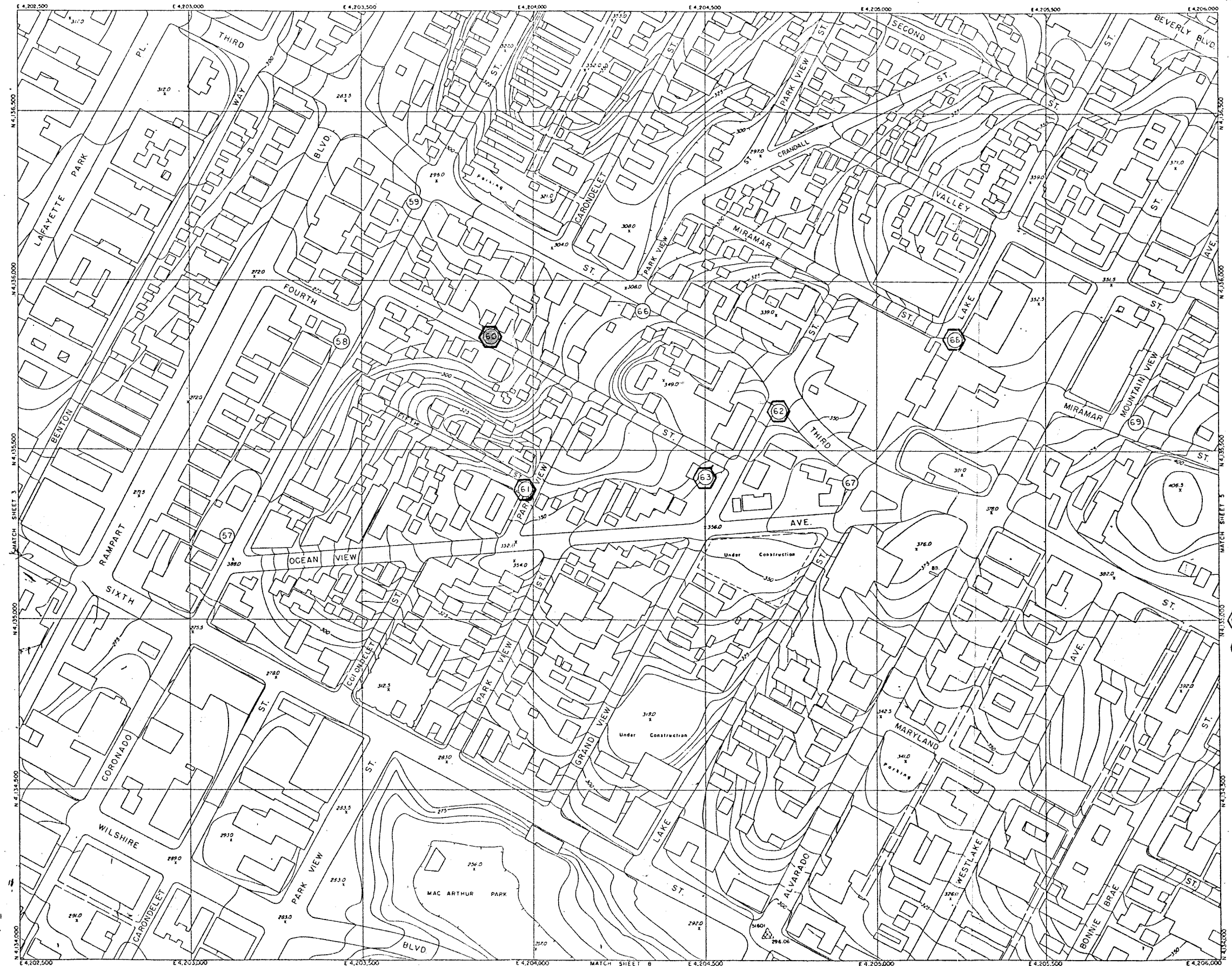
LOS ANGELES, CALIF.

USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22, 1975

SHEET 3 OF 42

M-769

#60: 730% LEL or 30[illegible] ppm
Nearest Recorded well ≈150' away



SHEET INDEX

ANOMALY

SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

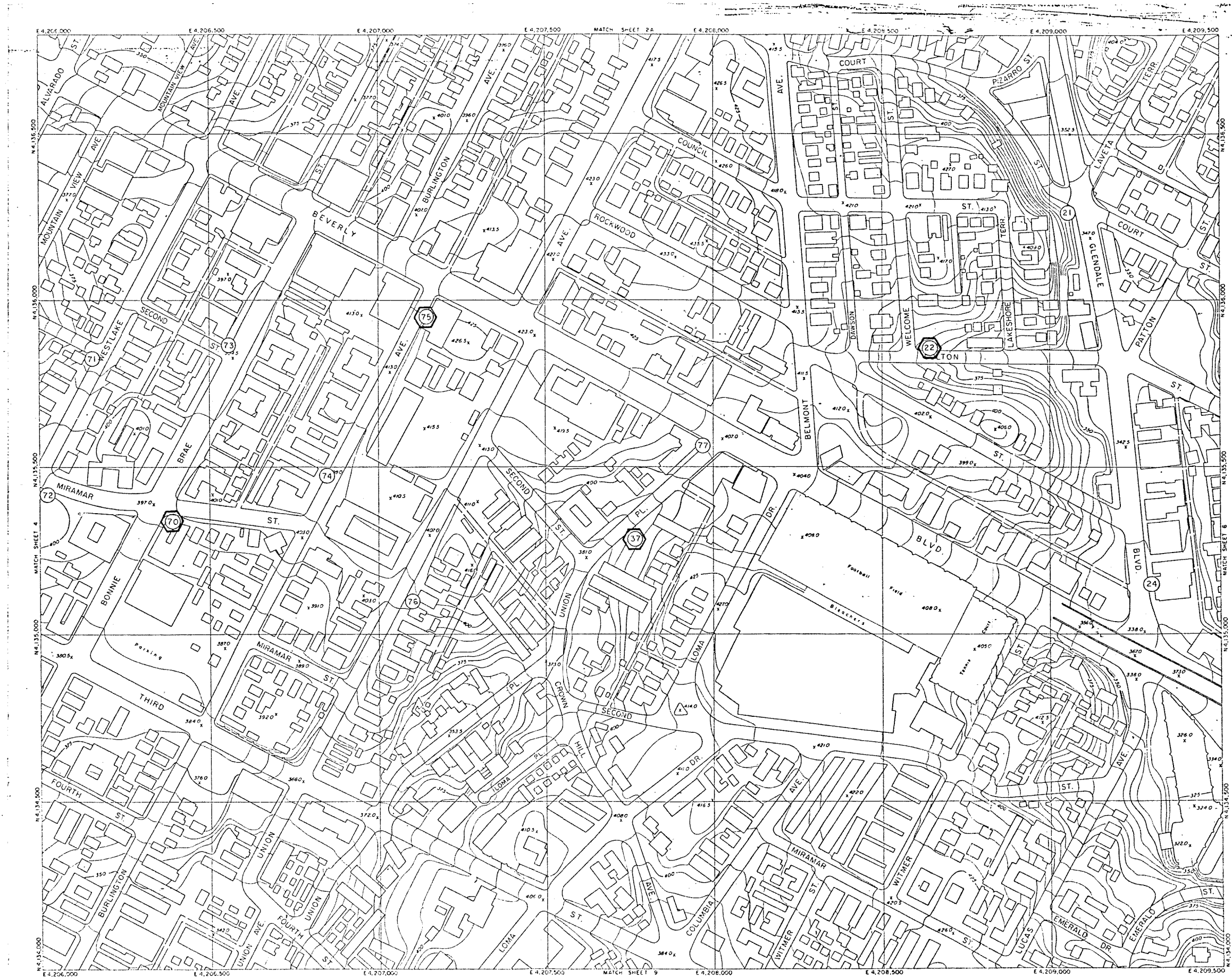
COMPILED BY:

METREX LOS ANGELES, CALIF.

USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22, 1975

SHEET 4 OF 42

M-769



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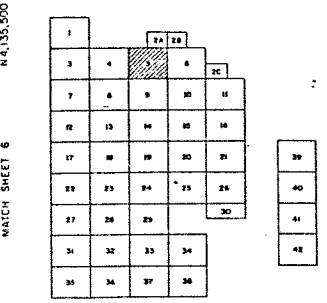


ANOMALY

(X) SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

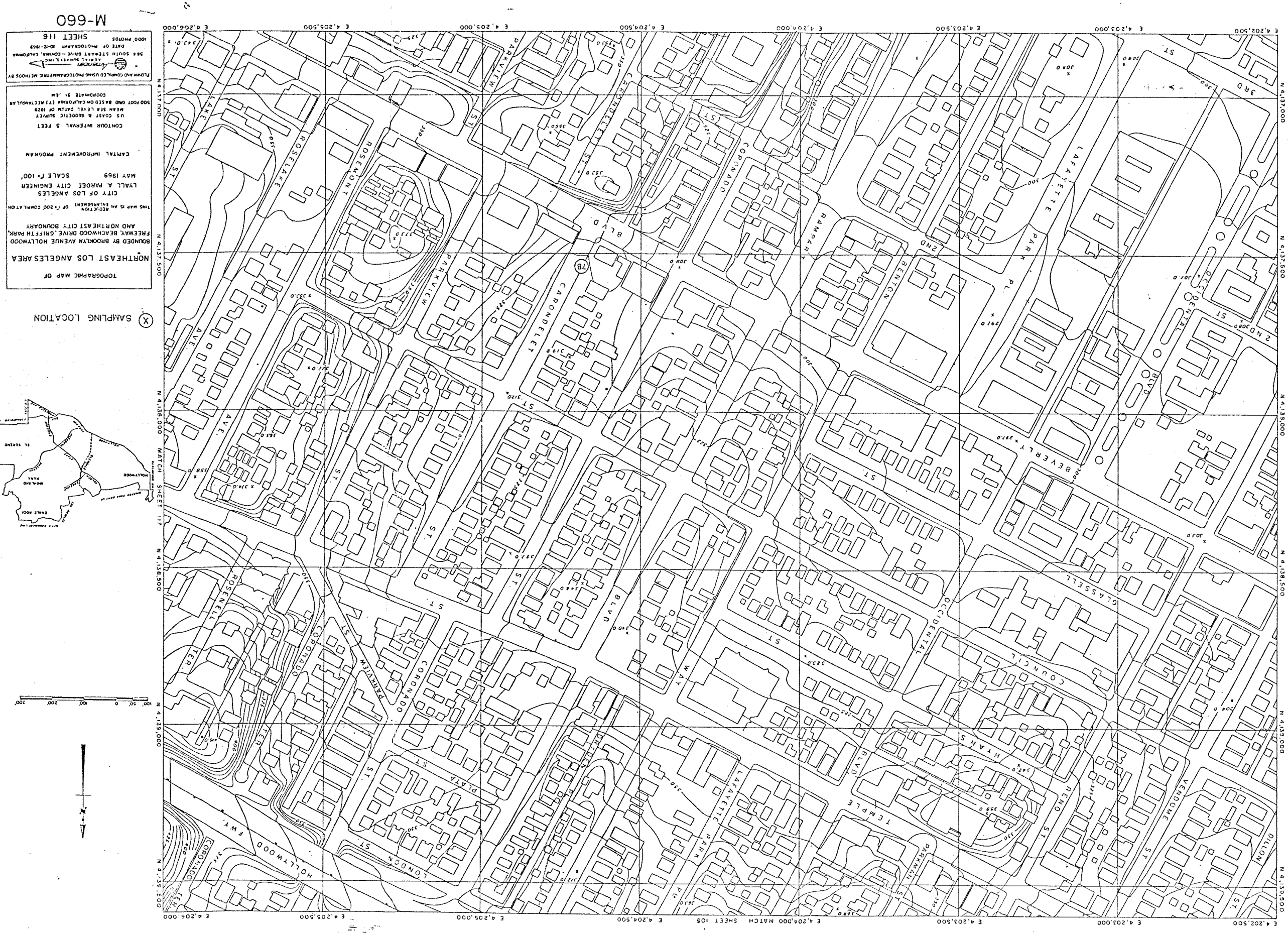
COMPILED BY:

METREX

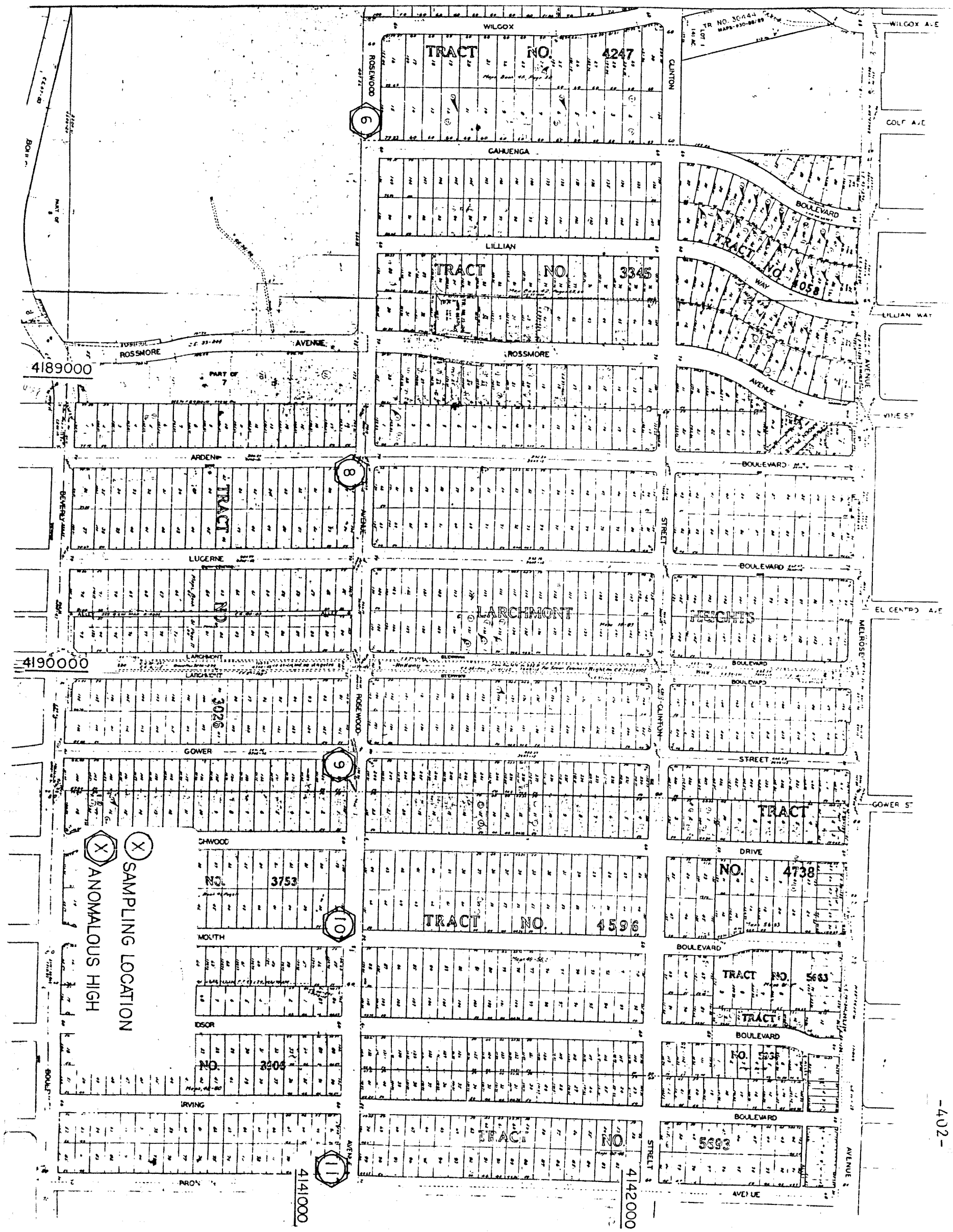
USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 25, 1975

SHEET 5 OF 42

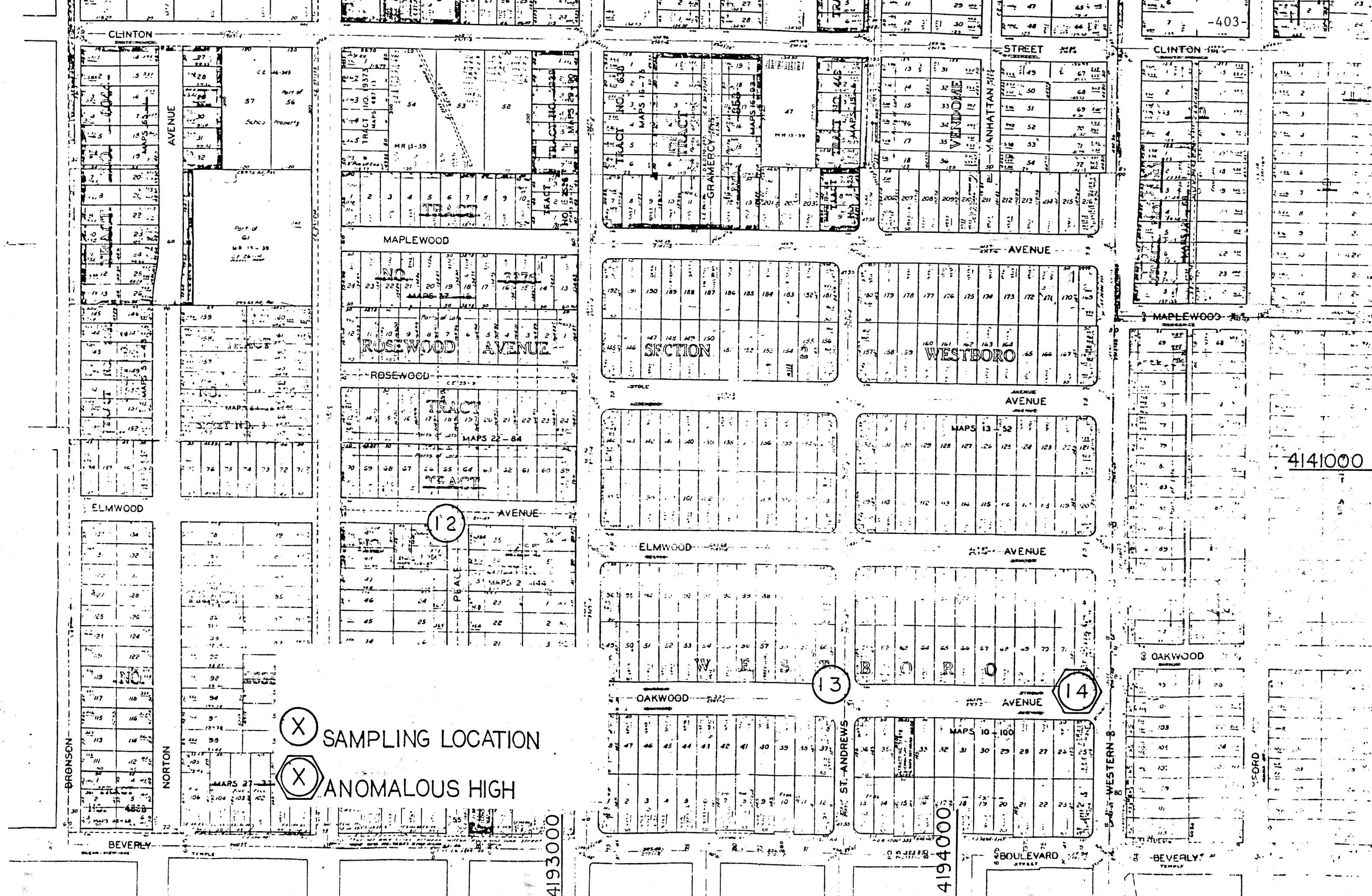
M-769


M-660
TOPOGRAPHIC MAP OF
NORTHEAST LOS ANGELES AREA
BOUNDED BY BROOKLYN AVENUE, HOLLYWOOD FREEWAY, BEACHWOOD DRIVE, GRIFFITH PARK, AND NORTHEAST CITY BOUNDARY
THIS MAP IS AN ENLARGEMENT OF REDUCTION OF 1"=200' COMPILATION
CITY OF LOS ANGELES
LYALL A PARKER CITY ENGINEER
MAY 1969 SCALE 1"= 100'
CAPITAL IMPROVEMENT PROGRAM
CONTOUR INTERVAL 5 FEET
MEAN SEA LEVEL DATUM OF 1929
U.S. COAST & GEODETIC SURVEY
500'FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SY. ZEM
FLOWN AND COMPILED USING PHOTOGRAMMETRIC METHODS BY
AERIAL SURVEYS, INC.
544 SOUTH STEWART DRIVE - COVINA, CALIFORNIA
DATE OF PHOTOGRAPHY 10-2-1969
1000' PHOTOS SHEET 116
SAMPLING LOCATION
MATCH SHEET 117
MATCH SHEET 105
E 4,202,500
E 4,203,000
E 4,203,500
E 4,204,000
E 4,204,500
E 4,205,000
E 4,205,500
E 4,206,000
N 4,137,000
N 4,137,500
N 4,138,000
N 4,138,500
N 4,139,000
N 4,139,500
N 4,137,500
N 4,138,500
N 4,139,500
HOLLYWOOD FWY
CORONADO TER
CORONADO ST
CORONADO BLVD
PARKVIEW ST
ROSEMONT
ROSELAKE
ROSENELL TER
PLATA ST
LAFAYETTE PARK PL
LAFAYETTE PARK
TEMPLE
HYANS
COUNCIL
OCCIDENTAL
GLASSELL
BEVERLY
VENDOME
DILLON
BENDO ST
PARKMAN ST
GARNEAR
BENTON
2ND
3RD
ST
AVE
WAY
BLVD
CRENSHAW ST
CARONDELET ST
CONDON ST
EAGLE ROCK
MONTEREY HILLS
HOLLYWOOD
EL SERENO
MEAD-MID PARK
CITY BOUNDARY LINE
N
200' 50' 0 100' 200'

SALT LAKE OIL FIELD

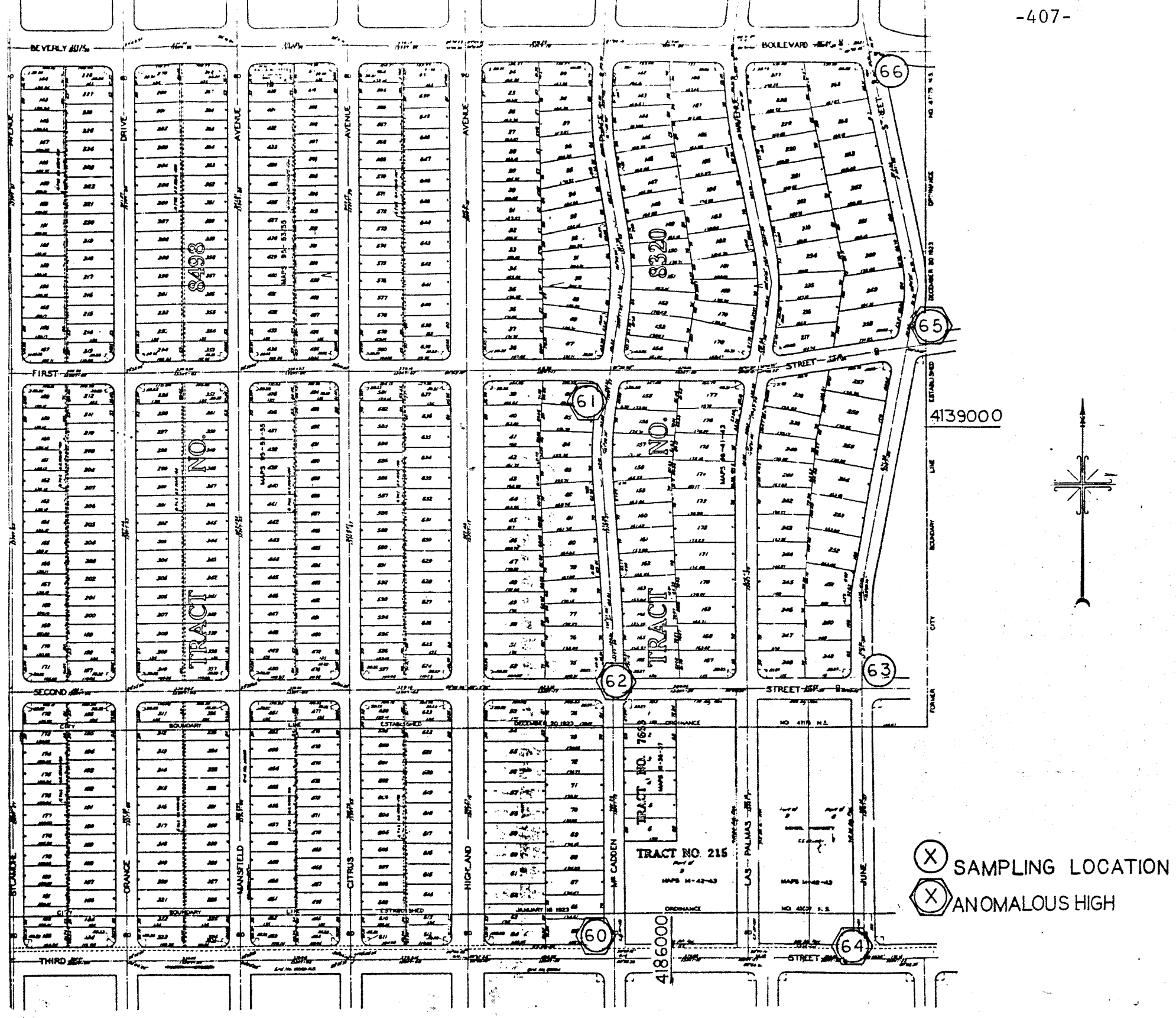


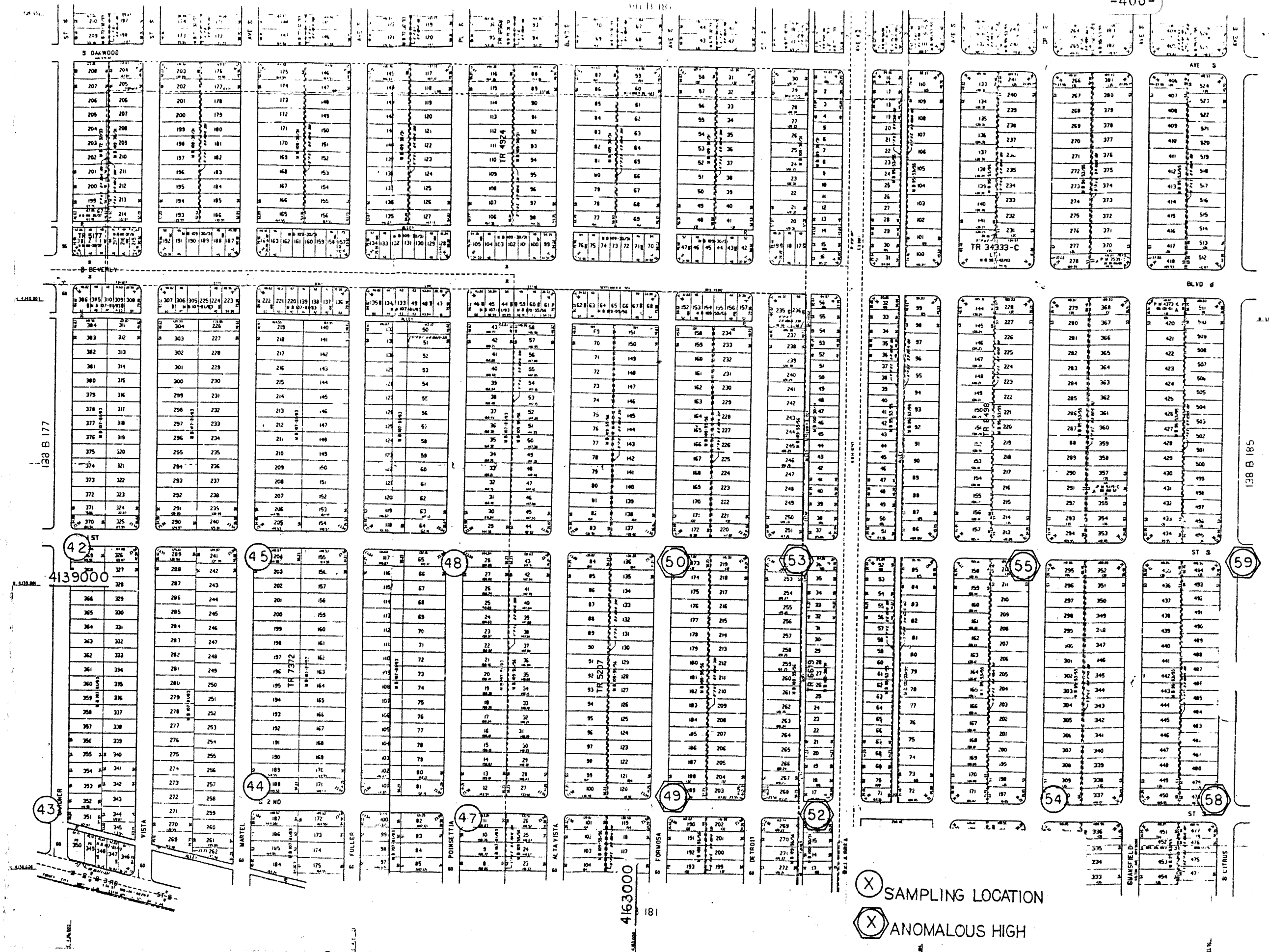
WILGOX
TRACT NO. 4247
ROSEWOOD
CLINTON
WILGOX AVE
COLE AVE
CAHUENGA
BOULEVARD
LILLIAN
TRACT NO. 3345
TRACT NO. 4058
WAY
LILLIAN WAY
ROSSMORE
AVENUE
4189000
PART OF 7
ARDEN
BOULEVARD
TRACT
BEVERLY
AVENUE
STREET
LUCERNE
BOULEVARD
LARCHMONT
HEIGHTS
EL CENTRO AVE
MELROSE
4190000
LARCHMONT
BOULEVARD
3026
ROSEWOOD
CLINTON
GOWER
STREET
TRACT
GOWER ST
SAMPLING LOCATION
ANOMALOUS HIGH
NO. 3753
DRIVE
NO. 4738
TRACT NO. 4596
BOULEVARD
TRACT NO. 5663
TRACT
BOULEVARD
NO. 3906
IRVING
BOULEVARD
TRACT NO. 5693
AVENUE
4141000
4142000

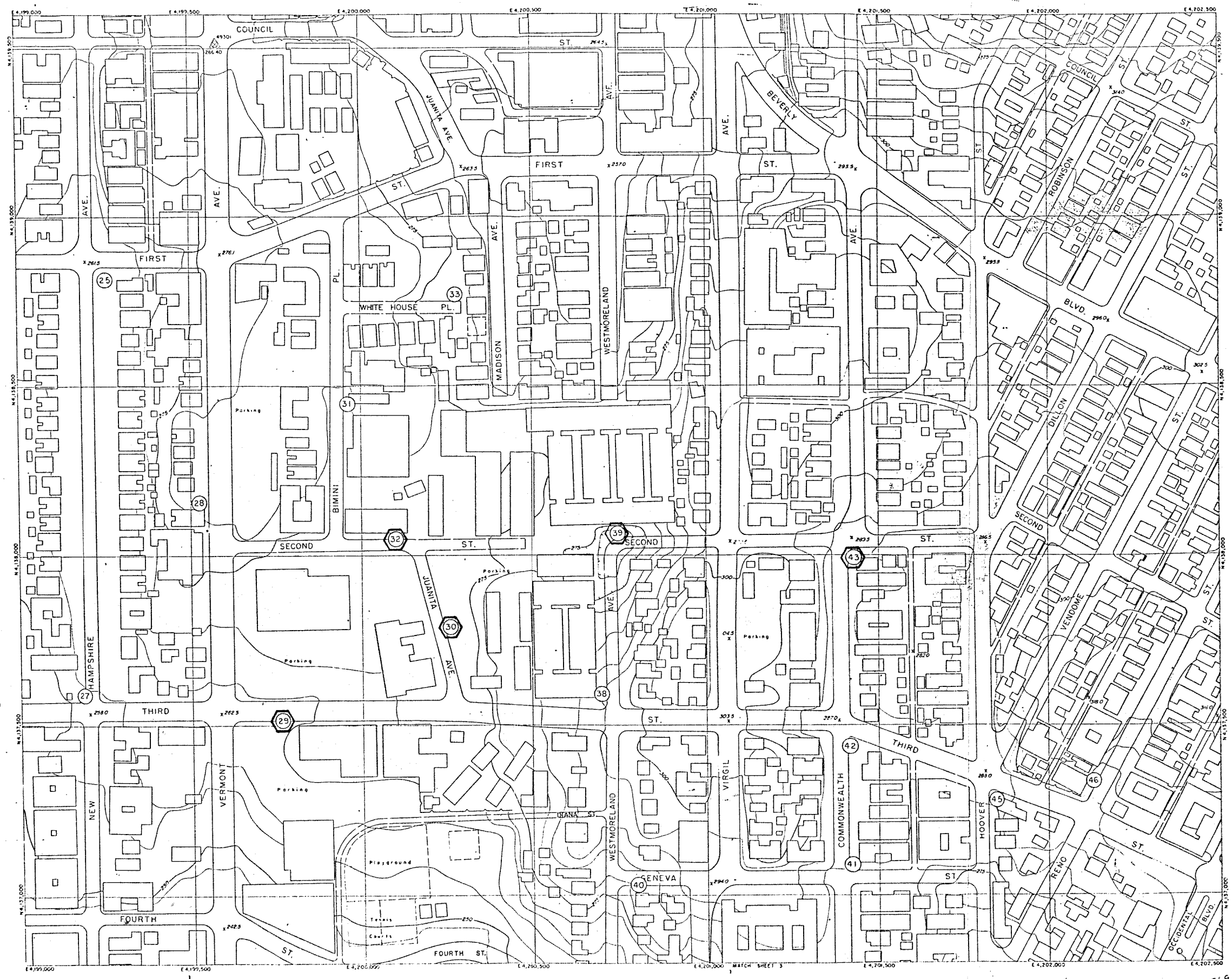


CLINTON
STREET
CLINTON
AVENUE
MAPLEWOOD
ROSEWOOD AVENUE
ROSEWOOD
ELMWOOD
AVENUE
ELMWOOD
AVENUE
OAKWOOD
AVENUE
OAKWOOD
BEVERLY
BOULEVARD
BEVERLY
BRONSON
NORTON
ST. ANDREWS
WESTERN
VENDOME
MANHATTAN
GRAMERCY
TRACT
SECTION 2
WESTBORO
WESTBORO
MAPS 13 - 52
MAPS 10 - 100
MAPS 22 - 84
MAPS 27 - 37
MAPS 2 - 144
MR 13-39
12
13
14
4141000
4193000
4194000
X SAMPLING LOCATION
X ANOMALOUS HIGH

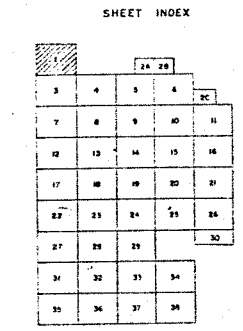
(X) SAMPLING LOCATION


BEVERLY
BOULEVARD
FIRST
STREET
SECOND
STREET
THIRD
STREET
AVENUE
DRIVE
ORANGE
MANSFIELD
CITRUS
HIGHLAND
McCADDEN
LAS PALMAS
JUNE
8498
8320
TRACT NO.
TRACT NO. 215
4139000
4186000
66
65
61
62
63
60
64
SAMPLING LOCATION
ANOMALOUS HIGH


S OAKWOOD
S BEVERLY
BLVD
AVE S
138 B 177
138 B 185
4139000
4163000
TR 4924
TR 5177
TR 34333-C
TR 8498
TR 7372
TR 5207
TR 6619
VISTA
MARTEL
FULLER
POINSETTIA
ALTA VISTA
FORMOSA
DETROIT
SMANSFIELD
CITRUS
42
43
44
45
47
48
49
50
52
53
54
55
58
59
X SAMPLING LOCATION
X ANOMALOUS HIGH



SHEET INDEX



ANOMALY

SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES ARE

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

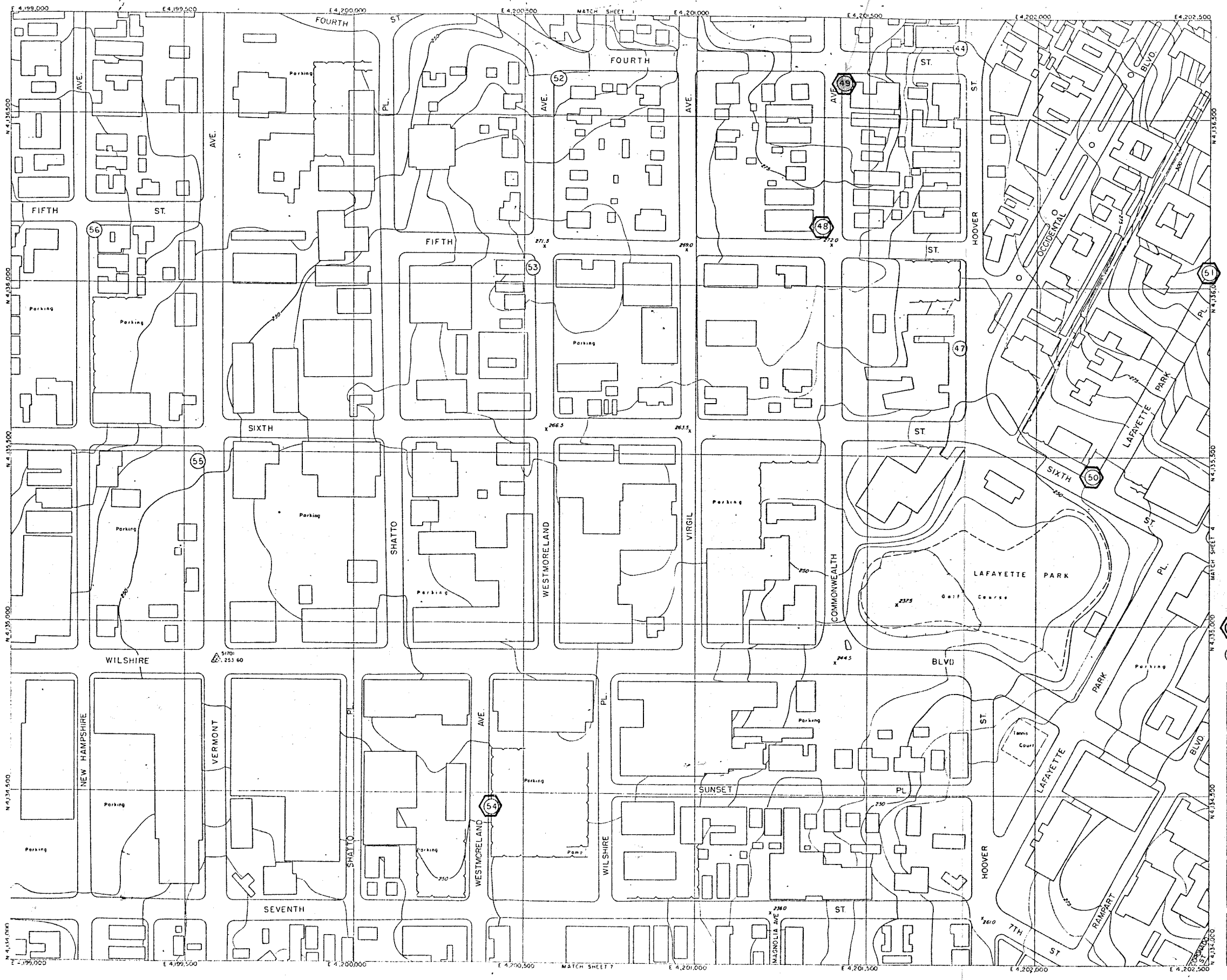
COMPILED BY: METREX LOS ANGELES, CALIF.

USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22,

SHEET 1 OF

M-769

M-769



SHEET INDEX

1						
	4	5	6			
7	8	9	10	11		
12	13	14	15	16		
17	18	19	20	21		39
22	23	24	25	26		40
27	28	29		30		41
31	32	33	34			42
35	36	37	38			

ANOMALY

(X) SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

COMPILED BY

METREX

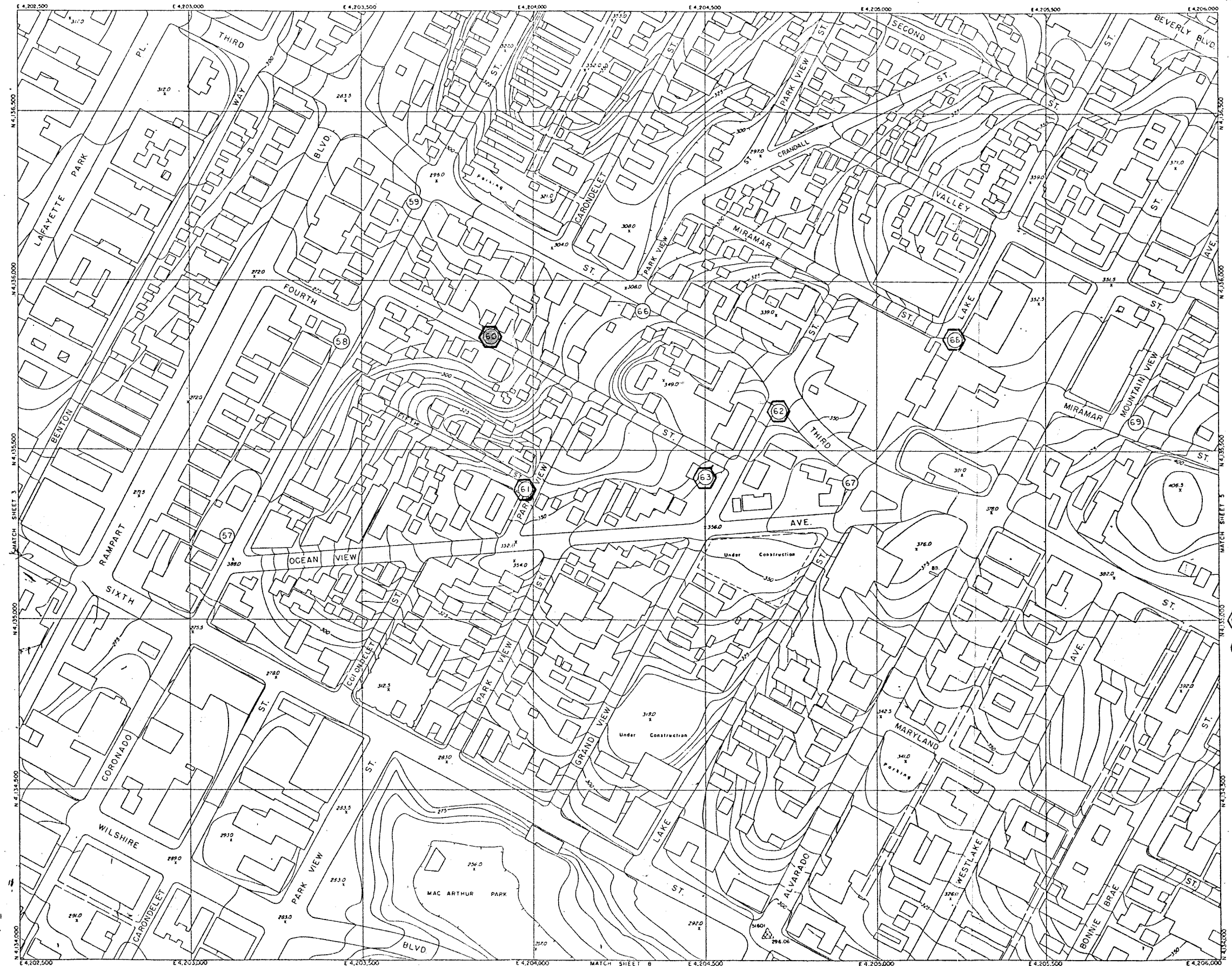
LOS ANGELES, CALIF.

USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22, 1975

SHEET 3 OF 42

M-769

#60: 730% LEL or 30[illegible] ppm
Nearest Recorded well ≈150' away



SHEET INDEX

ANOMALY

SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

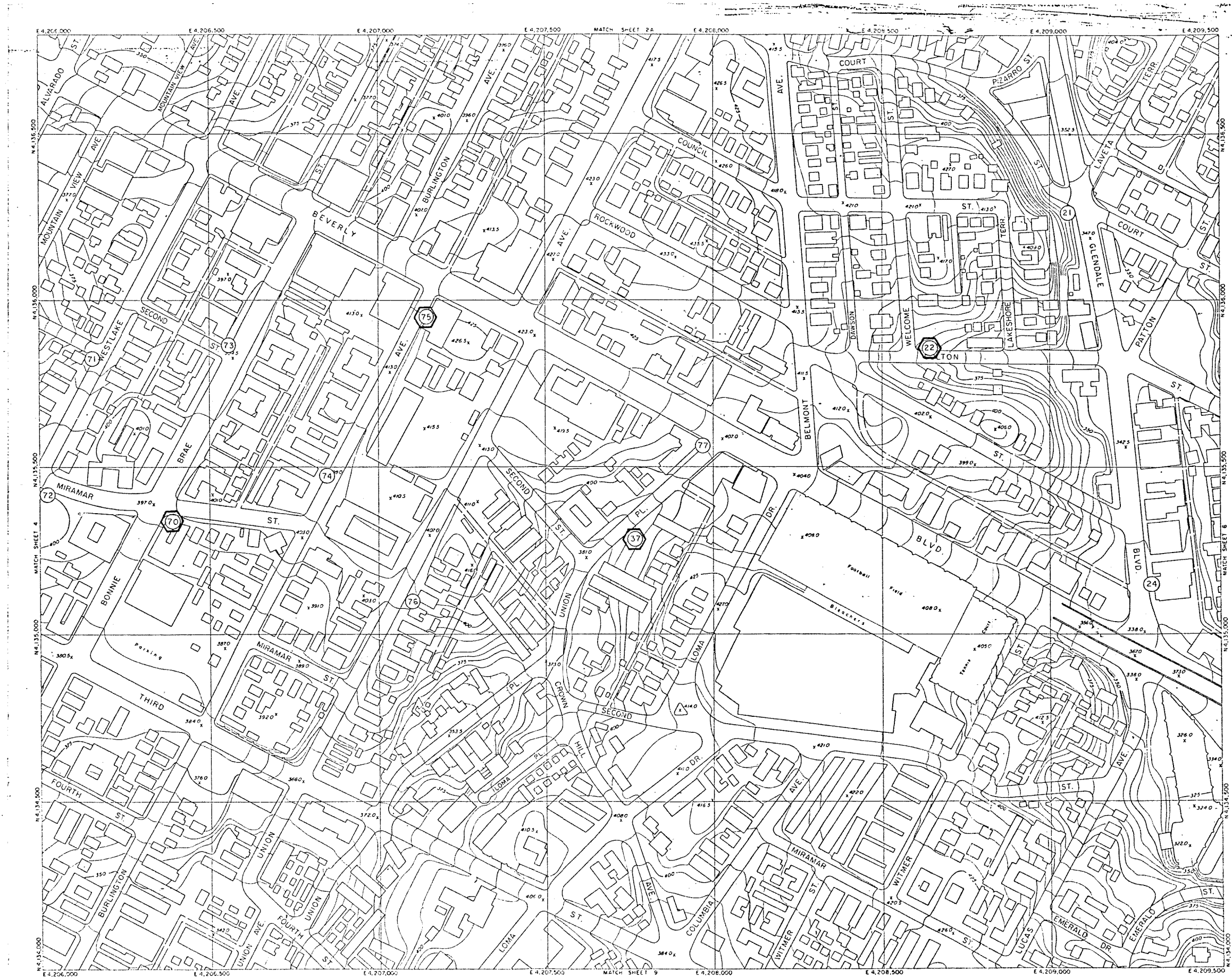
COMPILED BY:

METREX LOS ANGELES, CALIF.

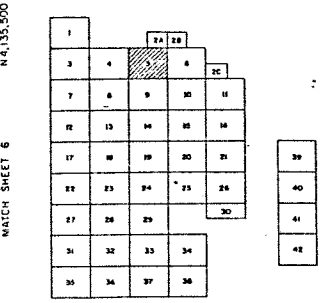
USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 22, 1975

SHEET 4 OF 42

M-769



SHEET INDEX



ANOMALY

(X) SAMPLING LOCATION

TOPOGRAPHIC MAP OF

CENTRAL LOS ANGELES AREA

FOR THE

LOS ANGELES BUNKER HILL AND CENTRAL BUSINESS DISTRICT CIRCULATION/DISTRIBUTION PROGRAM

THIS MAP IS AN ENLARGEMENT OF 1" = 200' COMPILATION

CITY OF LOS ANGELES

JULY 1975 SCALE 1" = 100'

CONTOUR INTERVAL 5 FEET

U.S. COAST & GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1929

500 FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SYSTEM

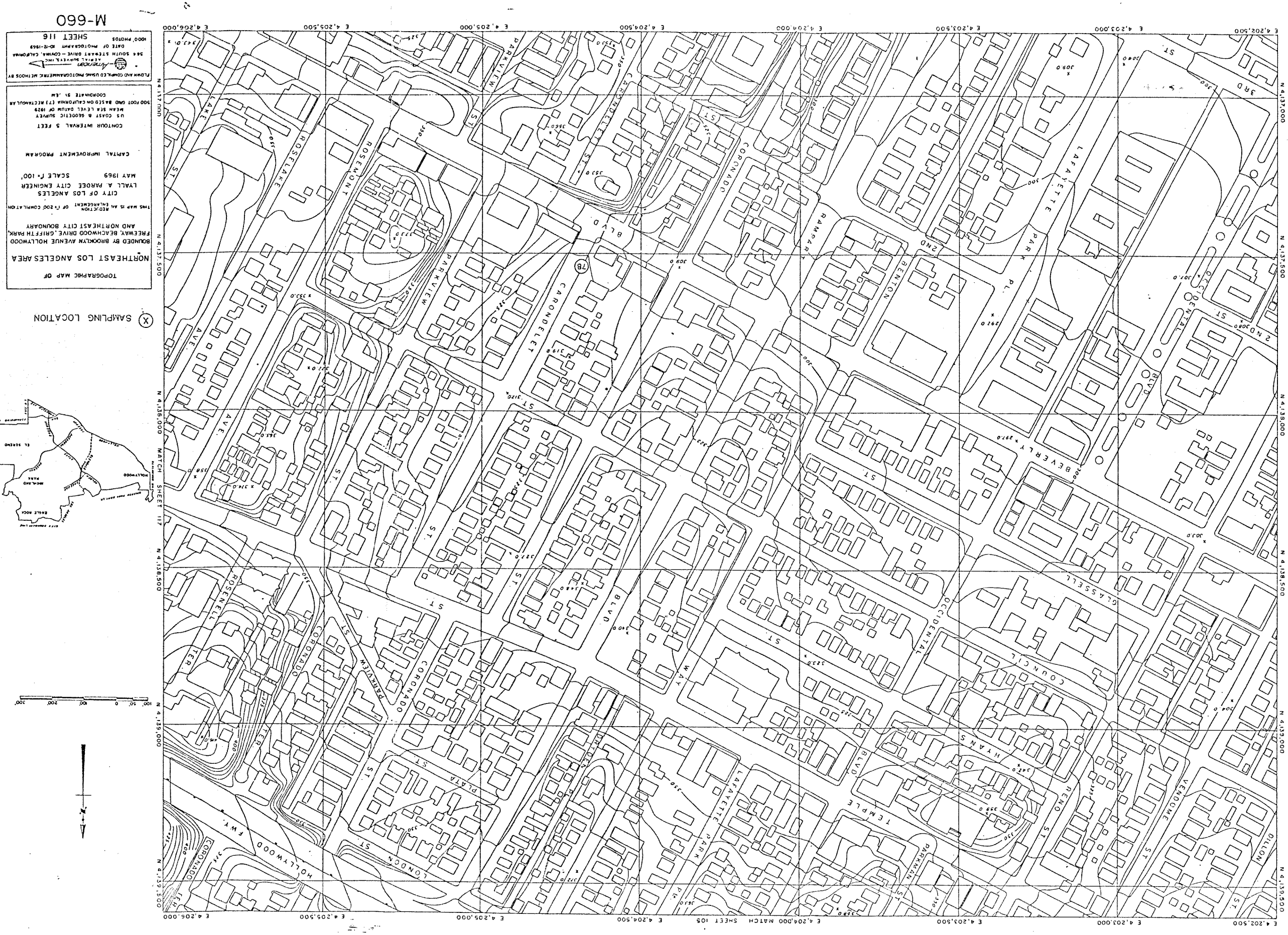
COMPILED BY:

METREX

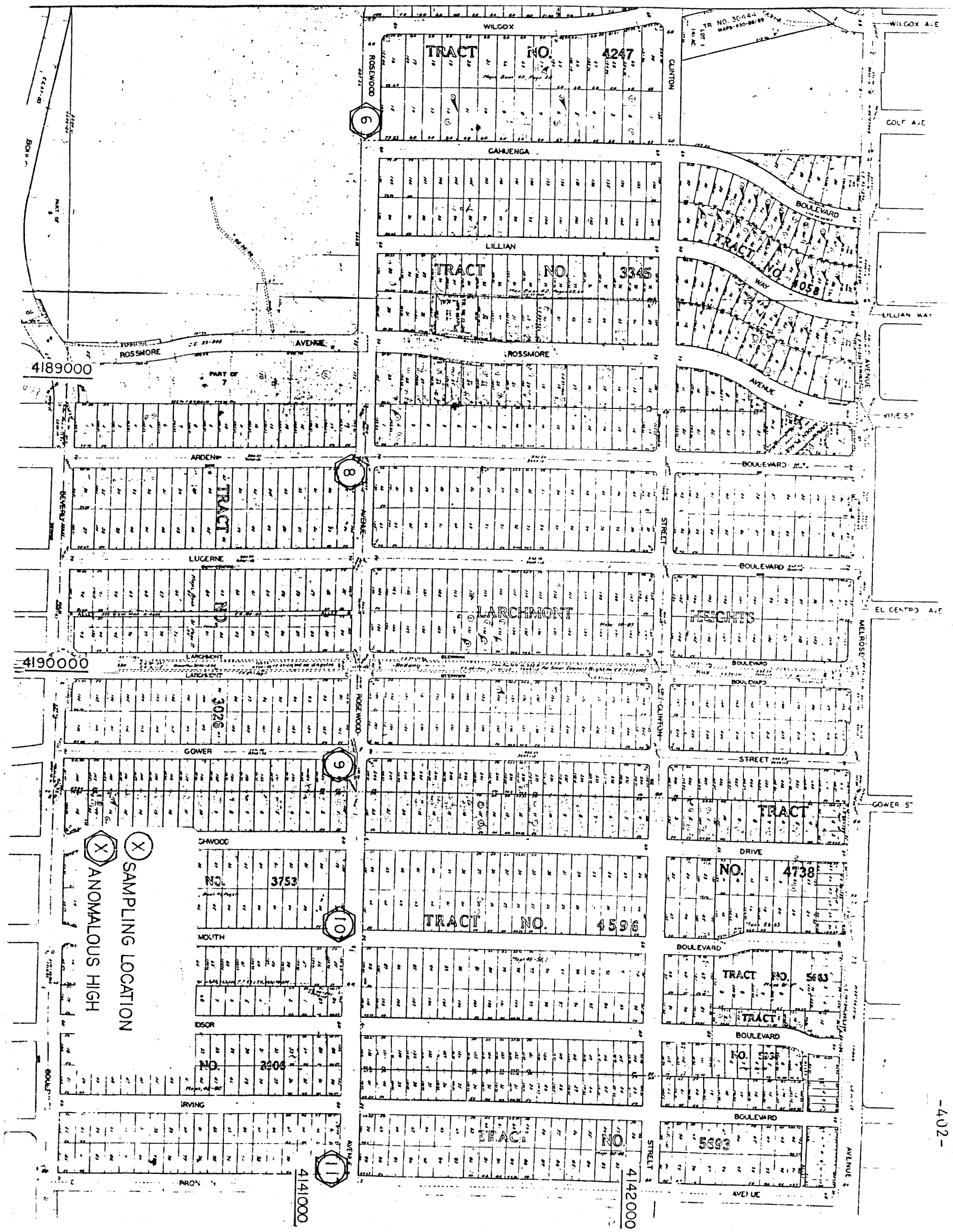
USING STEREOPHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED SEPTEMBER 25, 1975

SHEET 5 OF 42

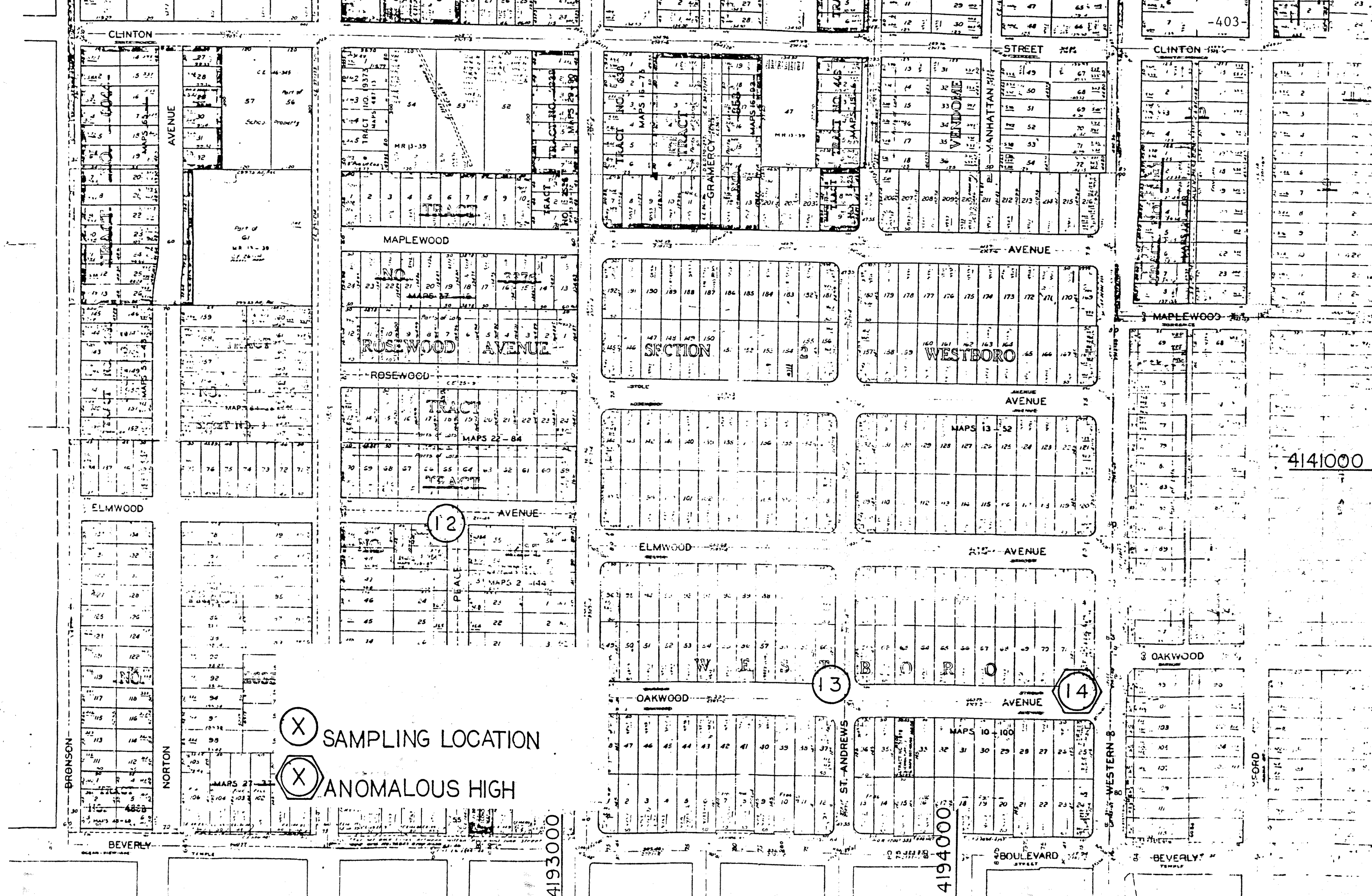
M-769


M-660
TOPOGRAPHIC MAP OF
NORTHEAST LOS ANGELES AREA
BOUNDED BY BROOKLYN AVENUE, HOLLYWOOD FREEWAY, BEACHWOOD DRIVE, GRIFFITH PARK, AND NORTHEAST CITY BOUNDARY
THIS MAP IS AN ENLARGEMENT OF REDUCTION OF 1"=200' COMPILATION
CITY OF LOS ANGELES
LYALL A PARKER CITY ENGINEER
MAY 1969 SCALE 1"= 100'
CAPITAL IMPROVEMENT PROGRAM
CONTOUR INTERVAL 5 FEET
MEAN SEA LEVEL DATUM OF 1929
U.S. COAST & GEODETIC SURVEY
500'FOOT GRID BASED ON CALIFORNIA (7) RECTANGULAR COORDINATE SY. ZEM
FLOWN AND COMPILED USING PHOTOGRAMMETRIC METHODS BY
AERIAL SURVEYS, INC.
544 SOUTH STEWART DRIVE - COVINA, CALIFORNIA
DATE OF PHOTOGRAPHY 10-2-1969
1000' PHOTOS SHEET 116
SAMPLING LOCATION
MATCH SHEET 117
MATCH SHEET 105
E 4,202,500
E 4,203,000
E 4,203,500
E 4,204,000
E 4,204,500
E 4,205,000
E 4,205,500
E 4,206,000
N 4,137,000
N 4,137,500
N 4,138,000
N 4,138,500
N 4,139,000
N 4,139,500
N 4,137,500
N 4,138,500
N 4,139,500
HOLLYWOOD FWY
CORONADO TER
CORONADO ST
CORONADO BLVD
PARKVIEW ST
ROSEMONT
ROSELAKE
ROSENELL TER
PLATA ST
LAFAYETTE PARK PL
LAFAYETTE PARK
TEMPLE
HYANS
COUNCIL
OCCIDENTAL
GLASSELL
BEVERLY
VENDOME
DILLON
BENDO ST
PARKMAN ST
GARNEAR
BENTON
2ND
3RD
ST
AVE
WAY
BLVD
CRENSHAW ST
CARONDELET ST
CONDON ST
EAGLE ROCK
MONTEREY HILLS
HOLLYWOOD
EL SERENO
MEAD-MID PARK
CITY BOUNDARY LINE
N
200' 50' 0 100' 200'

SALT LAKE OIL FIELD

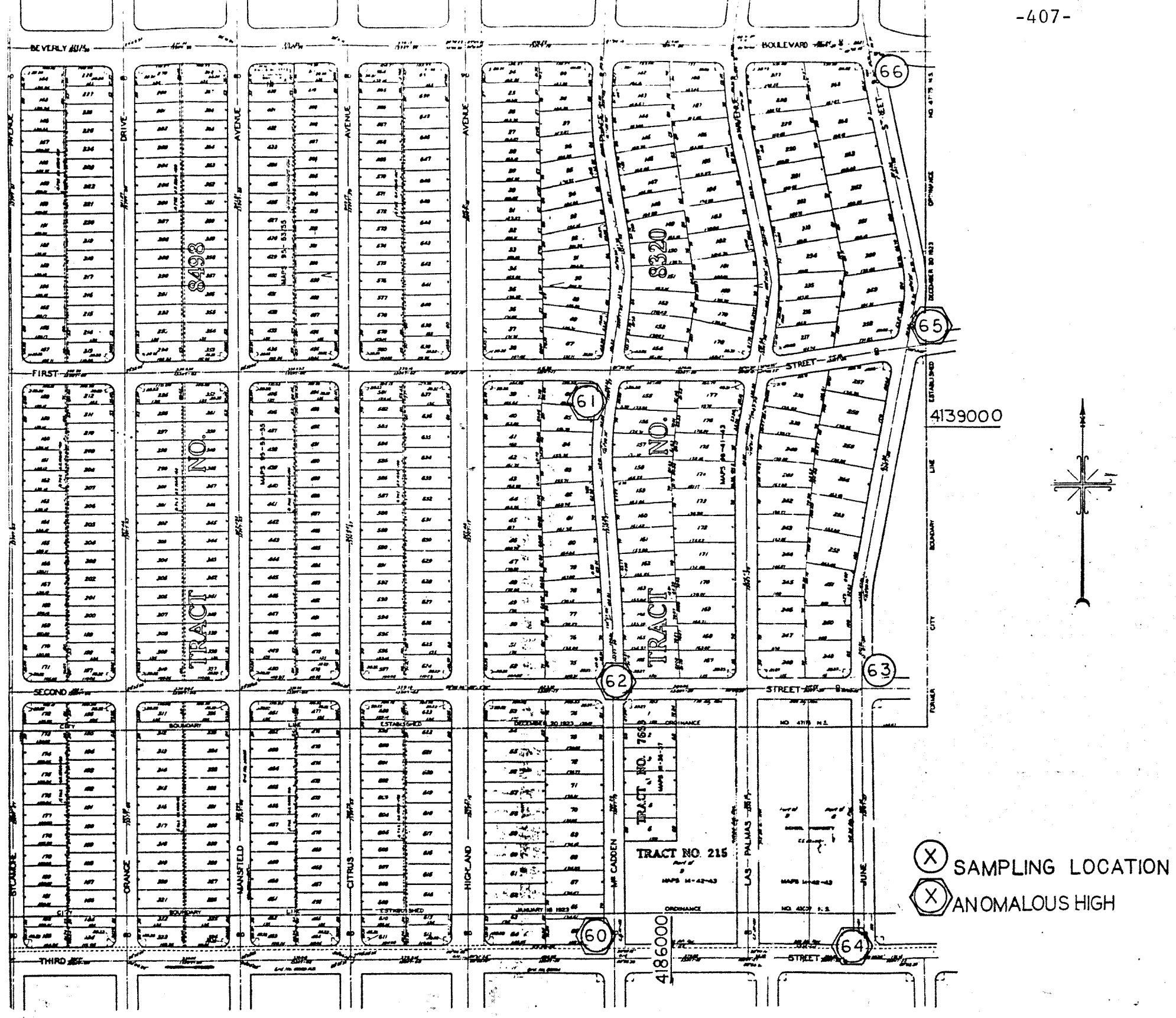


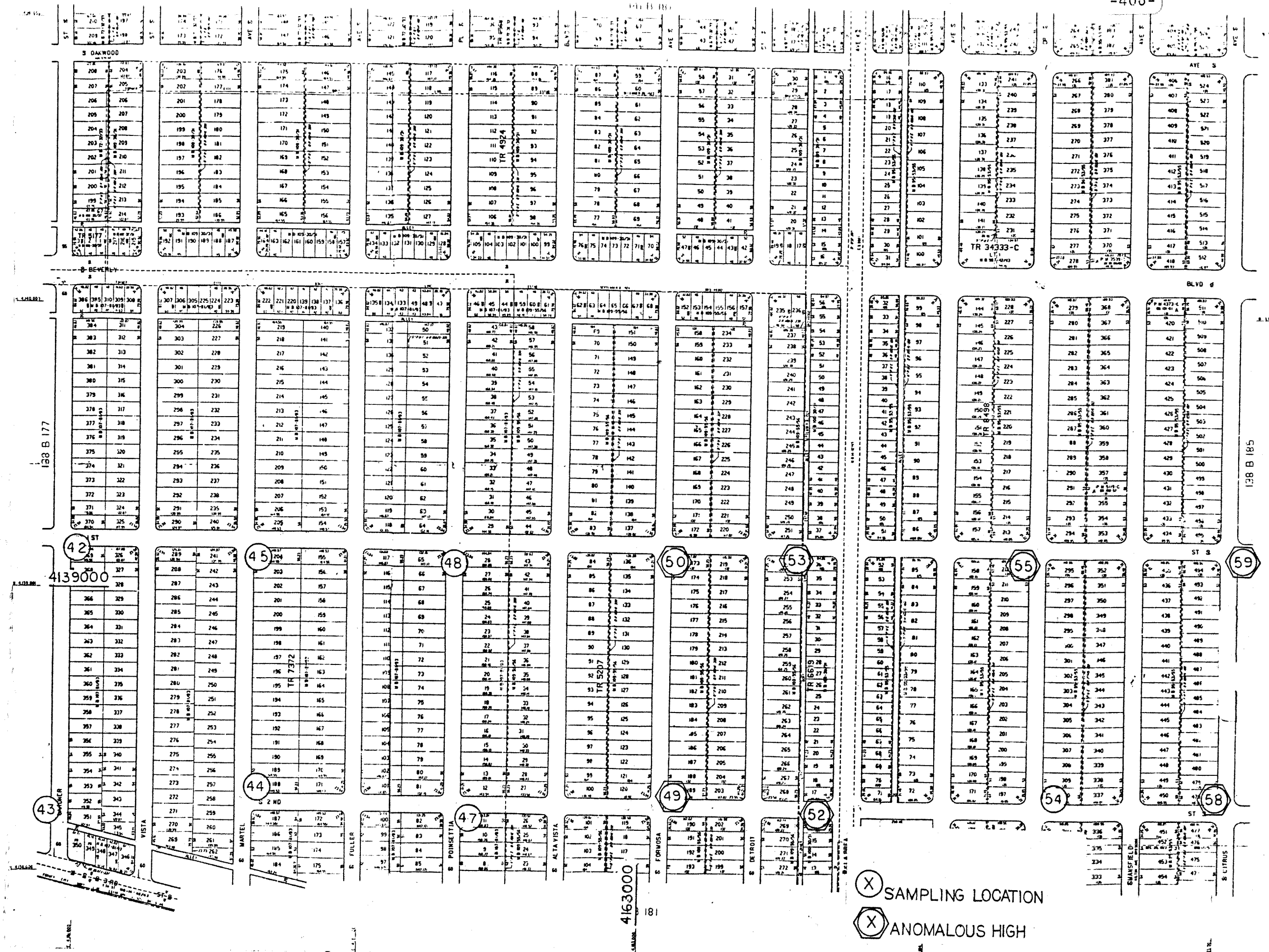
WILGOX
TRACT NO. 4247
ROSEWOOD
CLINTON
WILGOX AVE
COLE AVE
CAHUENGA
BOULEVARD
LILLIAN
TRACT NO. 3345
TRACT NO. 4058
WAY
LILLIAN WAY
ROSSMORE
AVENUE
4189000
PART OF 7
ARDEN
BOULEVARD
TRACT
BEVERLY
AVENUE
STREET
LUCERNE
BOULEVARD
LARCHMONT
HEIGHTS
EL CENTRO AVE
MELROSE
4190000
LARCHMONT
BOULEVARD
3026
ROSEWOOD
CLINTON
GOWER
STREET
TRACT
GOWER ST
SAMPLING LOCATION
ANOMALOUS HIGH
NO. 3753
DRIVE
NO. 4738
TRACT NO. 4596
BOULEVARD
TRACT NO. 5663
TRACT
BOULEVARD
NO. 3906
IRVING
BOULEVARD
TRACT NO. 5693
AVENUE
4141000
4142000



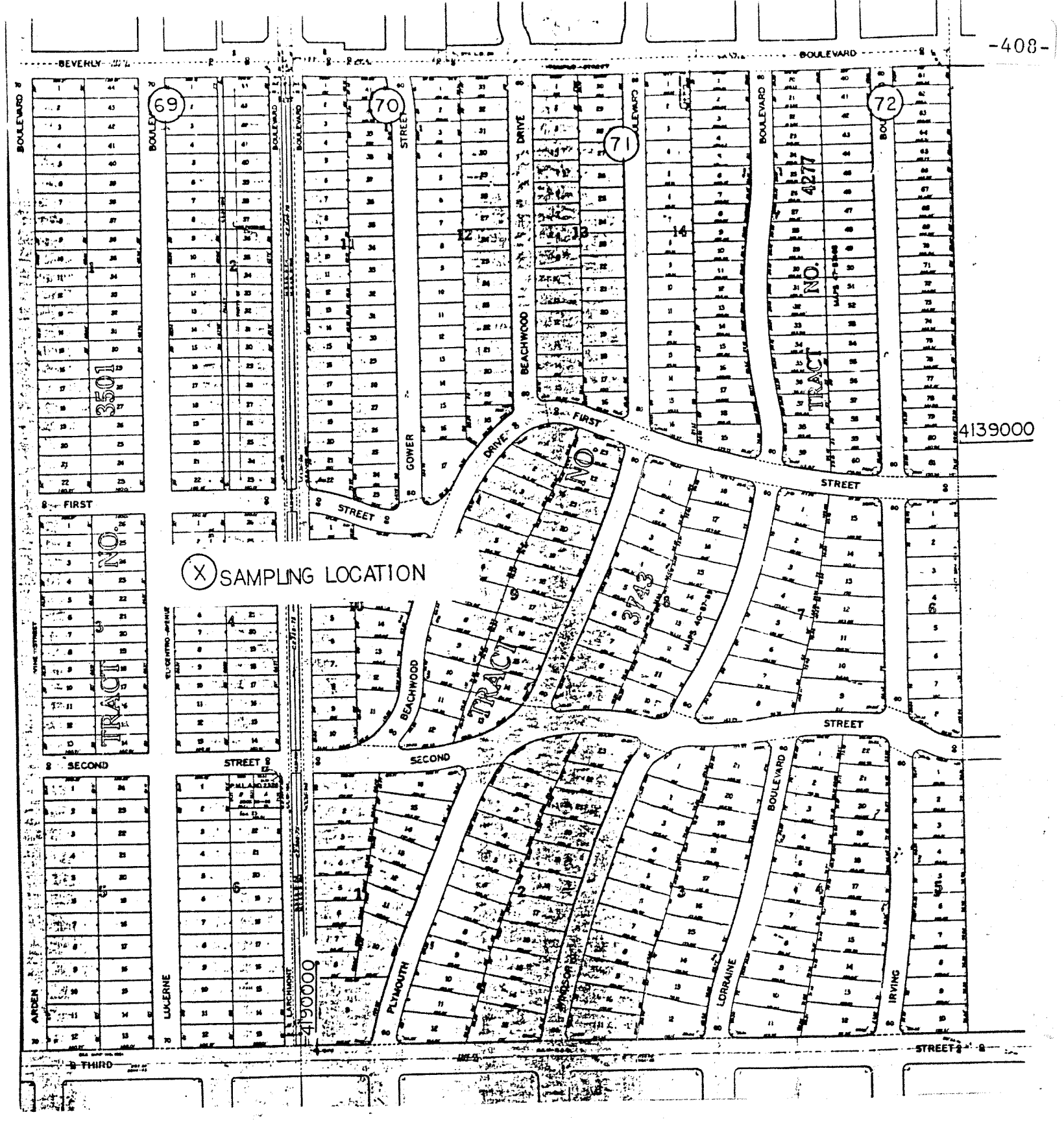
CLINTON
STREET
CLINTON
AVENUE
MAPLEWOOD
ROSEWOOD AVENUE
ROSEWOOD
ELMWOOD
AVENUE
ELMWOOD
AVENUE
OAKWOOD
AVENUE
OAKWOOD
BEVERLY
BOULEVARD
BEVERLY
BRONSON
NORTON
ST. ANDREWS
WESTERN
VENDOME
MANHATTAN
GRAMERCY
TRACT
SECTION 2
WESTBORO
WESTBORO
MAPS 13 - 52
MAPS 10 - 100
MAPS 22 - 84
MAPS 27 - 37
MAPS 2 - 144
MR 13-39
12
13
14
4141000
4193000
4194000
X SAMPLING LOCATION
X ANOMALOUS HIGH

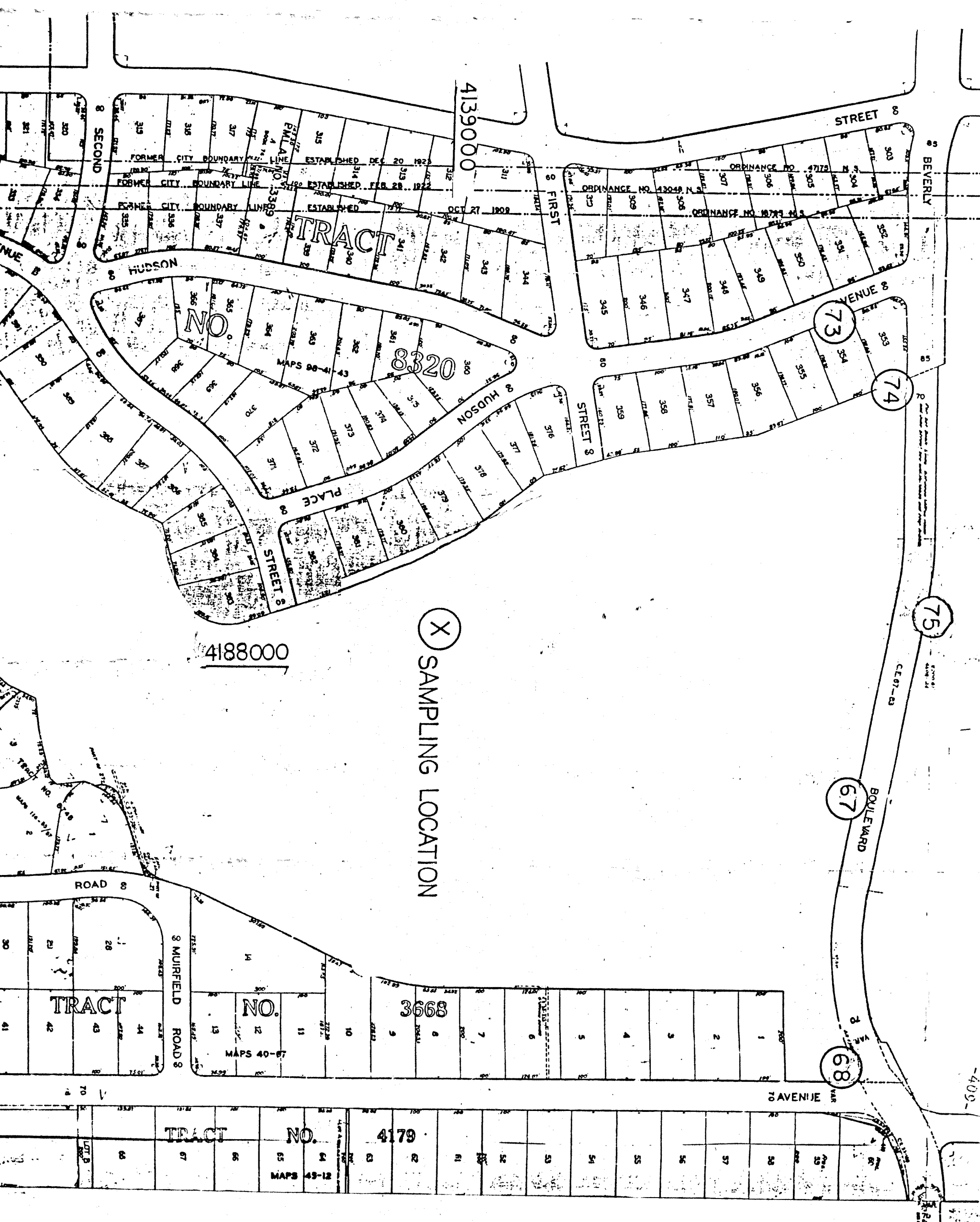
(X) SAMPLING LOCATION


BEVERLY
BOULEVARD
FIRST
STREET
SECOND
STREET
THIRD
STREET
AVENUE
DRIVE
ORANGE
MANSFIELD
CITRUS
HIGHLAND
McCADDEN
LAS PALMAS
JUNE
8498
8320
TRACT NO.
TRACT NO. 215
4139000
4186000
66
65
61
62
63
60
64
SAMPLING LOCATION
ANOMALOUS HIGH


S OAKWOOD
S BEVERLY
BLVD
AVE S
138 B 177
138 B 185
4139000
4163000
TR 4924
TR 5177
TR 34333-C
TR 8498
TR 7372
TR 5207
TR 6619
VISTA
MARTEL
FULLER
POINSETTIA
ALTA VISTA
FORMOSA
DETROIT
SMANSFIELD
CITRUS
42
43
44
45
47
48
49
50
52
53
54
55
58
59
X SAMPLING LOCATION
X ANOMALOUS HIGH

ROSEWOOD AVENUE
OAKWOOD AVENUE
BEVERLY BOULEVARD
GARDNER
VISTA
MARTEL
FULLER
POINSETTIA
ALTA VISTA
FORMOSA
DETROIT
LA BREA
ALLEY
TRACT NO. 6568
TRACT NO. 4924
MAPS 72-32-33
MAPS 109-30-31
City Boundary Line
4141000
4182000
4183000
SAMPLING LOCATION
ANOMALOUS HIGH


BEVERLY
BOULEVARD
69
70
71
72
BOULEVARD
STREET
DRIVE
BEACHWOOD
GOWER
FIRST
STREET
SECOND
STREET
THIRD
ARDEN
LUCERNE
LARCHMONT
PLYMOUTH
LORRAINE
IRVING
TRACT NO. 3501
TRACT NO. 4277
TRACT NO. 3743
4139000
4190000
X SAMPLING LOCATION

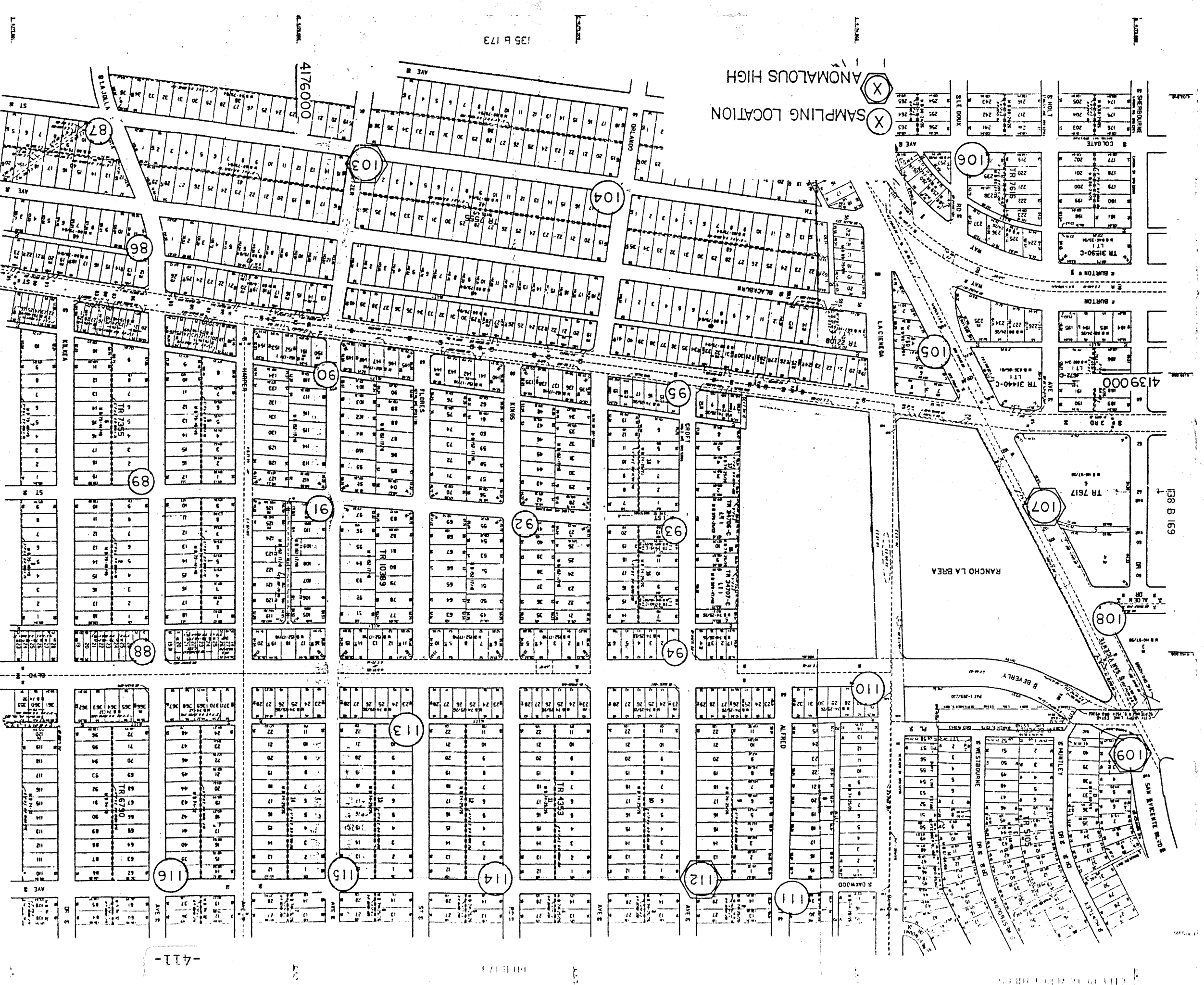


4139000
4188000
SAMPLING LOCATION
TRACT NO. 8320
MAPS 98-41-43
TRACT NO. 3668
MAPS 40-67
TRACT NO. 4179
MAPS 45-12
FORMER CITY BOUNDARY LINE ESTABLISHED DEC 20 1923
FORMER CITY BOUNDARY LINE ESTABLISHED FEB 28 1922
FORMER CITY BOUNDARY LINE ESTABLISHED OCT 27 1909
ORDINANCE NO. 47175 N.S.
ORDINANCE NO. 43048 N.S.
ORDINANCE NO. 18795 N.S.
SECOND
HUDSON
PLACE
STREET
FIRST
BEVERLY
AVENUE
BOULEVARD
MUIRFIELD ROAD
ROAD
73
74
75
67
68

HAMILTON
DR
SAN VICENTE
TR 4988
COLGATE
DREXEL
5TH
ORLANDO
AVE
MARYLAND
LINDENHURST
6TH
TR 7555
4176000
4137000
4TH
ST
SAMPLING LOCATION
ANOMALOUS HIGH

138 B 73

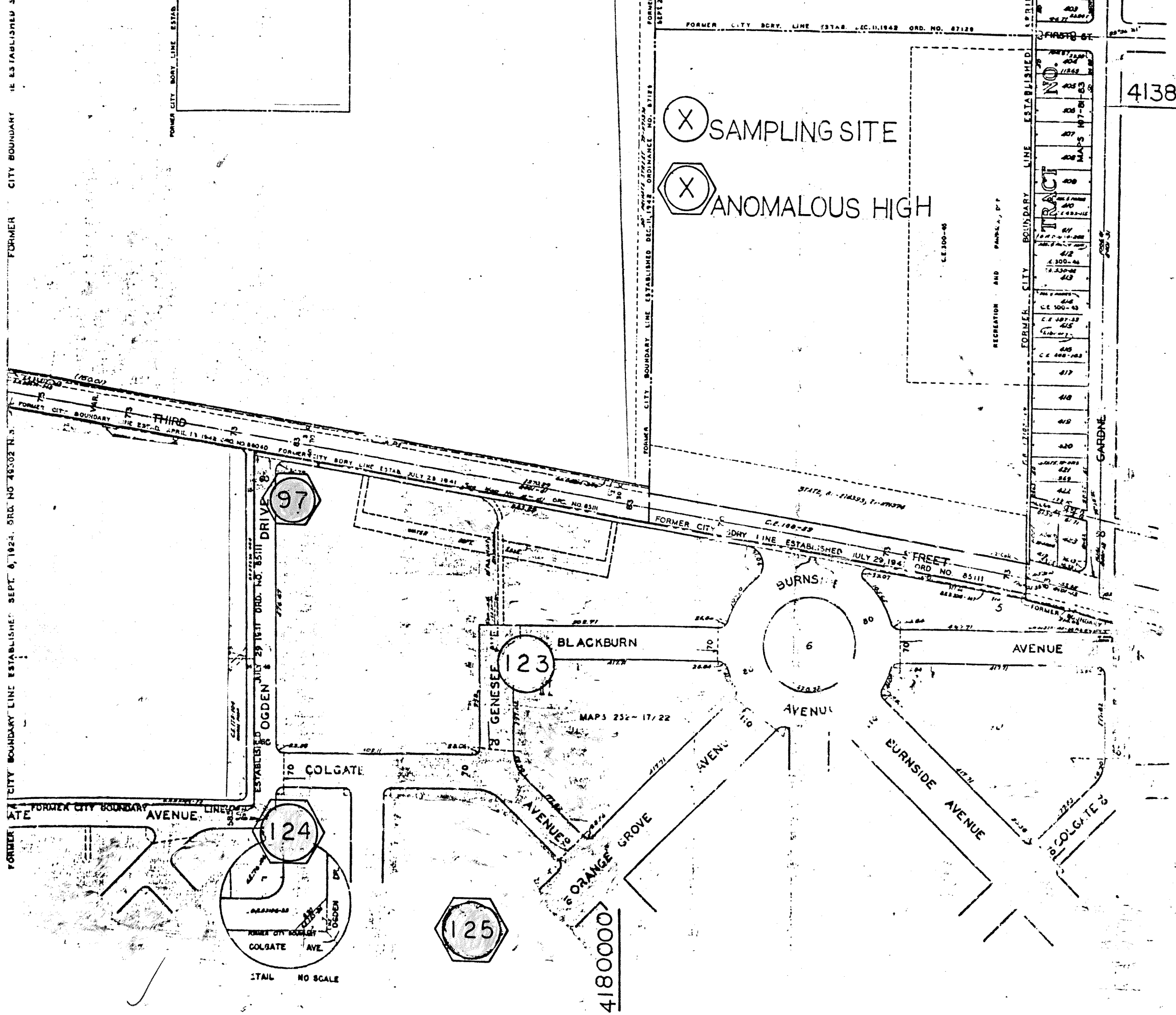
-410-

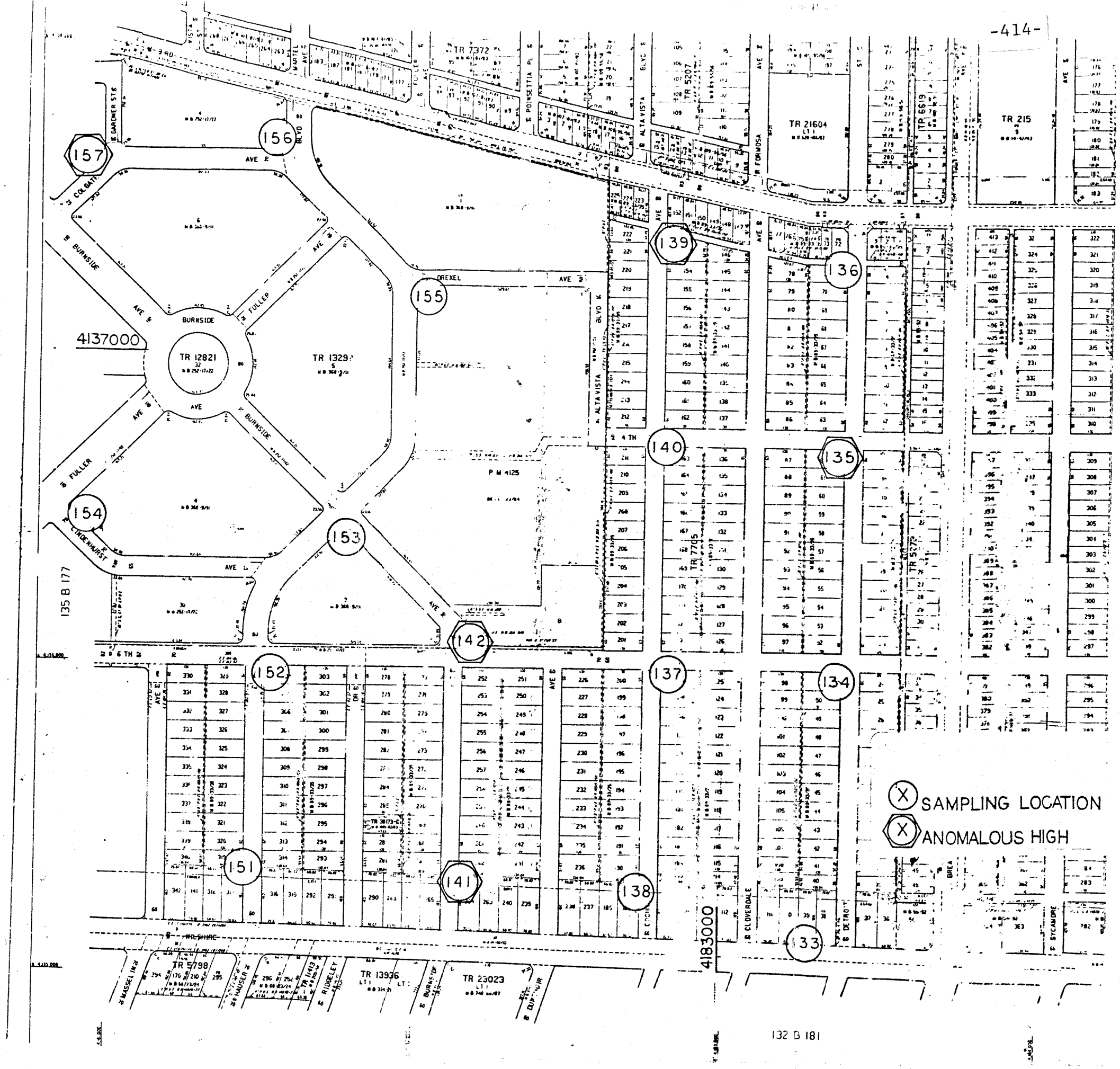


SAMPLING LOCATION
ANOMALOUS HIGH
4176000
4139000
RANCHO LA BREA
LA CIENEGA
BLACKBURN
ORLANDO
KILKEA
HARPER
FLORES
KINGS
CROFT
ALFRED
OAKWOOD
WESTBOURNE
HUNTLEY
SAN VICENTE BLVD
BEVERLY
BURTON
COLGATE
SHERBOURNE
HOLT
LE DOUX
TR 7555
TR 7355
TR 10389
TR 6790
TR 4353
TR 5105
TR 7617
TR 7616
TR 22108
TR 31440-C
TR 31590-C

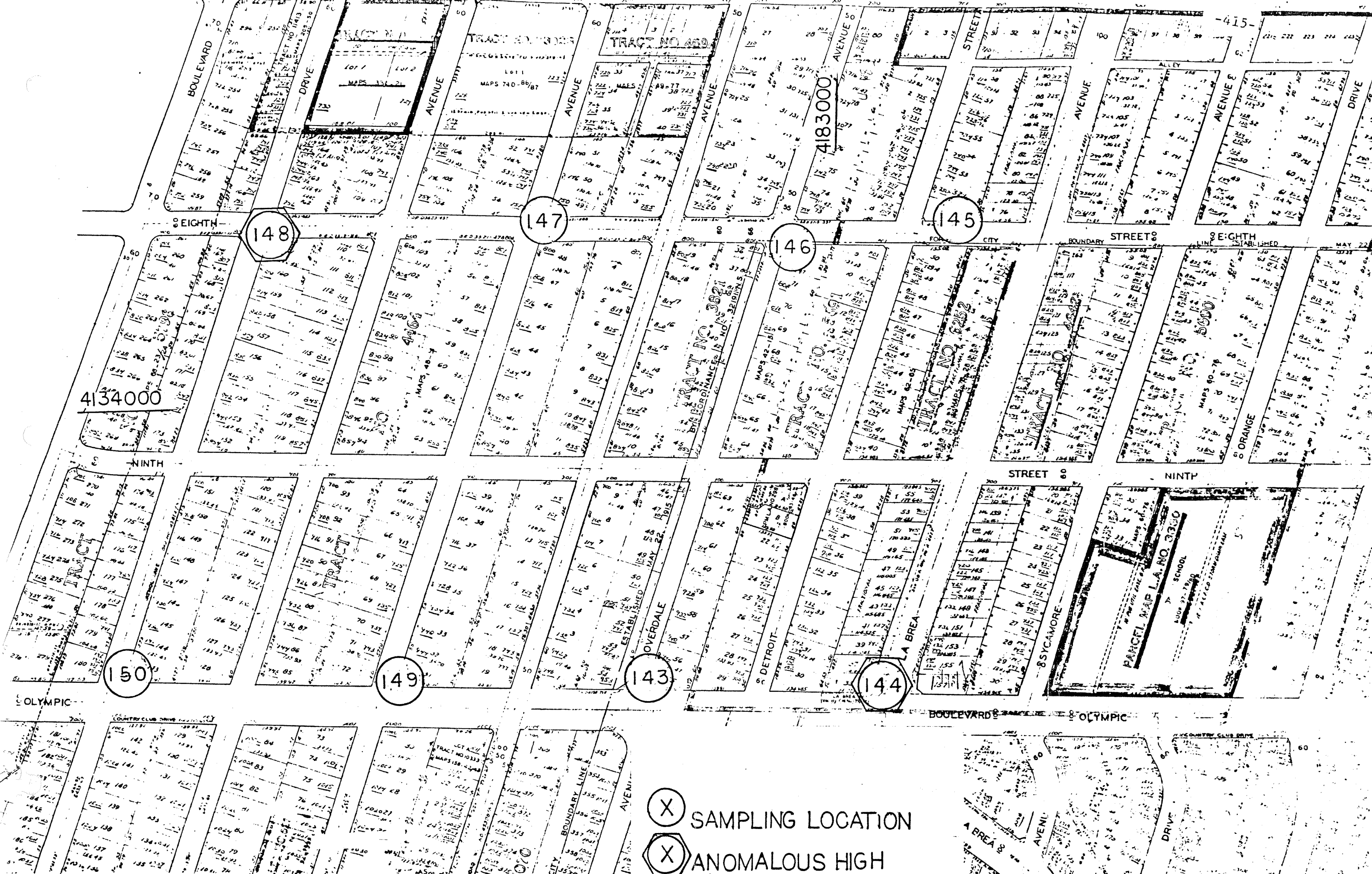
X SAMPLING LOCATION

X ANOMALOUS HIGH

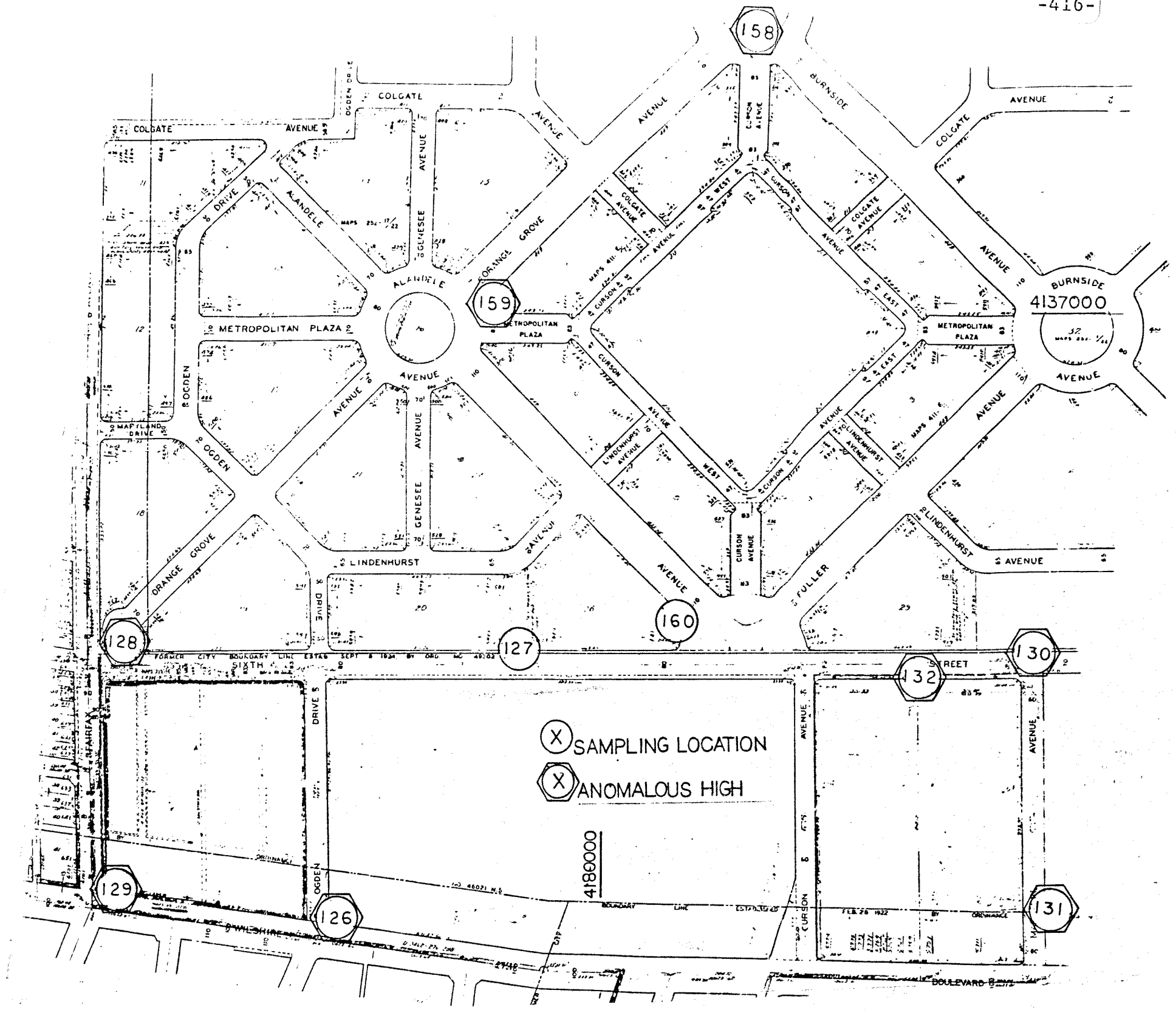

SAMPLING SITE
ANOMALOUS HIGH
4138000
4180000
FIRST ST.
TRACT NO.
MAPS 107-81-83
GARDNE
THIRD
STREET
BURNSIDE
AVENUE
BLACKBURN
AVENUE
GENESEE
OGDEN
DRIVE
COLGATE
AVENUE
ORANGE GROVE
AVENUE
BURNSIDE AVENUE
COLGATE
97
123
124
125
MAPS 252-17/22
FORMER CITY BDRY. LINE ESTAB. DEC. 11, 1942 ORD. NO. 87129
FORMER CITY BOUNDARY LINE ESTABLISHED DEC. 11, 1942 ORDINANCE NO. 87129
FORMER CITY BDRY LINE ESTAB. JULY 29 1941 ORD. NO. 85111
FORMER CITY BOUNDARY LINE ESTABLISHED JULY 29, 1941 ORD. NO. 85111
FORMER CITY BOUNDARY LINE ESTABLISHED SEPT. 6, 1924, ORD. NO. 49302 N.S.
FORMER CITY BOUNDARY LINE ESTABLISHED
COLGATE AVE.
OGDEN
STAIL NO SCALE



SAMPLING LOCATION
ANOMALOUS HIGH
4137000
4183000
135 B 177
132 B 181
TR 12821
TR 13292
TR 7372
TR 21604
TR 215
TR 5207
TR 6619
TR 7705
TR 5272
TR 5798
TR 13936
TR 23023
P M 4125
BURNSIDE AVE
FULLER AVE
DREXEL AVE
ALTA VISTA BLVD
LINDENHURST AVE
COLGATE AVE
GARDNER ST
POINSETTIA PL
FORMOSA
CLOVERDALE
DETROIT
SYCAMORE
WILSHIRE
MASSELIN
HAUSER
RIDGELEY
BURNSIDE
DUPONT
4 TH
6 TH
157
156
155
154
153
152
151
142
141
140
139
138
137
136
135
134
133

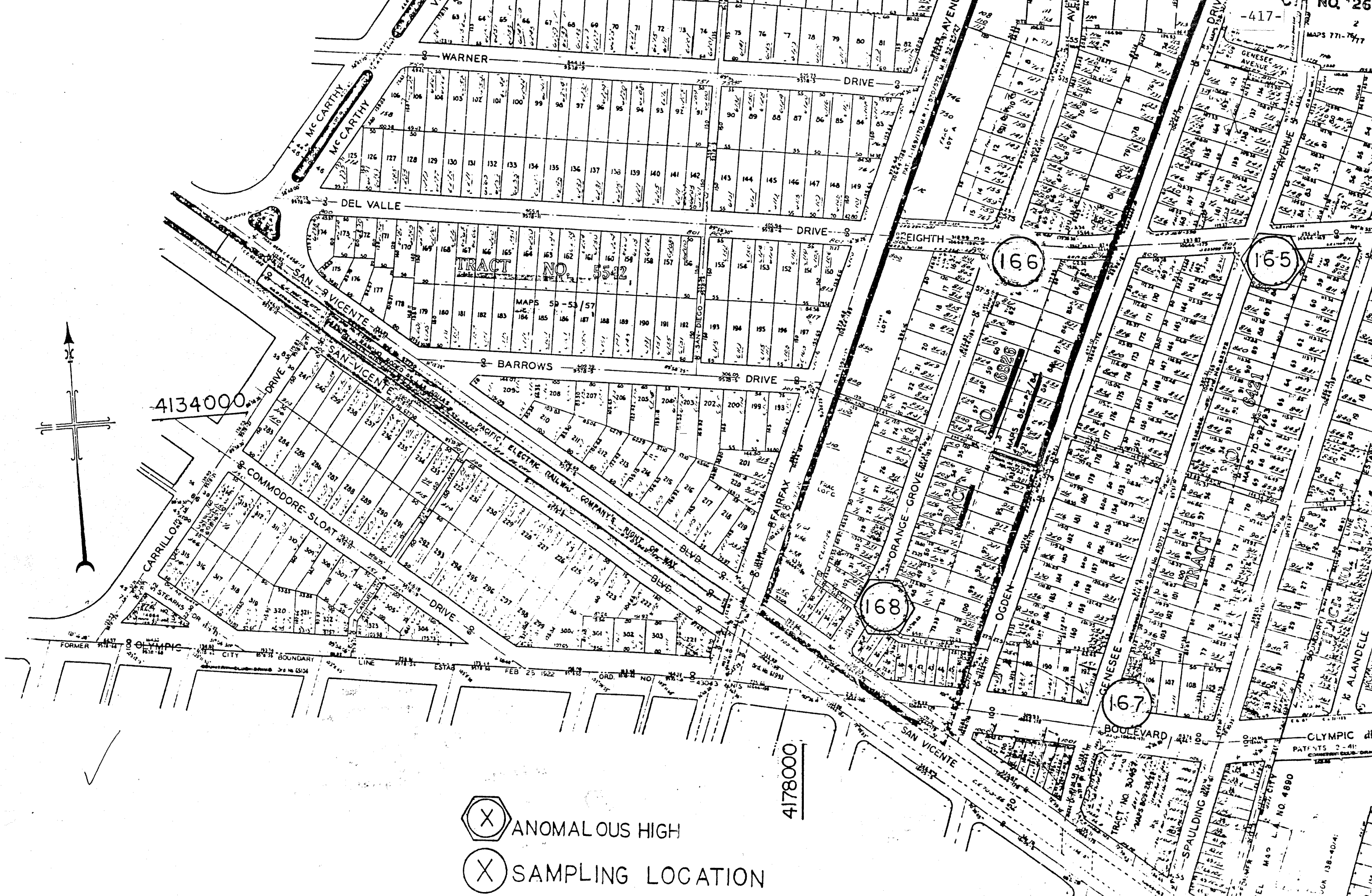


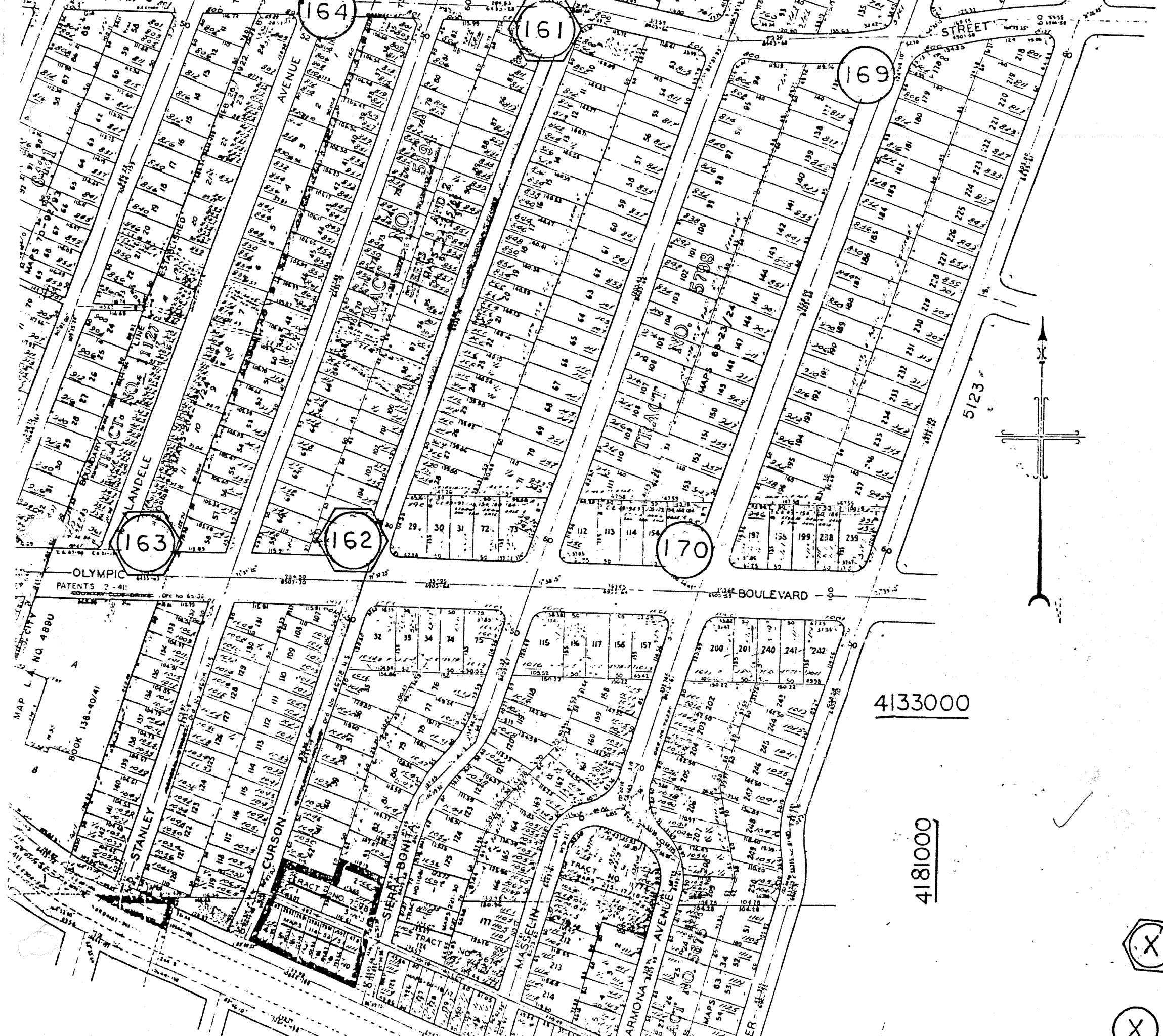
BOULEVARD
DRIVE
AVENUE
TRACT NO. 469
4183000
EIGHTH
148
147
146
145
STREET
EIGHTH
4134000
NINTH
STREET
NINTH
150
149
143
144
OLYMPIC
BOULEVARD
OLYMPIC
OVERDALE
DETROIT
LA BREA
SYCAMORE
ORANGE
PANCEL MAP L.A. NO. 3300
SCHOOL
TRACT NO. 6252
TRACT NO. 3821
BY ORDINANCE NO. 32191 N.S.
ESTABLISHED MAY 22, 1915
COUNTRY CLUB DRIVE
BOUNDARY LINE
X SAMPLING LOCATION
X ANOMALOUS HIGH



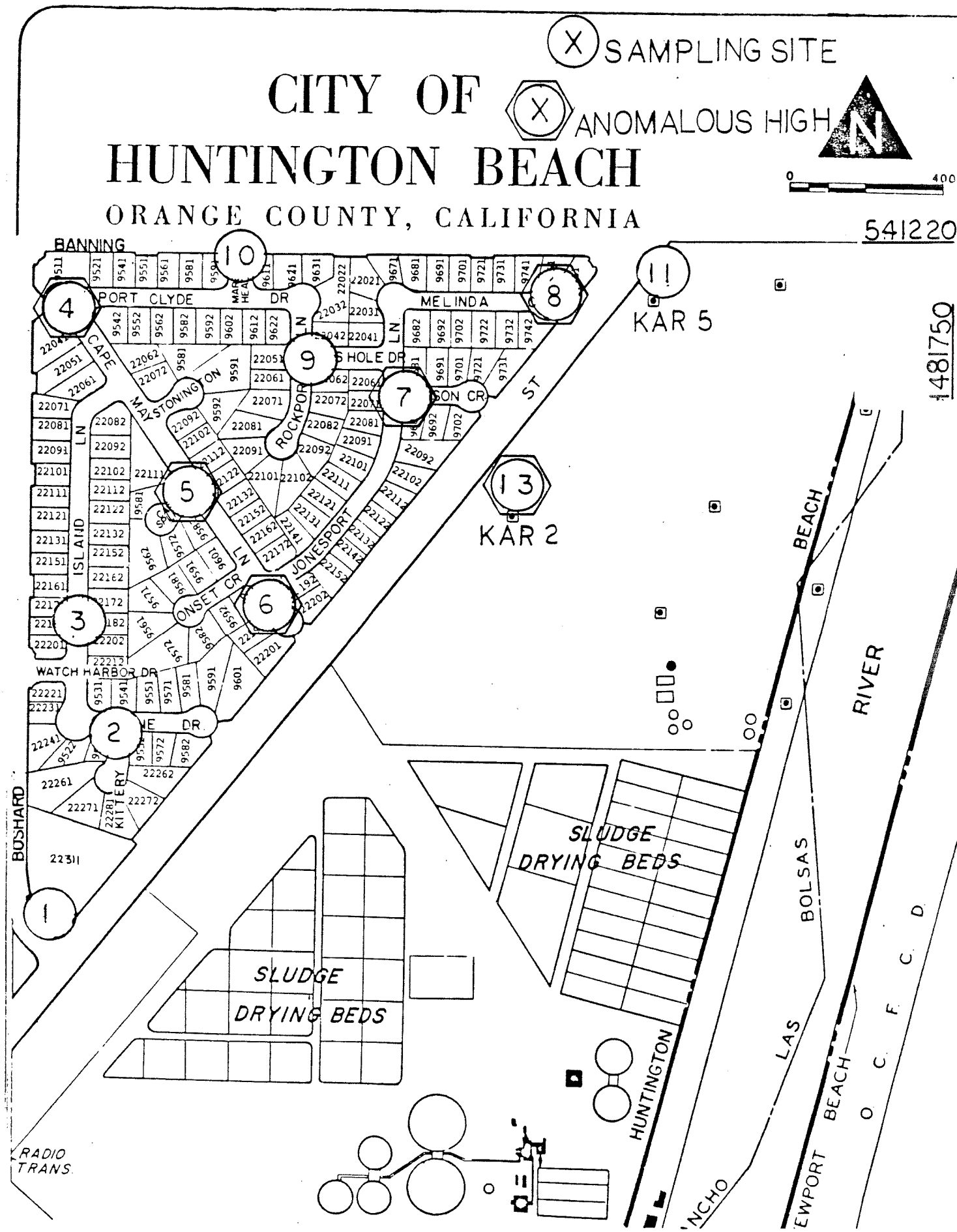
128
129

Anomalies
158
159


WARNER
DRIVE
McCARTHY
DEL VALLE
DRIVE
EIGHTH
TRACT NO. 5542
MAPS 59-53/57
SAN DIEGO
BARROWS
DRIVE
SAN VICENTE
4134000
PACIFIC ELECTRIC RAILWAY COMPANY'S RIGHT OF WAY
COMMODORE SLOAT
DRIVE
CARRILLO
STEARNS DR
FAIRFAX
BLVD
ORANGE GROVE
OGDEN
GENESEE
AVENUE
GENESEE AVENUE
ALANDELE
SPAULDING
BOULEVARD
OLYMPIC
FORMER CITY BOUNDARY LINE ESTAB FEB 25 1922 ORD. NO. 43043
4178000
166
165
168
167
ANOMALOUS HIGH
SAMPLING LOCATION

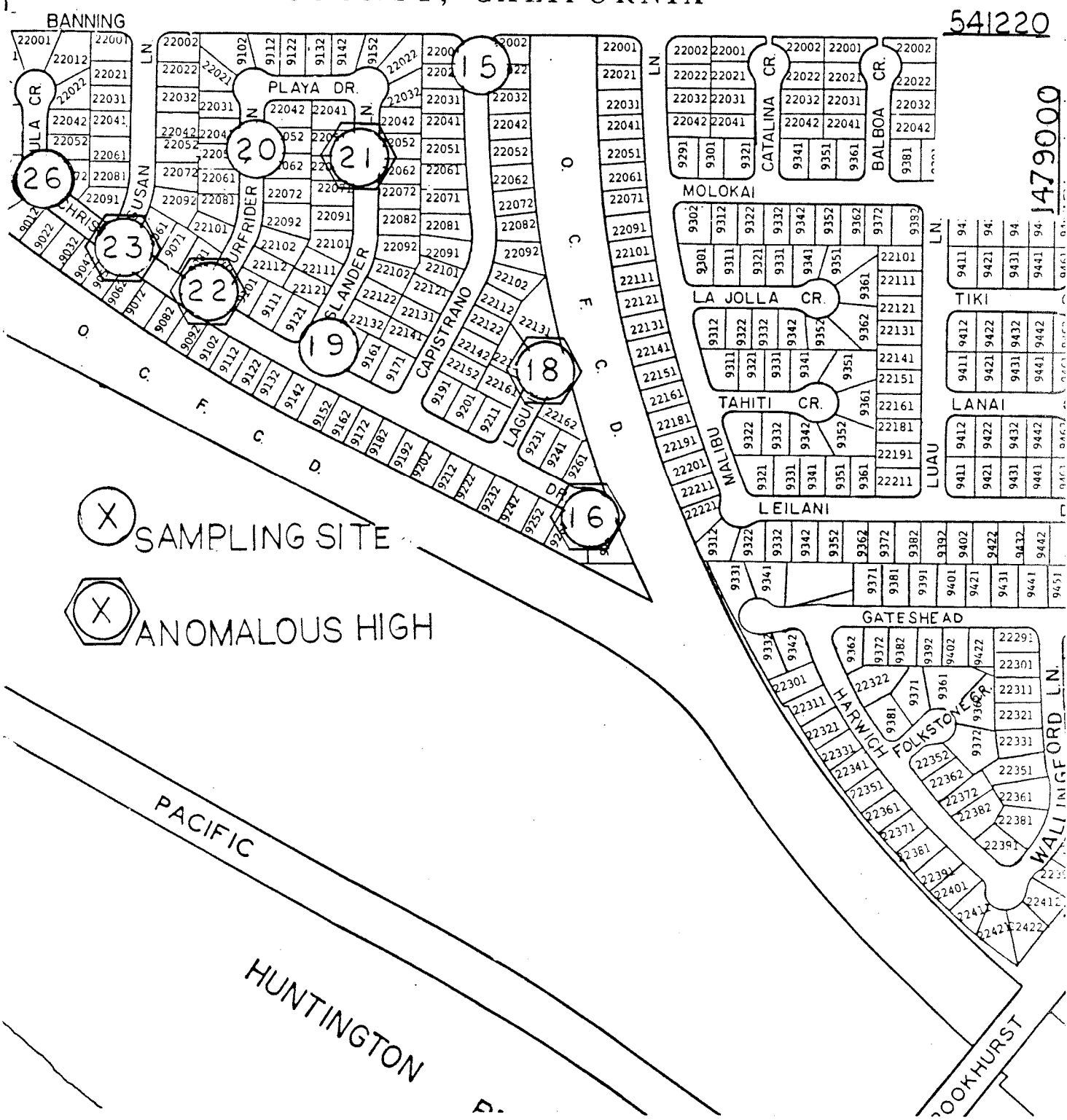

164
161
169
163
162
170
STREET
AVENUE
LANDELLE
OLYMPIC
BOULEVARD
STANLEY
CURSON
SIERRA BONITA
MASSELIN
ARMONA
AVENUE
TRACT NO. 5788
TRACT NO. 5789
TRACT NO. 5790
TRACT NO. 5791
TRACT NO. 5792
TRACT NO. 5793
TRACT NO. 5794
TRACT NO. 5795
TRACT NO. 5796
TRACT NO. 5797
TRACT NO. 5798
TRACT NO. 5799
TRACT NO. 5800
TRACT NO.

HUNTINGTON BEACH


X SAMPLING SITE
X ANOMALOUS HIGH
N
0
400
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
541220
1481750
BANNING
PORT CLYDE
MELINDA
CAPE
MAYSTONINGTON
ROCKPORT
JONESPORT
ONSET CR
ISLAND
WATCH HARBOR DR
KITTERY
BUSHARD
KAR 5
KAR 2
SLUDGE DRYING BEDS
SLUDGE DRYING BEDS
HUNTINGTON
BEACH
RIVER
BOLSAS
LAS
RADIO TRANS.

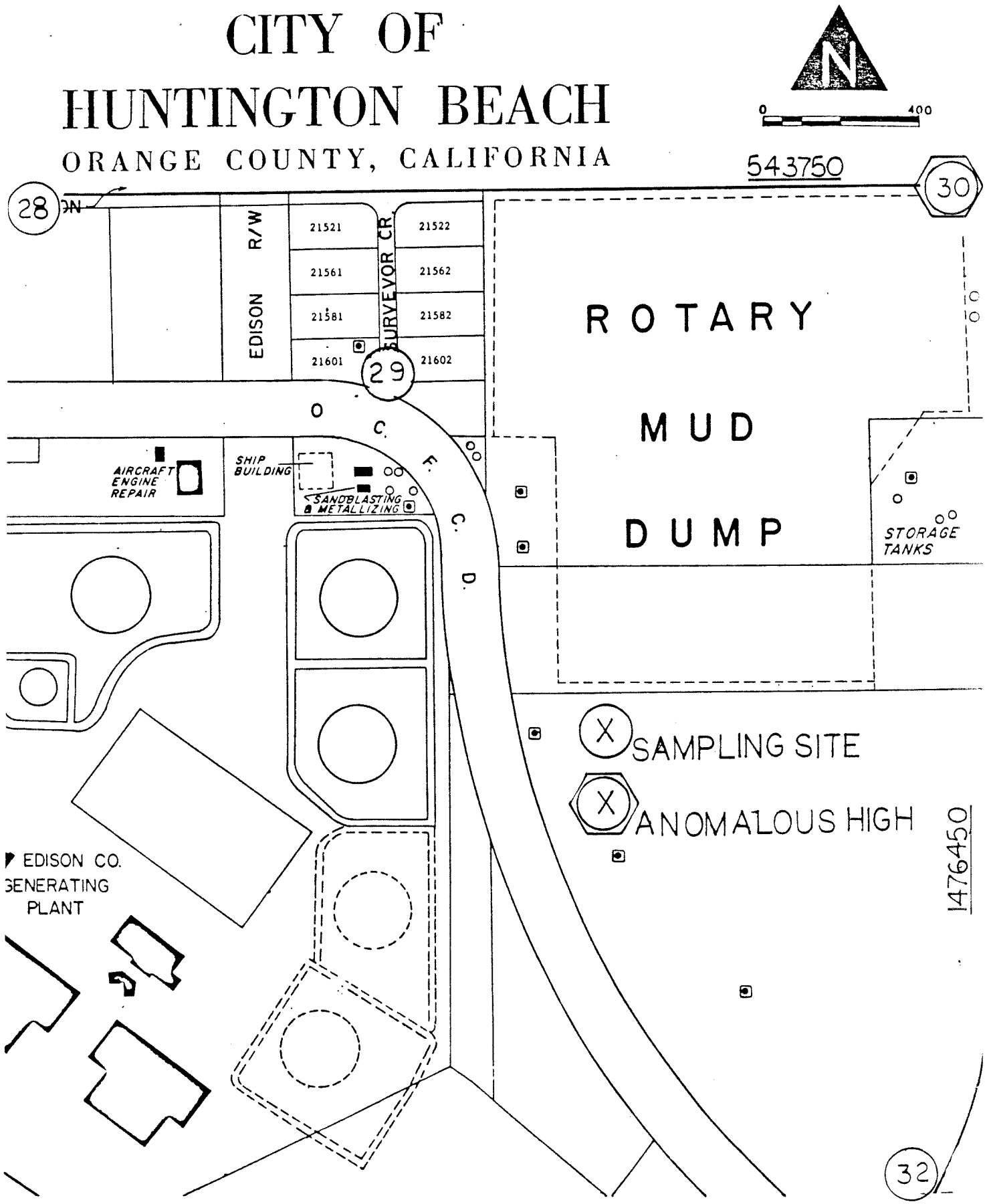
CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA



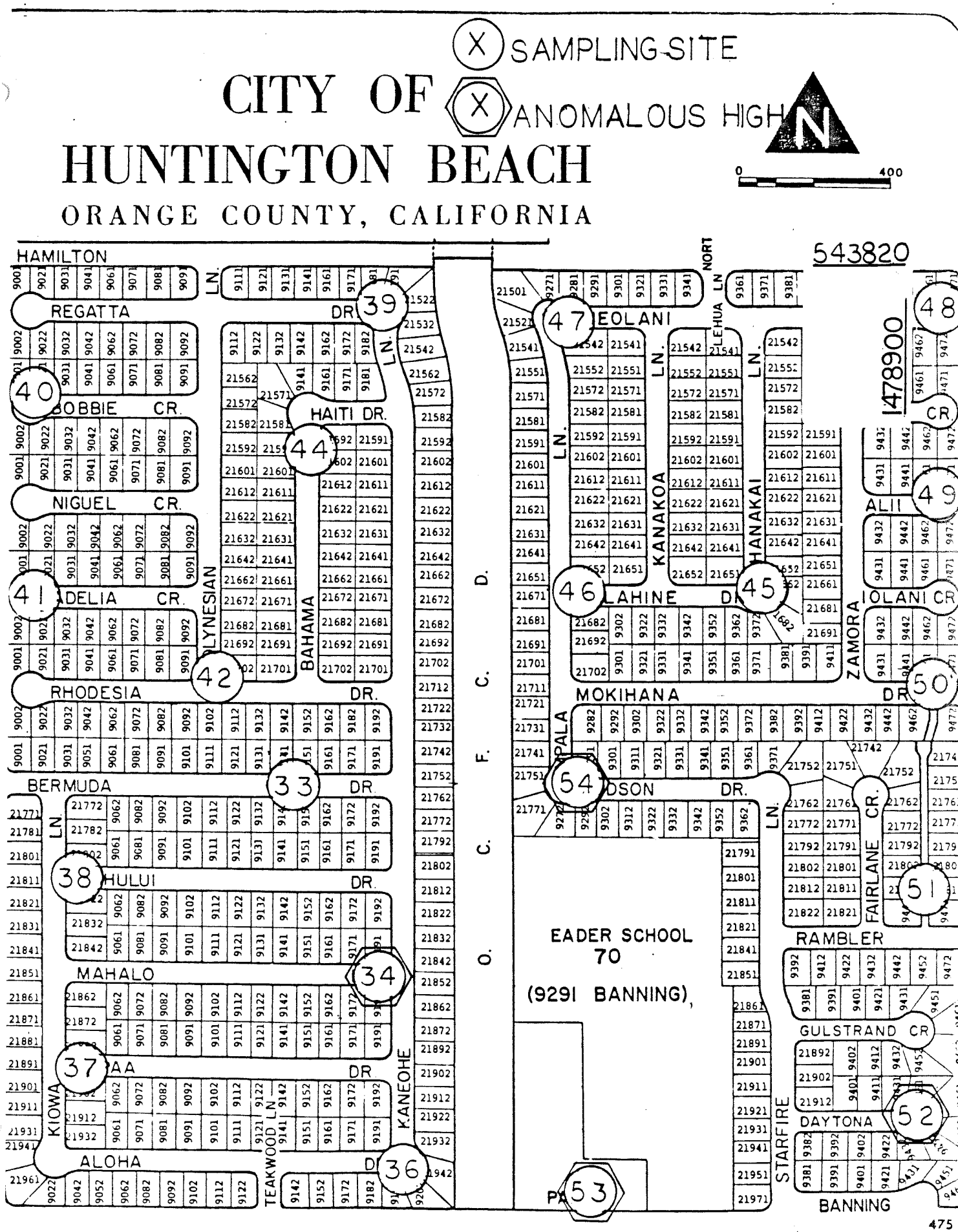
CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA

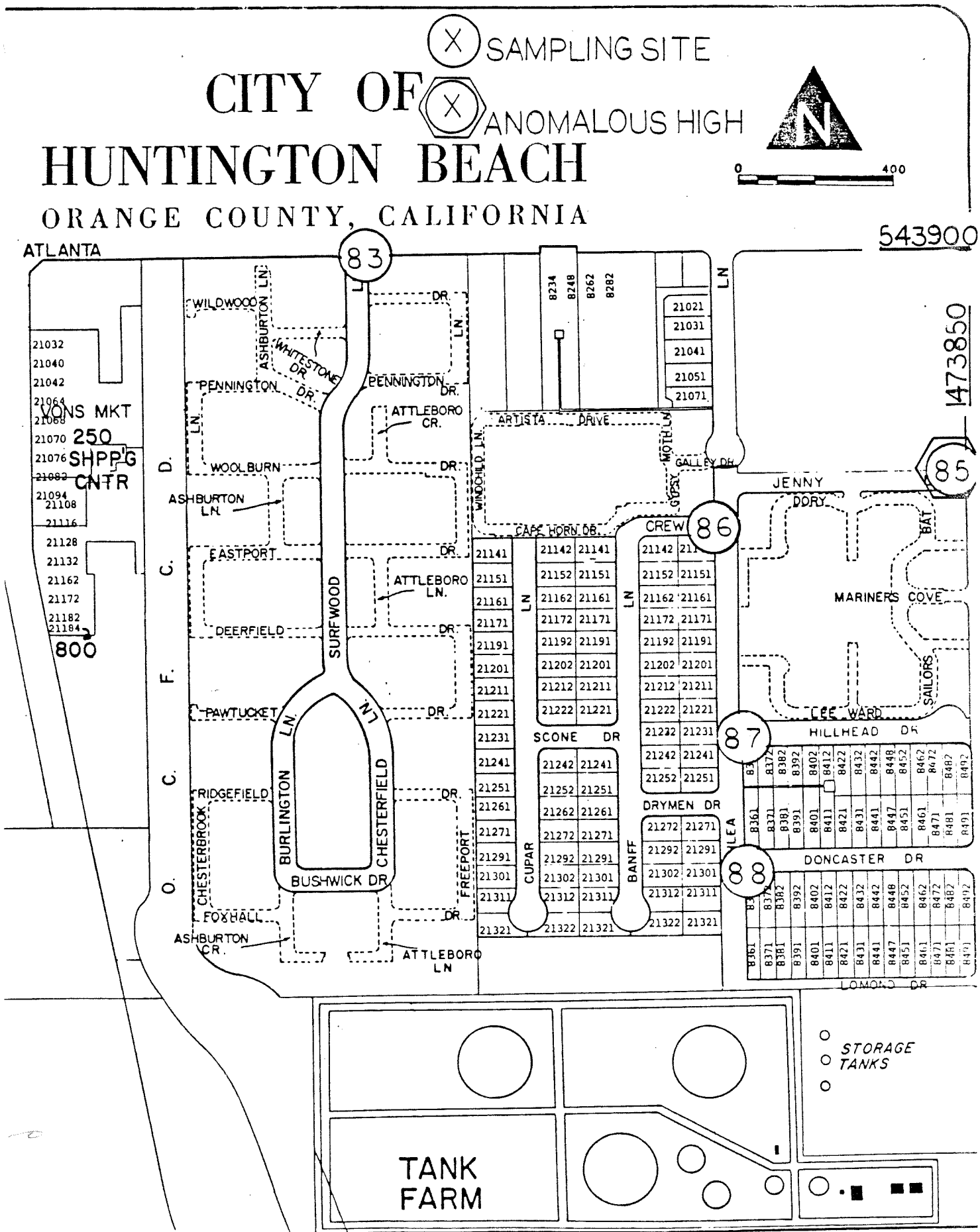


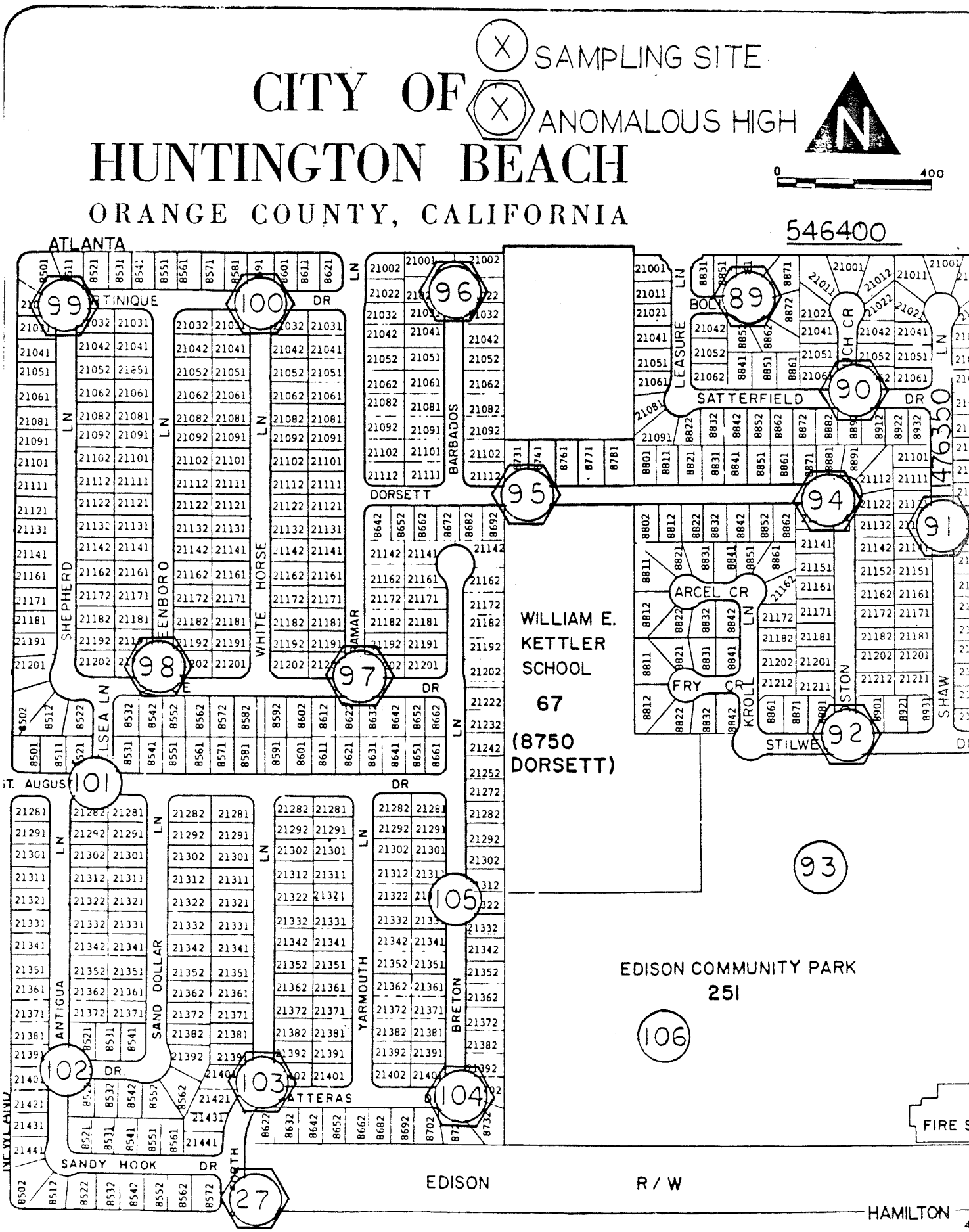
CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA

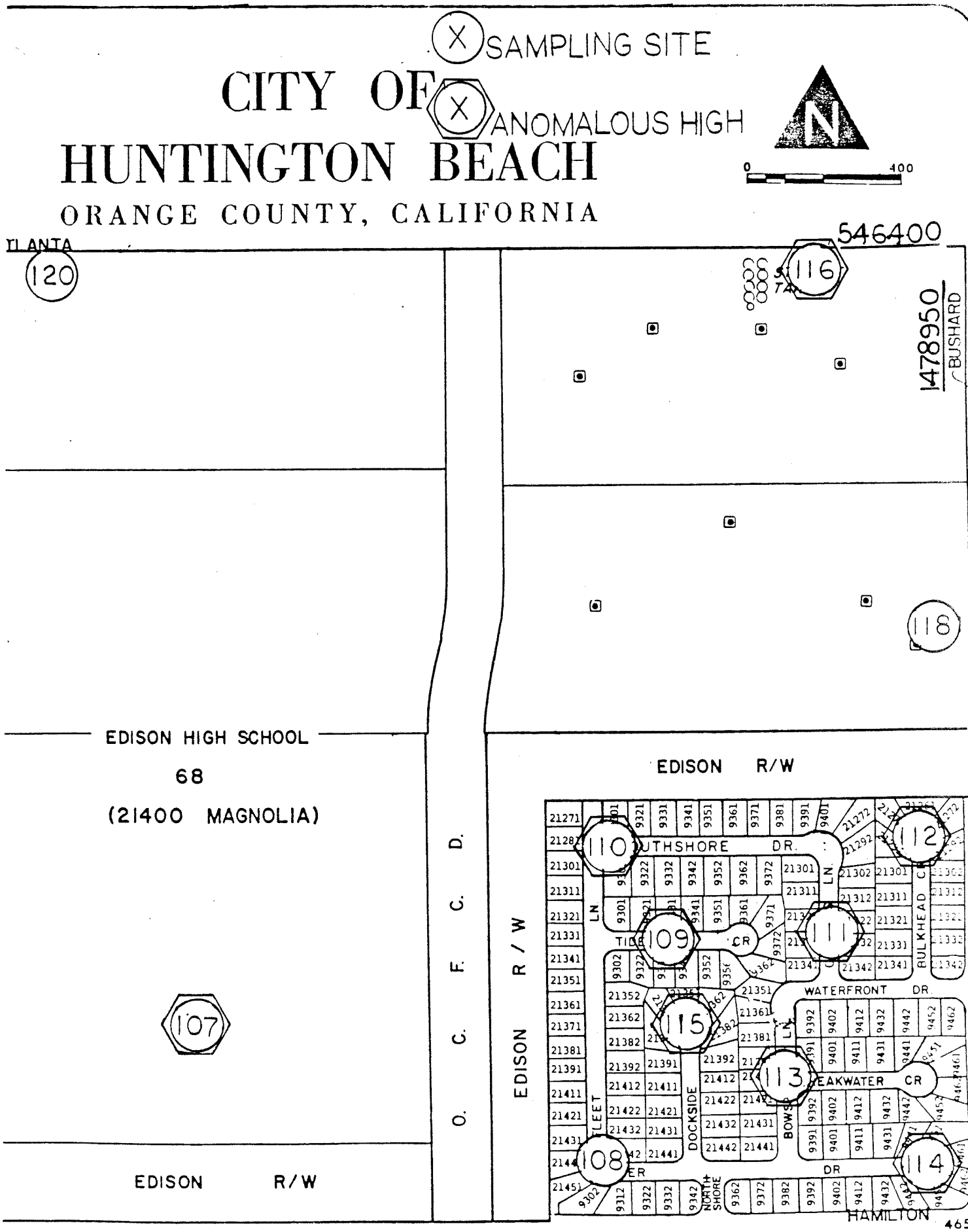


SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
543820
1481800
HAMILTON
254 SHPP'G CNTR
257
(9652 HAMILTON)
255
(21551 BROOK.)
56
(21661 BROOK.)
BEAT
CLEARB
ARCHER
SAINT JOHN LN
CAMEO LN
LANDFA
DR.
SALUDA
DIRIGO
BRANTA
ROCKPOINT DR
BEACHSIDE DR.
WINSONG
PARK
SURFCREST DR
SHORE BRE
OCEANCREST
OCEANVIEW LANE
SEACREST
SEASIDE
SUMMER
VACATION LANE
BORBREEZE LN
OCEANBREEZE
SUMMERWIND
BROOKHURST
TIDE
TIDE LN.
BANNING


SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
543900
1473850
ATLANTA
83
85
86
87
88
VONS MKT
250
SHPP'G
CNTR
800
WILDWOOD
ASHBURTON LN.
WHITESTONE DR.
PENNINGTON
PENNINGTON DR.
ATTLEBORO CR.
WOOLBURN
ASHBURTON LN.
EASTPORT
ATTLEBORO LN.
DEERFIELD
SURFWOOD
PAWTUCKET
RIDGEFIELD
CHESTERBROOK
BURLINGTON
CHESTERFIELD
BUSHWICK DR
FOXHALL
ASHBURTON CR.
ATTLEBORO LN
FREEPORT
CUPAR
SCONE DR
BANFF
ARTISTA DRIVE
WINDCHILD LN.
MOTH LN
GOPSY
GALLEY DR
CAPE HORN DR.
CREW
DRYMEN DR
JENNY
DORY
BAT
MARINERS COVE
SAILORS
LEE WARD
HILLHEAD DR
DONCASTER DR
LOMOND DR
STORAGE TANKS
TANK FARM



CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
X SAMPLING SITE
X ANOMALOUS HIGH
N
0
400
546400
476350
ATLANTA
ARTINIQUE DR
SHEPHERD LN
WHITE HORSE LN
BARBADOS LN
DORSETT
LEASURE LN
SATTERFIELD DR
ARCEL CR
FRY CR
KROLL LN
STILWELL
SHAW
WILLIAM E. KETTLER SCHOOL
67
(8750 DORSETT)
ST. AUGUST
ANTIGUA LN
SAND DOLLAR LN
YARMOUTH LN
BRETON LN
SANDY HOOK DR
EDISON COMMUNITY PARK
251
EDISON R/W
HAMILTON
FIRE S
99
100
96
89
90
95
94
91
98
97
92
101
93
105
106
102
103
104
27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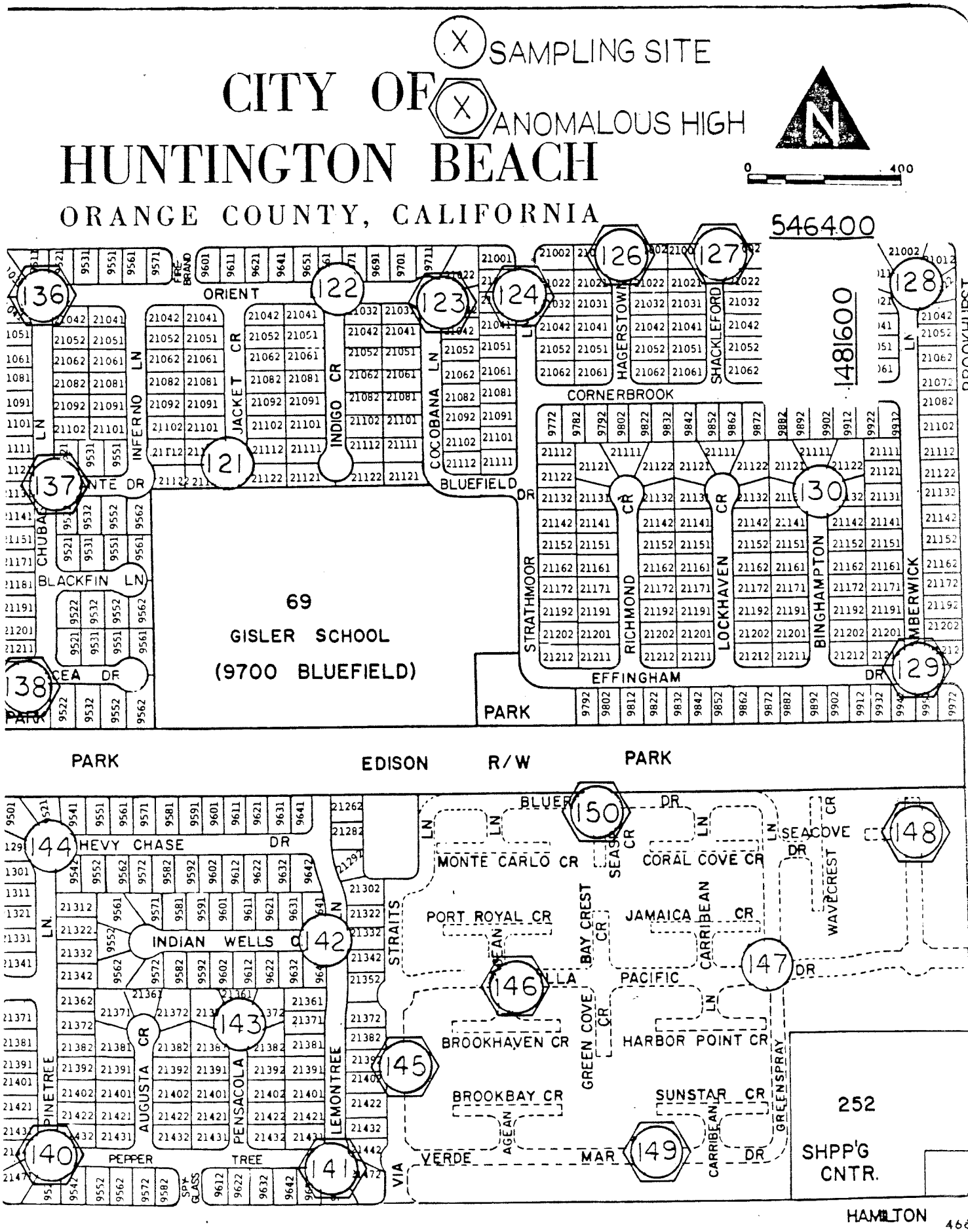
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
546400
1478950
BUSHARD
TLANTA
120
116
118
EDISON HIGH SCHOOL
68
(21400 MAGNOLIA)
107
EDISON R/W
O. C. F. C. D.
EDISON R/W
EDISON R/W
110
112
109
111
115
113
108
114
SOUTHSHORE DR.
TIDE CR
WATERFRONT DR.
BREAKWATER CR
DOCKSIDE
BULKHEAD CR
NORTH SHORE
HAMILTON
465



SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
546400
1481600
ORIENT
FIRE-BRAND
INFERNO LN
JACKET CR
INDIGO CR
COCOBANA LN
HAGERSTOWN
SHACKLEFORD
CORNERBROOK
BLUEFIELD DR
CHUBACA LN
BLACKFIN LN
69
GISLER SCHOOL
(9700 BLUEFIELD)
STRATHMOOR
RICHMOND CR
LOCKHAVEN CR
BINGHAMPTON
EFFINGHAM DR
PARK
EDISON R/W
HEVY CHASE DR
INDIAN WELLS CR
PINETREE LN
AUGUSTA CR
PENSACOLA
LEMONTREE LN
PEPPER TREE
SPY-GLASS
STRAITS
VIA
MONTE CARLO CR
CORAL COVE CR
SEACOVE DR
WAVECREST CR
PORT ROYAL CR
JAMAICA CR
BAY CREST CR
CARRIBEAN
PACIFIC DR
BROOKHAVEN CR
HARBOR POINT CR
GREEN COVE CR
BROOKBAY CR
SUNSTAR CR
GREENSPRAY
VERDE MAR DR
252
SHPP'G CNTR.
HAMILTON
136
122
123
124
126
127
128
121
137
130
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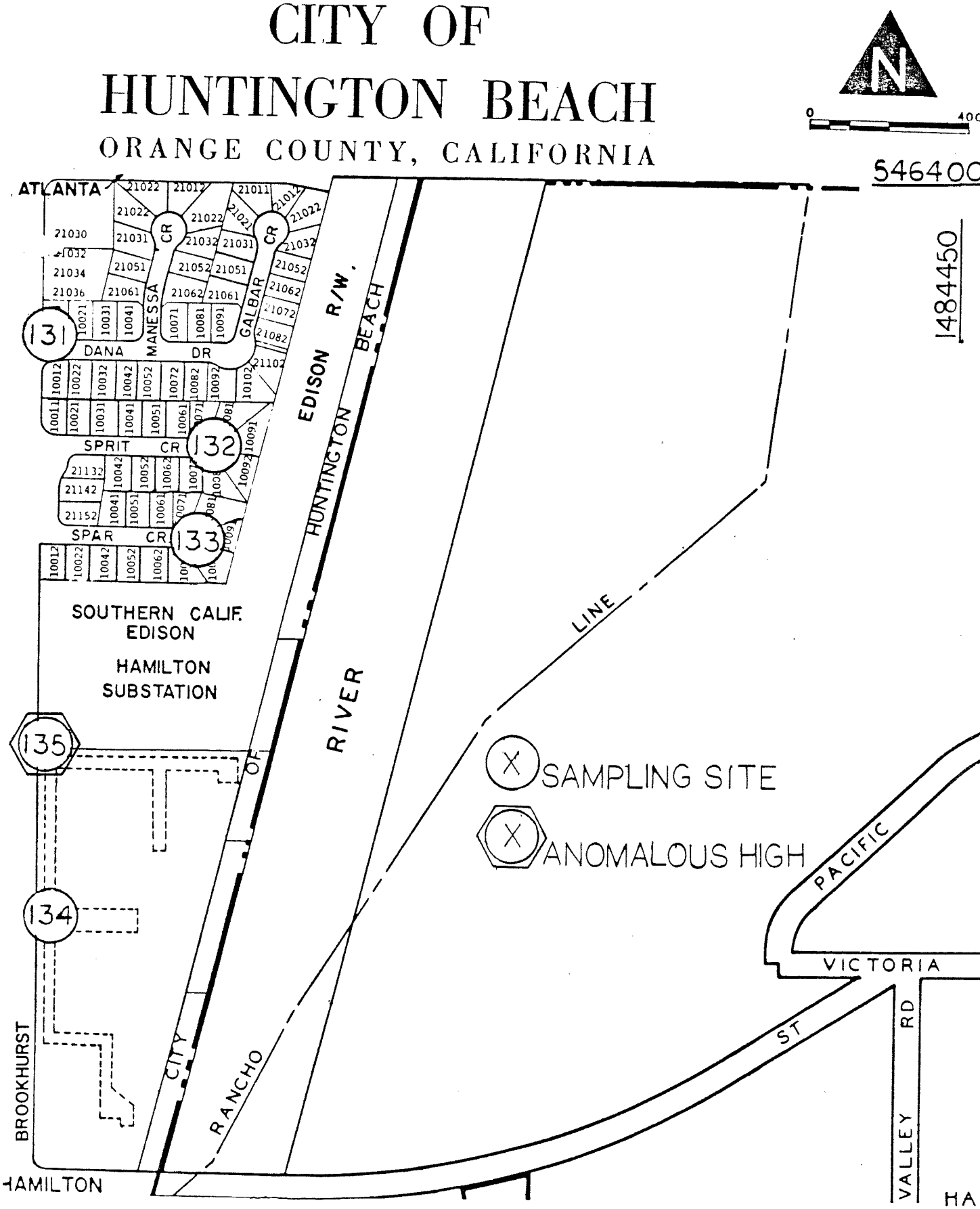
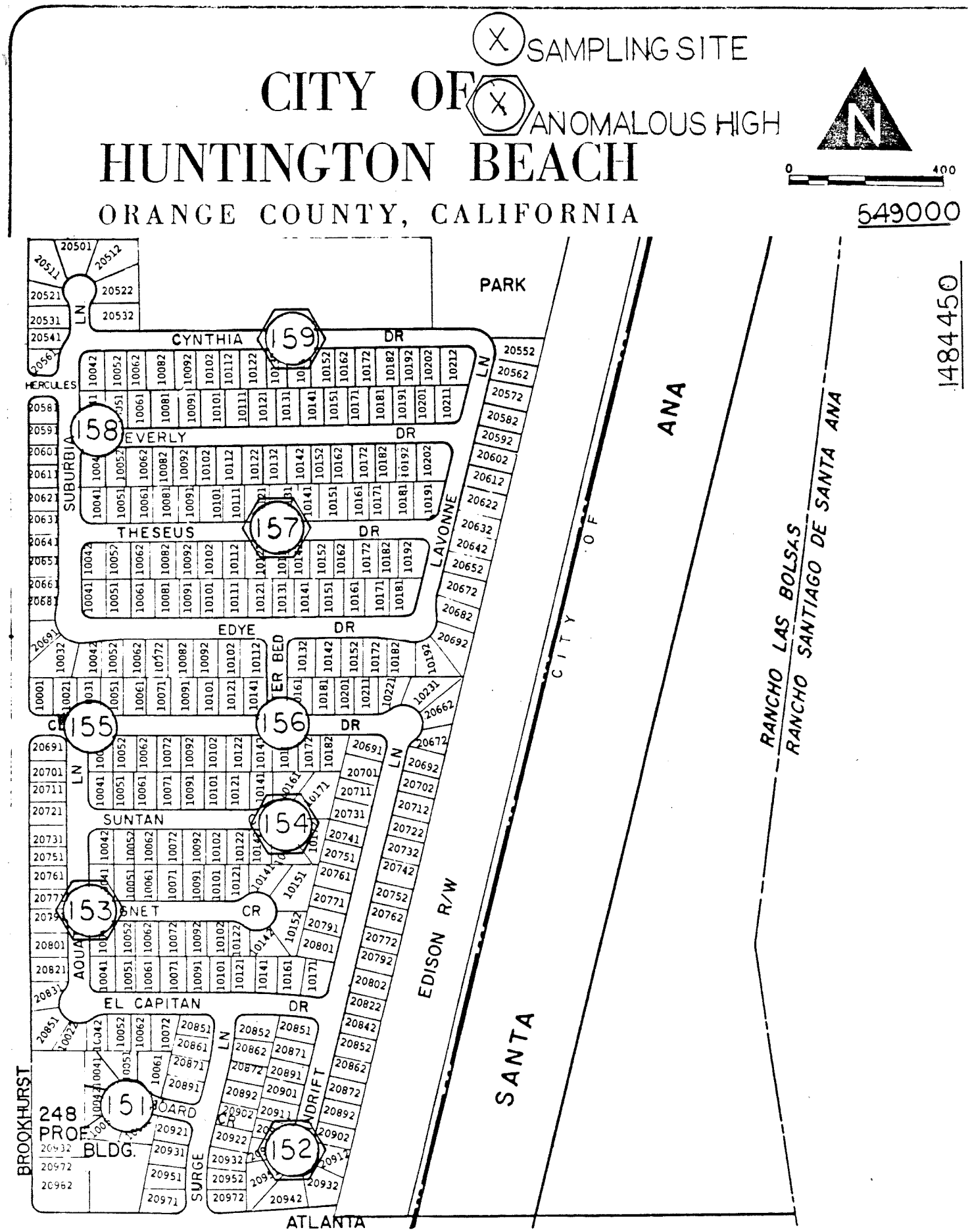
149

CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA




SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
549000
1484450
PARK
CYNTHIA DR
HERCULES
SUBURBIA LN
EVERLY DR
THESEUS DR
LAVONNE LN
EDYE DR
ER BED
SUNTAN
SNET CR
AQUA
EL CAPITAN DR
BOARD CR
SURGE LN
NDRIFT
BROOKHURST
248 PROF. BLDG.
ATLANTA
EDISON R/W
CITY OF SANTA ANA
RANCHO LAS BOLSAS
RANCHO SANTIAGO DE SANTA ANA
159
158
157
155
156
154
153
151
152

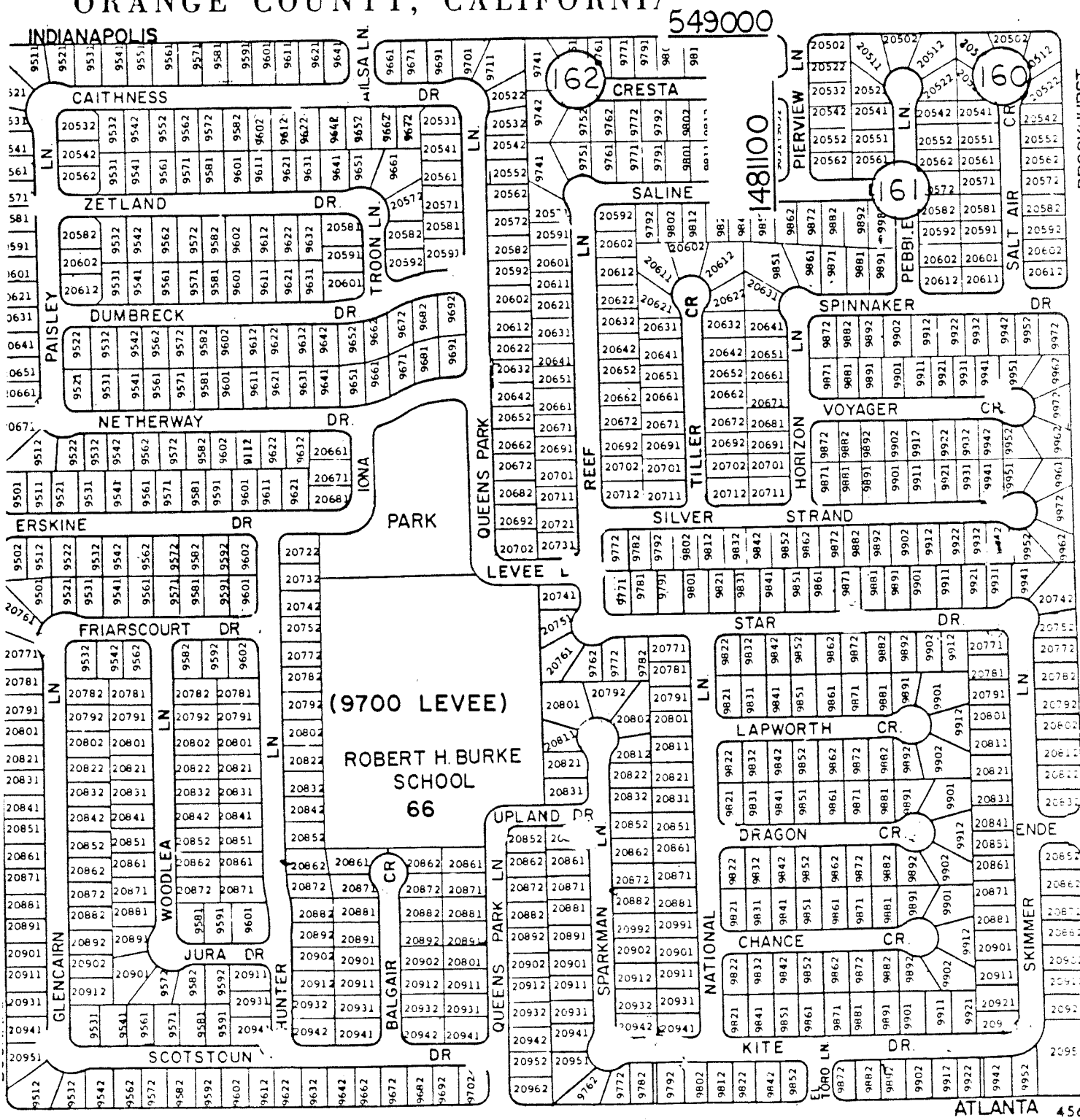
CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

N

0 400

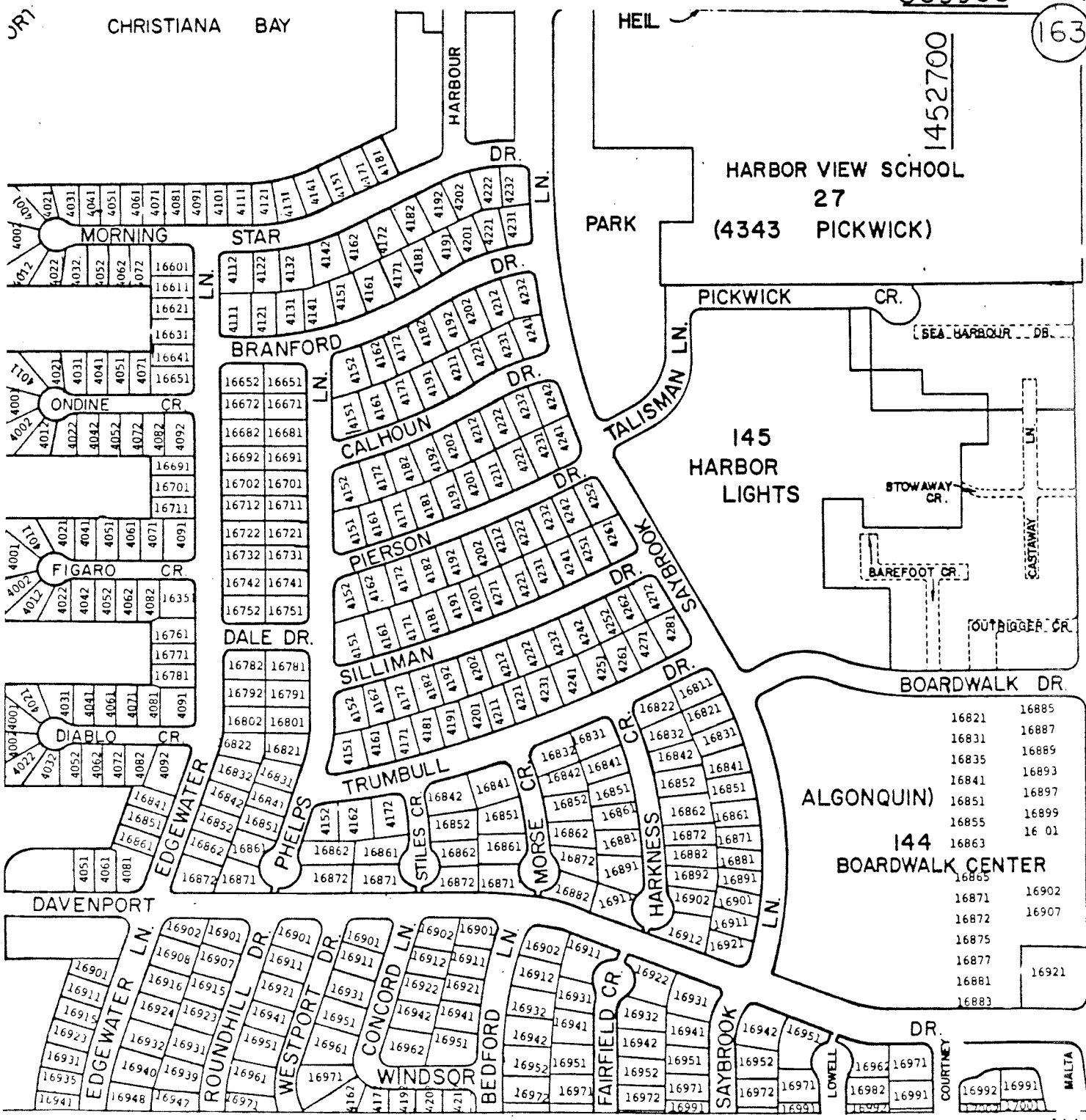
ORANGE COUNTY, CALIFORNIA

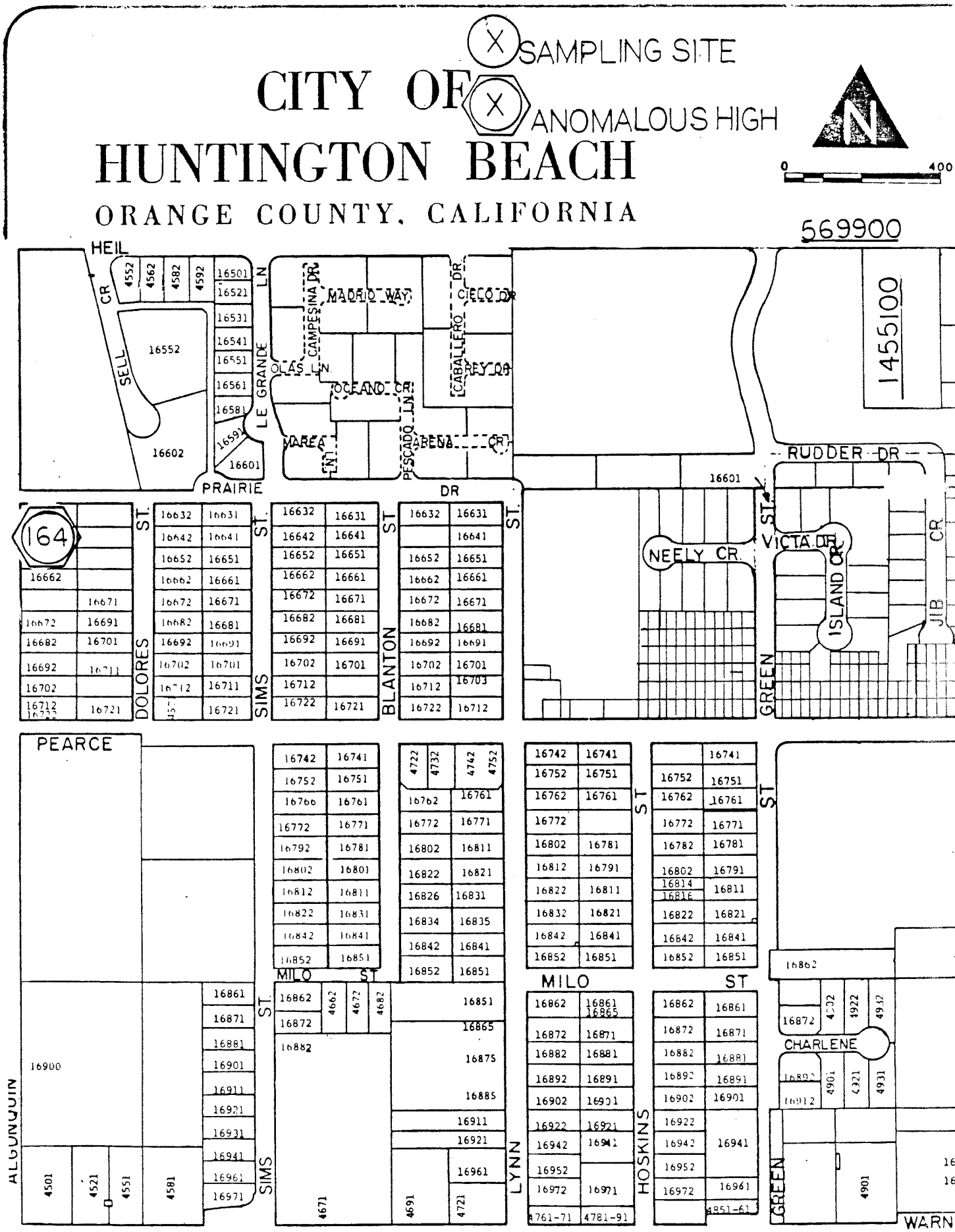


CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

ORANGE COUNTY, CALIFORNIA




SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
569900
1455100
HEIL
CR
SELL
LE GRANDE LN
PRAIRIE
DR
MADRID WAY
CAMPESINA DR
CIELO DR
CABALLERO DR
OLAS LN
OCEANO CR
REY DR
MAREA LN
PESCADO LN
ARENA CR
RUDDER DR
NEELY CR
VICTA DR
ISLAND CR
JIB CR
GREEN ST
164
DOLORES ST
SIMS ST
BLANTON ST
PEARCE
MILO ST
LYNN
HOSKINS ST
CHARLENE
ALGONQUIN
WARN
16552
16602
16601
16501
16521
16531
16541
16551
16561
16581
16591
16662
16671
16672
16691
16682
16701
16692
16711
16702
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16722
16721
16632
16631
16642
16641
16652
16651
16662
16661
16672
16671
16682
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16692
16691
16702
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16741
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16751
16766
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16792
16781
16802
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16812
16811
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16831
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16841
16852
16851
4722
4732
4742
4752
16762
16761
16772
16771
16802
16811
16822
16821
16826
16831
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16841
16852
16851
16862
16861
16865
16872
16871
16882
16881
16892
16891
16902
16901
16922
16921
16942
16941
16952
16972
16971
4761-71
4781-91
16862
16861
16872
16871
16882
16881
16892
16891
16902
16901
16922
16942
16941
16952
16972
16961
4851-61
16862
16872
4902
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4932
16892
16912
4901
4921
4931
16900
4501
4521
4551
4581
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16871
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16901
16911
16921
16931
16941
16961
16971
16862
16872
4662
4672
4682
16882
16851
16865
16875
16885
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16961
4671
4691
4721

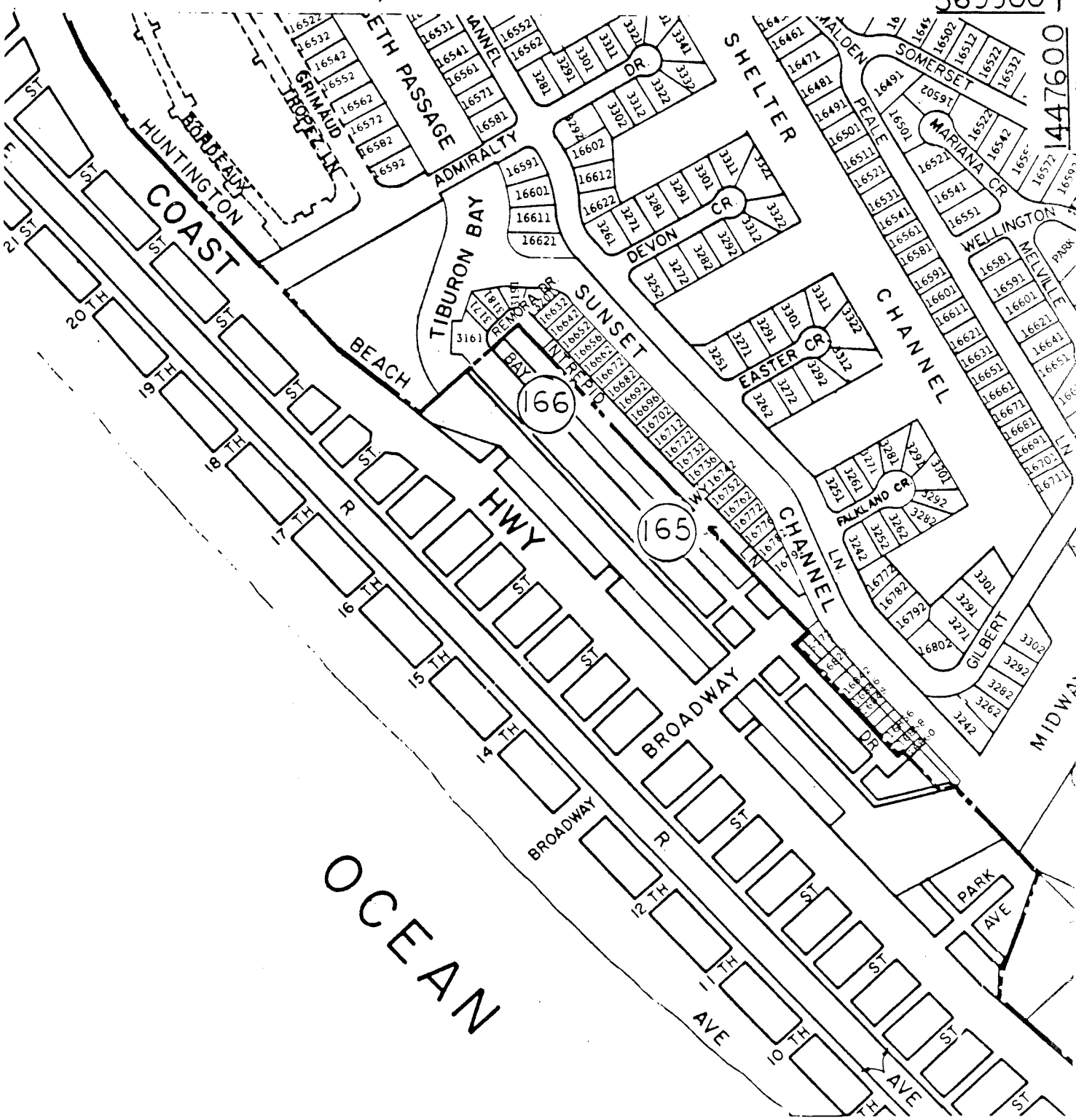
CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA

(X) SAMPLING SITE

N

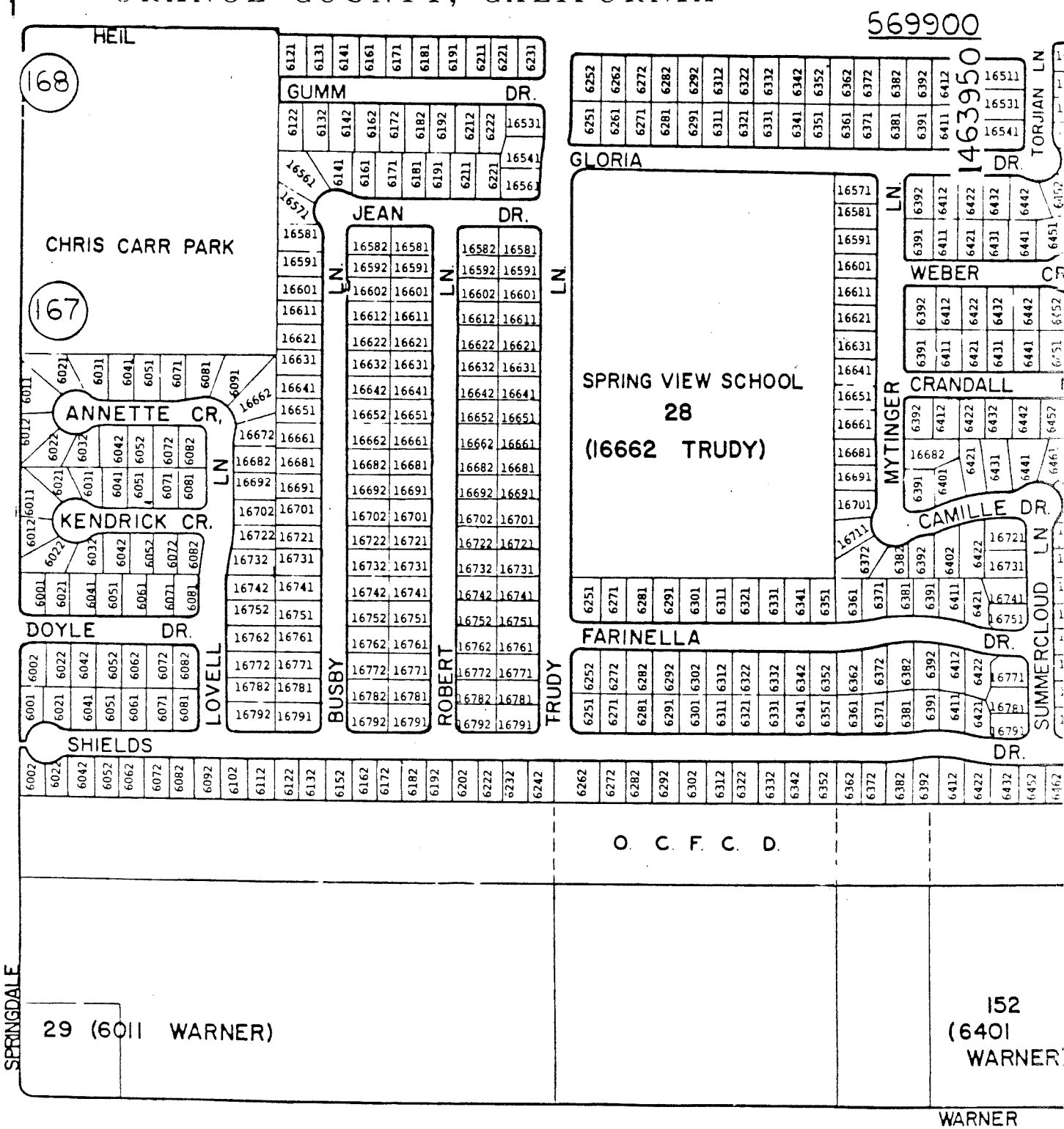
0 400



CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

ORANGE COUNTY, CALIFORNIA



CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

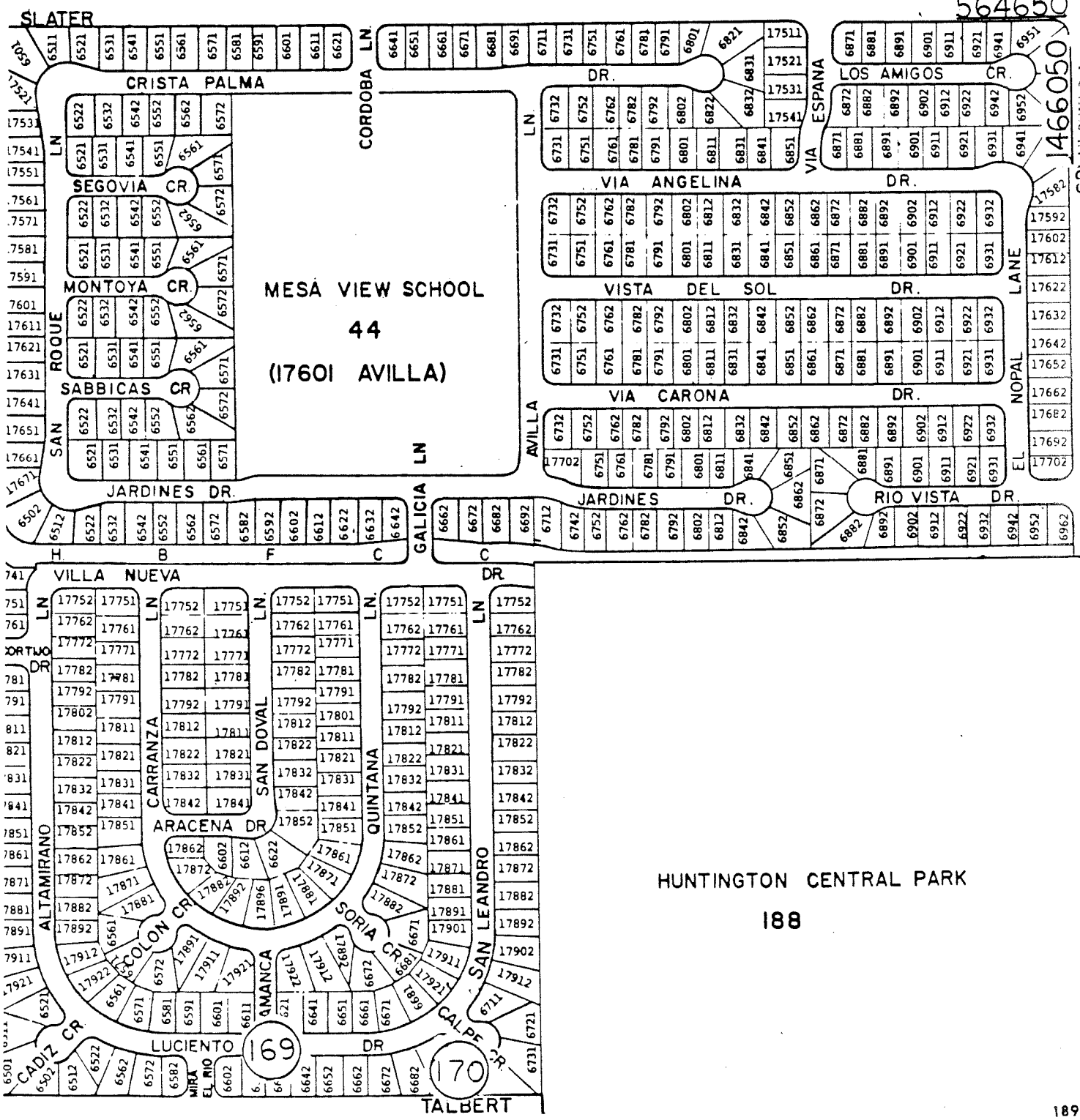
ORANGE COUNTY, CALIFORNIA

N

0 400

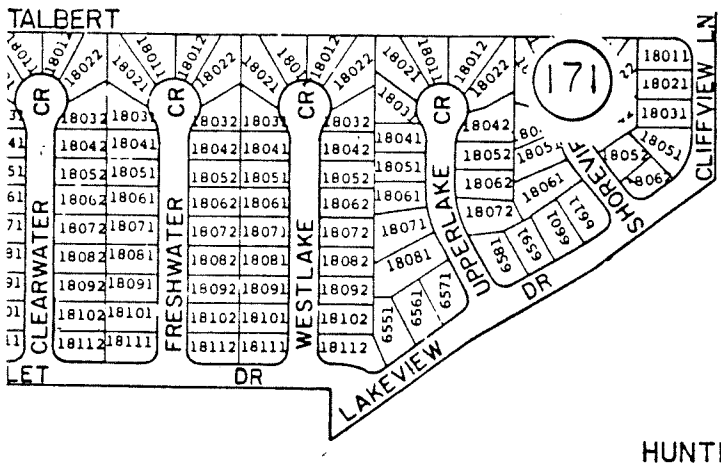
564650

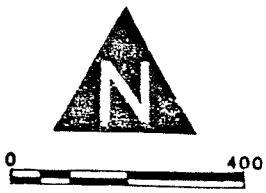
1466050



CITY OF HUNTINGTON BEACH

ORANGE COUNTY, CALIFORNIA





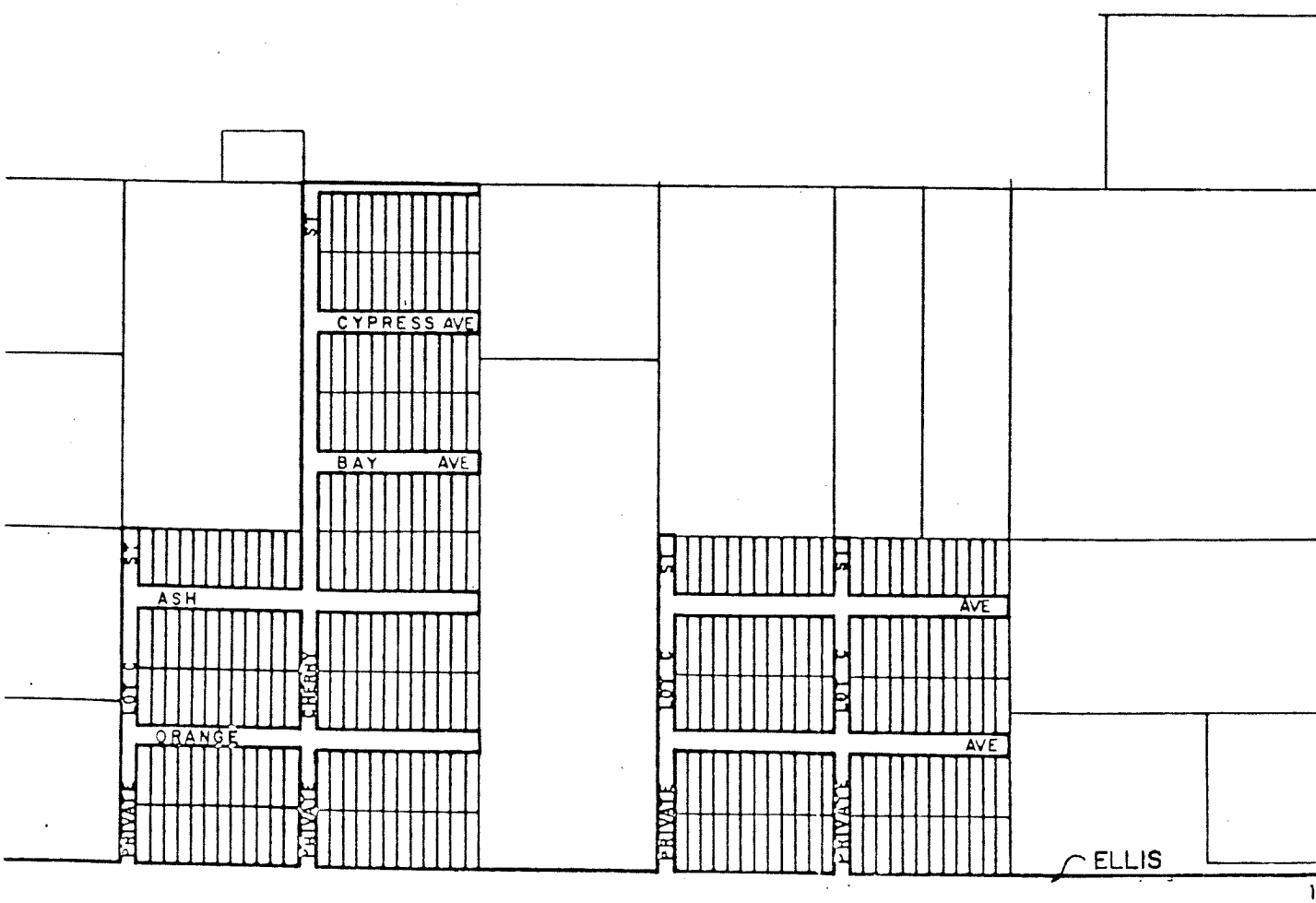
562150

1467000

X SAMPLING SITE

HUNTINGTON CENTRAL PARK

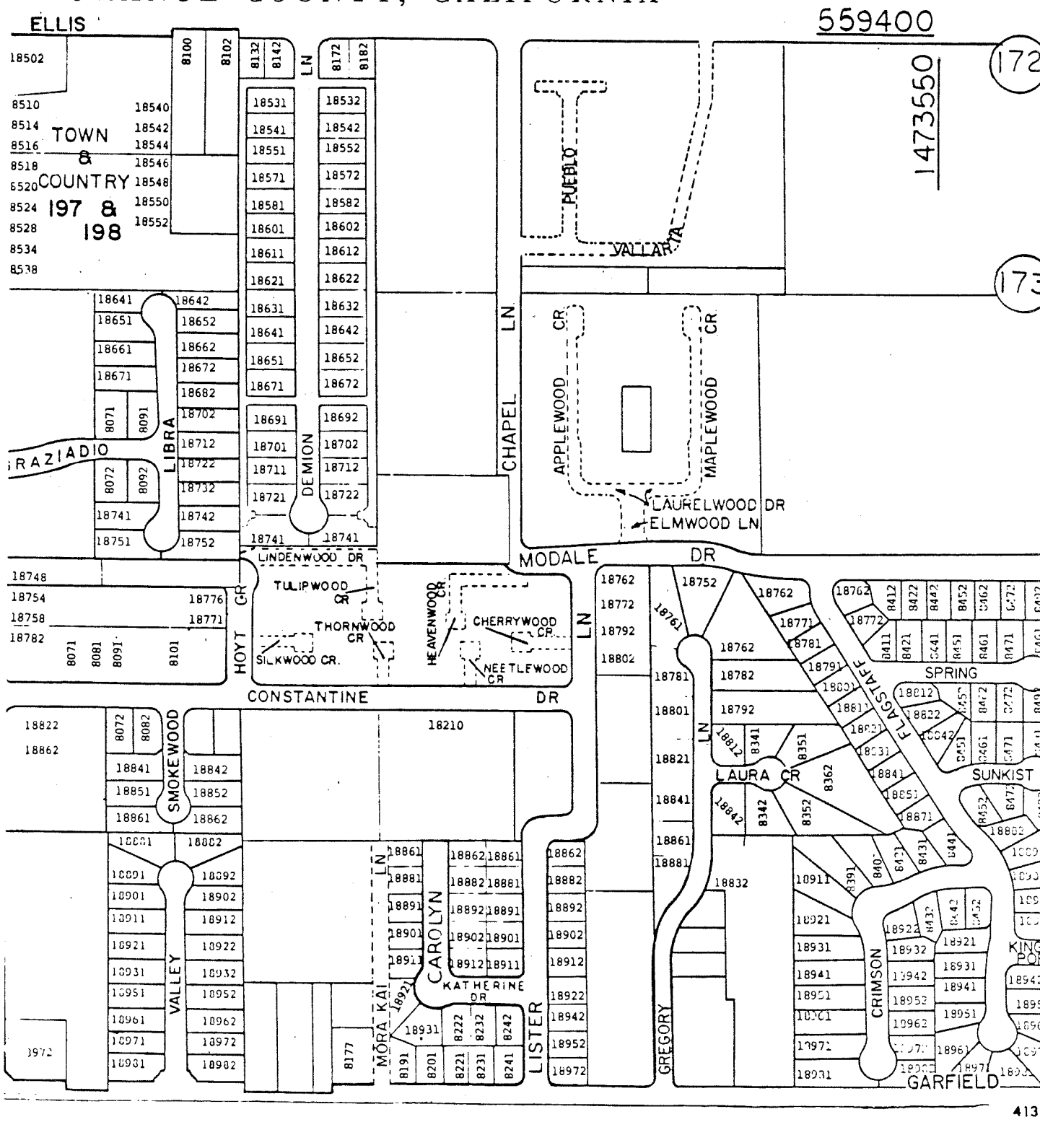
188



CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

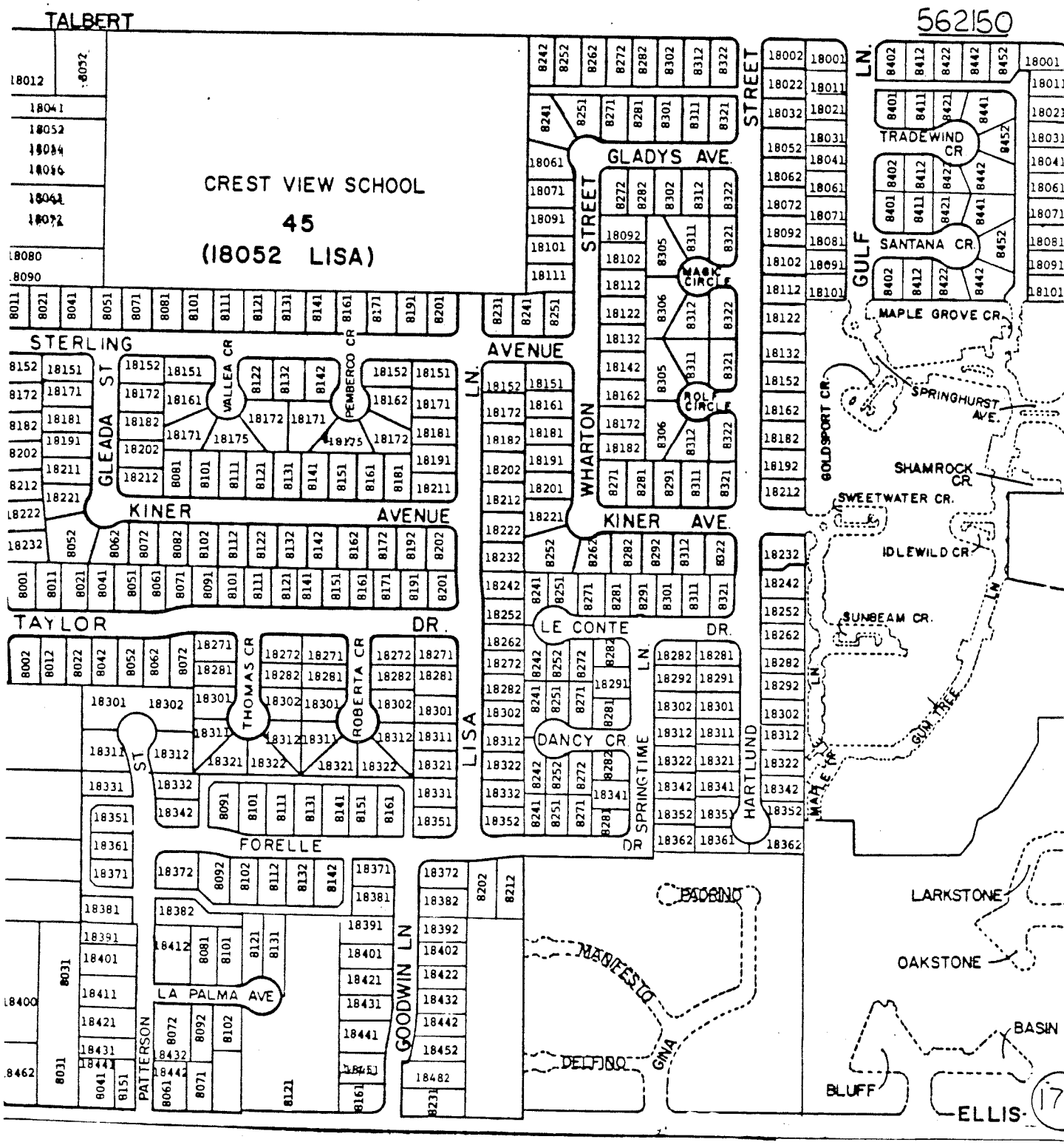
ORANGE COUNTY, CALIFORNIA

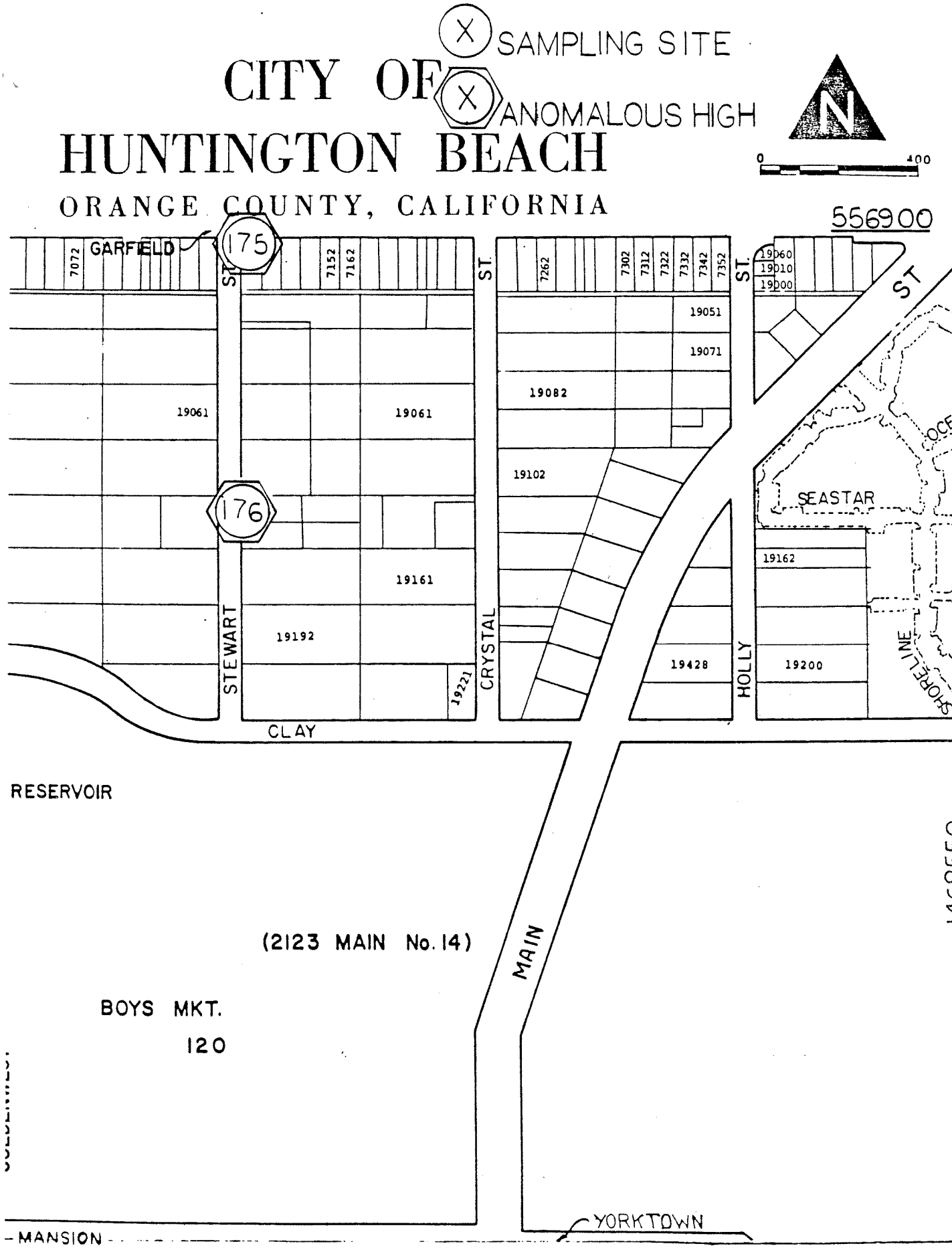


CITY OF HUNTINGTON BEACH

X SAMPLING SITE

ORANGE COUNTY, CALIFORNIA

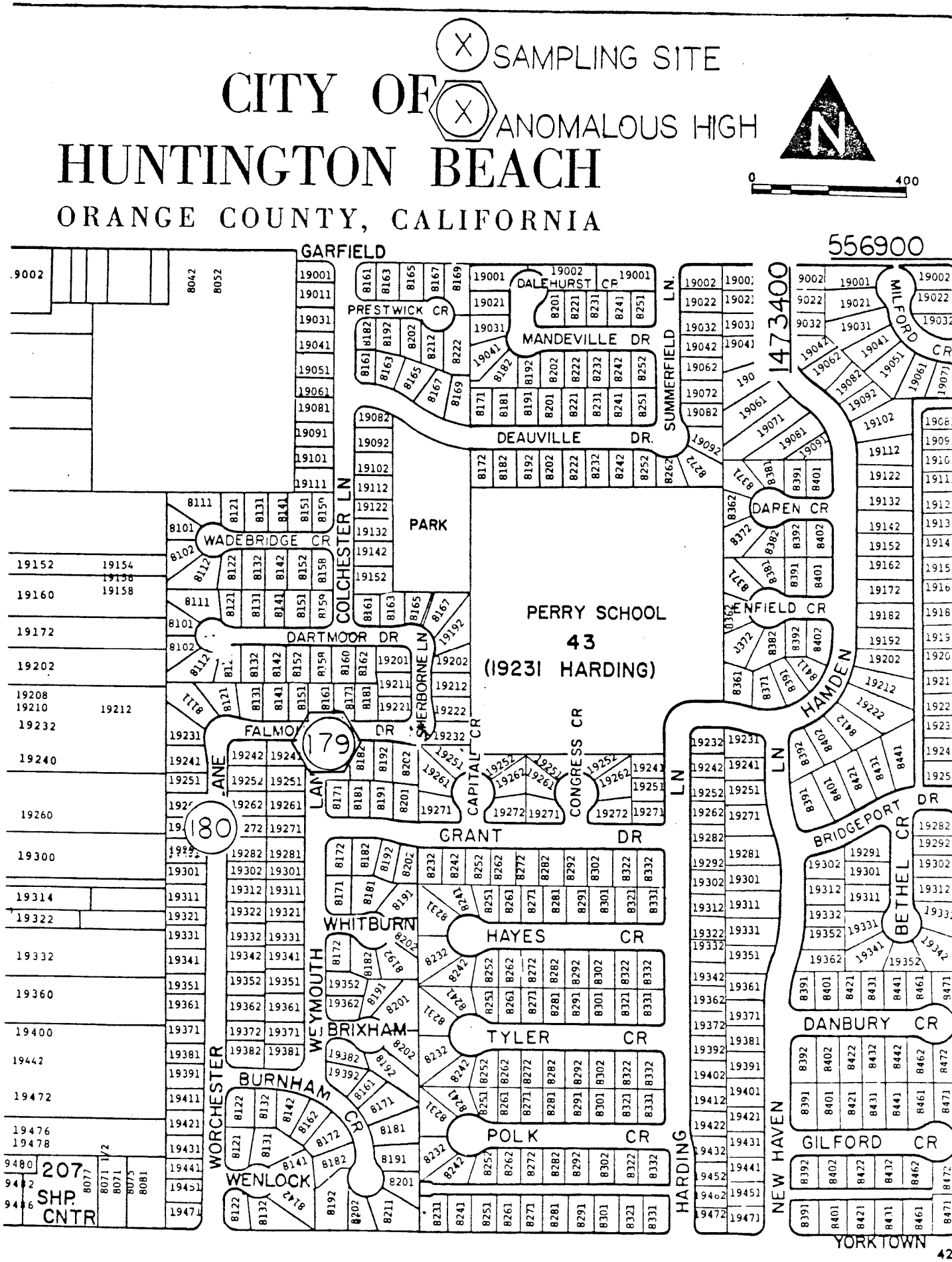



SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
556900
GARFIELD
175
176
STEWART ST.
CRYSTAL ST.
HOLLY ST.
ST
7072
7152
7162
7262
7302
7312
7322
7332
7342
7352
19060
19010
19000
19051
19071
19082
19061
19061
19102
19161
19192
19221
19428
19162
19200
SEASTAR
SHORELINE
CLAY
RESERVOIR
MAIN
(2123 MAIN No. 14)
BOYS MKT.
120
YORKTOWN
MANSION

CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

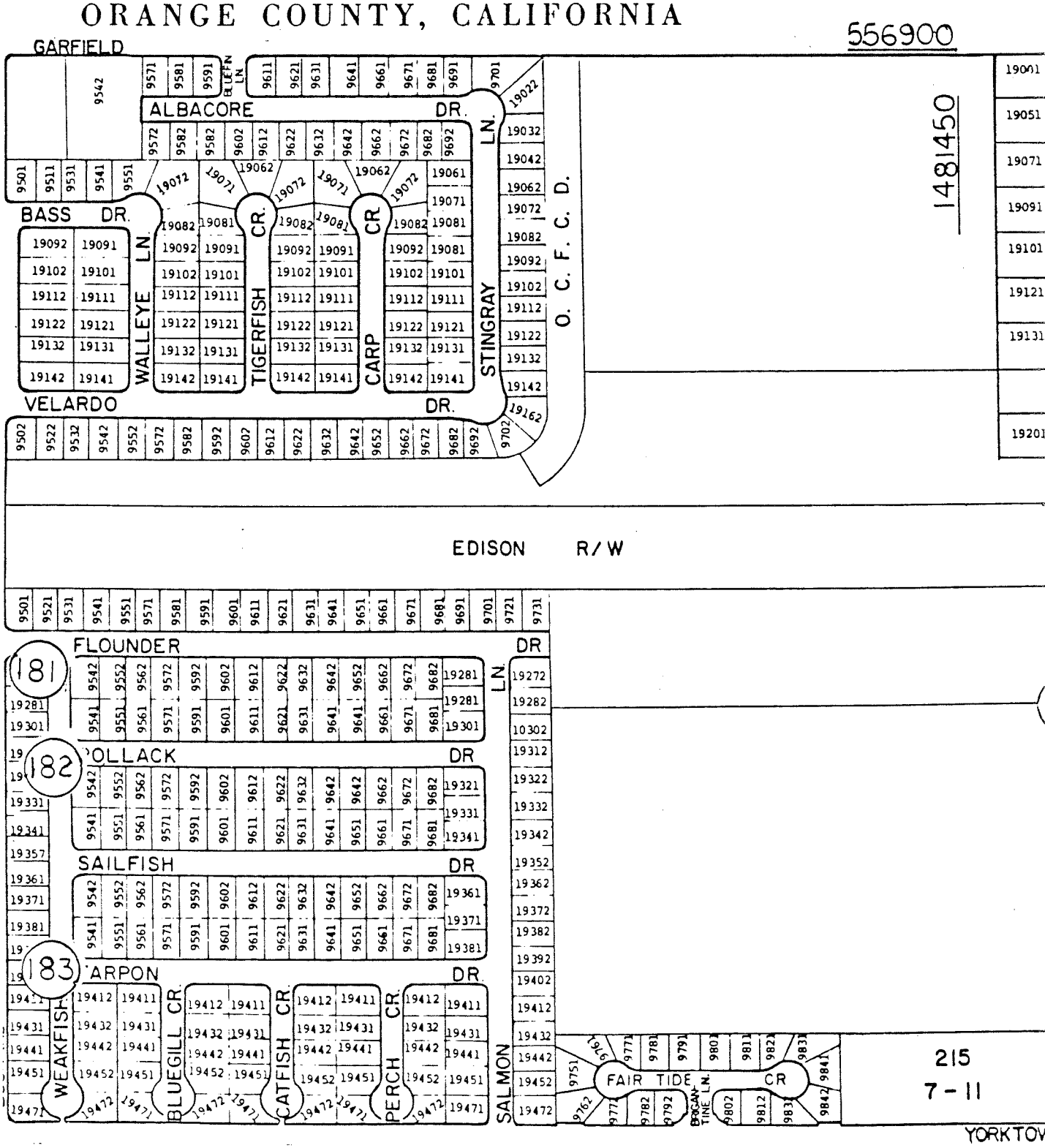
ORANGE COUNTY, CALIFORNIA

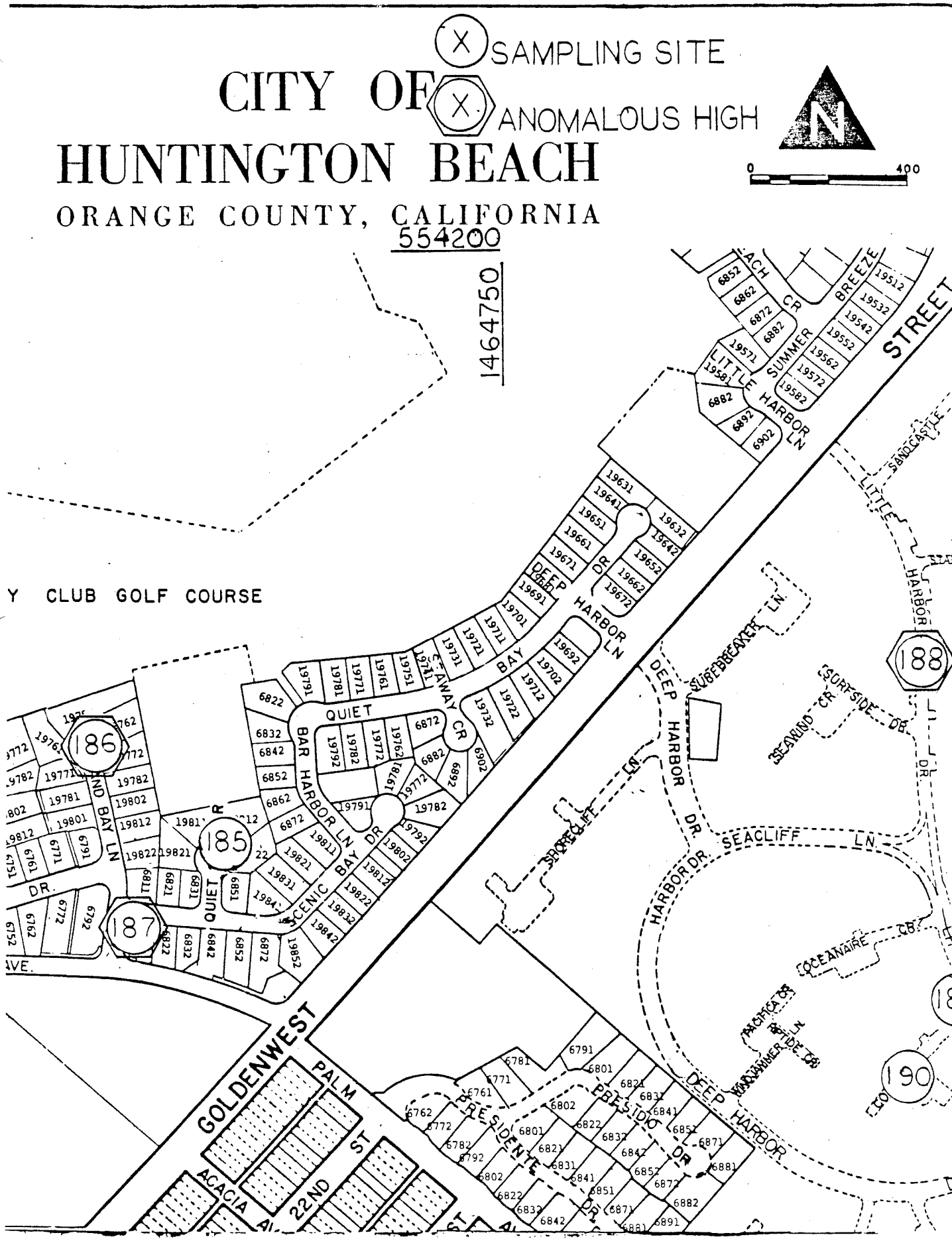

SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
556900
1473400
GARFIELD
PRESTWICK CR
DALEHURST CR
MANDEVILLE DR
DEAUVILLE DR.
SUMMERFIELD LN.
MILFORD CR
DAREN CR
ENFIELD CR
HAMDEN
PARK
COLCHESTER LN
WADEBRIDGE CR
DARTMOOR DR
SHERBORNE LN
PERRY SCHOOL
43
(19231 HARDING)
FALMOUTH DR
179
180
CAPITAL CR
CONGRESS CR
GRANT DR
WHITBURN
HAYES CR
TYLER CR
POLK CR
BRIXHAM
BURNHAM CR
WENLOCK
WEYMOUTH
WORCHESTER
HARDING LN
NEW HAVEN LN
BRIDGEPORT DR
BETHEL CR
DANBURY CR
GILFORD CR
YORKTOWN
207 SHP. CNTR

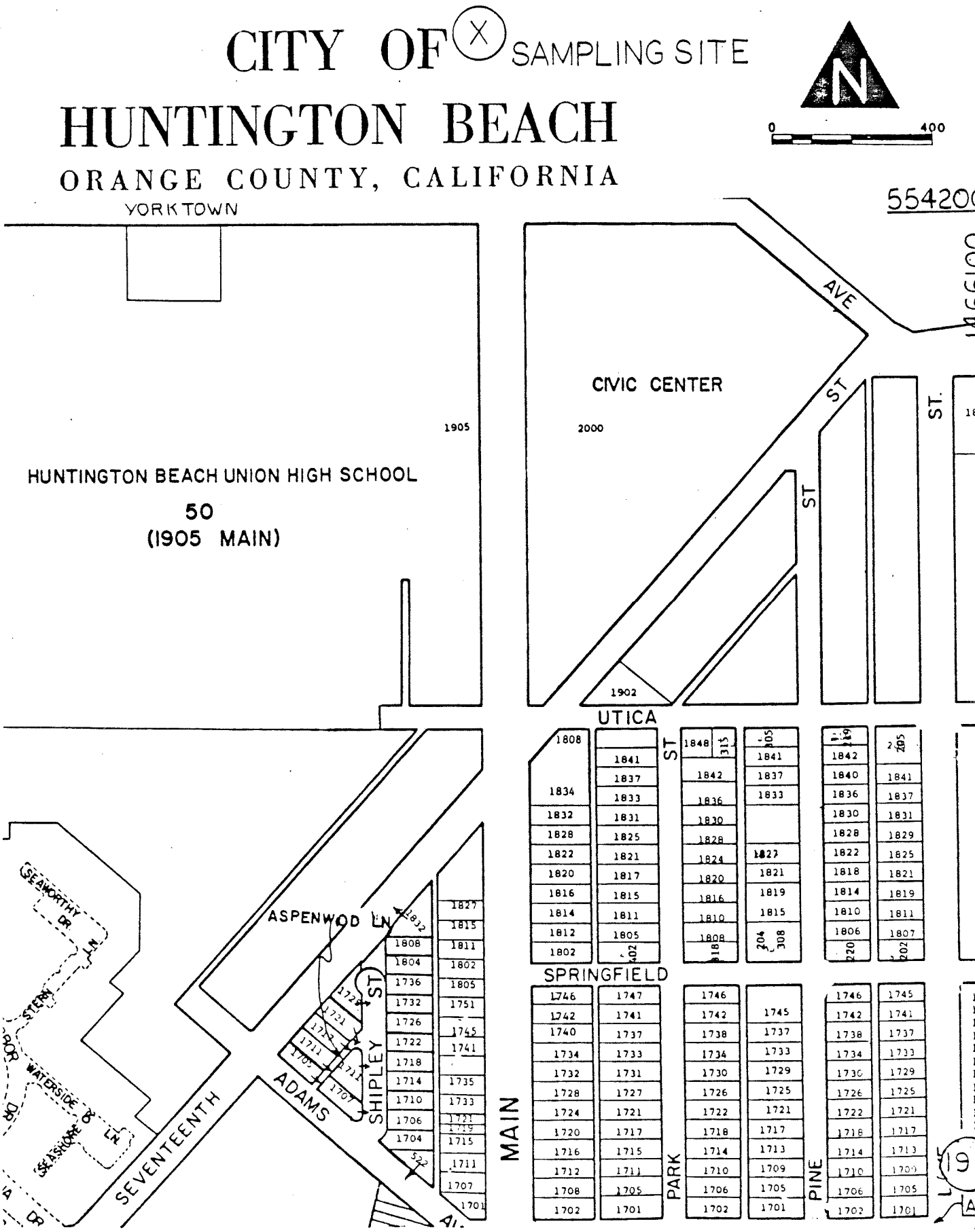
CITY OF HUNTINGTON BEACH

X SAMPLING SITE

ORANGE COUNTY, CALIFORNIA



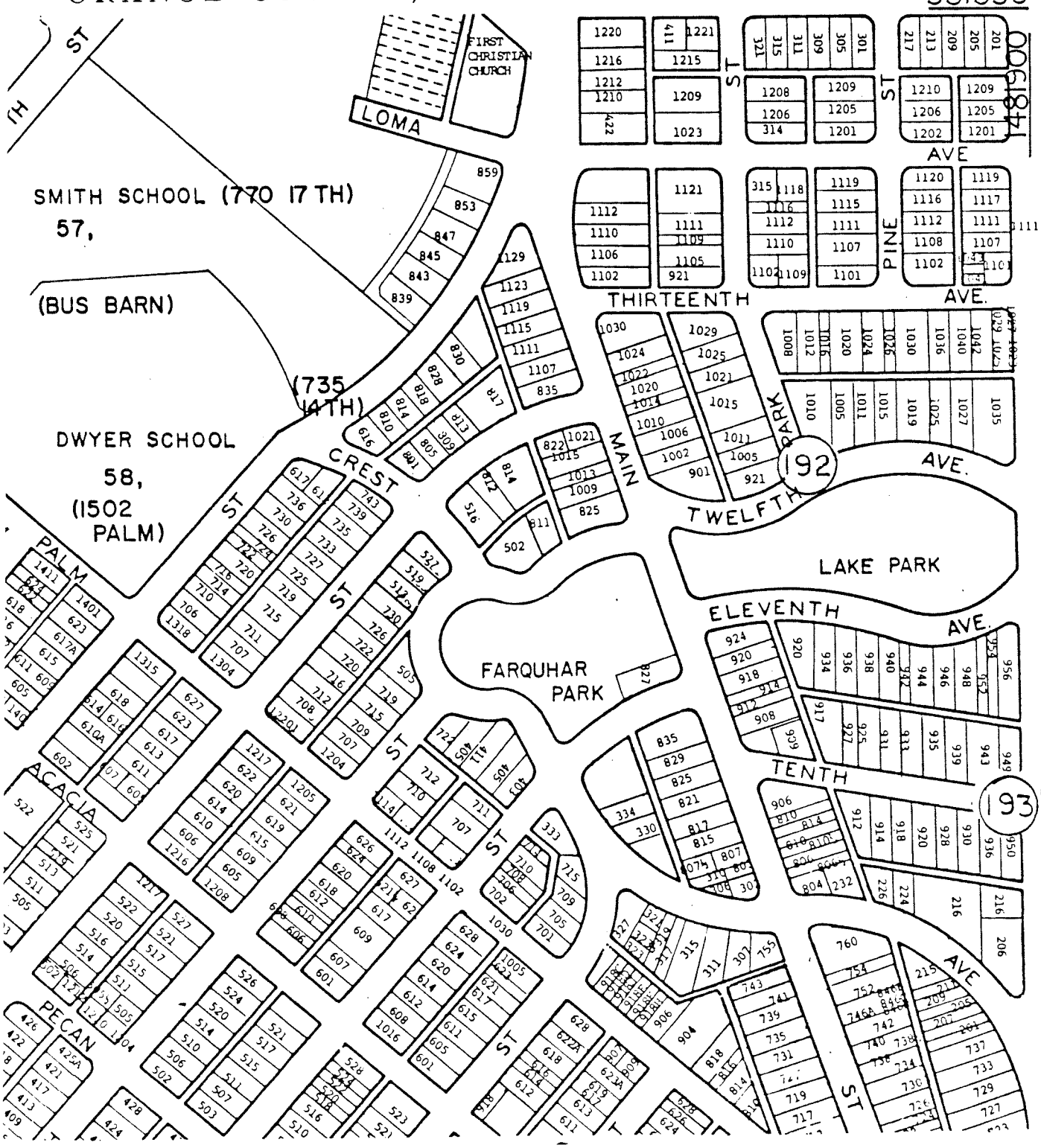

SAMPLING SITE
ANOMALOUS HIGH
CITY OF
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
554200
1464750
0
400
Y CLUB GOLF COURSE
GOLDENWEST
STREET
DEEP HARBOR LN
DEEP HARBOR DR.
SEACLIFF LN.
SUMMER BREEZE
LITTLE HARBOR LN
QUIET BAY DR
BAR HARBOR LN
SCENIC BAY DR
SEAWAY CR
SUBEBREAKER LN.
SURFSIDE DR.
SEAWIND CR.
SPORECLIFF LN.
OCEANAIRE CR.
PACIFICA CR.
PRESIDIO DR
PRESIDENTE DR
PALM ST
22ND ST
ACACIA AV
186
185
187
188
190


CITY OF (X) SAMPLING SITE
HUNTINGTON BEACH
ORANGE COUNTY, CALIFORNIA
N
0
400
YORKTOWN
CIVIC CENTER
1905
2000
HUNTINGTON BEACH UNION HIGH SCHOOL
50
(1905 MAIN)
1902
UTICA
ST
SPRINGFIELD
ASPENWOOD LN
SHIPLEY ST
ADAMS
SEVENTEENTH
MAIN
PARK
PINE
SEAWORTHY DR
STERN LN
WATERSIDE DR
SEASHORE DR
AVE
ST
ST.

CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

ORANGE COUNTY, CALIFORNIA



CITY OF HUNTINGTON BEACH

(X) SAMPLING SITE

ORANGE COUNTY, CALIFORNIA

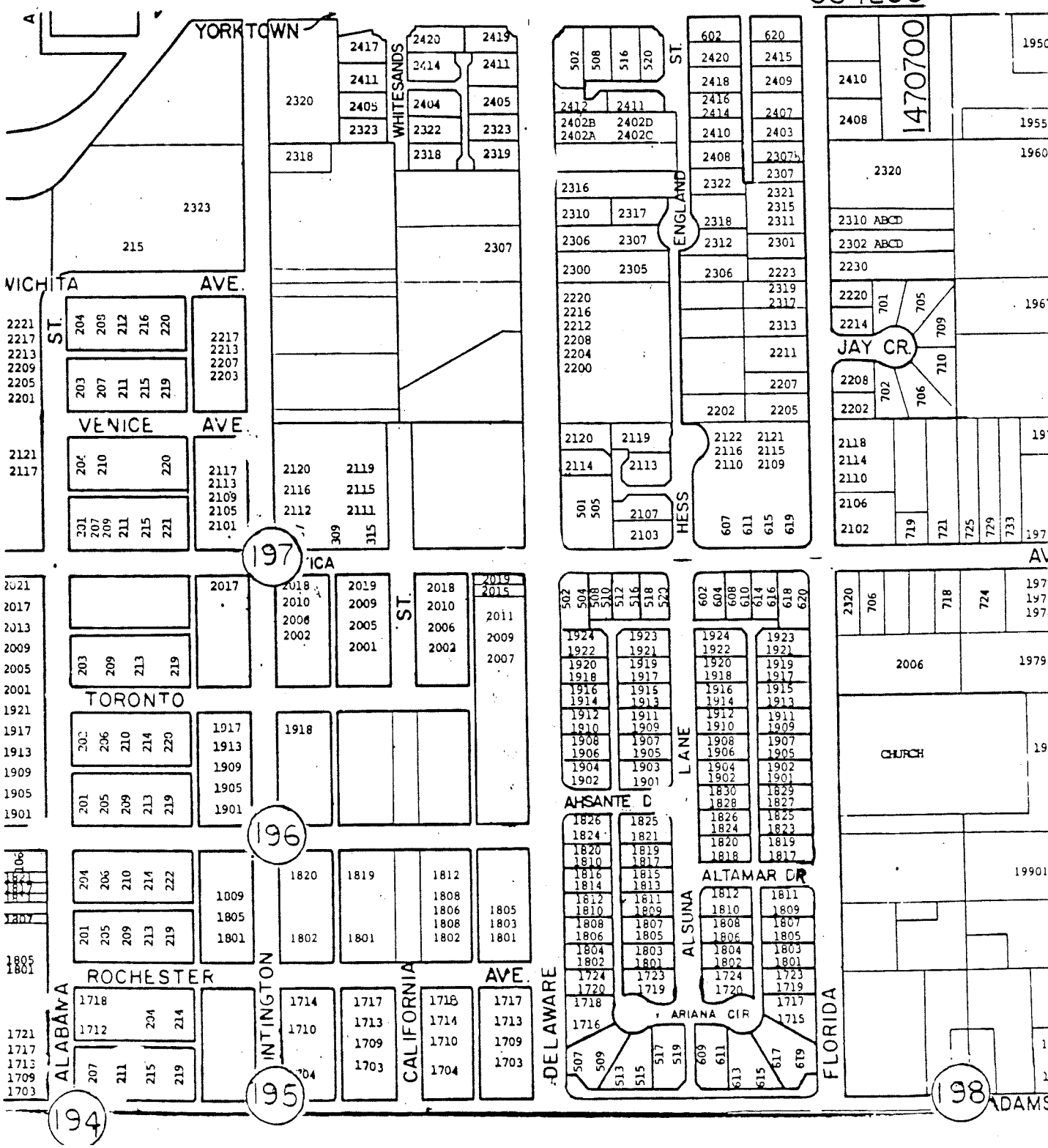


FIGURE 12

TABLE "HB"

Identified Anomalies and/or Seeps with Probable Origin

4(B)H	61(B)D	94(B)	127(B)H
5(B)	62(B)H	95(B)	129(B)
6(B)H	63(B)H	96(T)D	135(B)
7(B)	64(B)H	97(B)H	136(B)
8(B)	65(B)	98(B)	137(B)
13(B)H	66(B)	99(B)	138(B)
16(B)	67(B)	100(B)	140(B)
18(B)	68(B)D	103(B)	144(B)
21(B)	69(B)H	104(B)	145(B)
22(B)	70(B)	107(B)	146(B)
23(B)H	71(B)	109(B)D	148(B)
27(B)H	73(B)	110(B)D	149(B)
30(B)H	74(B)	111(B)	150(B)
34(B)H	75(B)	112(B)	152(B)
52(B)	77(B)	113(B)	153(B)
53(B)H	79(B)	114(B)	154(B)
54(B)H	81(B)	115(B)	157(B)
55(B)	85(B)	116(B)	159(B)
56(B)	89(B)	117(B)	175(B)
58(B)	90(B)	123(B)	176(B)
59(B)H	91(B)	124(B)D	179(B)
60(B)	92(B)	126(B)H	186(B)H

141
164

187(B)

188(B)

189(B)D

(199) ?

B = Biogenic

T = Thermogenic

H = Hazardous

D = Dangerous