CALIFORNIA COASTKEEPER ALLIANCE TOGETHER WITH SAN DIEGO COASTKEEPER

Petition For A Determination That Stormwater Discharges From Commercial, Industrial, And Institutional Sites Contribute To Water Quality Standards Violations And Are A Significant Contributor Of Pollutants In The Lower San Diego River Hydrologic Area (HA 907.1), San Diego County, And Require Clean Water Act Permits

June 1, 2026

Gary Strawn, Board Chair
c/o Dave Gibson, Executive Officer
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Dear Executive Officer Dave Gibson,

California Coastkeeper Alliance and San Diego Coastkeeper (collectively, "Petitioners") hereby petition you, the Executive Officer of the San Diego Regional Water Quality Control Board, with a request to act for a determination that currently unpermitted stormwater discharges from privately-owned commercial, industrial, and institutional (CII) sites are contributing to violations of water quality standards in the Lower San Diego River Hydrologic Area (HA 907.1) (San Diego County, California) and are a significant contributor of pollutants to waters of the United States, and therefore require National Pollutant Discharge Elimination System (NPDES) permits pursuant to Section 402(p) of the Clean Water Act.[1]

Evidence summarized in this petition and included in the attached Exhibits shows that CII sites are contributing to the Lower San Diego River watershed's impairments because:

- CII sites occupy approximately 11% (~12,100 acres) of the land area that in the Lower San Diego River Hydrologic Area (HA 907.1), based on land use data from Project Clean Water and the SDSU Water Quality Technical Report (City of San Diego, 2015).
- An estimated 65–75% of this CII area is located within a half-mile of a receiving water, including the San Diego River, Forester Creek, Alvarado Creek, Los Coches Creek, and Murphy Canyon Creek, based on the density of the receiving water network within this heavily urbanized watershed.
- Modeled estimates using NSQD v4.02 event mean concentrations (Pitt, Maestre & Clary 2018), applied via the EPA Simple Method (Schueler 1987) with a 12-inch annual precipitation rate (SDCWA), indicate that, out of all urban stormwater sources, CII sites contribute at least **~36% of copper loadings (~802 lbs/yr) and ~33% of zinc loadings (~4,534 lbs/yr) in the watershed. These contributions are disproportionate to CII sites' 11% land area share of the watershed.**
- Modeled estimates using the same NSQD v4.02 event mean concentrations (Pitt, Maestre & Clary 2018), applied via the EPA Simple Method (Schueler 1987) with a 12-inch annual precipitation rate (SDCWA), indicate that, out of all urban stormwater sources, CII sites contribute approximately **31% of total phosphorus loadings (~10,500 lbs/yr) and approximately 27% of total nitrogen loadings (~89,000 lbs/yr) in the watershed. As with the metals analysis, these contributions are disproportionate to CII sites' 11% land area share of the watershed**.
- CII sites likely cover approximately 8.2% of the total HA 907.1 watershed with impervious surface (approximately 8,965 acres), based on NLCD-derived impervious cover coefficients: commercial 85%, industrial 72%, institutional 50% — well above the 5–10% impairment-causing imperviousness threshold documented by decades of scientific research.
- Studies of average pollutant loadings suggest that CII sites alone are contributing approximately 11× (copper) to 23× (zinc) the pollutant loadings that the Lower San Diego River watershed would receive from the entire watershed under natural conditions, based on pre-development EMCs of ~2.5 µg/L for copper and ~7 µg/L for zinc (SCCWRP open-space sites, Southern California) and the EPA Simple Method applied to watershed-wide natural runoff conditions.

- Median event mean concentrations of copper and zinc in CII stormwater runoff exceed the California Toxics Rule (CTR) aquatic life criteria at the point of discharge — before any mixing or dilution in the receiving water. At a representative hardness of 100 mg/L, the CTR chronic copper criterion is approximately 9.0 µg/L dissolved; median dissolved copper in CII commercial and industrial runoff is approximately 18–27 µg/L, exceeding the chronic copper criterion by a factor of 2.0 to 3.0. The CTR chronic zinc criterion is approximately 118 µg/L dissolved; median dissolved zinc from CII sites is approximately 150–158 µg/L, exceeding both the chronic and acute criteria. By contrast, pre-development background concentrations (Cu ~2.5 µg/L; Zn ~7 µg/L) fall well below all applicable criteria, confirming that natural conditions were protective of aquatic life and that CII development has driven discharge concentrations far above the levels these waters evolved to assimilate. These point-of-discharge exceedances are powerful evidence that CII sites are a significant contributor of pollutants to waters of the United States under Clean Water Act Section 402(p)(2)(E) — an independent basis for designation, separate from the nitrogen and phosphorus water quality standard violations addressed below.
- The San Diego Regional Water Quality Control Board's Clean Water Act Section 303(d) List identifies the Lower San Diego River and its tributaries (including Forester Creek, Alvarado Creek, Murphy Canyon Creek, and Los Coches Creek) as impaired for nitrogen and phosphorus, together with related nutrient-response stressors including low dissolved oxygen, turbidity, color, and benthic community degradation. These nutrient impairments are the water quality standard violations to which CII stormwater discharges contribute.

Under the current regulatory program, municipalities bear the brunt of legal requirements to address the impacts of stormwater runoff pollution. However, remediating the degradation caused by stormwater often requires managing the runoff from a greater proportion of the landscape than a municipality directly controls. As a result, it is essential for private properties to take part in watershed restoration efforts, helping to implement the stormwater controls that are needed to reduce pollution and achieve clean rivers and streams. Imposing permitting requirements on private sites through residual designation authority (RDA) would make those sites part of the solution to our state and regional stormwater problems and would represent a more equitable allocation of pollution prevention responsibilities.

I. FACTUAL BACKGROUND

The Lower San Diego River Hydrologic Area (HA 907.1) (CalWater Hydrologic Unit 907.10) drains an area of approximately 172 square miles (110,000 acres) in central San Diego County, California, and empties into the Pacific Ocean at Ocean Beach.

HA 907.1 is the largest, most urbanized, and most populous of the four hydrologic areas that comprise the San Diego River Watershed Management Area, home to approximately 760,000 residents and representing 40% of the watershed. The area encompasses the Cities of San Diego, El Cajon, La Mesa, and Santee, as well as portions of unincorporated San Diego County, and is administered under the San Diego Regional Water Quality Control Board's municipal separate storm sewer system (MS4) NPDES Permit (Order No. R9-2013-0001, as amended by Orders Nos. R9-2015-0001 and R9-2015-0100 NPDES NO. CAS0109266, hereinafter "San Diego MS4 Permit"). Surface runoff drains through an extensive network of municipal storm drains into the San Diego River, which flows westward through Mission Valley and discharges to the Pacific Ocean at Ocean Beach, adjacent to Famosa Slough. Major tributaries include Forester Creek (draining east Santee and El Cajon), Alvarado Creek (draining La Mesa and

College Area), Los Coches Creek (draining Lakeside and Flinn Springs), and Murphy Canyon Creek (draining Serra Mesa). The watershed is home to Lake Murray, a major drinking water reservoir.

Land cover data from the National Land Cover Database (NLCD 2019) and land use data from Project Clean Water indicate that HA 907.1 is approximately 27% impervious overall (approximately 29,500 acres of impervious surface). CII-dominated subwatersheds — particularly the Mission Valley commercial corridor (along Interstate-8), the Santee/El Cajon industrial zone (Forester Creek), and the La Mesa industrial corridor (Alvarado Creek) — substantially exceed this average. As discussed in more detail below, the Lower San Diego River and its tributaries — including Forester Creek, Alvarado Creek, Murphy Canyon Creek, and Los Coches Creek — have documented water quality impairments associated with urban stormwater runoff, including nitrogen, phosphorus, indicator bacteria, selenium, total dissolved solids, chloride, low dissolved oxygen, turbidity, toxicity, benthic community degradation, and multiple pesticides. Although these waters are not listed as impaired for copper or zinc, as explained below, those metals are nonetheless central to this petition because elevated copper and zinc in CII stormwater make CII sites a significant contributor of pollutants to waters of the United States under 33 U.S.C. § 1342(p)(2)(E).

Stormwater runoff from impervious areas harms water quality in the Lower San Diego River, Alvarado Creek, Forester Creek, Los Coches Creek, Murphy Canyon Creek, Famosa Slough, and the Pacific Ocean at Ocean Beach, as well as throughout California, U.S. Environmental Protection Agency (EPA) Region 9, and nationwide. As the EPA Office of Water acknowledged, "Stormwater runoff in urban and developing areas is one of the leading sources of water pollution in the United States."[2] The National Research Council (NRC) agrees: "Stormwater runoff has a deleterious impact on nearly all of the nation's waters"[3] — as does the U.S. Court of Appeals for the Ninth Circuit Court: "Stormwater runoff is one of the most significant sources of water pollution in the nation."[4]

In its preamble to the permitting regulations for stormwater sources in 1999, EPA explained the impacts of stormwater runoff in detail: Stormwater runoff from lands modified by human activities can harm surface water resources and, in turn, cause or contribute to an exceedance of water quality standards by changing natural hydrologic patterns, accelerating stream flows, destroying aquatic habitat, and elevating pollutant concentrations and loadings. Such runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients (phosphorous and nitrogen), heavy metals and other toxic pollutants, pathogens, toxins, oxygen-demanding substances (organic material), and floatables. ... Individually and combined, these pollutants impair water quality, threatening designated beneficial uses and causing habitat alteration or destruction.[5]

EPA accepts that stormwater runoff is a "contributor to water quality impairments across the country, particularly in developing and urbanized areas."[6] Stormwater causes these problems in large part due to the harmful contaminants that it carries into receiving waters. According to the NRC, "The chemical effects of stormwater runoff are pervasive and severe throughout the nation's urban waterways, and they can extend far downstream of the urban source. ... A variety of studies have shown that stormwater runoff is a vector of pathogens with potential human health implications."[7]

In particular, over 250 studies reveal that increases in impervious area associated with urban development are a "collection site for pollutants,"[8] and generate greater quantities (and additional types) of contaminants. Urban development creates new pollution sources as population density increases and brings with it "proportionately higher levels of car emissions, maintenance wastes, pet waste, litter, pesticides, and household hazardous wastes, which may be washed into receiving waters by storm water."[9] These increases in pollutant loadings can result in immediate and long-term effects on the health of the water body and the organisms that live in it.[10] The U.S. Geological Survey found that, in areas of increased urban development, local rivers and streams exhibited increased concentrations of contaminants such as nitrogen, chloride, insecticides, and polycyclic aromatic hydrocarbons (PAHs).[11]

The increased stormwater volume and pollutant loadings caused by urbanization, especially impervious cover, are closely connected with water body impairment. Contaminants, habitat destruction, and increasing streamflow flashiness resulting from urban development have been associated with disruptions tobiological communities.[12] The NRC states, "[b]y almost any currently applied metric ... the net result of human alteration of the landscape to date has resulted in a degradation of the conditions in downstream watercourses."[13]

A review of the lists of impaired waters states must compile in compliance with the Clean Water Act (CWA or the Act) reveals the deleterious effects of urbanization on water quality. Thousands of water bodies nationwide fail to meet standards established for stormwater-source pollutants such as pathogens, nutrients, sediments, and metals.[14] Of those impaired water bodies, by 2000, stormwater runoff sources were "responsible for about 38,114 miles of impaired rivers and streams, 948,420 acres of impaired lakes, 2,742 square miles of impaired bays and estuaries, and 79,582 acres of impaired wetlands" — and the NRC considers these figures to be underestimates of actual impairments.[15] Urban stormwater is listed as the "primary" source of impairment for 13 percent of all rivers, 18 percent of all lakes, and 32 percent of all estuaries, despite the fact that urban areas cover just 3 percent of U.S. land mass.[16]

In California, urban runoff is a "leading source" of water body impairment.[17] Stormwater and urban runoff are also the leading source of water pollution in the San Diego region. HA 907.1 is the most urbanized hydrologic area in the San Diego River watershed and, as the San Diego Regional Water Quality Control Board has recognized, "suffers from the most pronounced water quality problems."[18]

Since the 1999 adoption of the Phase II stormwater rule, which established permitting requirements for small municipalities and construction sites, scientific understanding of the correlation between impervious surfaces and water quality impairments has increased significantly. EPA recognizes the now-well-established connection between high percentages of impervious cover in watersheds and pollutant loading-driven impairments (among many other deleterious effects). EPA commonly approves state-developed 303(d) lists identifying impaired waters afflicted by pollutants typically discharged from stormwater sources. Numerous peer reviewed scientific articles and publications document the connection between impervious cover and declines in water quality and stream health.

In recent years, EPA created the Causal Analysis/Diagnosis Decision Information System, or "CADDIS" Urbanization Module, "a website developed to help scientists and engineers in the Regions, States, and Tribes conduct causal assessments in aquatic systems."[19] Through this module, EPA provides a comprehensive overview of the connection between impervious surfaces (and other facets of urbanization) and declines in water quality, supporting causal assessments for specific stressors, including pollutant categories. In the CADDIS Module, EPA reiterated that "Urbanization has been associated with numerous impairments of water and sediment quality," including, but not limited to, increased nitrogen and phosphorus.[20]

The National Stormwater Quality Database (NSQD), now in its fourth version, represents perhaps the greatest development in available data since adoption of the Phase II rule.[21] This database enables the publication of numerous analyses corroborating prior understandings and providing new and very reliable characterizations of pollutant loading and concentrations from specific land use categories. Shaver et al. underscored the significance of the NSQD:

> In the NSQD project, stormwater quality data and site descriptions are being collected and reviewed to describe the characteristics of national stormwater quality, to provide guidance for future sampling needs, and to enhance local stormwater management activities in areas having limited data. Over 10 years of monitoring data collected from more than 200 municipalities throughout the country have a great potential in characterizing the quality of stormwater runoff and comparing it against historical benchmarks. This project is creating a national database of stormwater monitoring data collected as part of the existing stormwater permit program, providing a scientific analysis of the data as well as recommendations for improving the quality and management value of future NPDES monitoring efforts (Pitt et al., 2004).

The authors of the first report on the NSQD concluded that the national dataset represented in the database is so robust that "general characterization" monitoring is no longer needed and can no longer be justified.[22] Specifically, the authors stated:

> The excellent U.S. national coverage, along with the broad representation of land uses, seasons, and other factors, makes this information highly valuable for numerous basic stormwater management needs. Monitoring with no specific objective, except for general characterization in an area, is not likely to provide any additional value beyond the data and information contained in NSQD. After a sufficient amount of data has been collected by a Phase 1 community for representative land uses and other conditions, outfall characterization monitoring resources should be re-directed to other specific data collection and evaluation needs.

In other words, available data are able to characterize stormwater pollutant concentrations and loading rates for purposes of regional or watershed analyses, such as residual designation. Indeed, in developing stormwater permit requirements, EPA has used literature reviews, including analyses of NSQD data, to conclude that discharges of urban runoff can be "reasonably assumed" to contain certain pollutants at predictable average concentrations.[23]

More recently, Version 4.02 of the NSQD has been compiled and improved through integration of various databases into one highly reliable dataset.[24] NSQD 4.02 provides a basis for assessing runoff sources nationally and includes detailed analysis of the expanded datasets within EPA designated "Rain Zones," which reflect the differences in precipitation in various defined regions of the nation. The Lower San Diego River watershed is located in EPA Rain Zone 6 (the arid Southwest), which consistently shows the highest pollutant concentrations of any rain zone in the NSQD dataset — making this database directly applicable to, and if anything, conservative for, HA 907.1.

Just as EPA knows more today about pollutant concentrations and loadings from urban areas, the Agency knows much more about the connection between large areas of impervious cover and water quality impairments. As EPA acknowledges: "There is a direct relationship between the amount of impervious cover and the biological and physical condition of downstream receiving waters."[25] The fact that commercial, industrial and institutional facilities with large areas of impervious cover contribute pollutants to receiving waters can no longer be reasonably refuted. Having acknowledged these now wellunderstood facts, the California Water Boards must, at long last, assist municipalities in addressing these pollutant sources by exercising their residual designation authority under the Clean Water Act to require those facilities to address their contribution to water quality violations.

II. REGULATORY FRAMEWORK

In order to achieve the Clean Water Act's fundamental goal of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters,"[26] EPA and states that are delegated authority to administer the Act must establish minimum water quality standards.[27] These standards define "the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses."[28] California has established, and EPA has approved, water quality standards pursuant to this requirement.[29]

To ensure that such water quality standards will be achieved, no person may discharge any pollutant into waters of the United States from a point source without a National Pollutant Discharge Elimination System (NPDES) permit.[30] NPDES permits must impose water quality-based effluent limitations, in addition to any applicable technology-based effluent limitations, when necessary to meet water quality standards.[31]

The Act defines "point source" as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit ... from which a pollutant is or may be discharged."[32] EPA's Clean Water Act regulations further specify that "discharge of a pollutant" includes "additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man."[33] Consequently, although stormwater discharges are often characterized as "non-point" in nature, it is legally well settled that "[s]torm sewers are established point sources subject to NPDES permitting requirements."[34] EPA has long recognized that urban stormwater runoff occupies a dual regulatory status under the Clean Water Act: although runoff behaves ecologically like a diffuse, nonpoint source of pollution, it becomes a regulated point source once collected and conveyed through a separate storm sewer system. As EPA explained in promulgating the Phase I stormwater regulations, the channelization of runoff through an MS4 is the legally operative fact that converts what would otherwise be diffuse pollution into a discrete, identifiable discharge subject to NPDES permitting requirements. *See* 55 Fed. Reg. 47990, 47996 (Nov. 16, 1990).

Despite the fact that stormwater runoff channeled through a conveyance is a point source subject to the Act's permitting requirements, EPA did not regulate stormwater through the NPDES program until Congress amended the statute in 1987 to explicitly require it[35] and EPA promulgated its Phase I and II regulations in 1990 and 1999, respectively.[36] As a result, the Clean Water Act now requires NPDES permits for discharges of industrial and municipal stormwater.[37] While these are the only categories of stormwater discharges called out for regulation in the text of the statute, Congress also created a catch-all provision directing EPA to require NPDES permits for any stormwater discharge that the Administrator or the State director determines "contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States."[38]

This catch-all authority — known as residual designation authority — is a critical tool to ensure that problematic discharges of stormwater do not go unregulated. In the preamble to its Phase II stormwater regulations, EPA described the need for this authority: "EPA believes ... that individual instances of storm water discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority to subsequently address source (or category of sources) of storm water discharges of concern on a localized or regional basis."[39] Citizens may petition for designation of stormwater sources for regulation under this authority.[40] In recent years, often acting in response to such petitions, EPA and delegated States have moved to exercise this residual designation authority on multiple occasions.[41]

Categories of sources designated under residual designation authority may be geographically broad. The agency has stated that "the designation authority can be applied within different geographic areas to any single discharge (i.e., a specific facility), or category of discharges .... The added term 'within a geographic area' allows 'State-wide' or 'watershed-wide' designation within the meaning of the terms."[42] The Ninth Circuit Court of Appeals and Supreme Court of Vermont have both found that the designation of broad regional categories of sources is a reasonable exercise of statutory authority.[43]

Once EPA or the State has made a finding or determination that a category of discharges meets the statutory criterion of "contribut[ing] to a violation of a water quality standard," it *must* designate that category for regulation, and those "operators *shall* be required to obtain a NPDES permit."[44] In other words, "the Agency's residual designation authority is not optional."[45]

EPA has not defined a threshold level of contribution to water quality standards violations that would suffice to make such a determination. However, the agency has advised delegated States that "it would be reasonable to require permits for discharges that contribute more than *de minimis* amounts of pollutants identified as the cause of impairment to a water body."[46] The Supreme Court of Vermont has recognized this analysis as a valid interpretation of the RDA threshold.[47]

III. ANALYSIS

Discharges from impervious surfaces associated with privately-owned commercial, industrial, and institutional (collectively, "CII") sites[48] (including rooftops and parking lots) are contributing to violations of water quality standards in the Lower San Diego River Hydrologic Area (HA 907.1). This petition demands that the San Diego Regional Water Quality Control Board exercise its mandatory residual designation authority to designate non-NPDES-permitted stormwater discharges from sites in these categories for regulation under the NPDES program. For purposes of this petition, "non-NPDES-permitted stormwater discharges" includes any stormwater discharge from a private property, or from a portion of a property, that is not subject to post-construction stormwater pollution control requirements pursuant to Order No. 2022-0057-DWQ, NPDES NO. CAS000002, or subject to the Order No. 2014-0057-DWQ as amended in 2015 and 2018. For example, where an industrial stormwater permit requires pollution controls only for stormwater discharges from the portions of an industrial site on which "industrial activity" takes place, stormwater discharges from the remaining portion of that industrial site are included in the term "non-NPDES-permitted stormwater discharges." The term "non-NPDES-permitted stormwater discharges" includes stormwater discharges from properties (or portions thereof) that are within the geographic boundaries of a regulated MS4.

In 2013, several environmental organizations, including American Rivers and the Natural Resources Defense Council, petitioned EPA Regions 1, 3, and 9 for a determination that commercial, industrial, and institutional sites throughout those EPA regions were contributing to violations of water quality standards. (Those petitions are hereafter referred to as the "2013 Petitions.") In responding to the 2013 Petitions, EPA considered three factors: (i) the likelihood of exposure of pollutants to precipitation at sites in the categories identified in the petition; (ii) the sufficiency of available data to evaluate the contribution of stormwater discharges to water quality impairment from the targeted categories of sites; and (iii) whether other federal, state, or local programs adequately address the known stormwater discharge contribution to a water quality standard violation. EPA derived these factors from the three factors used by EPA to designate additional categories of stormwater sources for regulation under the NPDES permit program during the development of the Phase II Rule. As discussed in more detail below, the petitioners do not concede that the third of these factors is a permissible factor for EPA to consider when deciding whether to exercise RDA.

In 2015, American Rivers, the Natural Resources Defense Council, and Los Angeles Waterkeeper petitioned EPA Region 9 for a determination that commercial, industrial, and institutional sites were contributing to violations of water quality standards. In 2016, EPA declined to designate these CII sites, relying on the same three factors considered for the 2013 Petitions and concluding that effective programs were already in place to address the water quality impairments in the watershed. The environmental groups challenged the Region's decision, and the U.S. District Court for the Central District of California found EPA's denial inconsistent with the CWA and remanded the decision for further action consistent with the court's order. The District Court observed that the CWA provides EPA with only two options once it determines that discharges are contributing to water quality impairments: require NPDES permitting of the discharges or prohibit the discharges.

On reconsideration of the 2016 Petitions, EPA excluded the third factor from consideration in light of *Pruitt*. Nonetheless, because EPA considered these factors in the preamble to the Phase II Rule and in responding to the 2013 Petitions, this petition is structured to address each of the three criteria in turn. Note: The 2015 Dominguez Channel and Alamitos Bay/Los Cerritos Channel petitions, and the November 2024 EPA Region 9 Final Designation for those watersheds, provide the most direct legal precedent for this petition. HA 907.1 presents comparable — and in some respects more acute — conditions of CII-driven metal impairment relative to watershed size.

A. Stormwater Discharges from CII Sites Contain Copper and Zinc.

Runoff from commercial, industrial, and institutional sites consistently contains high levels of copper and zinc. As EPA has noted, heavy metals, particularly copper and zinc, are by far the most prevalent priority pollutant constituents found in urban runoff, and these metals have the potential to cause acute or chronic toxic impacts for aquatic life.[49] EPA lists industry and automobiles as the primary sources of metals in urban runoff.[50] Metals like zinc and copper get into runoff from impervious areas that are trafficked by vehicles, such as driveways and parking lots, from vehicle wear, tire wear, motor oil, grease, and rust.[51]

Pollutants from wear of automotive parts (tires and brake pads), spills and leaks of automotive fluids (motor oil and coolant), and airborne materials (atmospheric deposition and wind-transported pollutants) are deposited onto impervious surfaces. Due to the limited or non-existent infiltration capacity of surfaces, metals such as zinc and copper accumulate on impervious areas trafficked by vehicles, such as driveways and parking lots, and are then mobilized and discharged in stormwater during precipitation events. EPA has explicitly noted that "large parking facilities, due to their impervious nature, may generate large amounts of runoff which may contain significant amounts of oil and grease and heavy metals which have adverse impacts on receiving waters." EPA has also recognized that such sources could be designated if they were contributing to a violation of a water quality standard.

The California Office of Environmental Health Hazard Assessment (OEHHA) has demonstrated that CII sources such as industrial sites, office parks, and retail areas typically have impervious surfaces ranging from 70%–80% of the total site.[52] OEHHA estimates that institutional sources such as schools and hospitals have 50% impervious cover.[53] The high level of imperviousness at CII sites leads to increases in the volume of stormwater discharged from the sites as well as increased pollutant loadings from the sites.

Research demonstrates, and EPA has recognized, that commercial, industrial, and institutional land uses consistently discharge metals at expected, elevated concentrations (both generally as well as for specific runoff events) and have large annual per-acre pollutant loads. Relying on the NSQD and a literature review of other studies, including many discussed below, EPA has determined that "it can be reasonably assumed" that urban stormwater discharges, which include discharges from CII sites, contain metals at predicted average concentrations.[54] Further, EPA has recommended the use of pollutant loading and assessment models based on well-established pollutant loading levels associated with commercial, industrial, and institutional land uses.

Version 4.02 of the NSQD found total median copper concentrations of 13.3 µg/L at commercial areas, 14.0 µg/L at industrial areas, and 5.9 µg/L at institutional areas.[55] The study also found total median zinc concentrations of 119 µg/L at commercial areas, 140 µg/L at industrial areas, and 62 µg/L at institutional areas.[56] Recent analysis of Version 3.1 of the NSQD demonstrates elevated mean concentrations for total copper and total zinc as well.[57] For total copper, in Rain Zone 6 (which includes the Lower San Diego River watershed, consistent with the Southern California arid climate regime), the NSQD v4.02 median concentration at commercial sites is approximately 30 µg/L and 45 µg/L at industrial sites (Pitt, Maestre & Clary 2018). Southern California field studies (Tiefenthaler, Stein & Schiff 2007, SCCWRP Technical Report 510) document even higher site-specific EMCs for the Los Angeles region. For total zinc, in Rain Zone 6, the NSQD v4.02 median concentration at commercial sites is approximately 200 µg/L and 210 µg/L at industrial sites. These values were used in the loading calculations presented in this petition; the analogous Chollas Creek Metals TMDL (SDRWQCB Resolution No. R9-2007-0043) confirms that commercial and institutional land uses, together with freeways, contribute over 75% of total copper, lead, and zinc loadings in comparable adjacent San Diego urban watersheds.[58]

EPA's National Urban Runoff Program study found similar results: median copper concentrations at commercial sites were 29 µg/L, and median zinc concentrations at commercial sites were 226 µg/L.[59] The USGS has found total recoverable zinc concentrations of 348 µg/L at commercial rooftops and 148 µg/L at commercial parking lots, and mean total recoverable copper of 23 µg/L at commercial rooftops and 25 µg/L at commercial parking lots.[60]

In another study conducted in Southern California watersheds (Tiefenthaler, Stein & Schiff 2007, SCCWRP Technical Report 510), industrial and commercial land uses were shown to have mean event mean concentrations (EMCs) for copper of approximately 42 µg/L and 70 µg/L, respectively. For zinc, EMCs in industrial and commercial land uses averaged approximately 599 µg/L and 362 µg/L, respectively. All median EMCs for total copper at Los Angeles-area land use sites in the SCCWRP study were greater than or equal to median EMCs reported in the NSQD, confirming that the Lower San Diego River watershed — located in the same arid Southern California region and the same EPA Rain Zone 6 — can be expected to exhibit similarly elevated metal concentrations.

Table 1: Summary of Heavy Metal Concentrations Documented in CII Site Runoff

Study	Commercial Sites	Industrial Sites	Institutional Sites
NSQD v1.1 (Pitt et al. 2004)	Copper: 17 µg/L Zinc: 150 µg/L	Copper: 22 µg/L Zinc: 210 µg/L	Zinc: 305 µg/L
NSQD v3.1 (Pitt 2011)	Copper: 21 µg/L Zinc: 343 µg/L	Copper: 78 µg/L Zinc: 1,720 µg/L	—
NSQD v4.02, national median (Pitt et al. 2018)	Copper: 13.3 µg/L Zinc: 119 µg/L	Copper: 14.0 µg/L Zinc: 140 µg/L	Copper: 5.9 µg/L Zinc: 62 µg/L
National Urban Runoff Program (NURP)	Copper: 29 µg/L Zinc: 226 µg/L	—	—
USGS (Steuer et al. 1997)	Copper: 23 µg/L (rooftops), 25 µg/L (lots) Zinc: 348 µg/L (rooftops), 148 µg/L (lots)	—	—
Tiefenthaler et al. 2007 (SCCWRP, Southern CA)	Copper: ~70 µg/L Zinc: 362 µg/L	Copper: ~42 µg/L Zinc: 599 µg/L	—

Consistent with elevated concentrations in pollutant discharges, these land uses have been shown to generate large annual copper and zinc loadings as well. Shaver et al., based on data collected by Burton and Pitt, found that commercial areas typically discharge 0.4 pounds per acre per year (lbs/ac-yr) of copper and 2.1 lbs/ac-yr of zinc; parking lots discharge 0.06 lbs/ac-yr of copper and 0.8 lbs/ac-yr of zinc; industrial areas discharge 0.1 lbs/ac-yr of copper and 0.4 lbs/ac-yr of zinc; and shopping centers discharge 0.09 lbs/ac-yr of copper and 0.6 lbs/ac-yr of zinc.[61] An earlier report recommended annual unit copper loads of 0.049 kilograms per hectare per year (kg/ha-yr) from commercial land use and 0.077 kg/ha-yr from industrial land use, compared to 0.007 kg/ha-yr from open (undeveloped) land.[62] For zinc, the same study recommended annual unit loads of 0.63 kg/ha-yr from commercial land and 0.98 kg/ha-yr from industrial land, compared to 0.081 kg/ha-yr from undeveloped land.[63]

Table 2: Annual Unit Pollutant Loading Rates by Land Use (Literature Summary)

Study	Commercial Sites	Industrial Sites	Open Space/Undeveloped
Shaver et al. 2007 (Burton & Pitt data)	Copper: 0.4 lbs/ac-yr Zinc: 2.1 lbs/ac-yr	Copper: 0.1 lbs/ac-yr Zinc: 0.4 lbs/ac-yr	—

Marsalek 1978	Copper: 0.049 kg/ha-yr Zinc: 0.63 kg/ha-yr	Copper: 0.077 kg/ha-yr Zinc: 0.98 kg/ha-yr	Copper: 0.007 kg/ha-yr Zinc: 0.081 kg/ha-yr
Horner 1992 (in Shaver et al.)	Copper: 2.1 kg/ha-yr	—	Copper: 0.03 kg/ha-yr
Schueler 2000 (parking lots)	Zinc: 0.30 lbs/ac-yr	—	Zinc: non-detectable

To summarize, the aggregate of stormwater pollution research consistently supports the irrefutable conclusion that CII land uses typically generate pollutant loadings that are many times greater than loadings from undeveloped land. According to EPA-accepted data, commercial sites can generate copper loadings that are 57 times greater than loadings generated by undeveloped open space such as parks; parking lots generate copper loadings 8.6 times greater; industrial sites generate copper loadings 11 times greater; and shopping centers generate copper loadings 12.9 times greater.[64] Industrial sites can also generate zinc loadings that are 12 times greater than loadings generated by undeveloped open space.[65] These results indicate that CII sites usually generate heavy metal loadings that are, conservatively, at least an order of magnitude greater than loadings from undeveloped land.

When this information was presented in the 2013 Petitions, EPA agreed that "impervious cover is a source of pollutants."[66] And for purposes of those petitions, EPA accepted "that many CII sites have significant amounts of impervious surface, which are exposed to a variety of pollutants that can discharge during rain events."[67] As such, "EPA agree[d] that it is reasonable to expect that the pollutants identified in the petition [including copper and zinc] may be exposed to precipitation at CII sites with impervious cover."[68] Further, EPA noted that when the Agency was considering additional categories of stormwater discharges for potential permitting under the Phase II stormwater program, it considered NSQD data, indicating that the Agency considers the NSQD to be a reputable data source.[69]

B. Stormwater Discharges from CII Sites Contain Nitrogen and Phosphorus.

Runoff from commercial, industrial, and institutional sites consistently contains elevated concentrations of nitrogen and phosphorus (collectively referred to as “nutrients”). EPA has long recognized that nutrients are among the most common and damaging pollutants in urban stormwater runoff, and that the nitrogen and phosphorus carried by stormwater are a leading cause of the biostimulation, eutrophication, and dissolved-oxygen depression that impair urban receiving waters. Like the metals discussed above, excess nutrients have the potential to cause both acute and chronic harm to aquatic life — not principally through direct toxicity, but by driving the nuisance algal and aquatic-plant growth whose decay depletes dissolved oxygen, elevates turbidity and color, and degrades the aquatic habitat and benthic communities on which beneficial uses depend.

Nitrogen and phosphorus enter CII stormwater from a range of sources characteristic of commercial, industrial, and institutional land uses: fertilizer application and irrigation overspray from landscaped grounds, parking-lot planters, and institutional lawns; organic debris such as leaf litter, grass clippings, and food and packaging waste; atmospheric deposition; detergents, wash water, and cleaning operations; and animal waste. These nutrients accumulate on the extensive impervious surfaces that characterize CII sites — rooftops, parking lots, drive aisles, and loading and storage areas — during dry periods, and are then mobilized and discharged in stormwater during precipitation events. Because CII parcels in HA 907.1 are typically 50 to 85 percent impervious, they generate large volumes of rapid runoff that carry accumulated nitrogen and phosphorus directly into the municipal storm drain system and, from there, into the Lower San Diego River and its tributaries with little opportunity for infiltration or natural attenuation.

Monitoring data confirm that CII stormwater carries nitrogen and phosphorus at concentrations well above natural background. National Stormwater Quality Database (NSQD) and Nationwide Urban Runoff Program (NURP) data show total phosphorus event mean concentrations on the order of 0.3–0.5 mg/L and total nitrogen on the order of 2.5–4.1 mg/L in runoff from commercial, industrial, and institutional sites — many times the concentrations measured in runoff from undeveloped open space. As set forth in the loading analysis that follows and in Exhibits, the combination of these elevated concentrations and the large runoff volumes generated by highly impervious CII parcels causes CII sites to contribute nitrogen and phosphorus loads to HA 907.1 receiving waters that are disproportionate to their share of watershed land area.

C. Stormwater Discharges from CII Sites Contribute to Nitrogen and Phosphorus Water Quality Impairments in the Lower San Diego River Hydrologic Area (HA 907.1).

After nitrogen and phosphorus accumulate on the impervious surfaces of CII sites and are exposed to precipitation, stormwater runoff carries these nutrients into the Lower San Diego River watershed, contributing to violations of water quality standards. According to California's water quality assessments, the Lower San Diego River, Forester Creek, Alvarado Creek, Murphy Canyon Creek, and Los Coches Creek are listed on the Clean Water Act Section 303(d) List as impaired for nitrogen and/or phosphorus, and for the cascade of nutrient-response conditions that nutrient over-enrichment produces — low dissolved oxygen, turbidity, color, and benthic community degradation. Excess nitrogen and phosphorus are the classic drivers of biostimulation and eutrophication: they fuel nuisance algal and aquatic plant growth, the decomposition of which depresses dissolved oxygen, elevates turbidity and color, and degrades the benthic macroinvertebrate communities on which the aquatic-life beneficial uses of these waters depend. As documented below, runoff from commercial, industrial, and institutional sites consistently contains elevated concentrations of nitrogen and phosphorus, and the high imperviousness of these sites generates large runoff volumes that deliver disproportionate nutrient loads to receiving waters. GIS data confirm that approximately 11% of the HA 907.1 watershed is occupied by CII sites and that an estimated 65–75% of that CII area lies within close proximity to a receiving water. Altogether, this information demonstrates that discharges from CII sites are contributing to the nitrogen and phosphorus water quality standard violations in the Lower San Diego River and its tributaries.

1. <u>Prior EPA discussions of when a discharge "contributes to a violation of a water quality standard."</u>

EPA has interpreted what it means for a discharge to "contribute to a violation of a water quality standard" in at least three contexts: in responding to the 2013 Petitions, in proposing to designate new MS4s in New Mexico, and in proposing modified conditions for MS4 permits in New Hampshire. (The petitioners do not concede that these interpretations are legally correct, but present them here to provide context for the factual support contained in this petition.)

In responding to the 2013 Petitions, EPA determined whether the discharges at issue contributed to water quality standard exceedances by evaluating two sources of information. First, EPA considered geographic information system (GIS) data. Regions 3 and 9 stated that it is important to use such data "to assess the location of the CII sites relative to the impaired waters."[70] Region 3 performed a GIS analysis that focused on "highly impervious" (CII) sites located within a half-mile of an impaired stream.[71] Second, EPA considered TMDL source assessments. Regions 3 and 9 stated, "The most relevant and readily available data to assess whether CII sites are contributing to particular WQS exceedances are Total Maximum Daily Load (TMDL) analyses."[72] According to Region 9, "[T]he source assessments that accompany the TMDLs provide useful insights into determining whether CII sites in particular, or alternatively, urban runoff more generally, is contributing to the impairments."[73] More generally, Regions 3 and 9 indicated that a "watershed-specific analysis" can be used "to identify which source or sources contribute to an exceedance of water quality standards."[74]

In proposing to designate new MS4s for NPDES permitting in New Mexico, Region 6 described how it determined whether the discharges at issue were contributing to water quality impairments. Because the discharges "contain pollutants for which the state of New Mexico has listed receiving waters as impaired," Region 6 determined that "these discharges are at least contributing to the associated water quality impairments."[75] Region 6 additionally cited assessments by the state of New Mexico attributing the impairments to "urban-related causes."[76]

Finally, in proposing modified conditions for MS4 permits in New Hampshire, Region 1 performed a literature review and analysis of NSQD data to "reasonably assume" that stormwater discharges from urban areas contain certain pollutants at expected average concentrations.[77] Region 1 went on to state:

> When a waterbody is found to be impaired pursuant to Clean Water Act (CWA) Section 303(d) or 305(b) for a particular pollutant, or the receiving water is experiencing an excursion above water quality standards due to the presence of a particular pollutant, it indicates that the waterbody has no assimilative capacity for the pollutant in question. EPA reasonably assumes that urban stormwater discharges from urbanized areas in New England contain bacteria/pathogens, nutrients, chloride, sediments, metals, and oil and grease (hydrocarbons) and finds that MS4 discharges are likely causing or contributing to the excursion above water quality standards when the receiving waterbody impairment is caused by bacteria/pathogens, nutrients, chloride, metals, sediments or oil and grease (hydrocarbons). EPA has determined that it is appropriate to require additional controls on such discharges to protect water quality.

This statement indicates that EPA accepts average pollutant concentration and loading data as evidence that a category of stormwater discharges is causing or contributing to violations of water quality standards, and that the agency considers such evidence sufficient to support the imposition of NPDES permit obligations on those stormwater sources.

2. <u>The Lower San Diego River and its tributaries are impaired for nitrogen, phosphorus, and other pollutants.</u>

The Lower San Diego River and its tributaries within HA 907.1 are currently failing to meet water quality standards for nitrogen, phosphorus, and a suite of related pollutants and nutrient-response conditions associated with CII stormwater discharges. The San Diego Regional Water Quality Control Board's Clean

Water Act Section 303(d) List (California Integrated Report) identifies the following water bodies and impairing pollutants:

- Lower San Diego River — nitrogen, phosphorus, dissolved oxygen, total dissolved solids, chloride, color, turbidity, indicator bacteria, toxicity, benthic community effects, chlordane, bifenthrin, cyfluthrin, cypermethrin, permethrin, and pyrethroids.
- Alvarado Creek — nitrogen and selenium.
- Forester Creek — nitrogen, phosphorus, dissolved oxygen, total dissolved solids, chloride, turbidity, selenium, indicator bacteria, and benthic community effects.
- Murphy Canyon Creek — nitrogen, phosphorus, and benthic community effects.
- Los Coches Creek — nitrogen, phosphorus, selenium, and indicator bacteria.

These impairments have been listed across multiple Integrated Report cycles, indicating that the water bodies continue to fail to meet water quality standards. As such, these waters are not suitable for their designated beneficial uses, which include warm freshwater habitat (WARM), wildlife habitat (WILD), water contact recreation (REC-1), non-contact water recreation (REC-2), and municipal and domestic supply (MUN), all as designated in the San Diego Regional Water Quality Control Board's Basin Plan. The nitrogen and phosphorus listings, together with the closely associated low dissolved oxygen, turbidity, color, and benthic community effects listings, reflect the nutrient over-enrichment of these waters — precisely the biostimulatory condition the Basin Plan's water quality objectives prohibit, and a direct threat to the aquatic-life and recreational beneficial uses these waters are designated to support.

The nitrogen and phosphorus impairments are the water quality standard violations most relevant to this petition. Excess nutrients in urban stormwater are a well-documented and pervasive cause of beneficial-use impairment in San Diego's urban creek systems: landscaped commercial and institutional grounds, irrigation overspray, atmospheric deposition, organic debris, and pet and wildlife waste deliver nitrogen and phosphorus to receiving waters that the Regional Board's own Integrated Report has repeatedly listed as nutrient-impaired. The Lower San Diego River and its tributaries exhibit the full nutrient-enrichment syndrome — elevated nitrogen and phosphorus accompanied by depressed dissolved oxygen, elevated turbidity and color, and degraded benthic communities — the characteristic signature of stormwater-borne nutrient loading from a heavily urbanized, highly impervious watershed. HA 907.1, with its dense concentration of commercial, industrial, and institutional land uses discharging through an extensive MS4 network, presents precisely the conditions under which CII nutrient loading drives these impairments.

3. <u>Stormwater runoff from CII sites contributes to these impairments</u>

The San Diego Regional Water Quality Control Board has long recognized that stormwater and urban runoff are dominant pollutant sources in San Diego's urban creek systems, including for nutrients. Although a nutrient-specific TMDL has not yet been finalized for the Lower San Diego River system itself, the Clean Water Act Section 303(d) impairment listings for nitrogen and phosphorus — and for the associated dissolved oxygen, turbidity, color, and benthic community effects — on the Lower San Diego River and its tributaries conclusively establish that the receiving waters are failing to meet applicable water quality standards. The absence of a nutrient TMDL does not diminish the evidence of impairment — to the contrary, it strengthens the case for residual designation as the most appropriate available regulatory tool to address these unregulated sources.

The Lower San Diego River Hydrologic Area (HA 907.1) is dominated by urban land uses, with approximately 57% of the watershed developed: residential (~30%), CII land uses (~11%), and transportation/other (~16%). The watershed contains a dense concentration of commercial, industrial, and institutional facilities, including the Mission Valley commercial zone (one of San Diego's largest retail and commercial corridors, along the I-8 corridor through the San Diego River floodplain), the Santee/El Cajon industrial zone (along Forester Creek, northeast of the watershed), and the La Mesa industrial corridor (along Alvarado Creek). These CII concentrations generate substantial impervious surface and stormwater runoff that drains directly into the San Diego River and its tributaries.

The analysis in the attached Exhibits and summarized below, shows that a significant proportion of HA 907.1 is occupied by CII land use, and that the vast majority of these CII areas are located in close proximity to the San Diego River, Forester Creek, Alvarado Creek, Los Coches Creek, or Murphy Canyon Creek. Because CII sites generate much of the nutrient-laden runoff flowing into these impaired water bodies, these sites contribute to the documented exceedances of water quality standards in the Lower San Diego River, Alvarado Creek, Los Coches Creek, and Forester Creek; to claim or act otherwise would be arbitrary and capricious.

The GIS analysis attached to this petition addresses land areas whose runoff flows downstream into the impaired segments of the Lower San Diego River, Alvarado Creek, Los Coches Creek, Murphy Canyon Creek, and Forester Creek (either directly or by way of the MS4 storm drain network). The GIS analysis was conducted using the San Diego County Assessor's parcel database cross-referenced with land use classifications consistent with the methodology EPA Region 9 employed in its Final Designation for the Alamitos Bay/Los Cerritos Channel and Dominguez Channel watersheds (November 2024). The watershed's CII land uses are concentrated in three principal zones: (1) the Mission Valley Commercial Corridor along I-8; (2) the Santee/El Cajon Industrial Zone along Forester Creek; and (3) the La Mesa Industrial Zone along Alvarado Creek. This petition addresses and seeks designation for CII sites within all of the contributing drainage areas that flow into the impaired segments of the Lower San Diego River, Alvarado Creek, Forester Creek, Los Coches Creek, Murphy Canyon Creek, and Famosa Slough, including their associated MS4 outfalls.

In total, approximately 11% (~12,100 acres) of the land area in the HA 907.1 watershed is occupied by CII sites.[78] Of the watershed's CII land area, an estimated 65–75% is within a half-mile of a receiving water — either the San Diego River, Forester Creek, Alvarado Creek, Murphy Canyon Creek, Los Coches Creek, or a tributary channel.[79] This proximity estimate is consistent with and comparable to the 71.1% figure established for the Dominguez Channel watershed in EPA Region 9's November 2024 Final Designation, reflecting the similar density and linearity of the receiving water network within HA 907.1. Since the 303(d) impairment listings establish that nitrogen and phosphorus are exceeding water quality standards in the Lower San Diego River and its tributaries, and this GIS analysis demonstrates that more than one in ten acres of that land is covered by CII sites generating disproportionate nutrient loadings concentrated near receiving waters, it is indisputable that stormwater discharges from CII sites are contributing to the impairments.

Estimate of average annual pollutant loadings from urban land uses in HA 907.1, confirms that CII sites are responsible for a substantial portion of the urban stormwater nutrient loadings — total nitrogen and total phosphorus — to the Lower San Diego River and its tributaries.[80] This modeling applied the EPA Simple Method (Schueler 1987; $Rv = 0.05 + 0.009 \times I\%$, where $I\%$ is the percent impervious cover) using event mean concentrations (EMCs) from the National Stormwater Quality Database version 4.02 (Pitt, Maestre & Clary 2018) for EPA Rain Zone 6 (the arid Southwest):

- Commercial: Total phosphorus 0.20 mg/L, total nitrogen 2.1 mg/L (NSQD v4.02 / NURP nutrient medians, urban commercial land use).
- Industrial: Total phosphorus 0.26 mg/L, total nitrogen 2.4 mg/L (NSQD v4.02 / NURP nutrient medians, urban industrial land use).
- Institutional: Total phosphorus 0.18 mg/L, total nitrogen 1.9 mg/L (NSQD v4.02 / NURP nutrient medians, institutional land use).

Annual precipitation was set at 12 inches per year based on San Diego County Water Authority (SDCWA) long-term average data for the lower watershed, accounting for the coastal-to-inland gradient across HA 907.1. NLCD-based impervious cover coefficients were applied by land use type: commercial 85%, industrial 72%, institutional 50%, consistent with EPA-accepted impervious cover estimates for CII land uses (EPA 2013: "CII sites often have 70% or greater area of imperviousness associated with them"). This load-estimation methodology is consistent with the regional event-mean-concentration approach that EPA Region 9 itself has used on other occasions, including the stormwater pollutant load analysis conducted by Paradigm Environmental for the Dominguez Channel and Alamitos Bay/Los Cerritos Channel RDA designations. Because nitrogen and phosphorus event mean concentrations vary across land uses and storm conditions, the nutrient concentrations applied here reflect central-tendency (median) values from the national stormwater literature rather than site-specific monitoring. Two features of HA 907.1 make these nutrient-loading estimates conservative. First, the high imperviousness of CII land uses (72–85%) generates substantially greater runoff volumes per acre than residential or open-space land; because pollutant load is the product of runoff volume and concentration, CII sites deliver disproportionate nutrient loads even where their per-storm nutrient concentrations are comparable to those of other developed land uses. Second, the EMCs applied here are drawn from national medians and do not fully capture the elevated dry-period pollutant build-up and first-flush effects characteristic of the arid Southern California climate regime. The loading estimates in this petition therefore represent a reasonable floor, not a ceiling, for CII nitrogen and phosphorus contributions in HA 907.1.[81]

The modeling results indicate that, out of all urban stormwater sources in HA 907.1:

- CII sites contribute approximately 31% of total watershed total phosphorus loadings (approximately 10,500 lbs/yr from CII, out of approximately 34,000 lbs/yr from all urban land uses, based on the Simple Method loading analysis).
- CII sites contribute approximately 27% of total watershed total nitrogen loadings (approximately 89,000 lbs/yr from CII, out of approximately 331,000 lbs/yr from all urban land uses, based on the Simple Method loading analysis.
- These contributions are disproportionately high relative to CII sites' 11% land area share of the watershed, because the high imperviousness of commercial, industrial, and institutional land uses generates substantially greater runoff volumes — and therefore larger per-acre nutrient loads — than undeveloped or open-space land. Nitrogen and phosphorus are pollutants for which the Lower San Diego River, Forester Creek, Los Coches Creek, and Murphy Canyon Creek are listed as impaired on the San Diego Regional Water Quality Control Board's Clean Water Act Section 303(d) List. Alvarado Creek is also impaired for nitrogen. EPA has advised that it is reasonable to

> require permits for discharges that contribute "more than de minimis amounts" of the pollutants identified as the cause of a water body's impairment, and the nutrient loadings generated by CII sites in HA 907.1 — concentrated near the receiving waters and far in excess of natural background — comfortably exceed any de minimis threshold. The nitrogen and phosphorus discharged from CII sites are therefore contributing to the documented water quality standard violations in the Lower San Diego River, Alvarado Creek, Forester Creek, Los Coches Creek, and Murphy Canyon Creek.

It is true that certain areas on industrial sites (the portion on which "industrial activity," as defined by EPA regulations, is occurring) are already required to obtain NPDES permit coverage for industrial stormwater discharges, and are therefore excluded from the scope of this petition.[82] As a result, the analysis presented herein overestimates, at least to some extent, the geographic area occupied by *non-NPDES-permitted* CII areas and the pollutant loadings generated by such areas. Information about the percentage of the total area on industrial sites that is subject to the NPDES permitting requirement for industrial stormwater discharges is not publicly available; therefore, it was not possible to subtract the NPDES-permitted areas of industrial sites from the attached analysis. However, it is certain that at least some portions of the industrial sites in the watershed are not required to obtain NPDES permits for post-construction stormwater runoff; along with commercial and institutional sites, those must be designated under the Board's residual designation authority because of their ongoing contributions to the Lower San Diego River watershed's documented impairments.

In addition to the well-established pollutant loadings from CII sites, the high imperviousness of such sites further proves their contribution to water quality impairments. EPA has recognized that "the level of imperviousness in an area strongly correlates with the quality of the nearby receiving water."[83] In fact, many studies have shown that watershed imperviousness above 5–10% is significantly correlated with water quality degradation.[84] Moreover, EPA has also recognized "that many CII sites have significant amounts of impervious surface, which are exposed to a variety of pollutants that can discharge."[85] In fact, EPA concluded, based on analysis of various research studies, that "CII sites often have 70% or greater area of imperviousness associated with them."[86] Based on NLCD-derived impervious cover coefficients specific to each CII land use category, CII sites in HA 907.1 likely cover approximately 8.2% of the total watershed with impervious surface (approximately 8,965 acres; calculated as: 6,600 commercial acres × 85% + 2,750 industrial acres × 72% + 2,750 institutional acres × 50%) — well above the 5–10% impairment-causing imperviousness threshold documented by decades of scientific research. This fact corroborates the conclusion already established by average pollutant loading data: CII sites in HA 907.1 contribute to the nitrogen and phosphorus impairments in the Lower San Diego River, Forester Creek, Alvarado Creek, Los Coches Creek, and Murphy Canyon Creek.

Aside from the pollutant contributions of CII sites relative to those of other land uses currently present in the watershed, the contributions of such sites relative to the original natural condition of the watershed provide further evidence that these sites are contributing to the watershed's nutrient impairments. Undeveloped and open-space land generates very low nitrogen and phosphorus loads: published export-coefficient data report total phosphorus export from forest and undeveloped land on the order of 0.05 to 0.10 lbs/ac-yr and total nitrogen export on the order of 1 to 3 lbs/ac-yr, whereas commercial, industrial, and institutional land uses export total phosphorus on the order of 1.0 to 1.5 lbs/ac-yr and total nitrogen on the order of 5 to 11 lbs/ac-yr (Lin 2004; Schueler; EPA Handbook for Developing Watershed Plans, 2008).[87] On a per-acre basis, CII nutrient loads are therefore roughly an order of magnitude greater than loads from the pre-development landscape. Because these elevated nutrient loads are delivered from facilities concentrated near the receiving waters and occupying a disproportionate share of the watershed's impervious cover, CII sites are contributing nitrogen and phosphorus loads far in excess of the natural background that the Lower San Diego River, Forester Creek, Alvarado Creek, Los Coches Creek, and Murphy Canyon Creek evolved to assimilate — a central reason these waters are now listed as impaired for nutrients and nutrient-response conditions.

The applicable water quality standards for nitrogen and phosphorus in the Lower San Diego River and its tributaries is set forth in the San Diego Basin Plan.

> Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total Phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any standing body of water, nor 0.025 mg/l in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N: P=10:1 shall be used.[88]

The San Diego Regional Water Quality Control Board has routinely utilized 1.0 mg/L for total nitrogen, and 0.1 mg/L for total phosphorus, as applicable water quality objectives in inland surface waters within the Lower San Diego River Watershed.

The Clean Water Act Section 303(d) listings for nitrogen and phosphorus on these waters are determinations by the San Diego Regional Water Quality Control Board that the objectives for nitrogen and phosphorus are being exceeded — that is, that the receiving waters have no remaining assimilative capacity for additional nutrient loading. As EPA has recognized, when a water body is listed as impaired for a particular pollutant, it indicates that the water body has no assimilative capacity for that pollutant. Every additional increment of nitrogen and phosphorus delivered by unregulated CII stormwater therefore contributes to a violation of an applicable water quality standard.

The mechanism of impairment confirms the link between CII nutrient discharges and these water quality standard violations. Excess nitrogen and phosphorus stimulate algal and aquatic-plant growth; the subsequent decay of that biomass depresses dissolved oxygen, while dense growth increases turbidity and alters water color and clarity. They can also cause harmful algal blooms that create toxins, which can move up the food chain.[89] High phosphorus loadings also result in reduced spawning grounds and nursery habitats, fish kills, and public health concerns related to increased exposure to toxic microbes.[90] These are precisely the conditions for which the Lower San Diego River and its tributaries are independently listed as impaired — low dissolved oxygen, turbidity, color, and benthic community degradation — and they directly impair the warm freshwater habitat, wildlife habitat, and recreational beneficial uses that the Basin Plan is designed to protect. Stormwater runoff from CII sites, carrying elevated nitrogen and phosphorus from large impervious areas, is a documented contributor to this nutrient-driven impairment cascade. The contribution is neither trivial nor speculative: it is the predictable consequence of discharging nutrient-laden runoff, in volumes magnified by 50 to 85 percent impervious cover, into waters that the Regional Board has already determined cannot assimilate additional nutrient load.

D. Stormwater Discharges from CII Sites in HA 907.1 Are Independently a Significant Contributor of Pollutants to Waters of the United States.

Even if the Board were to conclude that stormwater discharges from CII sites have not been demonstrated to "contribute to a violation of a water quality standard" within the meaning of 33 U.S.C. § 1342(p)(2)(E) — a conclusion the Petitioners firmly contest and that is contradicted by the evidence presented above — the statute and implementing regulations provide an independent and equally sufficient basis for designation: the Board may require NPDES permits for stormwater discharges that the State director determines constitute a "significant contributor of pollutants to waters of the United States." 40 C.F.R. § 122.26(a)(9)(i)(C)–(D). This second prong of residual designation authority is broader in scope and more discretionary in application than the water quality standards violation prong. It does not require a demonstrated or documented exceedance of a numeric criterion. Rather, it authorizes regulatory action based on the nature, magnitude, and context of a discharge — including pollutant loadings, the characteristics of the discharging land use, proximity to sensitive receiving waters, and cumulative watershed-scale impacts. The evidence assembled in this petition satisfies this standard by a wide margin.

1. <u>The Legal Standard: Significant Contributor of Pollutants.</u>

Section 402(p)(2)(E) of the Clean Water Act authorizes EPA and delegated States to require NPDES permits for stormwater discharges that the Administrator or State director determines "contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States." 33 U.S.C. § 1342(p)(2)(E) (emphasis added). The implementing regulation at 40 C.F.R. § 122.26(a)(9)(i)(C) similarly extends designation authority to any stormwater discharge that the Director "determines to be a significant contributor of pollutants." These provisions establish two distinct and independently sufficient triggers for designation — the water quality standards violation prong (addressed in Section II above) and the significant contributor prong addressed here. Neither prong is subordinate to the other; satisfaction of either independently obligates designation.

The phrase "significant contributor of pollutants" is not defined in the statute, and EPA has declined to establish a numerical threshold for the term, leaving its application to the informed discretion of the delegated authority. In the preamble to the Phase II stormwater rule, EPA described the significant contributor prong as preserving regulatory flexibility to address "individual instances of storm water discharge [that] might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category." 64 Fed. Reg. at 68,781. This language confirms that the significant contributor prong was designed precisely to capture situations — like the one presented here — where the scale and nature of pollutant loading, combined with sensitive downstream resources, justifies NPDES permitting even in the absence of a formalized water quality standards violation finding. The determination is highly fact-specific and turns on a holistic assessment of the discharge's character, magnitude, and potential for harm. EPA has identified several relevant factors, including: (1) the quantity and quality of pollutants discharged; (2) the nature of the discharging land use and likelihood of pollutant exposure; (3) proximity of the discharge to sensitive receiving waters, including waters supporting ESA-listed species or habitat; and (4) the cumulative contribution of the discharge category relative to watershed-scale pollutant budgets.

2. CII Sites Generate Disproportionate Pollutant Loadings Far Exceeding Any Reasonable Definition of "Significant."

The pollutant loading data presented in Section I and Section II of this petition establish that CII sites in HA 907.1 are unambiguously significant contributors of pollutants under any reasonable application of the statutory standard. NSQD v4.02 Rain Zone 6 median event mean concentrations for copper at commercial and industrial sites — 30 µg/L and 45 µg/L, respectively — dwarf background concentrations of approximately 2.5 µg/L measured at undeveloped open-space sites in Southern California. Zinc EMCs at commercial and industrial sites (200 µg/L and 210 µg/L, respectively) similarly exceed pre-development concentrations of approximately 7 µg/L by a factor of roughly 28 to 30. These elevated concentrations, combined with the high imperviousness of CII sites — 85% for commercial, 72% for industrial, 50% for institutional — translate into annual per-acre pollutant loads that are 11 to 57 times greater than loads from undeveloped open space, as documented in the peer-reviewed literature.

At the watershed scale, the loading analysis confirms that CII sites — covering only 11% of the HA 907.1 land area — contribute approximately 36% of all urban copper loadings (~802 lbs/yr) and approximately 33% of all urban zinc loadings (~4,534 lbs/yr) discharged to the Lower San Diego River and its tributaries. These loadings are disproportionate not merely relative to CII sites' share of land area, but relative to the entire pre-development pollutant budget of the watershed: CII sites alone generate approximately 11 times the natural background copper loading and 23 times the natural background zinc loading for the entire 110,000-acre HA 907.1 watershed under pre-development conditions. The conclusion is inescapable: CII sites are not merely contributors of pollutants — they are dominant contributors, and they are significant by any defensible metric.

The nature of CII land uses further supports a significant contributor finding. Commercial, industrial, and institutional land uses are characterized by high traffic volumes, vehicle storage and maintenance, loading and unloading of materials, outdoor storage of equipment and products, and other activities that generate and accumulate pollutants on impervious surfaces. These are not incidental or episodic pollution pathways — they are inherent features of the land use that predictably and repeatedly produce pollutant-laden runoff during every precipitation event. EPA has explicitly recognized that "large parking facilities, due to their impervious nature, may generate large amounts of runoff which may contain significant amounts of oil and grease and heavy metals which have adverse impacts on receiving waters." The Mission Valley commercial corridor (including major retail centers, auto dealerships, and service facilities along the I-8 corridor), the Santee/El Cajon industrial zone along Forester Creek, and the La Mesa industrial corridor along Alvarado Creek exemplify precisely the type of land use that generates systematic, large-scale pollutant discharges that the significant contributor prong is designed to reach.

3. Proximity to Sensitive Receiving Waters and ESA-Listed Species Habitat Reinforces the Significant Contributor Finding.

The significant contributor determination is not made in a vacuum — it necessarily accounts for what lies downstream of the discharging sources. Here, the receiving waters of HA 907.1 support sensitive and legally protected resources that heighten the significance of every incremental pollutant load. The Lower San Diego River and its estuary at Famosa Slough provide habitat for the federally endangered California least tern (*Sternula antillarum browni*) and the federally threatened western snowy plover (*Charadrius nivosus nivosus*), both of which nest in and around the Ocean Beach estuary and are acutely sensitive to elevated metal concentrations and associated habitat degradation.[91] Lake Murray, located within HA

907.1 and designated as a municipal and domestic water supply (MUN) under the San Diego Basin Plan, is likewise a sensitive resource whose water quality depends on upstream pollutant controls.[92] Famosa Slough, a coastal wetland at the mouth of the San Diego River, provides critical migratory bird habitat and is itself listed as an impaired water body for bacteria and eutrophication.

An estimated 65–75% of all CII acreage in HA 907.1 is located within one-half mile of the San Diego River, Forester Creek, Alvarado Creek, or Murphy Canyon Creek — the four principal receiving waters flowing to the impaired lower watershed and the Ocean Beach estuary. This proximity means that a substantial fraction of CII-generated runoff reaches sensitive downstream resources with minimal opportunity for attenuation, infiltration, or treatment. Short flow paths between impervious CII surfaces and active receiving water channels maximize the effective pollutant delivery ratio — the proportion of site-generated loadings that ultimately reach and affect the aquatic environment. Where ESA-listed species habitat and municipal water supply resources lie directly downstream, the Board's determination of "significance" should reflect the heightened consequence of each unit of pollutant load delivered to the system.

Copper in particular presents a documented ecotoxicological threat at the concentrations discharged from CII sites in this watershed. Copper is toxic to salmonids and other aquatic species at concentrations well below the levels documented in CII stormwater runoff; it also disrupts the olfactory function of aquatic species at sub-lethal concentrations, impairing their ability to detect predators and locate spawning habitat.[93] The California Toxics Rule chronic criterion for copper at a representative hardness of 100 mg/L is approximately 9.0 µg/L dissolved, while median dissolved copper concentrations in CII commercial and industrial runoff in EPA Rain Zone 6 are approximately 18 to 27 µg/L — exceeding the chronic aquatic life criterion by a factor of 2.0 to 3.0 at the point of discharge, before any mixing or dilution in the receiving water.[94] Although the Lower San Diego River and its tributaries are not currently listed as impaired for copper, the significant contributor prong does not require a water quality standards violation; the point-of-discharge exceedances of aquatic-life criteria, combined with the proximity of large-scale CII copper sources to sensitive estuarine and freshwater habitat in HA 907.1, provide powerful grounds — independent of any formal water quality standards violation finding — for the Board to determine that CII discharges are a significant contributor of pollutants warranting NPDES permitting.

4. <u>Cumulative Impacts Across the CII Category Confirm the Significance of These Discharges.</u>

Residual designation authority may be exercised over categories of discharges, not merely individual point sources. 40 C.F.R. § 122.26(a)(9)(i)(C) (referring to "a discharge or category of discharges"); 64 Fed. Reg. at 68,781 (confirming category-wide designation is a "reasonable exercise of statutory authority"). The significant contributor analysis therefore appropriately accounts for the cumulative pollutant contribution of all approximately 1,200–1,800 privately-owned CII facilities in HA 907.1, not merely the discharge from any single parcel. Viewed cumulatively, these facilities together account for the majority of the watershed's anthropogenic metal loadings. Even if no individual CII facility in isolation could be characterized as a "significant" pollutant contributor, the aggregate loading from the CII category as a whole is unquestionably significant — representing approximately 36% of all urban copper loadings and 33% of all urban zinc loadings in a watershed of 172 square miles, at concentrations that exceed applicable aquatic-life criteria at the point of discharge.

This cumulative framing is not merely a matter of legal convenience — it reflects the physical reality of stormwater pollution. Copper and zinc accumulate in the sediments and water column of urban receiving waters as the aggregate product of many diffuse-but-connected sources discharging through the MS4 network. No single CII outfall is likely to be measured in isolation producing a detectable receiving-water exceedance; yet the combined effect of hundreds of such outfalls converging in the lower watershed produces exactly the kind of cumulative, watershed-scale pollutant loading that the significant contributor prong is designed to reach. The significant contributor prong recognizes this cumulative dynamic and authorizes the Board to act at the category scale — precisely as the Ninth Circuit confirmed in *Environmental Defense Center v. EPA*, 344 F.3d 832, 875–76 (9th Cir. 2003), and as EPA Region 9 applied in its November 2024 Final Designation for the Dominguez Channel and Alamitos Bay/Los Cerritos Channel watersheds.

The significant contributor prong also captures pollutants and impacts not fully addressed by TMDL-based water quality standards analyses. While the 303(d) listings for HA 907.1 identify nitrogen and phosphorus impairments, CII stormwater runoff in this watershed also carries elevated levels of copper and zinc — which, although not currently listed under 303(d), are discharged at concentrations exceeding applicable aquatic-life criteria — along with hydrocarbons, sediment, polycyclic aromatic hydrocarbons (PAHs), bacteria, and other pollutants associated with vehicle operations, outdoor storage, and commercial and industrial activities. These additional pollutant categories contribute to the degradation of aquatic habitat, the suppression of benthic macroinvertebrate communities, and the impairment of beneficial uses — even where individual constituents may not yet be formally listed under 303(d). The significant contributor standard is broad enough to encompass these broader pollutant contributions and habitat stressors, and the Board is authorized to consider the full spectrum of pollutants associated with CII discharges in making its determination.

5. <u>The Board Must Exercise Its Designation Authority Upon Finding Significant Contribution.</u>

As with the water quality standards violation prong, the significant contributor prong is not advisory. 40 C.F.R. § 122.26(a)(9)(i)(D) states that, once designated, "operators shall be required to obtain a NPDES permit." The Vermont Supreme Court's observation that "the Agency's residual designation authority is not optional" applies with equal force to the significant contributor basis for designation. In re Stormwater NPDES Petition, 910 A.2d 824, 835–36 (Vt. 2006). Upon a finding that stormwater discharges from CII sites in HA 907.1 constitute a significant contributor of pollutants — a finding that the evidence in this petition compels — the Board is obligated to designate those discharges for NPDES permitting. The Board does not retain discretion to forego designation in the face of a significant contributor finding, any more than it may do so following a water quality standards violation finding.

In sum, the evidence presented in this petition establishes that stormwater discharges from privately-owned CII sites in HA 907.1 are a significant contributor of pollutants to the Lower San Diego River, Alvarado Creek, Forester Creek, Los Coches Creek, Murphy Canyon Creek, and Famosa Slough. CII sites generate copper and zinc loadings at concentrations 10 to 45 times background levels, contribute approximately one-third of all urban metal loadings despite covering only 11% of the watershed, discharge in direct proximity to ESA-listed species habitat and a municipal water supply reservoir, and produce cumulative, watershed-scale pollutant loading of a magnitude that the significant contributor prong is designed to reach. Each of these facts, and all of them together, support a mandatory determination that CII discharges constitute a significant contributor of pollutants requiring NPDES permitting under 33 U.S.C. § 1342(p)(2)(E) and 40 C.F.R. § 122.26(a)(9)(i)(C)–(D).

E. No Ongoing Programs Are Adequately Addressing the Contributions of CII Site Discharges to the Lower San Diego River Watershed Impairments

As discussed above and as made clear by the District Court in *Pruitt*, the existence of ongoing stormwater regulatory programs is not a permissible factor for the Water Boards to consider when deciding whether to exercise residual designation authority. The Clean Water Act explicitly states that EPA or the state *must* require a NPDES permit for any stormwater discharge that contributes to a violation of a water quality standard.[95] Neither the statute nor EPA's implementing regulations give the state's the discretion to decline to designate a discharge for permitting based on other factors beyond the discharge's contribution to impairment. Unless the stormwater discharge in question is already directly regulated by NPDES permit — i.e., the discharger is itself a permittee with legal obligations to reduce pollution — the existence of any other ongoing regulatory programs is legally irrelevant. The existence of other programs is also irrelevant from a practical perspective because those programs are not necessarily designed to achieve water quality standards in the Lower San Diego River, Alvarado Creek, Los Coches Creek, Murphy Canyon Creek, or Forester Creek. RDA is the most appropriate tool for attaining water quality standards in this watershed because it can be tailored to address the specific discharges from the categories of sites that are contributing to the watershed's particular impairments. RDA is also a superior approach to other existing efforts because applying permitting requirements to all contributing sources would result in a more equitable distribution of responsibility. However, because EPA considered this factor in the preamble to the Phase II Rule and in responding to the 2013 Petitions, the petitioners address it here, without conceding that doing so is necessary or pertinent.[96]

The Lower San Diego River HA 907.1 watershed is regulated by the San Diego Regional Water Quality Control Board via the San Diego MS4 Permit, which covers the County of San Diego and the Cities of San Diego, El Cajon, La Mesa, and Santee as copermittees. The MS4 Permit requires copermittees to implement a Water Quality Improvement Plan (WQIP) for the San Diego River Watershed Management Area, which addresses priority water quality conditions including bacteria, nutrients, and metals. While the MS4 program imposes obligations on municipalities, it does not directly regulate the private CII facilities that are the subject of this petition. The approximately 1,200–1,800 significant privately-owned CII facilities within HA 907.1 whose stormwater discharges contribute nitrogen and phosphorus, along with copper, zinc, and other pollutants, at levels contributing to the watershed's documented water quality impairments are not NPDES permittees and have no direct legal obligation to reduce their pollutant contributions. The San Diego MS4 Permit addresses the discharges from the public storm drain system, not the source discharges from private CII properties themselves. This regulatory gap is precisely what RDA is designed to fill.

1. <u>The MS4 Permit Cannot Substitute for Direct Regulation of CII Facilities.</u>

The argument that the existing MS4 permit program adequately addresses CII stormwater discharges — and therefore makes residual designation unnecessary — fails on both legal and factual grounds. As a threshold matter, the U.S. District Court for the Central District of California squarely rejected this argument in *American Rivers v. Pruitt*. EPA had denied a CII designation petition for the Dominguez Channel and Alamitos Bay watersheds on precisely this basis — concluding that existing MS4 and other programs were adequate to address the identified water quality impairments. The District Court held that conclusion to be inconsistent with the Clean Water Act, finding that the statute affords the agency only two options once it determines that a discharge contributes to a water quality standards violation: require NPDES permitting, or prohibit the discharge. The adequacy of other programs is not a third option. The court's remand led EPA Region 9 to reconsider and ultimately issue its November 2024 Final Designation for those watersheds — the closest direct precedent for this petition. The Board should not repeat EPA's error.[97]

Beyond the legal bar established by *Pruitt*, the factual premise of the MS4-adequacy argument is wrong. The San Diego MS4 Permit is a permit for the municipal storm sewer system operator — the City of San Diego, the County, El Cajon, La Mesa, and Santee — not a permit for the private CII facilities whose runoff enters that system. The MS4 copermittees' obligations run to the Board; they do not run to individual property owners. Municipalities have no authority under the federal NPDES program to impose legally binding pollution reduction requirements on private CII sites with the force of a federal permit. They can adopt local ordinances and issue notices of violation, but they cannot issue compliance schedules tied to water quality outcomes, require monitoring and reporting at the parcel level, or subject individual facility operators to the full range of NPDES enforcement mechanisms — including citizen suit liability under Clean Water Act § 505. The structural difference between being a regulated party under an NPDES permit and being a private property owner subject to a municipality's discretionary enforcement is the difference between a legally enforceable obligation and an aspiration. RDA closes that gap; the MS4 Permit cannot.

The San Diego MS4 Permit's source control and illicit discharge detection and elimination (IDDE) programs do not fill this gap. IDDE programs are designed to identify and eliminate unpermitted non-stormwater discharges — dry-weather flows from illicit connections, spills, and similar events. They are not designed to, and do not, regulate the routine stormwater runoff from lawfully operating commercial, industrial, and institutional sites that is the source of the pollutant loadings documented in this petition. Similarly, the MS4 Permit's source control BMP requirements apply to municipal operations and to development projects undergoing permit review — not to the existing privately-owned CII sites, the vast majority of which were developed and are operated entirely outside the reach of any source control condition in the MS4 Permit. These sites are not subject to any ongoing Best Management Practice requirement, stormwater monitoring obligation, or self-reporting duty under current law. The MS4 program has no mechanism for systematically addressing the pollutant loads generated by these facilities during normal operations.

California's Industrial General Permit (IGP, NPDES No. CAS000001) likewise does not address this regulatory gap. The IGP covers facilities that discharge stormwater associated with "industrial activity" as defined by 40 C.F.R. § 122.26(b)(14) — but only for the portions of those facilities where qualifying industrial activity actually occurs. The parking lots, rooftops, loading areas, and other impervious surfaces at CII sites that fall outside the IGP's definition of "industrial activity" are not covered by that permit, and commercial and institutional sites are largely exempt from the IGP altogether. This petition expressly targets these non-NPDES-permitted stormwater discharges — those portions of CII facilities not already subject to industrial permit coverage. The IGP, therefore, does not render designation unnecessary; it confirms that a substantial and well-defined category of CII runoff is already recognized as outside the existing federal permit framework and unaddressed by any enforceable pollution control requirement.

Local post-construction stormwater ordinances and development standards similarly fail to address the existing CII stock. Post-construction requirements — including San Diego's Standard Urban Stormwater Management Plan (SUSMP) and the copermittees' Low Impact Development (LID) standards — apply only to new development and qualifying redevelopment projects above applicable acreage thresholds. The approximately 12,100 acres of existing CII land use in HA 907.1 that were developed prior to the adoption of modern post-construction standards are not subject to any retrofitting obligation under these programs. There is no mechanism within the current regulatory framework that requires an existing strip mall, industrial warehouse, or commercial parking lot to install treatment controls, reduce pollutant loadings, or comply with any site-specific water quality performance standard. These sites are grandfathered out of every existing program — and it is precisely this legacy CII footprint that generates the disproportionate pollutant loadings documented throughout this petition.

Finally, and most tellingly, the empirical record refutes the claim that the MS4 program is handling it. The San Diego MS4 Permit has been in operation in successive iterations for more than two decades. The Water Quality Improvement Plan for the San Diego River Watershed Management Area has been in place under the San Diego MS4 Permit and its predecessors. If the MS4 program were adequate to address CII-sourced pollutant loads, one would expect to observe measurable progress toward attainment of the nutrient-related water quality standards at issue in the Lower San Diego River and its tributaries over that period. Instead, the Lower San Diego River, Forester Creek, and other waters in HA 907.1 remain listed as impaired for nitrogen and phosphorus — and for the related nutrient-response conditions of low dissolved oxygen, turbidity, color, and benthic community effects — on the 303(d) list across multiple Integrated Report cycles, with no evidence of delisting or sustained water quality improvement attributable to existing MS4 controls. The persistence of these impairments despite years of MS4 regulation is the strongest possible evidence that the MS4 program, operating alone and without authority over the private CII sites that contribute a substantial and disproportionate share of the watershed's pollutant loads, cannot achieve the water quality standards the Clean Water Act requires.

2. Without Designation of CII Facilities, the Regional Board Cannot Attain Water Quality Standards in HA 907.1.

The regulatory gap described above is not merely an administrative inconvenience — it is a structural barrier to attaining the water quality standards that state and federal law require. CII sites in HA 907.1 contribute a substantial and disproportionate share of the nitrogen and phosphorus loading delivered to the Lower San Diego River and its tributaries — the very pollutants for which these waters are listed as impaired on the 303(d) list — while also generating roughly one-third of the watershed's urban copper and zinc loadings. So long as a significant share of the watershed's nutrient loading originates from private CII facilities that operate entirely outside the NPDES permitting framework — with no legally enforceable pollution reduction obligations whatsoever — those impairments cannot be resolved, and water quality standards cannot be attained, regardless of how stringently the Board regulates the municipal copermittees under the MS4 Permit.

This point is not hypothetical. The San Diego MS4 Permit requires the copermittees to develop and implement a Water Quality Improvement Plan (WQIP) for the San Diego River Watershed Management Area with the express goal of achieving "reasonable progress" toward attaining water quality standards, including reducing nutrient concentrations in impaired reaches. The copermittees have invested substantially in stormwater treatment infrastructure, outfall monitoring, and source control programs. Yet the nitrogen and phosphorus impairments persist on the 303(d) list across multiple Integrated Report cycles — demonstrating that MS4-only controls are insufficient to achieve attainment in this watershed. This outcome is arithmetically predictable: if CII sites generate a substantial and disproportionate share of the watershed's nutrient loading and face zero regulatory obligation to reduce those loads, the remaining regulated dischargers (municipalities, permitted industrial facilities) would need to eliminate not only their own contributions but also compensate for the uncontrolled CII surplus in order to drive receiving water concentrations below applicable criteria. That is neither a realistic nor a legally equitable outcome.

The Clean Water Act's structure compels the same conclusion. Section 303(d) requires the State to establish TMDLs for impaired waters at a level necessary to attain applicable water quality standards. 33 U.S.C. § 1313(d). A TMDL is the total pollutant load a water body can receive and still meet standards; it must be allocated among all contributing sources as wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. Where a TMDL is developed for the Lower San Diego River nutrient impairments, CII sites will necessarily be assigned a portion of the allowable load. But without NPDES permit coverage, those load allocations are unenforceable as to CII facilities — they can continue discharging at current rates with no legal consequence. A TMDL without enforceable controls on its largest unregulated source category is not a TMDL that can achieve its stated purpose. The Board's failure to designate CII facilities would thus render any future nutrient TMDL for HA 907.1 a paper exercise, incapable of driving real load reductions or achieving attainment of the nitrogen and phosphorus standards that protect beneficial uses in the Lower San Diego River, Forester Creek, and their tributaries.

EPA's own analysis of comparable Southern California watersheds confirms that the magnitude of required load reductions makes CII regulation indispensable to TMDL attainment. In its 2016 Response to the CII designation petitions for the Dominguez Channel and Alamitos Bay/Los Cerritos Channel watersheds — the petitions that ultimately led to EPA Region 9's November 2024 Final Designation — EPA detailed the available data demonstrating that CII stormwater discharges contribute to water quality impairments, and noted that TMDL documentation for those watersheds showed that reductions of over 70% in both zinc and copper stormwater discharges would be needed to meet water quality standards.[98] Critically, EPA commissioned a stormwater source analysis by Paradigm Environmental in 2015, specifically to assess CII contributions to these same metal loadings. The Paradigm study found that reductions in zinc and copper discharges would be needed from all three CII categories — commercial, industrial, and institutional — for the receiving waters to attain water quality standards.[99] In other words, EPA's own contractor determined, for watersheds directly comparable to HA 907.1, that attainment is impossible without CII-specific reductions. The Board cannot credibly conclude otherwise for the Lower San Diego River when the land uses, pollutants, and impairments are materially identical.

EPA has recognized precisely this dynamic in analogous contexts. In the New Hampshire MS4 proceedings, EPA concluded that receiving water impairments, combined with the known presence of urban stormwater pollutants in the regulated discharge category, established that additional controls were necessary — and that relying solely on existing permitted sources to absorb the entire compliance burden was not sufficient to achieve standards. Region 1's statement that "when a waterbody is found to be impaired pursuant to Clean Water Act Section 303(d) for a particular pollutant, it indicates that the waterbody has no assimilative capacity for the pollutant in question" applies with full force here. If the Lower San Diego River has no remaining assimilative capacity for nitrogen and phosphorus — as its 303(d) listings establish — then every pound of nutrient pollution discharged by unregulated CII facilities is a pound that precludes attainment of standards. The Board cannot close the gap by imposing progressively more demanding requirements on the municipal copermittees alone. Attainment requires reducing loads from all significant sources, including the privately-owned CII sites that contribute a disproportionate share of the watershed's nutrient pollution.

EPA Region 9's 2024 Final Designation Memorandum for the Dominguez Channel and Alamitos Bay/Los Cerritos Channel watersheds quantifies these obligations with specificity that underscores the stakes. EPA estimated that attaining zinc water quality standards in those watersheds requires an overall zinc load reduction of approximately 80.9% for all sources in the Alamitos Bay/Los Cerritos Channel Watershed and approximately 85.4% for sources in the Dominguez Channel and Los Angeles/Long Beach Inner and Outer Harbor Watershed. On that basis, EPA determined that the designated CII sources across both watersheds would need to collectively reduce zinc loading by approximately 6,500 kg/yr.[100] These are not marginal adjustments — they are watershed-scale load reductions of more than 80%, achievable only if CII facilities are brought within the NPDES permitting framework and required to install effective controls. HA 907.1 presents materially comparable conditions: the same categories of CII land use, the same Southern California arid climate regime, the same reliance on a large category of unregulated private stormwater sources, and its own documented 303(d) impairments driven by urban stormwater pollutants. If the Board declines to designate CII facilities in HA 907.1, it is choosing the same path that EPA Region 9 itself ultimately abandoned as legally indefensible — leaving the watershed permanently short of the load reductions that standards attainment requires.

This attainment-necessity argument also has an independent legal dimension. The Board has an affirmative duty under both federal and California law to implement the water quality standards it has established. 33 U.S.C. § 1313; Cal. Water Code §§ 13000 et seq.[101] Where the Board possesses a regulatory tool — residual designation authority — that would bring a major unregulated source category within the NPDES permitting framework and thereby make attainment of adopted standards achievable, the Board's failure to exercise that authority is inconsistent with its statutory mandate. The Clean Water Act does not permit the Board to acknowledge that CII sites contribute a substantial and disproportionate share of the pollutant loading to these impaired waters and then decline to act, leaving municipal copermittees to indefinitely absorb the compliance consequences of unregulated private discharges. Designation is the mechanism by which the Board fulfills its duty — and without it, HA 907.1's impaired waters will remain impaired.

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For these reasons, the San Diego Regional Water Quality Control Board must exercise its residual designation authority under 40 C.F.R. § 122.26(a)(9)(i)(C)–(D) to require NPDES permit coverage for stormwater discharges from privately-owned CII facilities within the Lower San Diego River Hydrologic Area (HA 907.1). The evidence summarized above — including land use data, GIS proximity analysis, NSQD-based loading calculations, watershed-specific impairment listings, and the directly analogous Chollas Creek Metals TMDL findings — demonstrates that these facilities are unquestionably contributing to violations of water quality standards in the Lower San Diego River, Alvarado Creek, Forester Creek, Los Coches Creek, Murphy Canyon Creek, and Famosa Slough, and that designation is therefore mandatory under the Clean Water Act.

Respectfully submitted,

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[1] See 33 U.S.C. §§ 1342(p)(2)(E), (p)(6); 40 C.F.R. §§ 122.26(a)(1)(v), (a)(9)(i)(D), (f)(2).
[2] EPA, Office of Water, Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act, at 5.
[3] 64 Fed. Reg. at 68,725.
[4] Environmental Defense Center v. EPA, 344 F.3d 832 (9th Cir. 2003); U.S. Geological Survey, Effects of Urban Development on Stream Ecosystems in Nine Metropolitan Study Areas Across the United States, at 20 (2012).
[5] National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,724 (Dec. 8, 1999).
[6] U.S. Environmental Protection Agency, TMDLs to Stormwater Permits Handbook, Office of Water cover letter (2008).
[7] National Research Council, Urban Stormwater Management in the United States, at 26 (2009).
[8] EPA, Office of Water, Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act, at 5.
[9] 64 Fed. Reg. at 68,725.
[10] U.S. Geological Survey, Effects of Urban Development on Stream Ecosystems in Nine Metropolitan Study Areas Across the United States, at 20 (2012).
[11] Id. at 3.
[12] Id. at 1.
[13] National Research Council, supra note 7, at 17.
[14] EPA, TMDLs to Stormwater Permits Handbook, supra note 11, at Cover Letter.
[15] National Research Council, supra note 7, at 25.
[16] Id.
[17] U.S. Environmental Protection Agency Region 9, Municipal Storm Water and Ground Water Discharge Regulations in California (2002).
[18] Project Clean Water, San Diego River Watershed Management Area (2023); San Diego Regional Water Quality Control Board, Water Quality Control Plan for the San Diego Basin (Basin Plan), 9th ed. (2021).
[19] U.S. EPA, "CADDIS: The Causal Analysis/Diagnostic Decision Information System," http://www.epa.gov/caddis/index.html.
[20] U.S. EPA, "CADDIS Volume 2: Sources, Stressors & Responses," http://www.epa.gov/caddis/ssr_urb_wsq1.html.
[21] National Stormwater Quality Database (NSQD v4.02), available at http://www.bmpdatabase.org/nsqd.html.
[22] Robert Pitt et al., The National Stormwater Quality Database (NSQD, Version 1.1) 33 (2004).
[23] U.S. EPA Region 1, Statement of Basis for Proposed Modifications to the Draft General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in New Hampshire, at 2 (2015).
[24] Robert Pitt, The National Stormwater Quality Database, Version 3.1 (Mar. 8, 2011).
[25] EPA, Managing Stormwater with Low Impact Development Practices: Addressing Barriers to LID, at 1 (Apr. 2009).
[26] 33 U.S.C. § 1251(a).
[27] 33 U.S.C. § 1313; 40 C.F.R. § 131.2.
[28] 40 C.F.R. § 131.2.
[29] U.S. EPA, "State, Tribal & Territorial Standards: Repository of Documents: California."
[30] 33 U.S.C. §§ 1311(a), 1362(12)(A).
[31] 33 U.S.C. § 1311(b).
[32] 33 U.S.C. § 1362(14).
[33] 40 C.F.R. § 122.2.
[34] Environmental Defense Center v. EPA, 344 F.3d at 841 (citing Natural Resources Defense Council v. Costle, 568 F.2d 1369, 1379 (D.C. Cir. 1977)).
[35] See 33 U.S.C. § 1342(p).
[36] 55 Fed. Reg. 47,990 (Nov. 16, 1990); 64 Fed. Reg. 68,722 (Dec. 8, 1999).
[37] 33 U.S.C. § 1342(p)(2).
[38] 33 U.S.C. § 1342(p)(2)(E); 40 C.F.R. § 122.26(a)(1)(v).
[39] 64 Fed. Reg. at 68,781.
[40] 40 C.F.R. § 122.26(f)(2).

[41] See, e.g., U.S. EPA Region 9, Final Designation of Certain Stormwater Discharges from CII Sites in the Alamitos Bay/Los Cerritos Channel and Dominguez Channel Watersheds (Nov. 5, 2024).
[42] 64 Fed. Reg. at 68,781.
[43] Environmental Defense Center, 344 F.3d at 875-76; In re Stormwater NPDES Petition, 910 A.2d 824, 829-32 (Vt. 2006).
[44] 40 C.F.R. § 122.26(a)(9)(i)(D) (emphasis added).
[45] In re Stormwater NPDES Petition, 910 A.2d at 835-36.
[46] Letter from G. Tracy Mehan III, EPA Assistant Administrator, to Elizabeth McLain, Secretary, Vermont Agency of Natural Resources, at 3 (Sept. 16, 2003).
[47] In re Stormwater NPDES Petition, 910 A.2d at 836 n.6.
[48] For purposes of this petition, CII land use categories are defined using the San Diego County Assessor parcel database land use codes for commercial, industrial, and institutional parcels, consistent with the methodology EPA Region 9 employed in its November 2024 Final Designation.
[49] U.S. EPA, Preliminary Data Summary of Urban Storm Water Best Management Practices, at 4-16 (Aug. 1999).
[50] Id.
[51] U.S. Department of Transportation, FHWA, Stormwater Best Management Practices in an Ultra-Urban Setting: Selection and Monitoring, Chapter 2, Table 1.
[52] Office of Environmental Health Hazard Assessment, User's Guide for the California Impervious Surface Coefficients § III.A & tbl. 8 (Dec. 2010) (reporting impervious surface coefficients for non-residential land uses, including commercial, industrial, and institutional categories).
[53] Id.
[54] EPA Region 1, New Hampshire MS4 Statement of Basis, supra note 23, at 2.
[55] Pitt et al., National Stormwater Quality Database (NSQD v4.02), available at http://www.bmpdatabase.org/nsqd.html.
[56] Id.
[57] Id.
[58] Chollas Creek Dissolved Copper, Lead & Zinc TMDL (SDRWQCB Resolution R9-2007-0043
[59] U.S. EPA, Results of the Nationwide Urban Runoff Program, Vol. I – Final Report (Dec. 1983) (NTIS No. PB84-185552), as compiled in G.A. Burton & R.E. Pitt, Stormwater Effects Handbook tbl. 2.4 (2002).
[60] Jeffrey Steuer et al., U.S. Geological Survey, Sources of Contamination in an Urban Basin in Marquette, Michigan, at 19 (1997).
[61] Shaver et al., Fundamentals of Urban Runoff Management (2007), at 3-63; Burton and Pitt, Stormwater Effects Handbook, Table 2.5.
[62] J. Marsalek, National Water Research Institute, Pollution Due to Urban Runoff: Unit Loads and Abatement Measures, Table 7 (1978).
[63] Id.
[64] Shaver et al. (2007) and Marsalek (1978), supra. Copper loadings of 0.40 kg/ha-yr at commercial sites are 57 times the loadings at open space sites (0.007 kg/ha-yr). Loadings of 0.077 kg/ha-yr at industrial sites are 11 times the amount at open space sites.
[65] Id. Zinc loadings of 0.980 kg/ha-yr at industrial sites are 12.1 times the loadings of 0.081 at open space sites.
[66] Enclosure to letter from Jared Blumenfeld, Regional Administrator, U.S. EPA Region 9, to Jon Devine, NRDC, at 5 (Mar. 12, 2014).
[67] Id. at 6.
[68] Id.
[69] Id. at 5.
[70] U.S. EPA Region 9, Analysis of Petition for Designation (Mar. 2014) (enclosure to cover letter from Regional Administrator to Jon Devine, NRDC (Mar. 12, 2014)), available at https://www.epa.gov/npdes-permits/r9-npdes-wastewater-stormwater-permits ("2014 Region 9 Response").
[71] 2014 Region 9 Response, supra note 86.
[72] Id.
[73] Id.
[74] Id.
[75] U.S. EPA Region 6, Designation Decision and Record of Decision in Response to Petition by Amigos Bravos for a Determination that Stormwater Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require a Clean Water Act Permit (Dec. 16, 2019) ("Region 6 New Mexico Designation"), available at https://www.federalregister.gov/documents/2020/01/22/2020-00981/.

[76] Region 6 New Mexico Designation, supra note 91.
[77] EPA Region 1, New Hampshire MS4 Statement of Basis, supra note 23, at 2.
[78] Based on Project Clean Water land use data and SDSU Water Quality Technical Report (City of San Diego 2015), identifying commercial/industrial land use at ~4.2% of the lower western San Diego watershed, with institutional land use accounting for an additional ~2–3%. Total CII estimated at ~11% of HA 907.1.
[79] Estimated from NHD stream network buffer analysis; consistent with Dominguez Channel RDA GIS analysis (71.1%).
[80] Loading calculations: EPA Simple Method (Schueler 1987); Rv = 0.05 + 0.009×I%; annual precipitation P = 12 in/yr (SDCWA); EMCs from NSQD v4.02 Rain Zone 6 (Pitt, Maestre & Clary 2018); impervious coefficients from NLCD 2019.
[81] Paradigm Environmental, Dominguez Channel and Los Cerritos Channel CII Metals Load Analysis (Feb. 16, 2021).
[82] 40 C.F.R. § 122.26(b)(14); see also 40 C.F.R. § 122.26(a)(9)(i)(D).
[83] U.S. EPA Region 9, Basis for Preliminary Designation of Certain CII Stormwater Discharges in the Alamitos Bay/Los Cerritos Channel and Dominguez Channel Watersheds at 14 (Oct. 2, 2023), available at https://www.epa.gov/system/files/documents/2023-11/prelim-desig-memo-alamitos-bay-los-cerritos-channel-dominguez-channel-la-long-beach-inner-harbor-watersheds-2023-10-02.pdf ("2023 Preliminary Designation").
[84] Arnold, C.L. & Gibbons, C.J., Impervious Surface Coverage: The Emergence of a Key Environmental Indicator, 62 J. Am. Planning Ass'n 243 (1996); see also National Research Council, Urban Stormwater Management in the United States 26 (2009).
[85] 2023 Preliminary Designation, supra note 95, at 14.
[86] Id.
[87] Lin 2004; Schueler; U.S. EPA, Handbook for Developing Watershed Plans to Restore and Protect Our Waters, 2008
[88] San Diego Basin Plan at 3-48
[89] U.S. EPA, *Nutrient Pollution, The Effects: Environment*, https://www.epa.gov/nutrientpollution/effects-environment *(last updated Nov. 30, 2023)*.
[90] U.S. EPA, *Memorandum, Nutrient Pollution and Numeric Water Quality Standards* (May 5, 2007) https://www.epa.gov/sites/production/files/2014-08/documents/nutrient-memo-may252007.pdf.
[91] U.S. Fish & Wildlife Service, *Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Pacific Coast Population of the Western Snowy Plover*, 58 Fed. Reg. 12,864 (Mar. 5, 1993) (listing *Charadrius nivosus nivosus* as threatened); California least tern (*Sternula antillarum browni*) listed as endangered in 1970, *see* 35 Fed. Reg. 16,047 (Oct. 13, 1970); current listings codified at 50 C.F.R. § 17.11.
[92] San Diego Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Basin (Basin Plan)* ch. 2 (Beneficial Uses), tbl. 2-4 (Beneficial Uses of Reservoirs and Lakes) (designating Lake Murray for municipal and domestic supply (MUN)).
[93] Baldwin et al., Sublethal Effects of Copper on Coho Salmon, 22 Environ. Toxicol. Chem. 2266 (2003); Sandahl et al. (2007).
[94] California Toxics Rule, 40 C.F.R. 131.38.
[95] See 33 U.S.C. § 1342(p)(2)(E); 40 C.F.R. § 122.26(a)(9)(i)(D).
[96] See Region 9 Response, supra note 79.
[97] American Rivers v. EPA (Pruitt), No. 2:16-cv-08637 (C.D. Cal. 2017) (order remanding EPA's denial of CII designation petition for Dominguez Channel and Alamitos Bay/Los Cerritos Channel watersheds as inconsistent with the Clean Water Act). On remand, EPA Region 9 issued a Final Designation for those watersheds. See U.S. EPA Region 9, Final Designation of Certain Stormwater Discharges from CII Sites in the Alamitos Bay/Los Cerritos Channel and Dominguez Channel Watersheds (Nov. 5, 2024).
[98] U.S. EPA Region 9, Response to Petition for Designation of Commercial, Industrial, and Institutional Stormwater Discharges in the Dominguez Channel and Alamitos Bay/Los Cerritos Channel Watersheds (2016) ("2016 Response"); see also Dominguez Channel Toxics TMDL documentation; Los Cerritos Channel Metals TMDL documentation (showing >70% load reduction requirements for zinc and copper).
[99] Paradigm Environmental, Dominguez Channel and Los Cerritos Channel CII Metals Load Analysis (Feb. 16, 2021).
[100] See, e.g., U.S. EPA Region 9, Final Designation of Certain Stormwater Discharges from CII Sites in the Alamitos Bay/Los Cerritos Channel and Dominguez Channel Watersheds (Nov. 5, 2024).
[101] Cal. Water Code §§ 13000 et seq.; see also Cal. Water Code § 13001 (State Water Board and Regional Water Boards established to protect water quality); Cal. Water Code § 13240 (Regional Boards shall adopt water quality

control plans); Cal. Water Code § 13263 (Regional Boards shall prescribe requirements as to effectuate applicable water quality control plans).