
**APPENDIX F - HAZARDOUS, TOXIC AND
RADIOACTIVE WASTE (HTRW) PHASE I
ENVIRONMENTAL SITE ASSESSMENT**

For

**WESTMINSTER, EAST GARDEN GROVE
FLOOD RISK MANAGEMENT STUDY**



October 2018



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**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

Contents

1.0 INTRODUCTION 4

2.0 AUTHORITY 4

3.0 DEFINITIONS..... 5

 3.1 Hazardous, Toxic, and Radioactive Waste 5

 3.2 Non-Hazardous, Toxic, and Radioactive Waste 5

 3.3 Recognized Environmental Condition 5

4.0 GUIDANCE..... 6

5.0 LAWS AND REGULATIONS..... 6

 5.1 Federal..... 6

 5.2 State..... 6

6.0 STUDY DESCRIPTION 7

7.0 PROJECT DESCRIPTION..... 8

8.0 GENERAL METHODS..... 8

9.0 DATABASE SEARCH 8

 9.2 Federal Databases 12

 9.3 State Databases 13

 9.4 Local List of Landfill/Solid Waste Disposal Sites 15

 9.5 Other Databases 16

 9.6 Limited Project Review 16

10.0 FINDINGS AND CONCLUSIONS 28

11.0 REFERENCES 30

Tables:

Table 1: Minimum Search Distance for Federal and State Databases 9

Table 2: Summary of EDR Database Returns within Recommended Search Distance..... 10

Table 3: EDR Search Results on/adjacent: Channel C02/04 18

Table 4: EDR Search Results on/adjacent: Channel C05 22

Table 5: EDR Search Results on/adjacent: Channel C06 25

Table 6: Enviromapper Search Results – Upstream Reaches 27

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1.0 INTRODUCTION

The purpose of this report is to discuss the hazardous, toxic, and radioactive waste (HTRW) assessments for the proposed project areas identified in the Westminster, Garden Grove East, Flood Risk Management (FRM) Study. This HTRW investigation identifies both HTRW and non-HTRW environmental issues, and presents appropriate measures to resolve these issues. The methods used in performing the investigation are described in detail. Conclusions and recommendations regarding potential impacts due to HTRW and non-HTRW issues associated with project sites are provided.

2.0 AUTHORITY

Engineer Regulation (ER) 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works projects, dated June 26, 1992, provides guidance for consideration of HTRW issues and problems within project boundaries or which may affect/be affected by Corps Civil Works projects. The ER states the Corps policy for addressing HTRW issues and outlines the timing and cost sharing requirements for HTRW encountered during the standard Civil Works project phases. Goals of the ER are to identify the level of detail for HTRW investigation for each phase of a civil works project, promote early detection and response by appropriate responsible parties, determine viable options to avoid HTRW problems, and establish a mechanism for resolution of HTRW issues. The Corps policy provides the following:

- Civil works funds are not be used for HTRW related activities except as specifically stated in the policy or provided for specifically in law (see paragraph 6a, ER 1165-2-132).
- Construction of civil works projects should be avoided in HTRW contaminated areas, where practicable. The Corps and project sponsor will cost share environmental investigations to identify existence of HTRW (see paragraph 6b, ER 1165-2-132).
- If not practicable to avoid HTRW for a project, the sponsor is responsible for ensuring that development and execution of HTRW response actions are accomplished at 100% sponsor provided cost. The sponsor is responsible for all costs associated with the required response of any known or unknown HTRW contamination existing at the project throughout all project phases. The sponsor is also 100% responsible for all costs associated with the required response plan and for ensuring that

response actions are accomplished in accordance with federal, state and local environmental laws. No in-kind project cost credit will be given to the sponsor for these activities.

ER 1165-2-132 requires that a site investigation be conducted as early as possible to identify and evaluate potential HTRW problems. According to ER 1165-2-132, non-HTRW issues that do not comply with the federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. This HTRW investigation was conducted during the feasibility phase of the project. In general, HTRW Phase I ESAs should rely on existing information, observations made through database research, an aerial photograph, topographic map, and historical document review, a site visit, and information provided by the local sponsor. As stated in the ER-1165-2-132 an initial assessment as appropriate for Reconnaissance Study should be conducted as a first priority for projects with no prior HTRW consideration. If the initial assessment indicated the potential for HTRW, testing, as warranted, and analysis similar to a Feasibility Study, or Phase II Environmental Site Assessment (ESA), should be conducted prior to proceeding with the project design.

3.0 DEFINITIONS

3.1 Hazardous, Toxic, and Radioactive Waste

The objective of ER 1165-2-132 is to outline procedures to facilitate early identification and appropriate consideration of HTRW. This investigation, therefore, identifies potential HTRW and discusses resolutions and/or provides recommendations regarding the HTRW identified. Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include "hazardous wastes" under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq; "hazardous substances" identified under Section 311 of the Clean Air Act, 33 U.S.C. 1321, "toxic pollutants" designated under Section 307 of the Clean Water Act, 33 U.S.C. 1317, "hazardous air pollutants" designated under Section 112 of the Clean Air Act, 42 U.S.C. 7412; and "imminently hazardous chemical substances or mixtures" on which EPA has taken action under Section 7 of the Toxic Substance Control Act, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)

3.2 Non-Hazardous, Toxic, and Radioactive Waste

According to ER 1165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW. For example, solid waste is a non-HTRW issue considered. Petroleum releases from Leaking Underground Storage Tanks (LUSTs) are not considered HTRW, but are regulated. These sites have the potential to impose environmental hazards. Non-HTRW issues identified during the investigation are also discussed in this report, along with resolutions and/or recommendations for resolution.

3.3 Recognized Environmental Condition

For the purposes of this investigation, the term REC may be used interchangeably with HTRW to identify a potential HTRW or non-HTRW environmental issue. ASTM defines a recognized environmental condition (REC) as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to

the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.

4.0 GUIDANCE

Supplemental guidance was provided by the Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (Designation: E 1527-13) prepared by the American Society for Testing of Materials (ASTM). The purpose of this guidance is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) and petroleum products. These standards recommend that an environmental assessment include a records review, site visit, interviews, and report preparation.

5.0 LAWS AND REGULATIONS

5.1 Federal

The definition of HTRW according to ER 1165-2-132, page 1, paragraph 4(a) is as follows: “Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as ‘hazardous substance’ under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include ‘hazardous wastes’ under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq; ‘hazardous substances’ identified under Section 311 of the Clean Air Act, 33 U.S.C. 1321, ‘toxic pollutants’ designated under Section 307 of the Clean Water Act, 33 U.S.C. 1317, ‘hazardous air pollutants’ designated under Section 112 of the Clean Air Act 42 U.S.C. 7412; and ‘imminently hazardous chemical substances or mixtures’ on which EPA has taken action under Section 7 of the Toxic Substance Control Act, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)”

As noted in 42 U.S.C. 9601(14), the term “hazardous substance” does not include crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance, nor does the term include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel. Underground storage tanks (USTs) are federally regulated under 40 CFR Part 280, which includes technical standards and corrective action requirements for owners and operators of USTs.

5.2 State

The California State regulations were examined to determine which regulations governed the state specific hazardous waste disposal, release, and cleanup requirements. The Department of Toxic Substances Control's (DTSC) hazardous waste regulations are located in California Code of Regulations (CCR), Title 22 Social Security, Division 4.5, Environmental Health Standards for the Management of Hazardous Waste. The State of California defines hazardous waste is a waste with properties that make it potentially dangerous or harmful to human health or the environment. In regulatory terms, a hazardous waste is a waste that appears on one of the four RCRA1 hazardous wastes lists (the F-list, K-list, P-list, or U-list) or that exhibits one of the four characteristics of a hazardous waste -ignitability, corrosivity,

reactivity, or toxicity. However, materials can be hazardous wastes even if they are not specifically listed or don't exhibit any characteristic of a hazardous waste. For example, "used oil," products which contain materials on California's M-list, materials regulated pursuant to the mixture or derived-from rules, and contaminated soil generated from a "clean up" can also be hazardous wastes.

An underground storage tank (UST) is defined by law as "any one or combination of tanks, including pipes connected thereto, that is used for the storage of hazardous substances and that is substantially or totally beneath the surface of the ground." The purpose of the State of California UST Program is to protect public health and safety and the environment from releases of petroleum and other hazardous substances from tanks. There are four program elements: leak prevention, cleanup, enforcement and tank tester licensing. California regulations governing USTs are listed below:

- UST Regulations (CCR, Title 23, Division 3, Chapter 16) Amended and Effective (July 1, 2012)
- UST Cleanup Fund Regulations (CCR, Title 23, Division 3, Chapter 18)
- Tank Tester Licensing Regulations (CCR, Title 23, Division 3, Chapter 17)
- Unified Program Regulations (CCR, Title 27, Division 1, Subdivision 4, Chapter 1, Sections 15100 - 15620)

6.0 STUDY DESCRIPTION

The purpose of the Westminster, East Garden Grove, Flood Risk Management Study is to evaluate flood risk within the Westminster watershed (see Figure 1) following the completion of channel modifications for the Santa Ana River and the removal of the Westminster watershed from the Santa Ana River floodplain. Flood risk within the watershed can be attributed to drainage channels that collect surface runoff and convey it to the Pacific Ocean. Portions of the Westminster watershed are the only areas left in Orange County that are still within the Federal Emergency Management Agency (FEMA) 1% Floodplain. Preliminary analysis shows that flows break out of the C02/C04 and C05/C06 channel systems during a 4% annual chance of exceedance (ACE) storm event, putting area residents as well as approximately 20,000 structures at risk, representing expected average annual damages of \$85,000,000. Overbank flooding also impacts traffic in the project area, causing closures on local roads as well as major routes, including the Pacific Coast Highway (PCH) and Interstate-405.

The study area is located entirely within the Westminster watershed in western Orange County, California approximately 25 miles southeast of the City of Los Angeles (see Figure 1). The watershed is approximately 74 square miles (191.7 square kilometers) in area and lies on a flat coastal plain. The study area is almost entirely urbanized. Cities in the watershed include Anaheim, Stanton, Cypress, Garden Grove, Westminster, Fountain Valley, Los Alamitos, Seal Beach, and Huntington Beach. The watershed was formerly part of the floodplain of the Santa Ana River (SAR), which historically meandered throughout the existing watershed as far north as Anaheim Bay. Channelization and large scale flood control modifications have constrained the Santa Ana River to the main stem channel on the eastern border of the Westminster watershed.

7.0 PROJECT DESCRIPTION

Consistent with the formulation strategies to improve channel conveyance and capacity, the project includes measures that will reduce flood risk within the watershed by improving both conveyance efficiency and capacity of existing channels (see Figure 2). Channel improvement measures include a combination of 1) lining trapezoidal channels that currently have an earthen bottom and either earthen or riprap channel banks with concrete, 2) converting trapezoidal channels with earthen bottom and either earthen or riprap channel banks to rectangular shaped channels lined with concrete, and 3) addition of floodwalls. The leveed areas in the downstream reaches of C02 and C05 would be improved to reduce the risk of levee failure. Modifications in these reaches would include installation of steel sheet pile channel walls and preservation of existing soft bottom, tidally-influenced habitat.

Additional downstream measures would be combined with the in-channel measures to address existing flooding in Outer Bolsa Bay and to account for increased flow volumes that result from increased conveyance capacity in the channels. The tide gates on C05 would be replaced in order to improve the flow conditions through the lower reaches of the C05 channel. This alternative also includes the widening of the Outer Bolsa Bay channel just upstream of the Warner Avenue Bridge, increasing the span of the Warner Avenue Bridge, and increasing the span of the pedestrian bridge at the Bolsa Chica Conservancy. A 2,500 foot long and 3 foot tall floodwall would be built along PCH at Outer Bolsa Bay to reduce impacts from flooding on traffic. An additional upstream measure may include construction of a diversion channel to direct flows around a restriction in channel C04 where flow is currently directed under Westminster Mall.

Construction of project features will require earthwork and excavation within and upland of the channels included in the USACE project area, and downstream of the channels where tide gates, bridge expansion, and floodwalls along the PCH are proposed. Due to the developed nature of the watershed, and location of existing structures adjacent to and within the project area, the ability to avoid HTRW during design and construction is assumed minimal.

8.0 GENERAL METHODS

The information used to complete this limited HTRW Phase I ESA was obtained from database research. Due to the scale of the project, and the amount of information obtained from the database search, assessment of information collected is broad-scale in nature. Detailed review of the information gathered is required to determine the scope and scale of REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the USACE project. Site reconnaissance, review of historical maps, and review of existing information are not conducted as part of this investigation and are considered data gaps. These additional analyses must be conducted in future phases of the project to determine the likelihood of encountering a REC during project implementation.

9.0 DATABASE SEARCH

A search of available environmental records was conducted utilizing Environmental Database Resources, Inc. (EDR). EDR searched federal and state databases using a standard search distances from the channels in the USACE project area. Table 1 notes the recommended ASTM search distances for federal and state databases. The EDR overview map displaying the project area, the search results, and key to individual

focus maps are shown on Figure 3. The comprehensive EDR database report is included in Attachment 1. Broad scale analysis of information included in the EDR database is included in below paragraphs. A summary of database returns within the recommended search distance is provided in Table 2.

Table 1: Minimum Search Distance for Federal and State Databases

Database	Approximate Minimum Search Distance (mi)
Federal NPL Site List	1.0
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP site list	Property and Adjoining Properties
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	Property and Adjoining Properties
Federal ERNS List	Property Only
State Equivalent NPL	1.0
State Equivalent CERCLIS	0.5
State Landfill/Solid Waste Disposal Site Lists	0.5
State LUST Lists	0.5
State registered UST List	Property and Adjoining Properties

Table 2: Summary of EDR Database Returns within Recommended Search Distance

Database	Search Distance (Miles)	Target Property	< 1/8 mile	1/8 - 1/4 mile	1/4 - 1/2 mile	1/2 – 1 mile	> 1 mile	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.00		0	0	0	0	1	1
<i>Federal CERCLIS list</i>								
SEMS	0.5		1	0	1	NR	NR	2
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.5		1	0	1	NR	NR	2
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.25		11	5	NR	NR	NR	16
RCRA-SQG	0.25		54	53	NR	NR	NR	107
RCRA-CESQG	0.25		5	2	NR	NR	NR	7
<i>State- and tribal - equivalent NPL</i>								
CA RESPONSE	1.00		0	0	1	1	NR	2
<i>State- and tribal - equivalent CERCLIS</i>								
CA ENVIROSTOR	1.00		4	2	11	32	NR	49
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
CA SWF/LF	0.5		0	2	0	NR	NR	2
<i>State and tribal leaking storage tank lists</i>								
CA LUST	0.5		54	36	68	NR	NR	158
CA CPS-SLIC	0.5		7	4	5	NR	NR	16
<i>State and tribal registered storage tank lists</i>								
CA UST	0.25		37	29	NR	NR	NR	66
CA AST	0.25		8	7	NR	NR	NR	15
<i>State and tribal voluntary cleanup sites</i>								
CA VCP	0.5		0	0	2	NR	NR	2
<i>Local Lists of Landfill / Solid Waste Disposal Sites</i>								
CA WMUDS/SWAT	0.5		0	1	3	NR	NR	4
CA SWRCY	0.5		0	0	1	NR	NR	1
<i>Local Lists of Hazardous waste /Contaminated Sites</i>								
CA HIST Cal-Sites	1.00		0	0	2	0	NR	2
CA SCH	0.25		0	2	NR	NR	NR	2
<i>Local Lists of Registered Storage Tanks</i>								

Database	Search Distance (Miles)	Target Property	< 1/8 mile	1/8 - 1/4 mile	1/4 - 1/2 mile	1/2 - 1 mile	> 1 mile	Total Plotted
CA SWEEPS UST	0.25		29	22	NR	NR	NR	51
CA HIST UST	0.25	1	47	42	NR	NR	NR	90
CA FID UST	0.25		30	19	NR	NR	NR	49
Records of Emergency Release Reports								
CA CHMIRS	TP	1	NR	NR	NR	NR	NR	1
Other Ascertainable Records								
RCRA NonGen / NLR	0.25		11	14	NR	NR	NR	25
FUDS	1.00		1	0	0	0	NR	1
DOD	1.00	1	0	0	0	0	NR	1
ABANDONED MINES	0.25		0	1	NR	NR	NR	1
UXO	1.00		2	0	1	0	NR	3
CA Cortese	0.5		0	1	2	NR	NR	3
CA DRYCLEANERS	0.25		76	34	NR	NR	NR	110
CA EMI	TP	1	NR	NR	NR	NR	NR	1
CA HAZNET	TP	5	NR	NR	NR	NR	NR	5
CA HIST CORTESE	0.5		31	19	39	NR	NR	89
CA HWP	1.00		0	0	0	2	NR	2
CA HWT	0.25		0	2	NR	NR	NR	2
TX Ind. Haz Waste	0.25		0	1	NR	NR	NR	1
CA MWMP	0.25		1	0	NR	NR	NR	1
CA NPDES	TP	1	NR	NR	NR	NR	NR	1
CA PROC	0.5		0	1	0	NR	NR	1
CA Notify 65	1.00		0	1	1	3	NR	5
CA CIWQS	TP	2	NR	NR	NR	NR	NR	2
EDR HIGH RISK HISTORICAL RECORDS								
EDR Hist Auto	0.125		38	NR	NR	NR	NR	38
EDR Hist Cleaner	0.125		41	NR	NR	NR	NR	41

9.2 Federal Databases

9.2.1 CERCLIS

The Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) contains data on any potential hazardous waste site that has been reported by states, municipalities, private companies, or private persons pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLIS database indicates the stages of evaluation and remediation that have been completed for any given site. The CERCLIS database includes the National Priority List (NPL), which identifies over 1,200 sites for priority cleanup under the Superfund program, and the CERCLIS-No Further Remedial Action Planned (NFRAP) List, which includes a listing of sites that have been removed from CERCLIS. Delisted NPL and Federal facilities (BRAC) are also included in this database. There is one (1) Delisted NPL within the recommended search distance.

9.2.2 SEMS

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL. There are two (2) SEM sites within the recommended search distance.

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that based upon available information, the location is not judged to be potential NPL site. There are two (2) SEM-ARCHIVE sites within the recommended search distance.

9.2.3 RCRIS

The Resource Conservation and Recovery Information System (RCRIS) lists sites which generate, transport, store, and/or dispose of hazardous waste defined by the Resource Conservation and Recovery Act (RCRA). The RCRIS database includes RCRA Corrective Action Report (CORRACTS), which identify hazardous waste handlers with RCRA corrective action activity; RCRA treatment, storage, and disposal facilities (TSDFs), and RCRA conditionally exempt small quantity generators (CESQGs), RCRA small quantity generators (SQGs), and large quantity generators (LQGs) facilities. There are sixteen (16)

RCRA-LQGs, 107 RCRA-SQGs, and seven (7) RCRA-CESQGs within the recommended search distance.

9.2.4 US ENG CONTROLS and US INST CONTROLS

A listing of sites with engineering controls or institutional controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. There are no sites with engineering or institutional controls within the recommended search distance.

9.2.5 ERNS

Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances. There are no ERNS returns within the recommended search distance.

9.3 State Databases

9.3.1 CA RESPONSE

State equivalent NPL database: Identifies confirmed release sites where the Department of Toxic Substances Control's (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. There are two (2) CA RESPONSE sites within the recommended search distance.

9.3.2 CA ENVIROSTAR

State equivalent CERCLIS: The DTSC's Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. There are forty-nine (49) CA ENVIROSTAR sites within the recommended search distance.

9.3.3 CA SWF/LF

Active, Closed and Inactive Landfills: SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites. There are two (2) CA SWF/LF sites within the recommended search distance.

9.3.4 CA LUST and INDIAN UST

CA LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. INDIAN LUST: LUST sit located on Indian land. There are 158 CA LUST sites within the recommended search distance.

9.3.5 CA CPS-SLIC

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. There are sixteen (16) CA CPS-SLIC sites within the recommended search distance.

9.3.6 CA UST, FEMA USTs, CA MILITARY UST SITES

Active underground storage tank (UST) sites owned by military organizations, FEMA, or information gathered from local regulatory agencies. There are sixty-six (66) CA USTs within the recommended search distance.

9.3.7 CA UST CLOSURE

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders. There are no CA UST CLOSURE sites within the recommended search distance.

9.3.8 CA AST

A listing of above ground storage tank petroleum storage tank locations. There are fifteen (15) CA ASTs within the recommended search distance.

9.3.9 CA VCP and INDIAN VCP

Voluntary cleanup program (VCP) properties contain a low threat level with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs. INDIAN VCP are a listing of VCP sites on Indian land. There are two (2) CA VCP sites within the recommended search distance.

9.3.10 CA BROWNFIELDS and US BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System

(ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs. CA BROWNFIELDS are a listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process. There are no brownfield sites within the recommended search distance.

9.4 Local List of Landfill/Solid Waste Disposal Sites

9.4.1 CA WMUDS/SWAT

Waste Management Unit Database System (WMUDS) is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information. There are four (4) CA MWUDS/SWAT sites within the recommended search distance.

9.4.2 CA SWRCY

A listing of recycling facilities in California. There is one (1) recycling facility within the recommended search distance.

9.4.3 CA HIST Calsites

The CalSites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the CalSites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR. There are two (2) CA HIST CalSites within the recommended search distance.

9.4.4 CA SCH

School Property Evaluation Program: this category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose. There are two (2) CA SCH sites within the recommended search distance.

9.4.5 CA SWEEPS UST

Statewide Environmental Evaluation and Planning System (SWEEPS): this underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list. There are fifty-one (51) SWEEPS sites within the recommended search distance.

9.4.6 CA HIST UST

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data. There are ninety (90) CA HIST USTs within the recommended search distance.

9.4.7 CA FID UST

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data. There are forty-nine (49) CA FID USTs within the recommended search distance.

9.4.8 CA CHMIRS

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills). There is one (1) CHMIRS site within the recommended search distance.

9.5 Other Databases

A variety of other databases are searched as part of the environmental records search. Activities conducted at these sites, such as the RCRA-non generator, FUDS, DOD, ABANDONED MINES, unexploded ordinance, historical auto service, historical drycleaners, and other California state databases, etc. may indicate a potential for a REC to be present at a site. A description of the information included in each of these databases is included in the EDR report. In addition, a list of orphan sites that may be located in the project area is included in the EDR report. The orphan sites are not evaluated as part of this investigation. Thorough review of all database returns should be conducted in future phases of the project to determine the likelihood of encountering a REC during project implementation. Sites that are listed in ECHO or FINDS are not summarized herein.

9.6 Limited Project Review

A focused assessment of the database report was conducted for sites that are on, or directly adjacent to the USACE channel work areas. The status of the EDR sites on, or adjacent to, the project area and a summary of the potential project impacts are provided in Tables 3 through 5. Sites included in Federal databases with known contamination, such as NPL, RCRA corrective action, FUDS, and engineering/institutional controls are evaluated as part of this focused assessment.

The EDR database report was obtained in early stages of project planning and does not include database returns for upstream portions of the channel reaches in the study area shown on Figure 2. A more general assessment was conducted on the upstream portions of the channels in the study area; results are discussed in paragraph 9.6.4.

9.6.1 Channel C02/C04

Database returns in the area of the C02/C04 channel are shown on focus maps 6 through 9 in the EDR report. Maps are provided as Figures 4 through 7 attached. A summary of sites on or adjacent to the channel C02/C04 project area, or special sites of concern near channel C02/C04, is provided in Table 3. Review of EDR database returns on or adjacent to the project area suggests that there are two LUSTs adjacent to the project area that have not been fully addressed (EDR site groups K41-K46 and F11-F16).

In addition to these two facilities, there are several service stations with active USTs and a facility with a potential surface impoundment directly adjacent to the potential project work area (EDR site #AS251/252, K53-K57, and B17-B21). The status of these facilities and location of existing infrastructure, USTs, and impoundments should be reviewed during PED to confirm that project implementation is not affected by the presences of USTs or impoundments in the work area. In addition, the status of ongoing LUST remedial actions should be confirmed prior to project implementation to confirm the risk of encountering contaminated soils or groundwater (HTRW) during construction.

DOD/FUDS/UXO Seal Beach: The Installation Restoration Program (IRP) at Naval Weapons Station Seal Beach began in 1985 with an Initial Assessment Study in which 25 locations of potential contamination were identified. A further Resource Conservation and Recovery Act Facility Assessment in 1989 and subsequent discoveries brought this total up to 76 locations. During the course of these and later studies, 49 sites were determined to contain no significant contamination, five currently operating, permitted facilities were removed from the program, and two additional sites were transferred to other environmental programs specializing in underground storage tanks. Fifteen sites have had cleanup actions completed. The remaining five IRP sites are in various stages of active study or cleanup. A Military Munitions Response Program (MMRP) Preliminary Assessment was conducted in late 2008, with five MMRP sites recommended for Site Inspections. As a result of these investigations two sites were recommended for no further action and remaining three sites will undergo more detailed analysis. See Figure 8 for a site map. Review of the sites with ongoing remedial actions should be conducted in PED to confirm that project implementation is not affected by any ongoing or planned remedial activities. Sites with ongoing remedial actions are presented below. Sites 7, 75, and UXO 6 are adjacent to the Channel C02/04 project area:

- Site 7 – Station landfill. Previous disposal of solvents, transformer oil, lubricants, paint sludge, asbestos, photo solutions, and mercury. Remedial action complete, O&M ongoing,
- Site 22 – Oil Island. Oil production waste-holding impoundments. Site being used and monitored.
- Site 70 – Research, Testing and Evaluation Area. Enhanced bioremediation and monitored natural attenuation ongoing for TCE contamination.
- Site 74 – Old Skeet Range. Final remediation strategy being developed for metals (lead and antimony) and PAHs from previous skeet shooting activities. Close to Seal Beach National Wildlife Refuge.
- Site 75 – KAYO-SB Ag Well. Groundwater contamination, chlorinated solvents. Site being inspected and Navy working with regulatory agencies on plan.
- UXO 1 – Primer Salvage Yard and POLB Mitigation Pond. Remedial investigation ongoing for munitions and explosives of concern, munitions constituents.
- UXO 6 – Westminster POLB Fill Area. Remedial investigation ongoing for munitions and explosives of concern, munitions constituents.
- AOC 2 – Explosives Drop Test Tower. Remedial investigation ongoing for munitions constituents.

(Information obtained from <https://cnic.navy.mil>)

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Table 3: EDR Search Results on/adjacent: Channel C02/04

Database	Map ID	Site Name	Proximity to Site	Status	Potential Impact
DOD - FUDS UXO	621 735	Seal Beach Naval Weapons Station	<i>On property</i>	See text	Due to proximity of the facility to the project area, confirm status of all remedial activities during PED.
RCRA-SQG CA HAZNET CA UST	AS251 AS252	Sunset Aquatic Marine Center (shipyard)	<i>Adjacent, west</i>	RCRA – no violations. Facility manages hazardous materials, may contain UST for storage.	Due to proximity of the facility to the project area, confirm that any impoundments present are outside the limits of excavation activities during PED.
CA EMI RCRA- CESQG CA LUST EDR HIST AUTO CA HIST UST	K41 K42 K43 K44 K45 K46	Multiple service stations at 16,001 Bolsa Chica St.	<i>Adjacent, south</i>	RCRA – no violations. LUST discovered during tank closure. Remediation ongoing, closure not obtained. Site may contain active USTs.	Reported releases have not been fully addressed. In addition, USTs may be present onsite. REC likely. Impacts of REC should be addressed during PED.
CA UST EDR HIST AUTO RCRA-SQG CA LUST CA SWEEPS UST	K53 K54 K55 K56 K57	Multiple service stations at 5002 Endinger	<i>Adjacent, south</i>	LUST closed NFA 9/22/2009 and 9/15/1992. Site may contain active USTs.	Reported releases addressed. Due to proximity of the UST to the project area, confirm that USTs are outside the limits of excavation activities during PED.
EDR HIST CLEANERS	K96	Starbrite Inc.	<i>Adjacent, south</i>	Possible historic cleaners onsite from 2006-2014.	No reported releases, REC unlikely.

EDR HIST CLEANERS	K114	First Cabin Cleaners	<i>Adjacent, south</i>	Possible historic cleaners from 1976-1978.	No reported releases, REC unlikely.
RCRA-LQG	40	CVS #9491	<i>Adjacent, south</i>	RCRA – no violations	No reported releases, REC unlikely.
RCRA-CESQG	J33	Von’s Store #2090	<i>Adjacent, south</i>	RCRA – no violations	No reported releases, REC unlikely.
RCRAGen CA CPS- SLIC CA DRYCLEA NERS HIST CLEANERS	J34 J35 J36 J37 J38 J39	Multiple cleaners at 5910 Edinger Ave	<i>Adjacent, south</i>	RCRA – no violations. CPS-SLIC site cleanup action complete 1/1/2010 for soil and groundwater impacts from PCE.	Reported releases addressed. REC unlikely.
EDR HIST CLEANERS	M58	American Olgun Service	<i>Adjacent, east</i>	Historic cleaners may have been present onsite from 1976 – 2013.	No reported releases, REC unlikely.
RCRA-LQG	M60	Exxon #7-2217	<i>Adjacent, east</i>	RCRA – no violations	No reported releases, REC unlikely.
CA LUST CA HAZNET	23	Marina High School	<i>Adjacent, east</i>	LUST – unknown status. Gasoline, closed 12/23/2003. Facility manages laboratory waste (chemicals).	Verify status of LUST activity – assumed closed.
RCRA nongen	29	Opto 22	<i>Adjacent, west</i>	RCRA – no violations	No reported releases, REC unlikely.
RCRA nongen	30	McDonnell, Douglas	<i>Adjacent, west</i>	RCRA – no violations	No reported releases, REC unlikely.

RCRA-SQG	H27 H28	MPF Services, Inc.	<i>Adjacent, west</i>	RCRA – no violations.	No reported releases, REC unlikely.
CA LUST CA SWEEPS UST RCRA-LQG RCRA- CESQG CA HAZNET	F11 F12 F13 F14 F15 F16	Multiple Service Stations at 6502 Bolsa Ave	<i>Adjacent, south</i>	LUST closure denied 4/13/18. Remediation ongoing. USTs may be present onsite. RCRA – no violations. Historic service station since 1969. Facility has managed environmental contaminants to recycler.	Reported releases have not been fully addressed. In addition, USTs may be present onsite. REC likely. Impacts of REC should be addressed during PED.
EDR HIST AUTO	F22	Cox, Blake	<i>Adjacent, south</i>	Possible historic service station may have been present from 1971 – 1980.	No reported releases, REC unlikely.
CA HAZNET	A1	Fuji Tech America	<i>On property</i>	Oil/water separator sludge disposed from site to a recycler. Unknown origin.	No reported releases, REC unlikely.
CA EMI	A3	Coco's #93	<i>On property</i>	Air emissions inventory	No reported releases, REC unlikely.
CA HAZNET	B2	Wells Fargo Bank	<i>Adjacent, east</i>	Facility disposed of asbestos containing waste from the site to a landfill.	No reported releases, REC unlikely.
CA LUST CA UST (and HIST) EDR HIST AUTO	B17 B18 B19 B20 B21 B59	Multiple Service Stations at 15001 Goldenwest St	<i>Adjacent, east</i>	1. LUST discovered upon tank closure 2000. Cleanup complete 5/5/2015. 2. LUST discovered upon tank closure 1965. Cleanup complete 2/6/1986. 3. USTs may be present onsite.	Reported releases addressed. Due to proximity of the UST to the project area, confirm that USTs are outside the limits of excavation activities during PED.

**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

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9.6.2 Channel C05

Database returns in the area of the C05 channel are shown on focus maps 14 through 17, 10 and 11 in the EDR report. Maps are provided as Figures 9 through 14 attached. A summary of sites on or adjacent to the channel C05 project area, or special sites of concern near channel C05, is provided in Table 4. Review of EDR database returns on or adjacent to the project area suggests that there are several service stations with active USTs directly adjacent to the potential project work area (EDR site #E70, N111-N113, and O62-66). The status of these facilities and location of existing infrastructure and USTs should be reviewed during PED to confirm that project implementation is not affected by the presences of USTs in the work area.

In 1997, the Bolsa Chica Lowland Restoration Project, adjacent to channel C05, began with the acquisition of private property that had supported oil exploration for decades and a continuing oil field operation. A prerequisite to that acquisition was completion of a voluntary cleanup agreement among the State Lands Commission (SLC), the oil company operating the oil field lease, CalResources LLC, and the property seller, Signal Bolsa Corporation. The cleanup agreement established that the project would characterize the nature and extent of contamination on the site, the parties would agree on cleanup goals, and the oil company and seller would see that the contamination was cleaned up under the oversight of the Regional Water Quality Control Board (RWQCB). The project was expected to be under construction by October 1, 2004 and completed in spring of 2007 and would address soils contaminated with metals, oil & grease, petroleum hydrocarbons, and PCBs. Activities to clean up the contamination in the oil fields appear to be ongoing. Recently developed oil field clean-up plans consist of completion of the final elements of remediation and/or removal of contaminated soils that haven't been addressed through previous remedial activities. The status of all remedial activities conducted at the Bolsa Chica Lowlands site should be reviewed during PED to determine if there are any areas of in the proposed project footprint that may affect any remaining contamination and/or contaminated fill left onsite as part of the remedial action plan.

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Table 4: EDR Search Results on/adjacent: Channel C05

Database	Map ID	Site Name	Proximity to Site	Status	Potential Impact
CA NPDES CA CIWQS	10	East Garden Grove – Wintersburg channel improvement	<i>On property</i>	NPDES permitting, municipal storm water, phase I, terminated 6/12/14. No enforcement action. <i>*assumed construction improvement action/permit</i>	No reported releases, REC unlikely.
CA CIWQS	E9	East Garden Grove – Wintersburg channel TIDE GATES	<i>Adjacent, east</i>	Unknown entry. No enforcement action. <i>*assumed construction improvement action/permit</i>	No reported releases, REC unlikely.
CA UST	E70	Quick Change Lube & Oil	<i>Adjacent, east</i>	Site may contain active USTs.	Due to proximity of the UST to the project area, confirm that USTs are outside the limits of excavation activities during PED
CA HAZNET	4	Tom T Chen	<i>On property</i>	Hazardous waste recycling activity onsite	No reported releases, REC unlikely.
EDR Hist Auto	76	Toten, Joseph and Betty	<i>Adjacent, north</i>	Possible historic gasoline service station onsite from 1975-1983.	No reported releases, REC unlikely.
EDR HIST CLEANERS	N61	HB Cleaners	<i>Adjacent, south</i>	Possible historic cleaner onsite from 2003-2004.	No reported releases, REC unlikely.
CA UST RCRA-SQG CA LUST CA AST	N111 N112 N113	Huntington Beach Dodge	<i>Adjacent, south</i>	RCRA – no violations LUST discovered upon tank closure, NFA dated 7/8/1985. Facility may contain onsite landfill or surface	Due to proximity of the facility to the project area, confirm that any impoundments present are outside the limits of excavation activities during PED

				impoundment or above ground storage tank.	
CA LUST CA UST EDR HIST AUTO	O62 O63 O64 O65 O66	Exxon (Sam's) Sam Texxon Exxon #7-8756	<i>Adjacent, north</i>	LUST case closed 8/16/2001 after multiple remedial action strategies used onsite. Site may contain active USTs.	Reported releases addressed. Due to proximity of the facility to the project area, confirm that USTs are outside the limits of excavation activities during PED
EDR HIST AUTO	95	Tahouri, Steve	<i>< 1/8 mile west</i>	Possible historic auto service station onsite from 2001-2012	No reported releases, REC unlikely.
EDR HIST CLEANERS	67	Crystal Cleaners	<i>Adjacent, north</i>	No additional information available on State or Federal databases	No reported releases, REC unlikely.
CA DRYCLEA NERS	90	Prime Cleaners	<i>Adjacent, north</i>	Inactive drycleaner	No reported releases, REC unlikely.
EDR	P68	Schiller, Richard	<i>Adjacent, south</i>	Possible historic auto service station onsite from 1972-1983	No reported releases, REC unlikely.
EDT HIST AUTO	P108	Brooks, Robert	<i>Adjacent, south</i>	Possible historic auto service station onsite from 1969-1974	No reported releases, REC unlikely.

9.6.3 Channel C06

Database returns in the area of the C06 channel are shown on focus maps 16 through 19 in the EDR report. Maps are provided as Figures 15 through 18 attached. A summary of sites on or adjacent to the channel C06 project area, or special sites of concern near channel C06, is provided in Table 5. Review of EDR database returns on or adjacent to the project area suggests that there are several service stations with active USTs directly adjacent to the potential project work area (EDR site #G24-G26, C8, and T97-T98). The status of these facilities and location of existing infrastructure and USTs should be reviewed during PED to confirm that project implementation is not affected by the presences of USTs in the work area.

**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

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Table 5: EDR Search Results on/adjacent: Channel C06

Database	Map ID	Site Name	Proximity to Site	Status	Potential Impact
RCRA-SQG CA UST CA SWEEPS UST CA FID UST	G24 G25 G26	The Oil Exchange	<i>Adjacent, south</i>	RCRA - no violations UST - active petroleum	Due to proximity of the UST to the project area, confirm that UST is outside the limits of excavation activities during PED
CA UST CA LUST CA EMI CA HIST CORTESE	I31 I32	Huntington Beach Citgo	<i>Adjacent, south</i>	UST closed/LUST closed 9/24/1987	Reported release addressed. Unlikely to impact project implementation.
CA DRYLCEA NERS RCRA-SQG	I102- I107 I42	One Hour Valentone Cleaners (Genesis)	<i>Adjacent, south</i>	RCRA – no violations. No violations or releases reported in DRYCLEANERS databases.	No reported releases, REC unlikely.
CA HAZNET	D6 D7	Sureguard	<i>On property</i>	Hazardous waste recycling activity onsite	No reported releases, REC unlikely.
CA SHMIRS	C5	No name	<i>On property</i>	2002 Spill/release of 950 gallons of sewage from a residence in channel.	Due to date of spill, and materials being pumped to ocean, residual impacts unlikely. Unlikely to impact project implementation.
CA HIST UST	C8	S and K Greenhouses	<i>On property</i>	UST – active 1988	Due to proximity of the UST to the project area, confirm that UST is outside the limits of excavation activities during PED.
CA SWEEPS UST	S74 S75	Family Fun Center	<i>Adjacent, south</i>	LUST activity cleanup complete. Request for closure	Reported release addressed. Unlikely to impact project implementation.

CA FID UST CA LUST				02/2018 with public notice of closure on same date.	
CA LUST CA HAZNET CA UST	T97 T98	Fountain Valley Fire Station	<i>Adjacent, east</i>	LUST – case closed 7/28/1994. Site may contain active USTs.	Reported releases addressed, REC unlikely. Due to proximity of the UST to the project area, confirm that UST is outside the limits of excavation activities during PED.

9.6.4 Upstream Channel Reach Review

The U.S. Environmental Protection Agency (USEPA) EnviroMapper for Envirofacts (<https://www3.epa.gov/enviro/>) online web-based application was used to obtain information on regulated sites that may be located on or adjacent to potential project areas in upstream portions of Channel C04 and C06 not included in the EDR Report. EnviroMapper is a single point of access to select USEPA environmental data. The web site provides access to several USEPA databases that provide information about environmental activities that may affect air, water, and land quality anywhere in the United States. Databases linked to the EnviroMapper include: Clean Air Act (CAA) air emissions (Aerometric Information Retrieval System (AIRS)/Air Facility System (AFS) database), Superfund sites (Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database), toxic releases (Toxic Release Inventory (TRI)), hazardous waste generators (Resource Conservation and Recovery Act Information (RCRAInfo) database), Clean Water Act (CWA) waste dischargers, Permit Compliance System (PCS) database, and brownfields (Assessment, Cleanup and Redevelopment Exchange System (ACRES) database). A summary of findings is presented in Table 6. No Superfund or RCRA corrective action activities were noted in the project area, though the area is densely developed. Additional comprehensive HTRW Phase I ESAs are recommended in the upstream areas.

Table 6: EnviroMapper Search Results – Upstream Reaches

Channel/Measure	Facility	Location	Status
Westminster Mall Diversion	USA Gasoline No. 141	Adjacent – 14600 Edwards St.	RCRA – SQG
	Joe Rhodes Maintenance	Adjacent (S) - 14582 Golden West	RCRA-transporter
Channel C04	Westminster Tract No 2633 Site	Adjacent (N) – Sowell & Kathy St.	RCRA - SQG
	BE Aerospace	Adjacent (S) - 7155 Fenwick Ave	ICIS – private owned water discharge general permit
	Hamilton Bob & Son Trucking	Adjacent (S) – 14482 Beach Blvd	RCRA - transporter
Channel C05	Meister Porsche Audi	Adjacent (S) – 13631 Harbor Blvd	RCRA - SQG

Channel/Measure	Facility	Location	Status
	1-day Paint & Body Center	Adjacent (S) – 13612 Harbor Blvd	RCRA - SQG

10.0 FINDINGS AND CONCLUSIONS

This HTRW investigation was performed to identify the risk of encountering HTRW and non-HTRW environmental issues at the Westminster, East Garden Grove, FRM project areas and to determine if any RECs present have impacted the project site or will impact implementation of the proposed project. According to ER 1165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW evaluation along with HTRW issues.

The information used to complete this limited HTRW Phase I ESA was obtained from database research. Due to the scale of the project, and the amount of information obtained from the database search, assessment of information collected is broad-scaled in nature. A focused assessment of the database report was conducted for sites that are on, or directly adjacent to the USACE work areas. Summary of potential HTRW and non-HTRW concerns and recommendations for future work are outlined below:

- Review of EDR database returns on or adjacent to the project area suggests that there are LUSTs adjacent to the project area that have not been fully addressed. The status of ongoing LUST remedial actions should be confirmed prior to project implementation to confirm the risk of encountering contaminated soils or groundwater (HTRW) during construction (EDR Site Groups K and F).
- There are several service stations with active USTs and a facility with a potential surface impoundment directly adjacent to the potential project work area. The status of the facilities and location of existing infrastructure, USTs, and impoundments should be reviewed during PED to confirm that project implementation is not affected by the presences of USTs, impoundments, or changes in the status of the facilities (EDR Sites # E70, C8 and groups B, K, G, N, O, T, and AS).
- Remedial action sites included in the DOD/FUDS/UXO Seal Beach Site are adjacent to Channel C02. Review of sites with ongoing remedial actions should be conducted in PED to confirm that project implementation is not affected by any ongoing or planned remedial activities:
 - Site 7 – Station landfill. Previous disposal of solvents, transformer oil, lubricants, paint sludge, asbestos, photo solutions, and mercury. Remedial action complete, monitoring ongoing,
 - Site 22 – Oil Island. Oil production waste-holding impoundments. Site being used and monitored.
 - Site 70 – Research, Testing and Evaluation Area. Enhanced bioremediation and monitored natural attenuation ongoing for TCE contamination.
 - Site 74 – Old Skeet Range. Final remediation strategy being developed for metals (lead and antimony) and PAHs from previous skeet shooting activities. Close to Seal Beach National Wildlife Refuge.

- Site 75 – KAYO-SB Ag Well. Groundwater contamination, chlorinated solvents. Site being inspected and Navy working with regulatory agencies on remedial action plan.
 - UXO 1 – Primer Salvage Yard and POLB Mitigation Pond. Remedial investigation ongoing for munitions and explosives of concern, munitions constituents.
 - UXO 6 – Westminster POLB Fill Area. Remedial investigation ongoing for munitions and explosives of concern, munitions constituents.
 - AOC 2 – Explosives Drop Test Tower. Remedial investigation ongoing for munitions constituents.
- The Bolsa Chica Lowland Restoration Project is adjacent to channel C05. The status of all remedial activities conducted at the Bolsa Chica Lowlands site should be reviewed during PED to determine if there are any areas in the proposed project footprint that may affect any remaining contamination and/or contaminated fill left onsite as part of the remedial action plan.
 - Comprehensive HTRW Phase I ESAs are required in PED, when project footprints are defined, to determine the scope and scale of REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the USACE project. Site reconnaissance, review of historical maps, and review of existing information was not conducted as part of this investigation and is considered a data gap. These additional analyses must be conducted in future phases of the project to determine the likelihood of encountering HTRW during project implementation.
 - Design of project features is encouraged to reduce the amount of fill requiring offsite disposal. The extent of excavation required for the construction of project features and total footprint of land disturbing activities is unknown at this time. However, it is expected that significant volume of fill will be generated for the construction of floodwalls and during channel reshaping. Fill materials generated during construction should be reused onsite to the maximum extent practicable.
 - Construction of civil works projects should be avoided in HTRW contaminated areas, where practicable. HTRW response actions, such as disposal of soils containing CERCLA regulated substances to a landfill, are not a cost-shared project expense.

No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area.

11.0 REFERENCES

American Society for Testing of Materials. Publication E 1527-13. Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process.

Department of the Army. U.S. Army Corps of Engineers. ER 1165-2-132. Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects. June 1992.

Figures

**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

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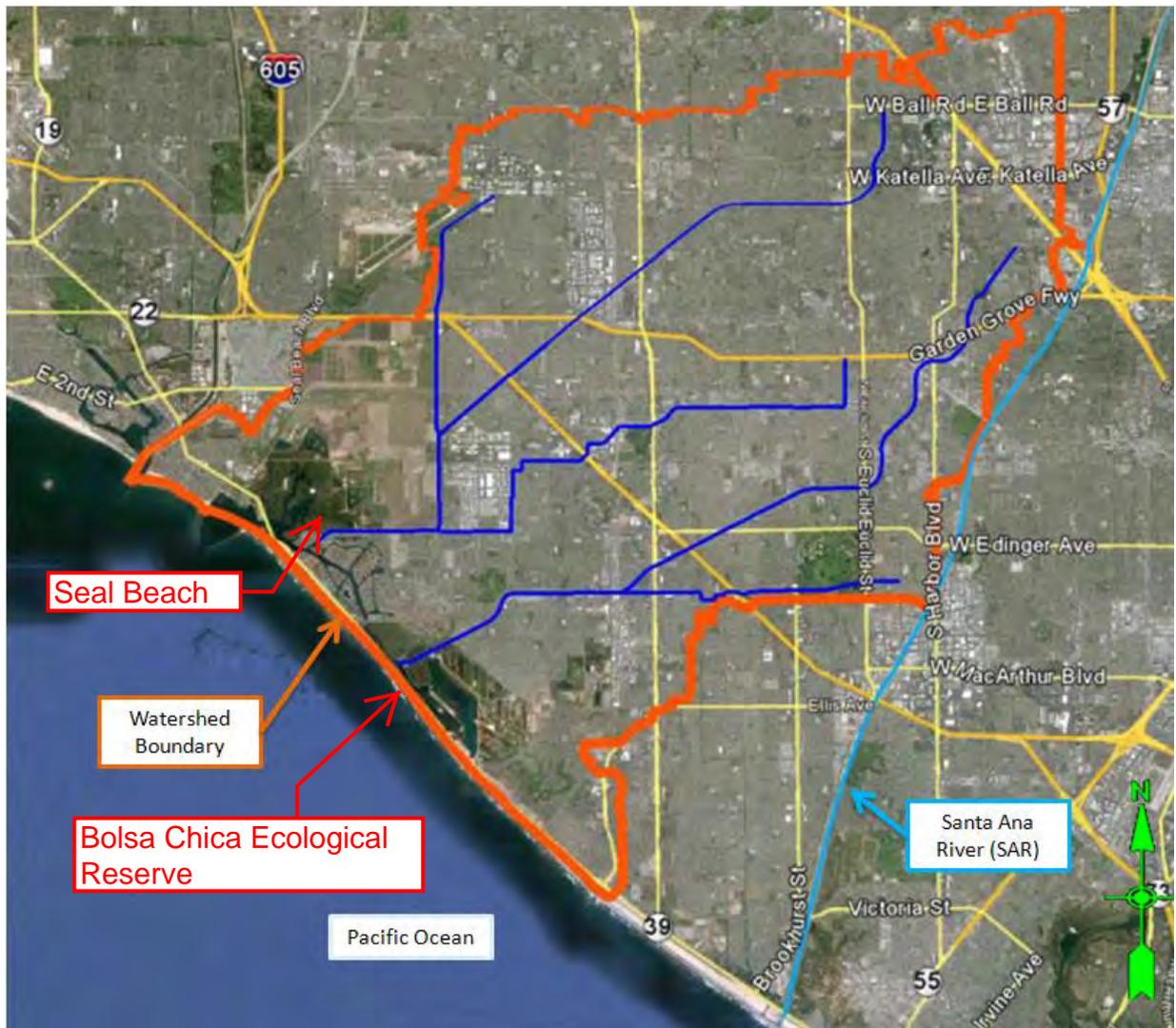
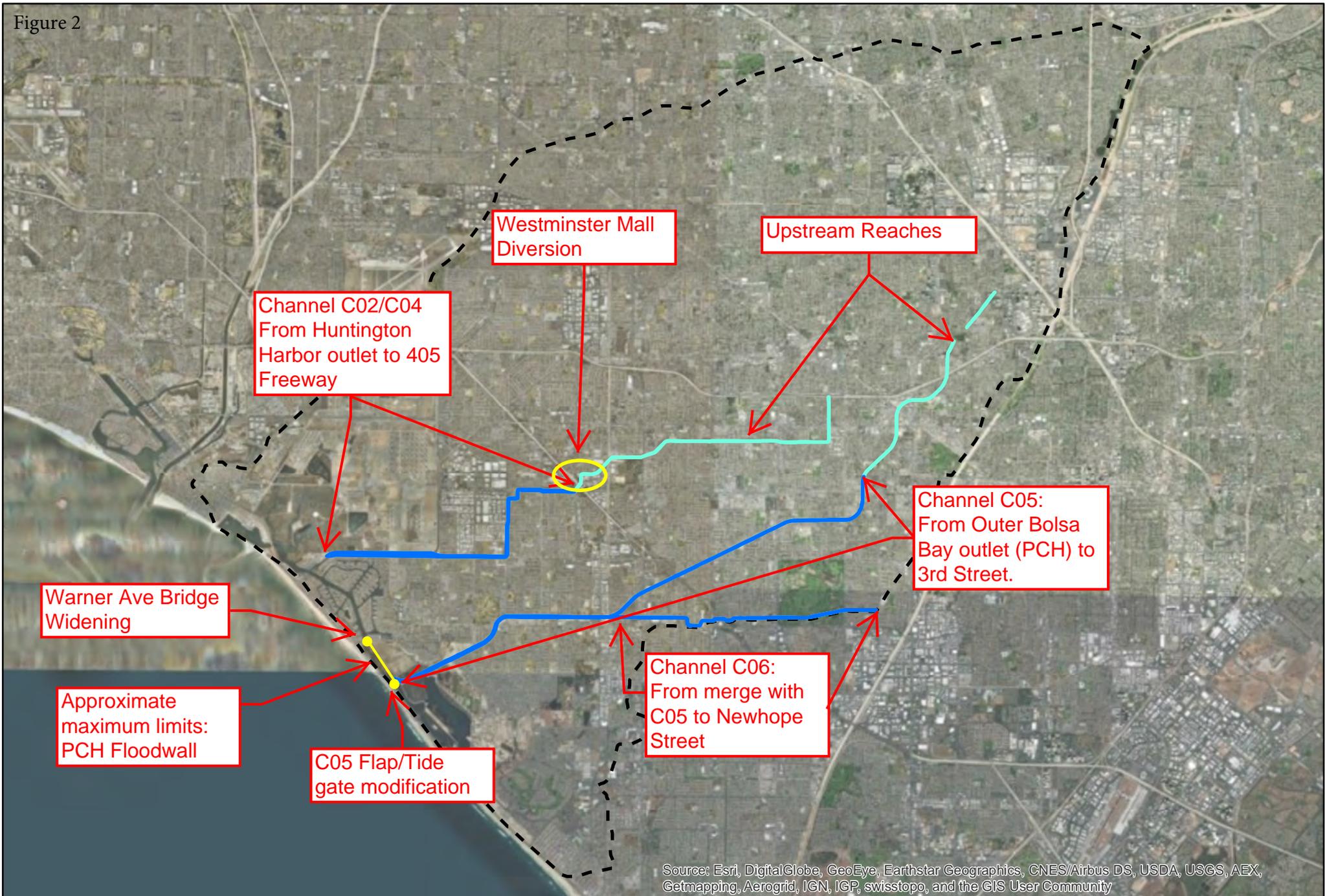


Figure 1: Study Watershed Boundary

**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

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Figure 2



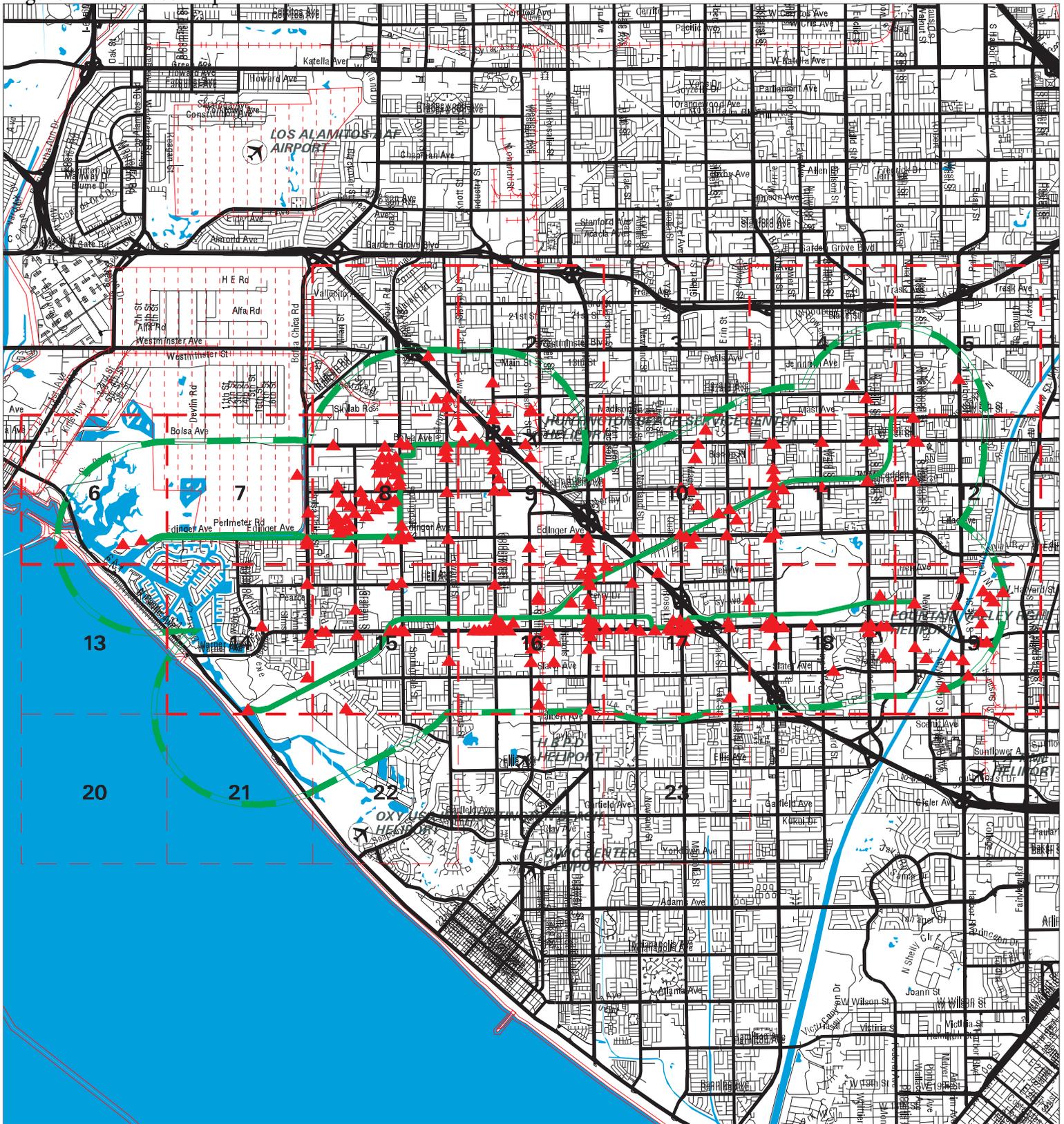
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Appendix F - Hazardous, Toxic and Radioactive
Waste (HTRW) Phase I Environmental Site
Assessment**

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Figure 3: EDR Base Map

Key Map - 5397563.8s



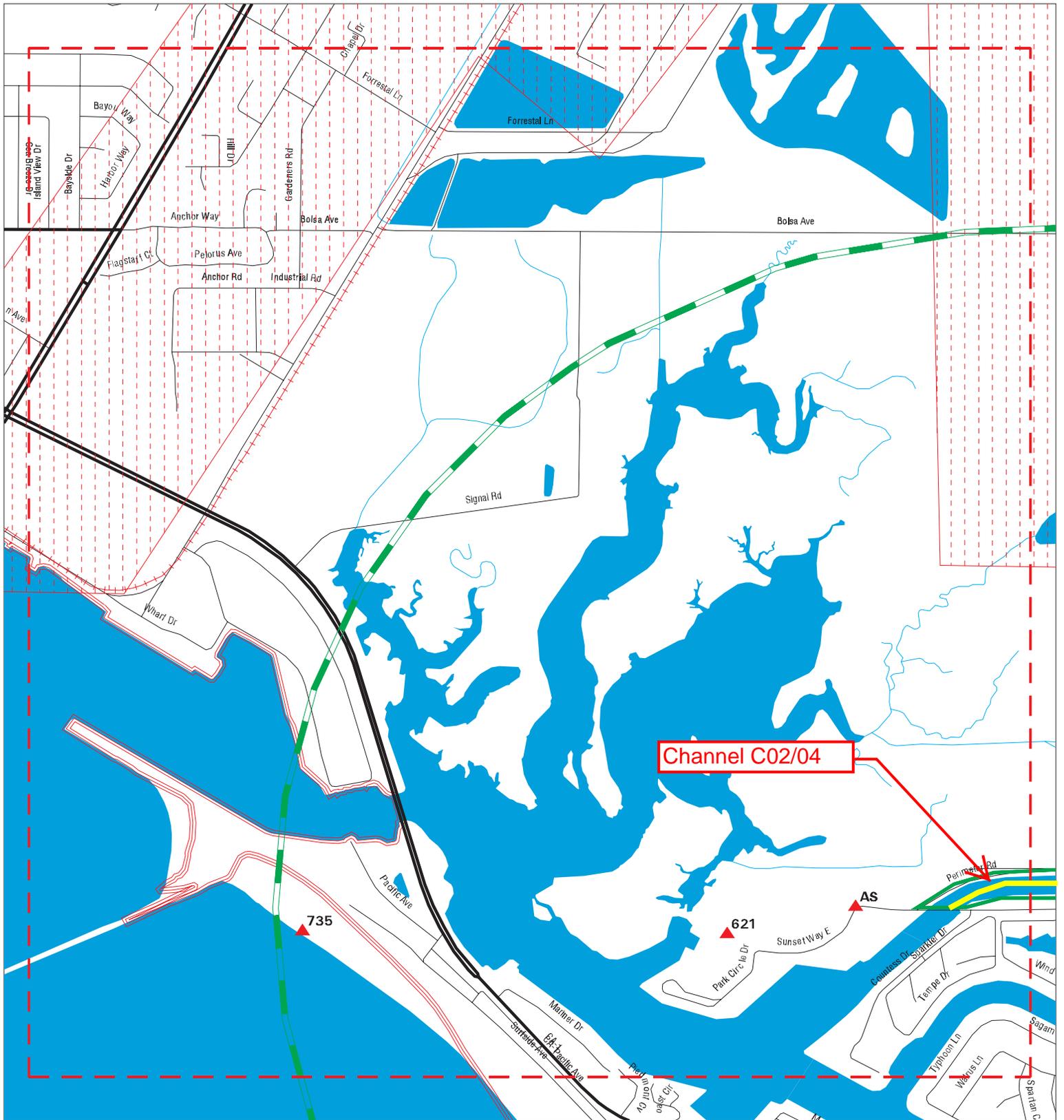
Sites	Focus Map - Sites	Indian Reservations BIA
Target Property	National Priority List Sites	
Search Buffer	Areas of Concern	
Focus Map - No Sites	Dept. Defense Sites	



SITE NAME: D ADDRESS: D CITY/STATE: Seal Beach CA ZIP: 90740	CLIENT: U.S. Army Corps of Engineers CONTACT: Casey.I.pittman@usace.army.mil INQUIRY #: 5397563.8s DATE: 08/17/18 5:03 PM
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Figure 4: C02 - 1

Focus Map - 6 - 5397563.8s



- ▲ Sites
- ▬ Target Property
- ▬ Search Buffer
- ▬ Focus Map - No Sites
- ▬ Focus Map - Sites
- ▬ Power Line
- ▬ Pipe Line
- ▬ National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA

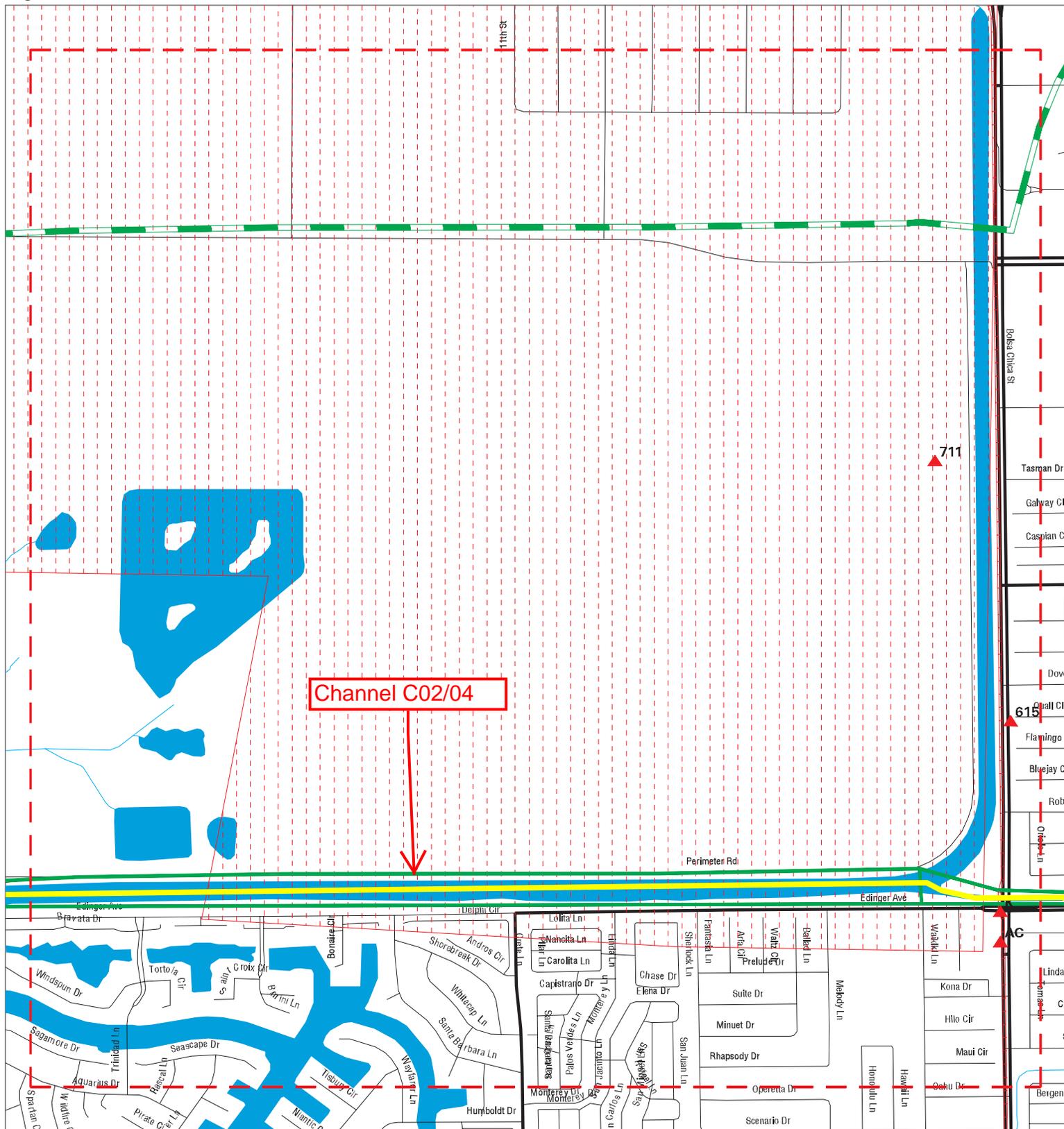


SITE NAME: D
 ADDRESS: D
 CITY/STATE: Seal Beach CA
 ZIP: 90740

CLIENT: U.S. Army Corps of Engineers
 CONTACT: Casey.I.pittman@usace.army.mil
 INQUIRY #: 5397563.8s
 DATE: 08/17/18

Figure 5: C02 - 2

Focus Map - 7 - 5397563.8s



Channel C02/04

- ▲ Sites
- ▲ Focus Map - Sites
- Areas of Concern
- ▲ Target Property
- ▲ Power Line
- Dept. Defense Sites
- ▲ Search Buffer
- ▲ Pipe Line
- Indian Reservations BIA
- ▲ Focus Map - No Sites
- National Priority List Sites



SITE NAME: D
 ADDRESS: D
 CITY/STATE: Seal Beach CA
 ZIP: 90740

CLIENT: U.S. Army Corps of Engineers
 CONTACT: Casey.I.pittman@usace.army.mil
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Focus Map - 8 - 5397563.8s

Figure 6: C02 - 3



Channel C02/04

- ▲ Sites
- ▲ Target Property
- ▲ Search Buffer
- ▲ Focus Map - No Sites
- ▲ Focus Map - Sites
- ▲ Power Line
- ▲ Pipe Line
- ▲ National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA

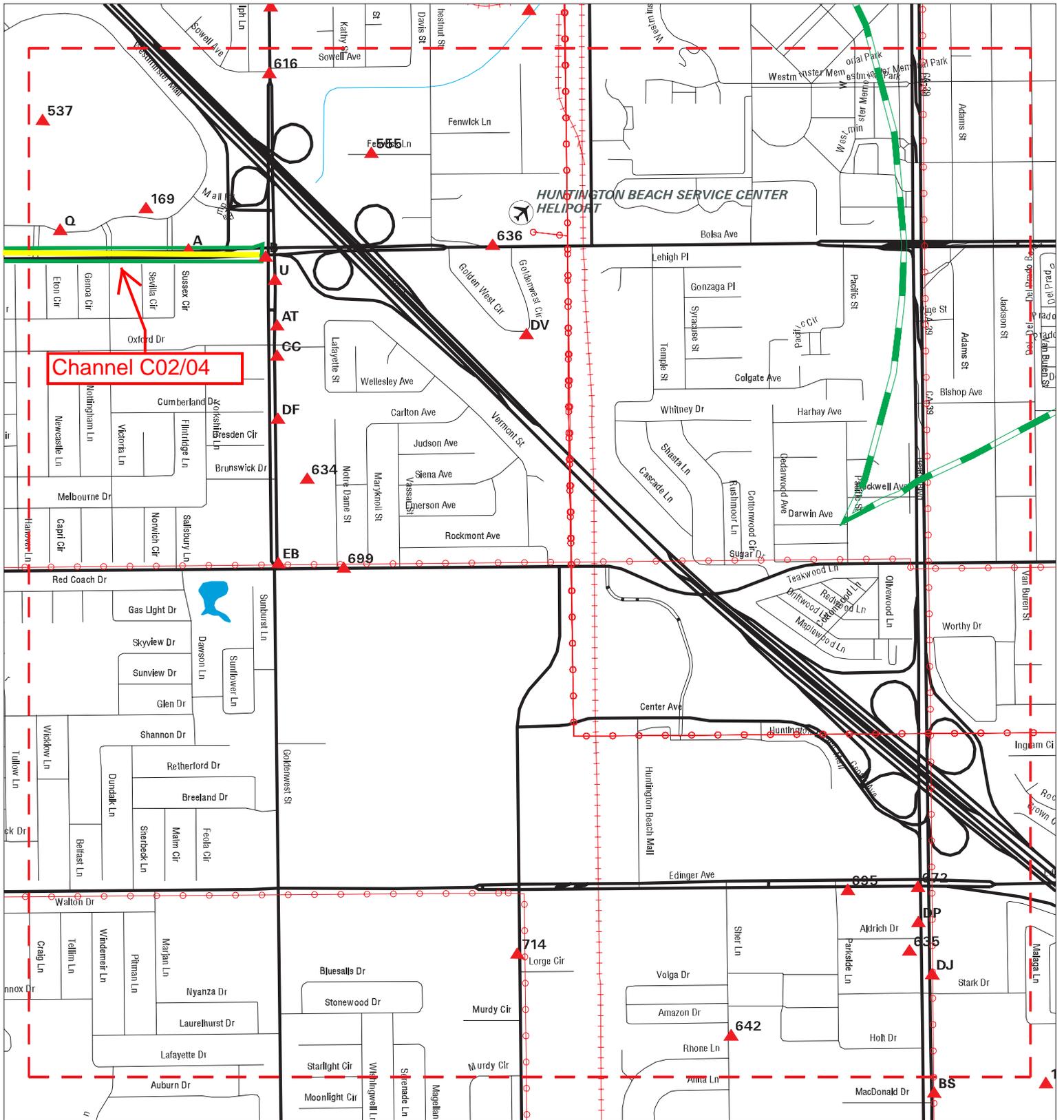


SITE NAME: D
 ADDRESS: D
 CITY/STATE: Seal Beach CA
 ZIP: 90740

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 DATE: 08/17/18

Figure 7: C02 - 4

Focus Map - 9 - 5397563.8s



- ▲ Sites
- // Focus Map - Sites
- Areas of Concern
- // Target Property
- Power Line
- Dept. Defense Sites
- // Search Buffer
- Pipe Line
- Indian Reservations BIA
- // Focus Map - No Sites
- National Priority List Sites



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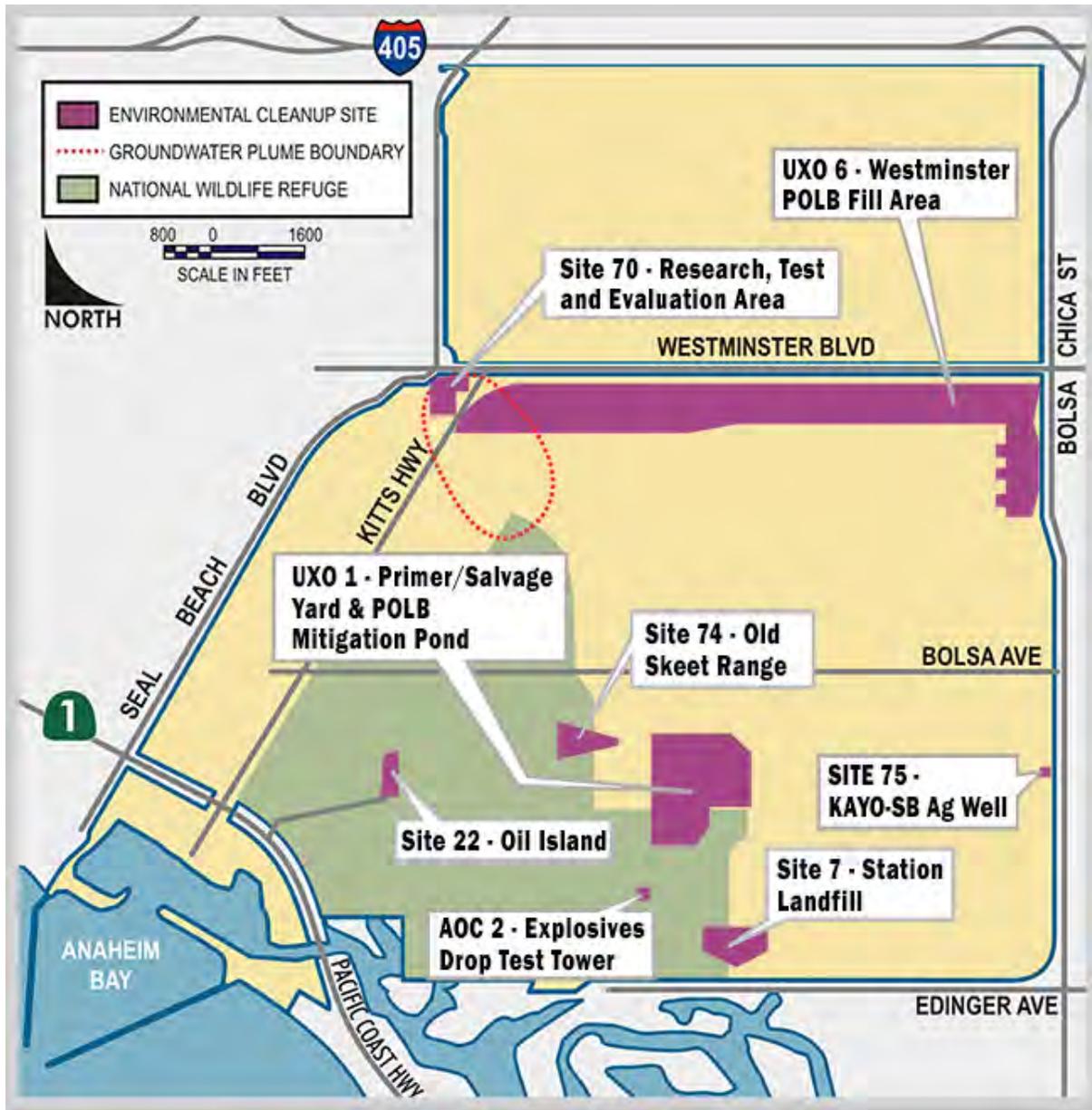
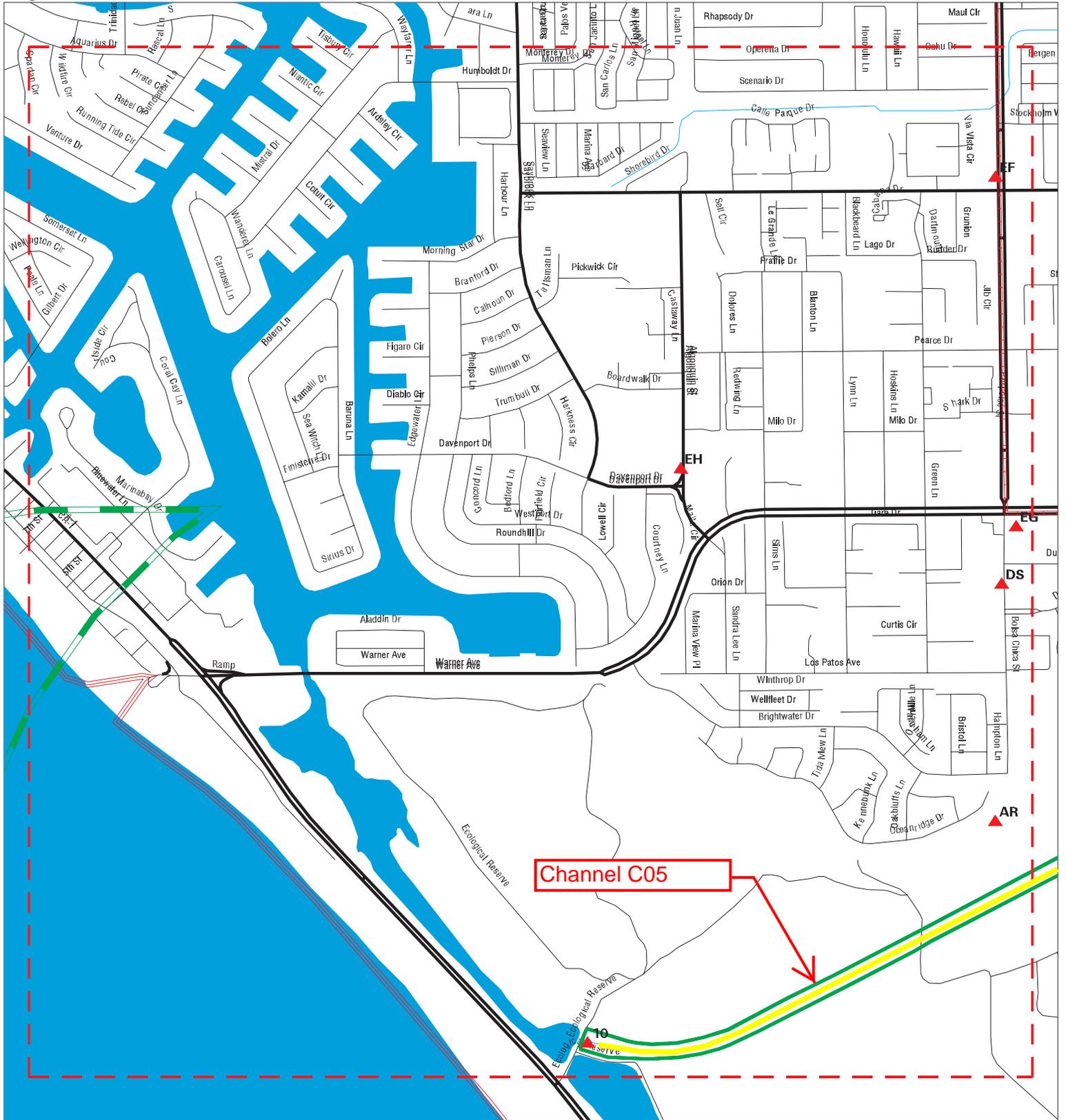


Figure 8 – Seal Beach Ongoing Remedial Action Areas

Focus Map - 14 - 5397563.8s

Figure 9: C05 - 1



- | | | |
|--------------------------|--------------------------------|---------------------------|
| ▲ Sites | /// Focus Map - Sites | ▣ Areas of Concern |
| ↗ Target Property | ⚡ Power Line | ▣ Dept. Defense Sites |
| ↗ Search Buffer | ⚡ Pipe Line | ▣ Indian Reservations BIA |
| /// Focus Map - No Sites | ▣ National Priority List Sites | |

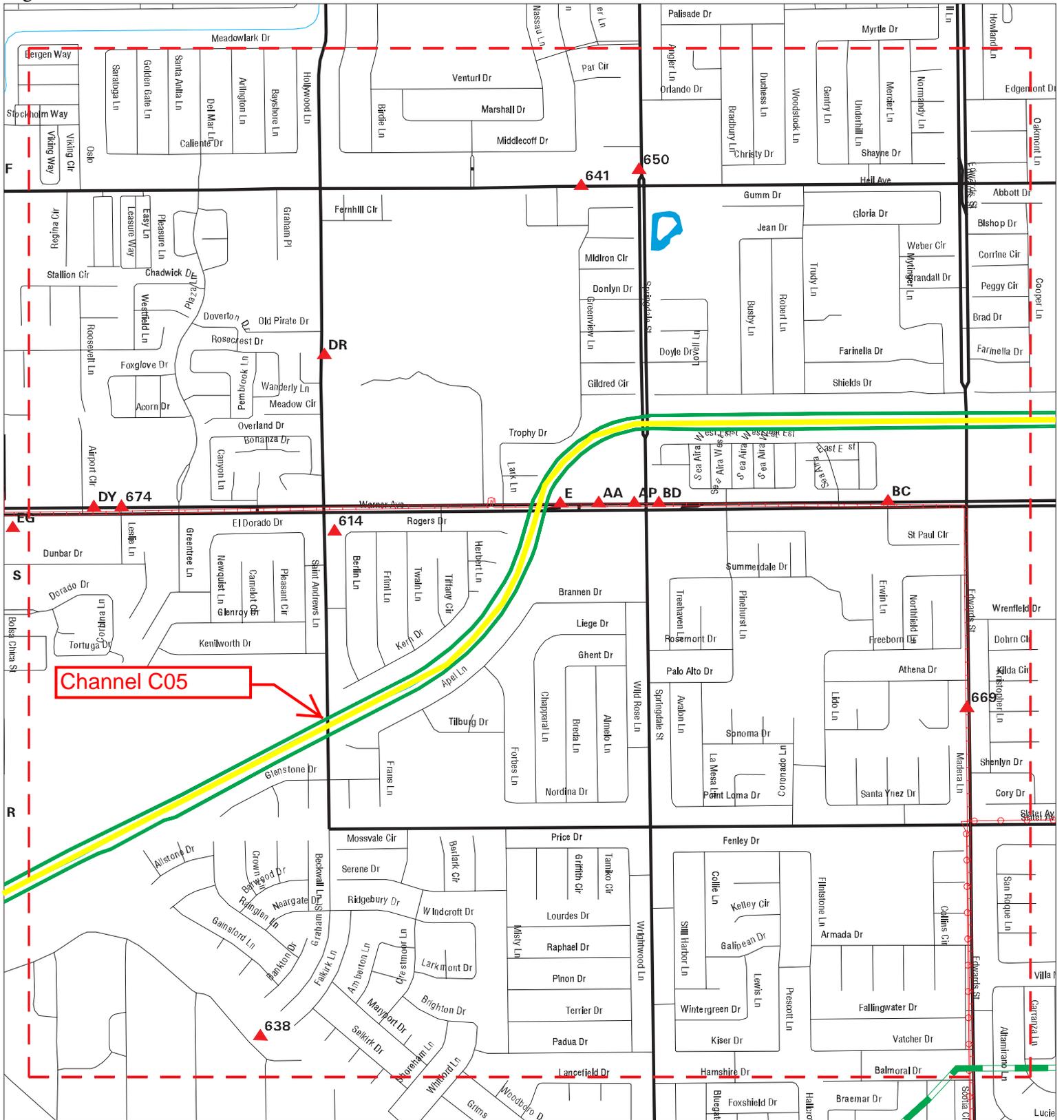


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Figure 10: C05 - 2

Focus Map - 15 - 5397563.8s



Channel C05

- ▲ Sites
- ▬ Focus Map - Sites
- ▬ Focus Map - No Sites
- ▬ Target Property
- ▬ Search Buffer
- ▬ Power Line
- ▬ Pipe Line
- ▬ National Priority List Sites
- ▬ Areas of Concern
- ▬ Dept. Defense Sites
- ▬ Indian Reservations BIA

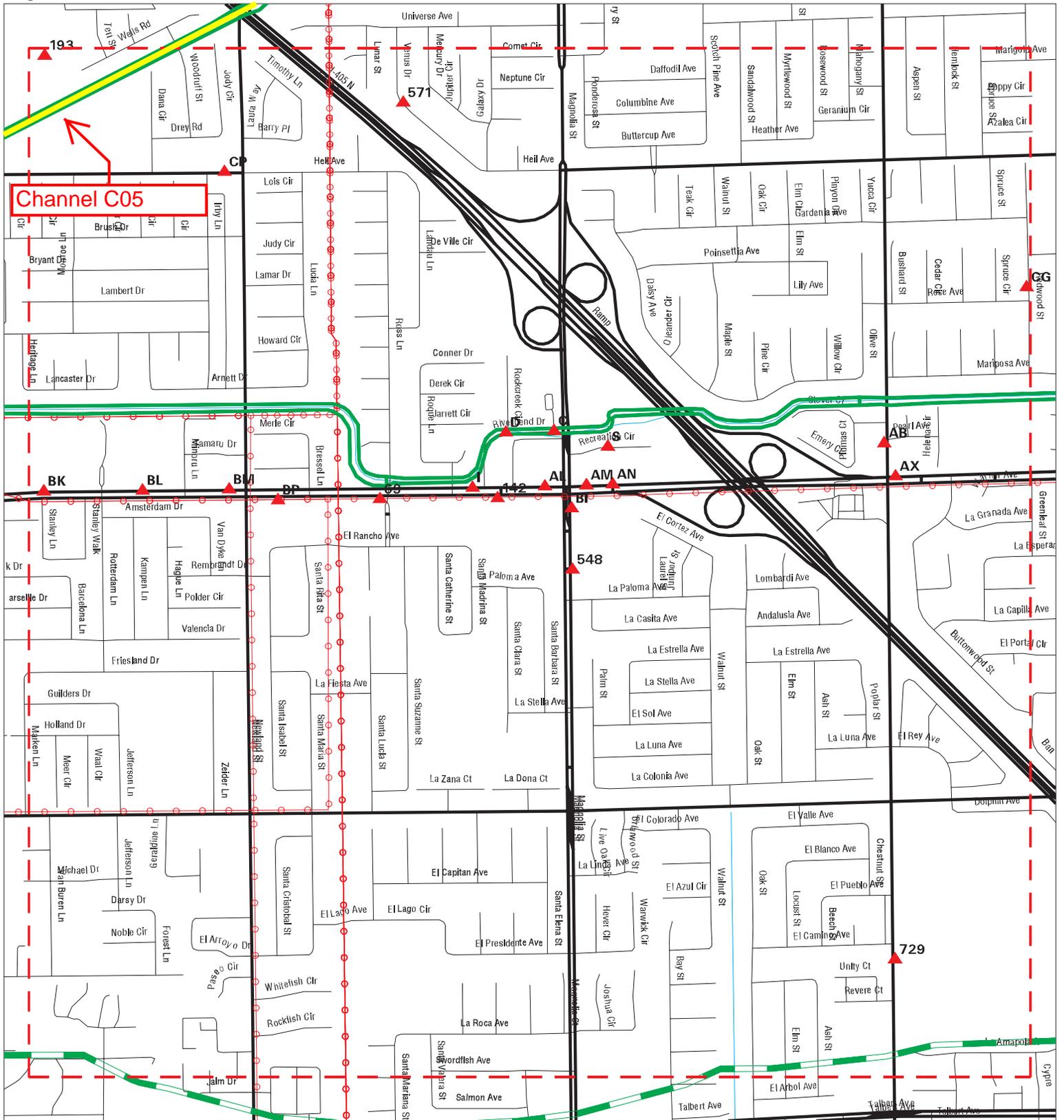


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Figure 12: C05 - 4

Focus Map - 17 - 5397563.8s



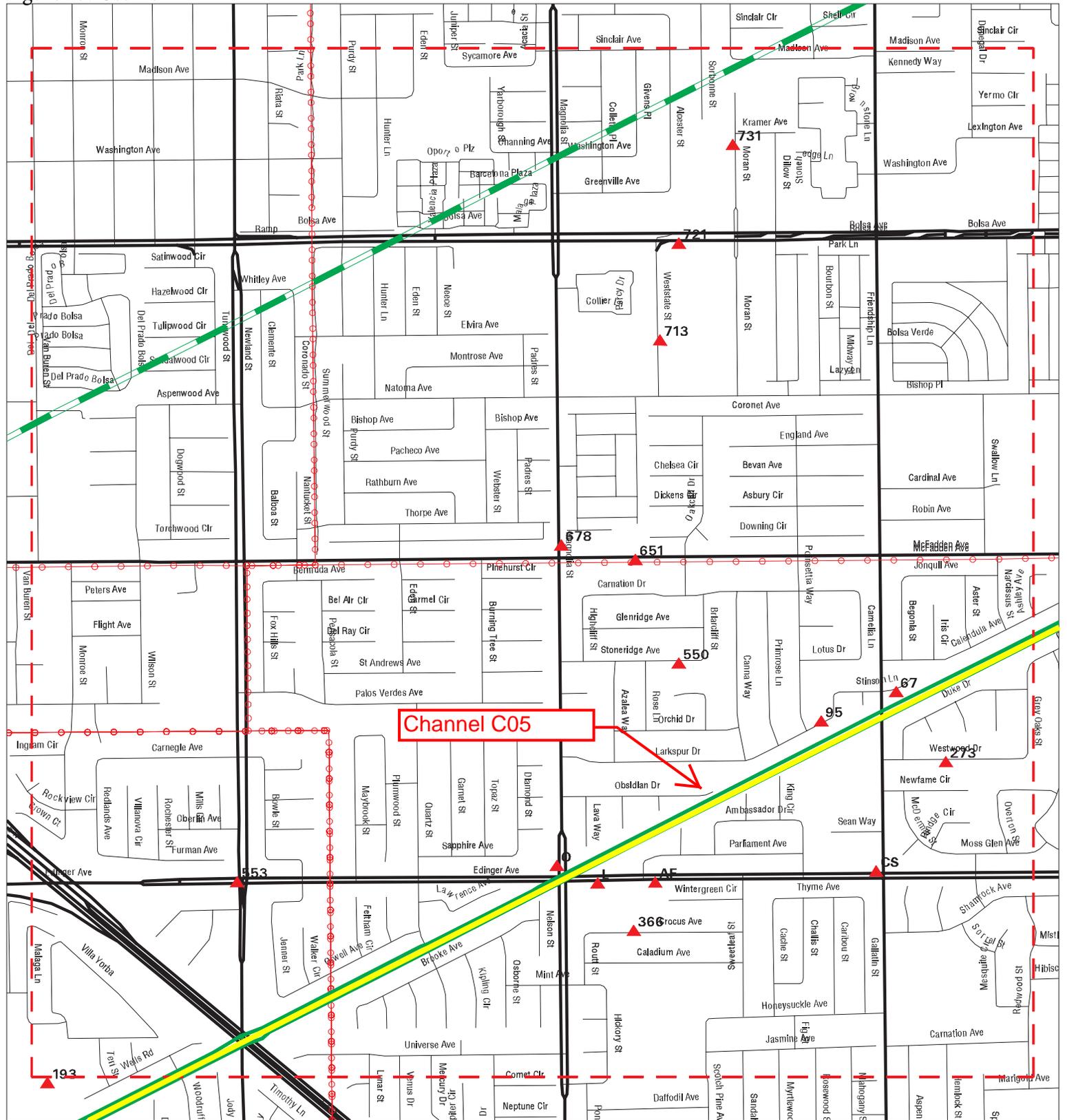
- ▲ Sites
- ▲ Focus Map - Sites
- Areas of Concern
- ▲ Target Property
- ▲ Power Line
- Dept. Defense Sites
- ▲ Search Buffer
- ▲ Pipe Line
- Indian Reservations BIA
- ▲ Focus Map - No Sites
- National Priority List Sites

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Focus Map - 10 - 5397563.8s

Figure 13: C05 - 5



Channel C05

- ▲ Sites
- ↗ Target Property
- ↖ Search Buffer
- Focus Map - No Sites
- Focus Map - Sites
- Power Line
- Pipe Line
- National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA

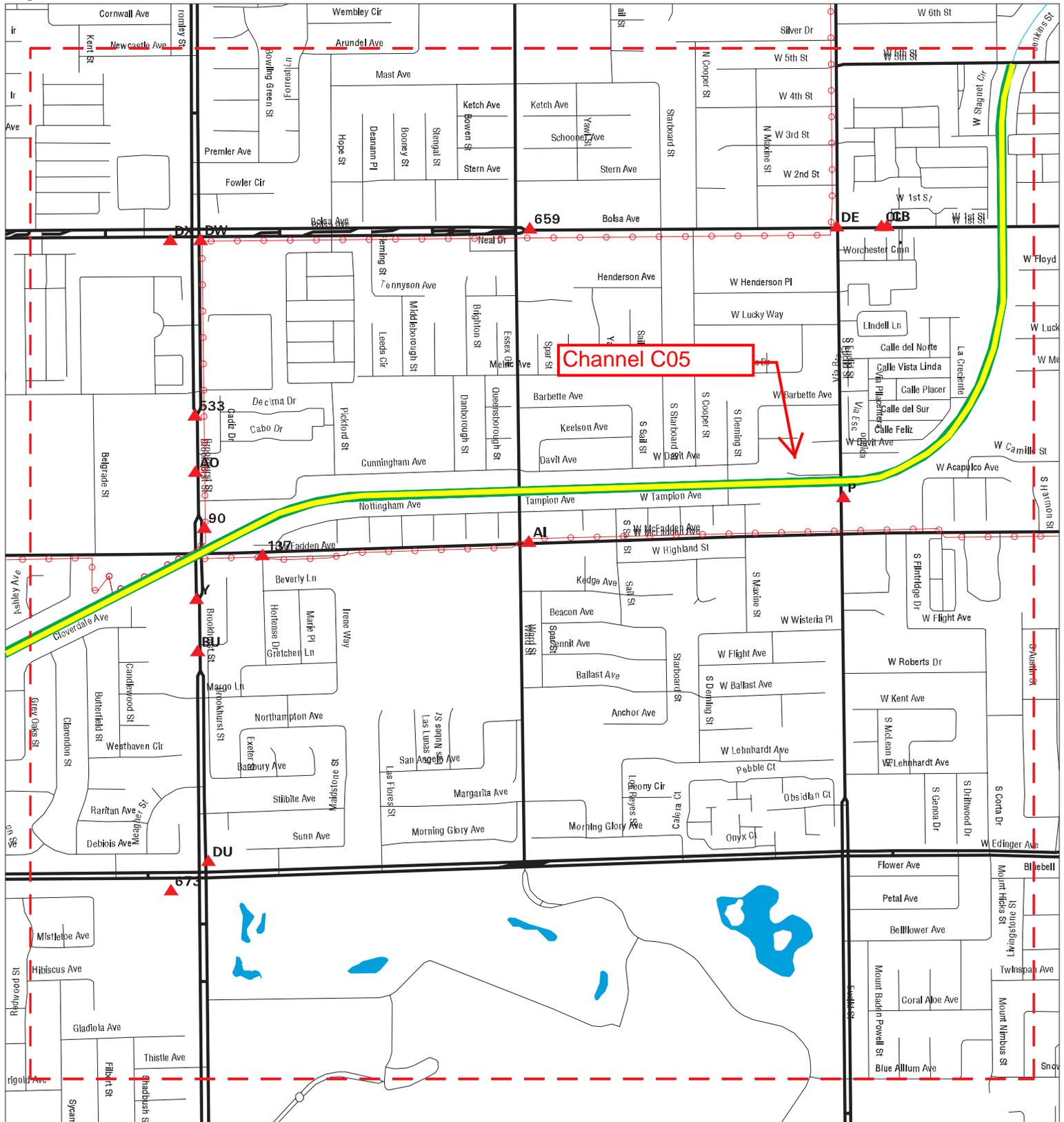


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Figure 14: C05 - 6

Focus Map - 11 - 5397563.8s



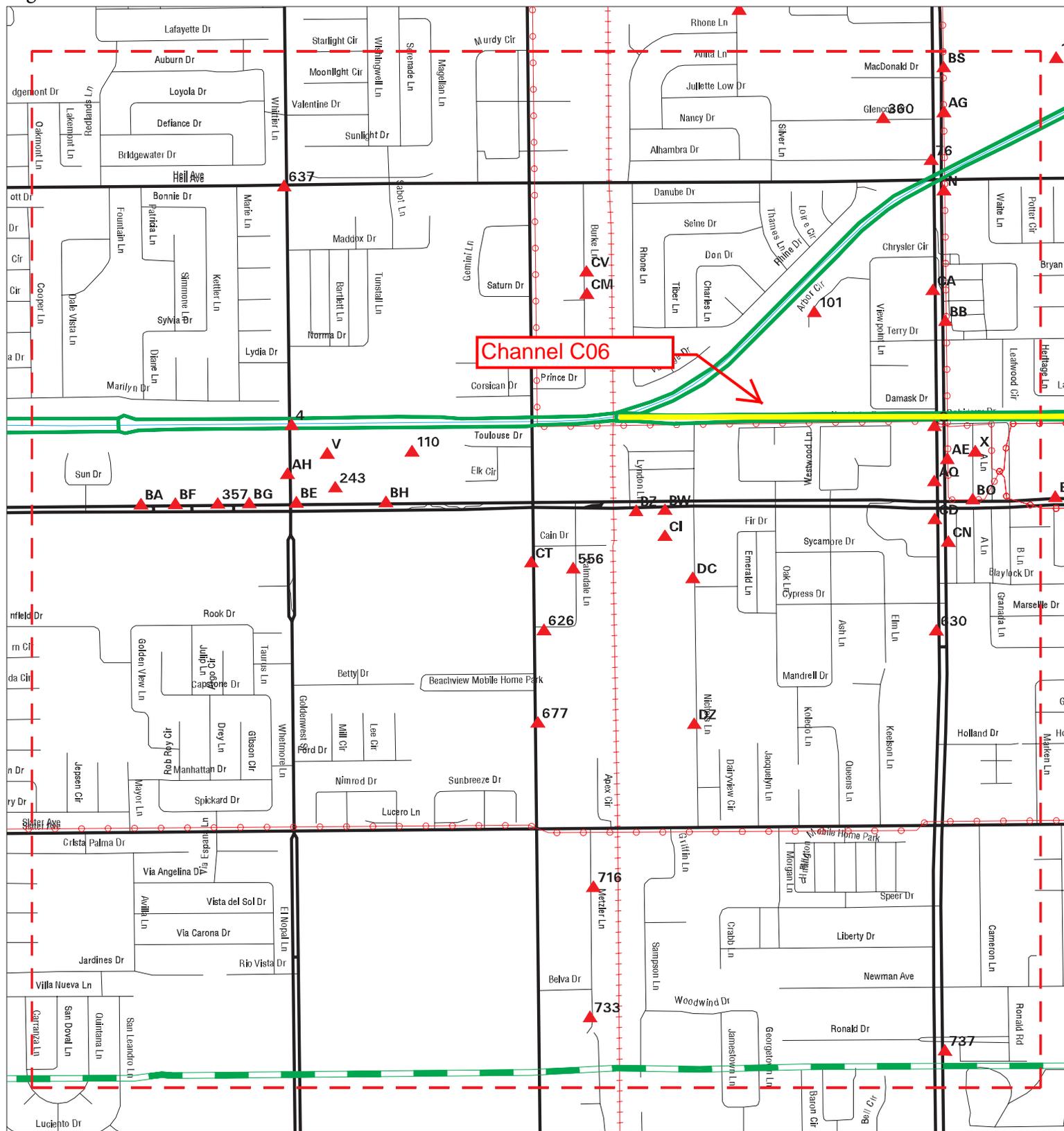
Sites	Focus Map - Sites	Areas of Concern
Target Property	Power Line	Dept. Defense Sites
Search Buffer	Pipe Line	Indian Reservations BIA
Focus Map - No Sites	National Priority List Sites	



SITE NAME: D ADDRESS: D CITY/STATE: Seal Beach CA ZIP: 90740	CLIENT: U.S. Army Corps of Engineers CONTACT: Casey.I.pittman@usace.army.mil INQUIRY #: 5397563.8s DATE: 08/17/18
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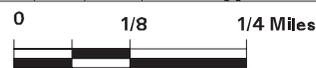
Figure 15: C06 - 1

Focus Map - 16 - 5397563.8s



Channel C06

- ▲ Sites
- ▲ Focus Map - Sites
- Areas of Concern
- ▲ Target Property
- ▲ Power Line
- Dept. Defense Sites
- ▲ Search Buffer
- ▲ Pipe Line
- Indian Reservations BIA
- ▲ Focus Map - No Sites
- National Priority List Sites

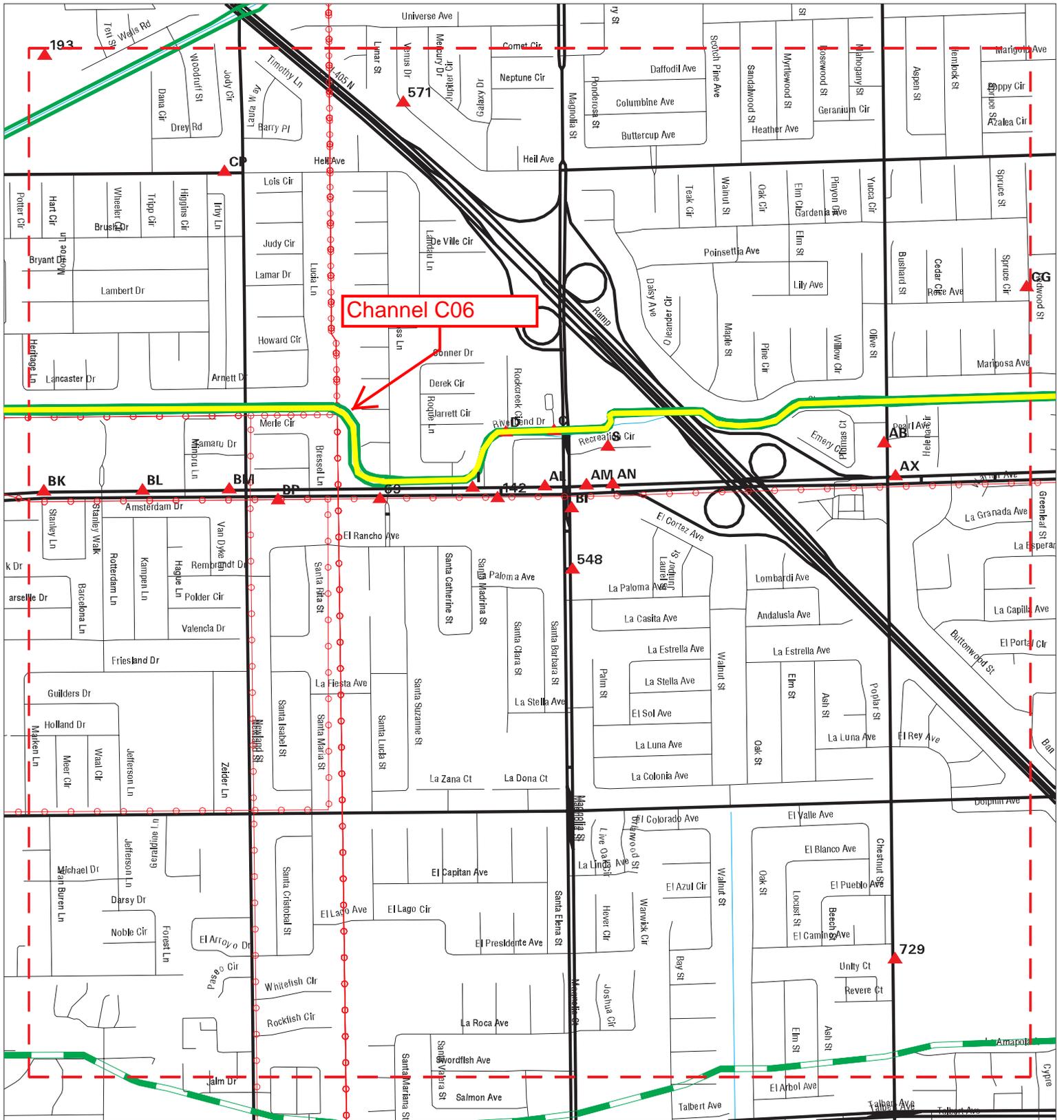


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Figure 16: C06 - 2

Focus Map - 17 - 5397563.8s



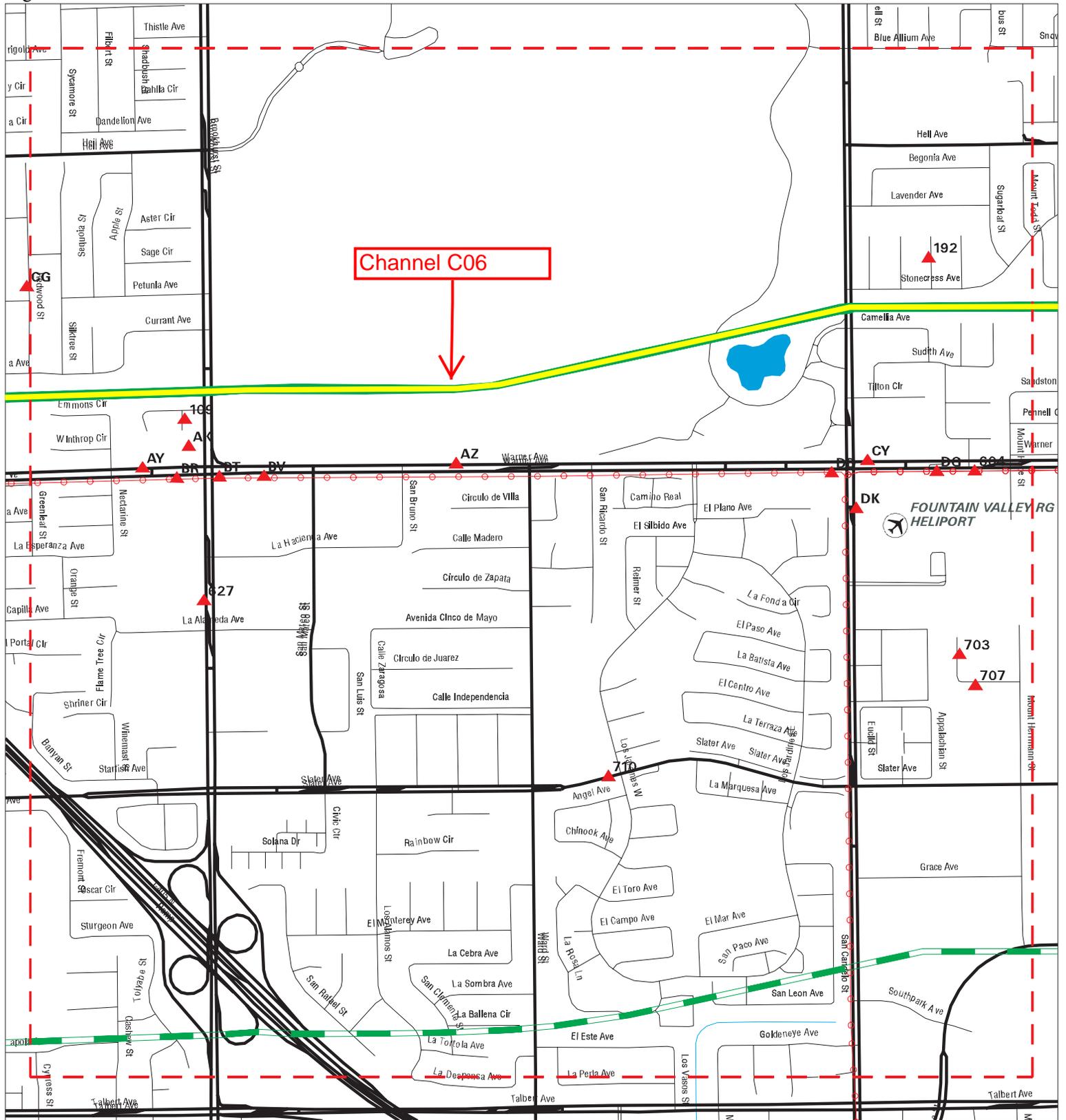
Channel C06

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 DATE: 08/17/18

Figure 16: C06 - 3

Focus Map - 18 - 5397563.8s



Channel C06

FOUNTAIN VALLEY RG HELIPORT

- ▲ Sites
- ▲ Target Property
- ▲ Search Buffer
- ▲ Focus Map - No Sites
- ▲ Focus Map - Sites
- ▲ Power Line
- ▲ Pipe Line
- ▲ National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA

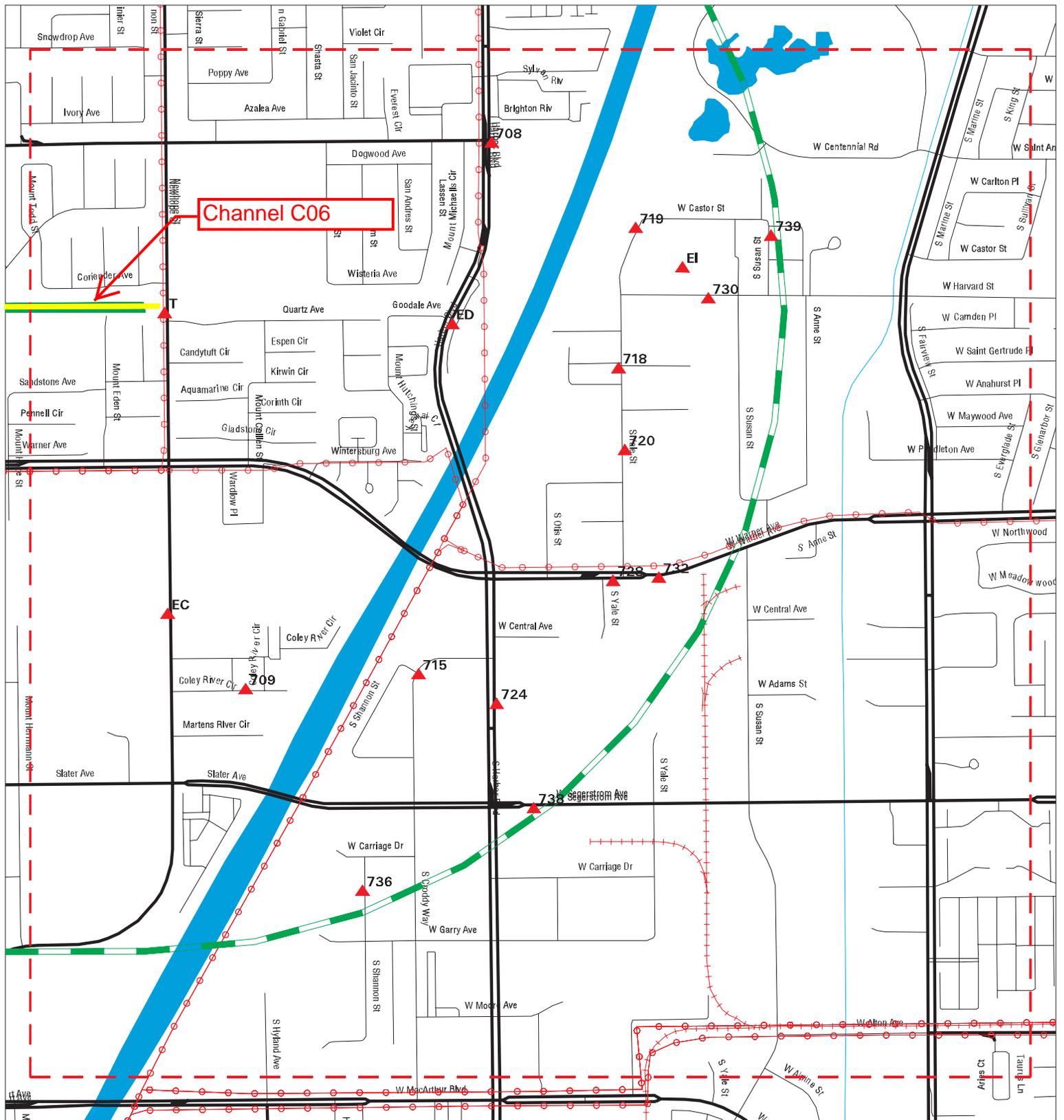


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Figure 18: C06 - 4

Focus Map - 19 - 5397563.8s



Channel C06

- ▲ Sites
- ▲ Focus Map - Sites
- Areas of Concern
- ▲ Target Property
- ▲ Power Line
- Dept. Defense Sites
- ▲ Search Buffer
- ▲ Pipe Line
- Indian Reservations BIA
- ▲ Focus Map - No Sites
- National Priority List Sites



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Attachments
(Available digitally upon request)