4.9 Hydrology and Water Quality

This section describes the existing hydrology and water quality conditions of the project sites and vicinity, identifies associated regulatory requirements, evaluates potential project and cumulative impacts, and identifies mitigation measures for any significant impacts related to the construction and operation of the Newell Creek Pipeline (NCP) Improvement Project (Proposed Project). The analysis is based on review of relevant studies and reports regarding hydrology and water quality that have been prepared in the Project area, as well as existing regulatory requirements.

A summary of the comments received during the scoping period for this environmental impact report (EIR) is provided in Table 2-1 in Chapter 2, Introduction, and a complete list of comments is provided in Appendix A. There were no comments related to hydrology and water quality.

4.9.1 Existing Conditions

Both the existing NCP and the Proposed Project pipeline corridor extend approximately 9 miles between the City's Graham Hill Water Treatment Plant (GHWTP) on the south and Newell Creek Dam on the north, mostly within the unincorporated San Lorenzo Valley. The elevation of the site ranges from approximately 80 feet above mean sea level (amsl) at the downstream end of the proposed work area to approximately 400 feet amsl at the highest point at the northern end. The pipeline crosses Newell Creek and Zayante Creek, both tributaries to the San Lorenzo River. The following section summarizes the existing hydrological and water quality conditions in the vicinity of the project sites.

4.9.1.1 Surface Water Resources

Regional Watersheds

The U.S. Geological Survey (USGS) Watershed Boundary Dataset identifies watersheds within the project vicinity and delineates watersheds according to hydrologic units (HUs), identified by name and by hydrologic unit code (HUC) (USGS 2021). At a statewide scale, HUs consist of large regions and subregions draining to a common outlet. At this scale, the project sites are within the 1,924-square-mile California Central Coastal Subbasin (HUC 18050006), which includes all watersheds on the coastal side of Central California south of the San Francisco Peninsula down to Ventura. At the most detailed level available from the USGS, the project sites include the Zayante Creek-San Lorenzo River and Carbonera Creek-San Lorenzo River subwatersheds (USGS 2021a). Watershed areas are summarized in Table 4.9-1.

Although the State Water Resources Control Board (SWRCB) classifies watersheds in a hierarchical system similar to the USGS Watershed Boundary Dataset, it uses watershed names and boundaries that are designated by the California Department of Water Resources (DWR). These geographic boundaries are likewise watershed based, but are typically referred to as hydrologic basins and are defined in the *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan) (Central Coast Regional Water Quality Control Board [RWQCB]

2019).[1] These generally constitute the geographic basis around which many surface water quality problems and goals/objectives are defined, and consist of surface water HUs, hydrologic areas (HA), and hydrologic subareas (HSA). As shown in Table 4.9-1, the project sites are within the Big Basin HU (No. 304), the Santa Cruz HA (No. 304.1), and the San Lorenzo HSA (No. 304.11) (Central Coast RWQCB 2019).

Table 4.9-1. Watershed Designations by Agency

Agency	Hydrologic Unit Code/Basin Number	Agency Analysis Scale	Name	Size (square miles)
USGS Watershed Boundary Dataset	180600	Basin (6-digit HU)	California Central Coastal	13,258
	18060015	Subbasin (8-digit HU)	Monterey Bay	757
	1806001502	Watershed (10-digit HU)	San Lorenzo River	136
	180600150202	Subwatershed (12-digit HU)	Zayante Creek-San Lorenzo River	54
	180600150203	Subwatershed (12-digit HU)	Carbonera Creek. San Lorenzo River	31
Central Coast RWQCB	304	Hydrologic Unit	Big Basin HU	276
	304.10	Hydrologic Area	Santa Cruz HA	246
	304.12	Hydrologic Subarea	San Lorenzo HSA	138
City of Santa Cruz	N/A	Watershed	San Lorenzo	138

Source: USGS 2021a, Central Coast RWQCB 2019, City of Santa Cruz 2021
Notes: HA = hydrologic area; HSA = hydrologic subarea; HU = hydrologic unit; RWQCB = Regional Water Quality Control Board; USGS = U.S. Geological Survey.

The five watersheds that serve as drinking water sources for areas served by the City of Santa Cruz (City) are as follows: Laguna, Liddell, Majors, Newell, and San Lorenzo. The Newell Creek pipeline intersects the San Lorenzo River and Newell Creek watersheds.

Watersheds in the Project Area

San Lorenzo River Watershed

The San Lorenzo River, located within a 138-square mile watershed in northern Santa Cruz County, is the City's largest source of water supply. Originating in the Santa Cruz Mountains, the watershed consists of a 25-mile long main stem and nine principal tributaries that include primary creeks Branciforte, Carbonera, Zayante, Bean, Fall, Newell, Bear, Boulder, Lompico, and Kings Creeks. Zayante Creek is the largest tributary to the San Lorenzo River (City of Santa Cruz Water Department 2013). The Diversion, Tait Diversion, and Coast Pump Station are located on the San Lorenzo River, south of the Proposed Project.

The watershed includes the cites of Santa Cruz and Scotts Valley and the unincorporated communities of Felton, Ben Lomond, and Boulder Creek. Much of the watershed is forested except for these pockets of urban/developed areas. The watershed is comprised predominantly of open space lands (41%) in the northern

[1] The Basin Plan for each region serves as the regulatory reference for meeting both state and federal requirements for water quality control. It designates beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving those objectives.

portion and residential neighborhoods (26%) and paved roads (13%) as the river flows south through the City. Land uses in the remaining 20% of the watershed include commercial businesses and a portion of the University of California, Santa Cruz (UCSC) campus (City of Santa Cruz 2010).

Surface water flows within tributary creeks in the watershed are characterized as flashy with periodic high flow events that coincide with winter storms and low summer baseflows. This results in high-energy systems that have the potential to move a significant quantity of sediment. Stream base flow levels, sustained by groundwater flow, rise in the winter, and decline steadily through the spring and early summer months. The lowest flows occur in the late summer and fall months before winter rains.

Newell Creek Watershed

The Newell Creek watershed is part of the larger San Lorenzo River Watershed and includes the Loch Lomond Reservoir, which is impounded by Newell Creek Dam. Loch Lomond Reservoir is located near the town of Ben Lomond in the Santa Cruz Mountains. The reservoir was constructed in 1960 and has a maximum capacity of 2,810 million gallons. The City-owned tract, which is predominantly upstream of the Newell Creek Dam, comprises approximately 46% of the total watershed. Newell Creek is the largest drainage within this tract, entering the reservoir at the north end. Three other tributaries, including McFarland Creek and two unnamed tributaries (northern tributary and southern tributary), enter the reservoir from the west. Terrain within the watershed consists of rugged, ridge and valley terrain, including narrow crested, steep-sided ridges and deeply incised, v-shaped valleys (City of Santa Cruz Water Department 2013). The Newell Creek Dam impounds water to support the City's water supply production and it does not act as flood control.

Water Quality

The RWQCB establishes beneficial uses and characterizes the water quality of surface water bodies based on watershed boundaries. A watershed identifies an area of land that contains a common set of streams and rivers that all drain into a single larger body of water, such as a larger creek, river, lake, or an ocean. Stormwater pollutants present in all of the City's five watersheds include metals, solvents, paint, concrete, masonry products, detergents, vehicle fuels and fluids, oil and grease, pesticides and herbicides (organic compounds and nutrients), debris and litter, bacteria, pathogens and oxygen demanding compounds, and sediment and silt. However, the primary pollutants of concern in the watershed are sediment, silt, and fecal indicator bacteria. Turbidity, a measure of the ability of light to pass through water, which is affected by the amount of fine sediment suspended within the water column, is typically high during peak flow events for streams in the Santa Cruz Mountains, even in areas that have not been affected by development and ground disturbance. The City has targeted these primary pollutants of concern in the City's Stormwater Management Plan (SWMP) (see Section 4.9.2.3, Local, for more information) because certain water bodies within the City are listed on the Clean Water Act (CWA) Section 303(d) list of Impaired Water Bodies (City of Santa Cruz 2010).

The Porter-Cologne Water Quality Control Act of 1969 is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans) for all the waters of an area. The water quality control plan is defined as having three components: beneficial uses which are to be protected, water quality objectives which protect those uses, and an implementation plan which accomplishes

those objectives. See Section 4.9.2.2 for additional information about the Porter-Cologne Water Quality Control Act.

The June 2019 Basin Plan for the Central Coastal Basin is the Central Coast RWQCB's current master water quality control planning document (Central Coast RWQCB 2019). The Basin Plan establishes beneficial uses for each of the water bodies in the Central Coast Region. Table 4.9-2 lists the beneficial uses of the primary surface water features located within the project study area.

Table 4.9–2. Basin Plan Beneficial Uses for Water Bodies in Vicinity of Proposed Project

Beneficial Use Designation	Water Bodies			
	San Lorenzo River	*Newell Creek*	*Loch Lomond Reservoir*	*Zayante Creek*
Municipal and Domestic Supply (MUN)	E	E	E	E
Agricultural Supply (AGR)	E	E	E	E
Industrial Process Supply (PROC)	—	—	—	—
Industrial Service Supply (IND)	E	E	E	E
Groundwater Recharge (GWR)	E	E	E	E
Water Contact Recreation (REC-1)	E	E	E	E
Non-contact Water Recreation (REC-2)	E	E	E	E
Wildlife Habitat (WILD)	E	E	E	E
Cold Freshwater Habitat (COLD)	E	E	E	E
Warm Freshwater Habitat (WARM)	—	—	E	—
Migration of Aquatic Organisms (MIGR)	E	E	E	E
Spawning, Reproduction, and/or Early Development (SPWN)	E	E	E	E
Preservation of Biological Habitats of Special Significance (BIOL)	E	—	—	—
Rare, Threatened, or Endangered Species (RARE)	E	—	E	—
Estuarine Habitat (EST)	—	—	—	—
Fresh Water Replenishment (FRSH)	E	E	—	—
Navigation (NAV)	—	—	E	—
Hydropower Generation (POW)	—	E	—	—
Commercial and Sport Fishing (COMM)	E	E	E	E
Aquaculture (AQUA)	—	—	—	—
Inland Saline Water Habitat (SAL)	—	—	—	—
Shellfish Harvesting (SHELL)	—	—	—	—

Note: E = Existing beneficial use.
Source: Central Coast RWQCB 2019.

The Basin Plan includes numerous water quality objectives that apply to all inland surface waters. The primary objectives that would apply to the Proposed Project include those related to turbidity, suspended material, and sediment, as project-related construction could result in erosion and sedimentation of adjacent or downstream water bodies. Sediment- and turbidity-related surface water quality objectives are specified on pages 31 and 40 of the Basin Plan (Central Coast RWQCB 2019). In addition, water quality objectives for oil and grease,

toxicity, chemical constituents, organic chemicals, and inorganic chemicals would apply to the Proposed Project as project-related construction and operation could result in incidental releases of petroleum products and hazardous materials to the environment. Surface water quality objectives associated with these chemicals are specified on pages 31-32 and 38-40 of the Basin Plan (Central Coast RWQCB 2019). While the Porter-Cologne Water Quality Control Act requires the State to adopt water quality policies, plans, and objectives that protect the State's waters, the federal CWA establishes basic guidelines for regulating discharges of both point and non-point sources of pollutants into the waters of the United States.[2] The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

CWA Section 303(d) requires states to identify and prepare a list of water bodies that do not meet water quality objectives, and to establish Total Maximum Daily Loads (TMDLs) for each water body to ensure attainment of water quality objectives. These TMDLs are updated every two years in the SWRCB Integrated Report, also known as the Section 305(b) report, which assigns an Integrated Report Condition Category to all assessed water body segments. Water body segments that exceed protective water quality standards are placed on the 303(d) list of impaired waters. Water quality impairments for the water bodies potentially affected by the Proposed Project are identified in Table 4.9-3. These impaired bodies are listed as Category 5 in the SWRCB Integrated Report, which includes waters where at least one beneficial use is not supported, and a TMDL is required.

Table 4.9-3. Water Quality Impairments

Water Body	2014 and 2016 303(d) List of Water Quality Impairments (Included under SWRCB Integrated Report Category 5)
San Lorenzo River	Chlordane, chloride, chlorpyrifos, enterococcus, *Escherichia coli*, fecal coliform, nitrate, polychlorinated biphenyls (PCBs), sedimentation/siltation, sodium, water temperature,
Zayante Creek	Chlorphyrifos, fecal coliform, sedimentation/siltation
Newell Creek	pH, sedimentation/siltation
Loch Lomond Reservoir	None

Source: Central Coast RWQCB 2019.
Notes: PCBs = polychlorinated biphenyls; SWRCB = State Water Resources Control Board.

4.9.1.2 Groundwater Resources

Santa Margarita Groundwater Basin

The Proposed Project is located within the Santa Margarita Groundwater Basin, which is a primary source of water supply for Scotts Valley and the San Lorenzo Valley. It covers over 30 square miles in the Santa Cruz Mountains foothills, forming a triangular area that extends from Scotts Valley to the east, Boulder Creek to the northwest, and Felton to the southwest. The Santa Margarita Basin is a geologically complex area that was formed by the same tectonic forces that created the Santa Cruz Mountains (Kennedy/Jenks Consultants 2018).

[2] Point-source discharges are those emanating from a pipe or discrete location/process, such as an industrial process or wastewater discharge. Non-point source pollutants are those that originate from numerous diffuse sources and land uses, and which can accumulate in stormwater runoff or in groundwater.

The major water purveyors that directly rely on the supply from Santa Margarita Groundwater Basin are Scotts Valley Water District (SVWD), San Lorenzo Valley Water District (SLVWD), and Mount Hermon Association. Santa Margarita Groundwater Basin is also the sole supply source for 13 small water systems and over 1,100 private well users. In addition, the City derives a major portion of its supply from the San Lorenzo River watershed that overlaps the basin (SVWD 2021).

Since the early 1980s, SVWD has actively managed groundwater resources. In 1994, the agency formally adopted a Groundwater Management Plan in accordance with Assembly Bill 3030, also known as the Groundwater Management Act under California Water Code Section 10750. The main goal of the Groundwater Management Plan is to better manage the aquifers providing the community's drinking water through the management of quantity and quality of the groundwater supply.

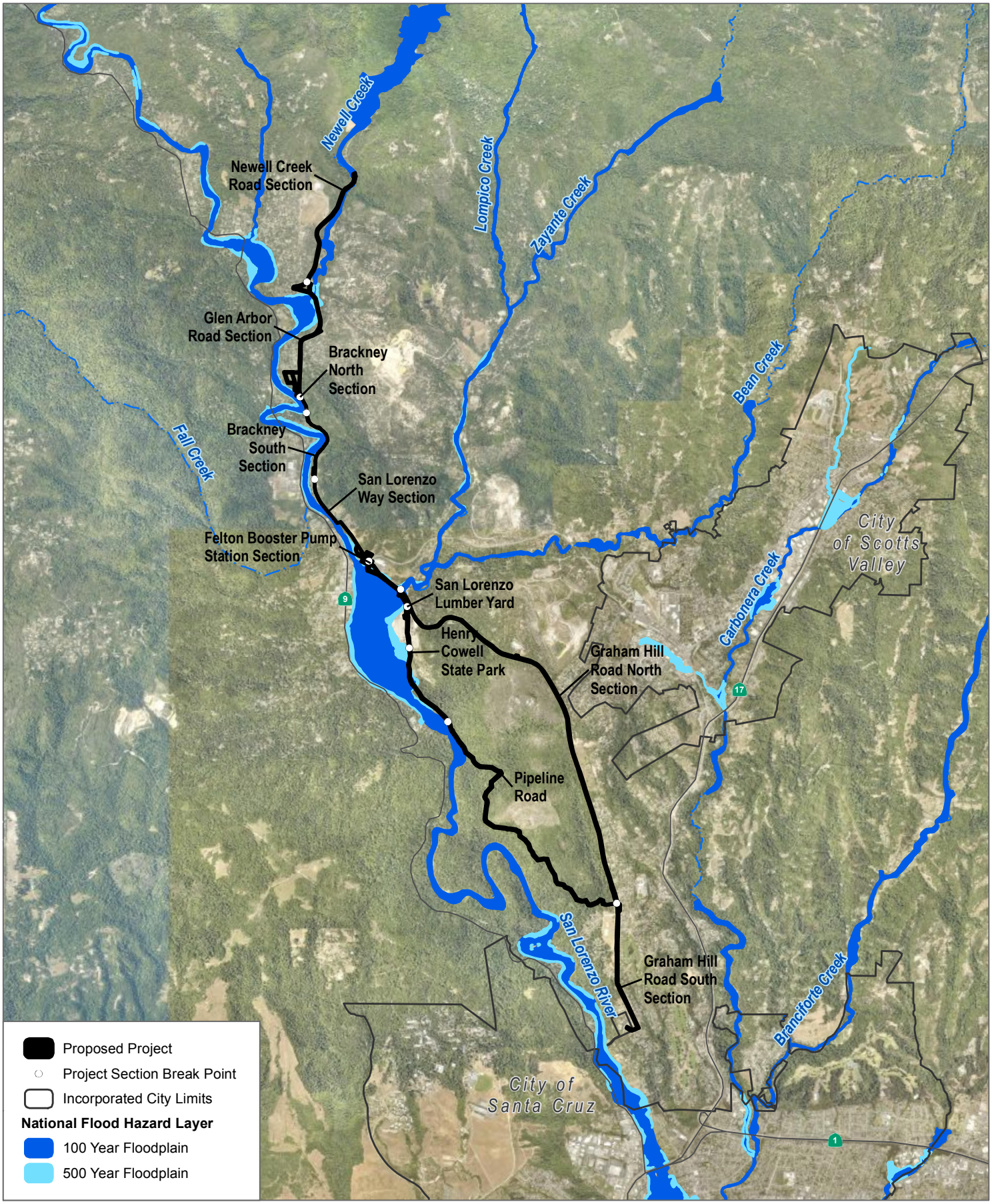
The Santa Margarita Groundwater Agency (SMGWA) is a groundwater sustainability agency that was formed as a Joint Powers Authority to comply with the Sustainable Groundwater Management Act. The SMGWA has three member agencies—SVWD, SLVWD, and the County of Santa Cruz—and is governed by a Board of Directors comprising two representatives from each member agency, one representative from the City of Scotts Valley, one from the City of Santa Cruz, one from Mount Hermon Association, and two private well owner representatives (SMGWA 2021).

The SMGWA is overseeing the preparation of the Santa Margarita Groundwater Sustainability Plan (GSP), which must be completed and submitted to the DWR by 2022 given that the groundwater basin is in the medium to high priority category, but is not subject to critical conditions of overdraft. The SMGWA has drafted three key basin management goals: (1) ensure water supply reliability for current and future beneficial uses, (2) maintain water quality to meet current and future beneficial uses, and (3) prevent adverse environmental impacts. These goals will be re-evaluated as the SMGWA develops its GSP. The public review draft of the GSP for the Santa Margarita Groundwater Basin was released in 2021 with a final version targeted for completion prior to the deadline of January 2022 (SMGWA 2021).

Precipitation is the primary source of groundwater recharge in the basin in the form of direct percolation of precipitation through the soil to groundwater, as well as infiltration from streams. The major groundwater outflows include discharge to streams and springs and groundwater pumping (Kennedy/Jenks Consultants 2018). The decline of groundwater levels in many parts of the basin occurred during 1985 to 2004, representing a loss in groundwater storage in Santa Margarita Groundwater Basin by an estimated 28,000 acre-feet. This loss in groundwater storage resulted in diminished local water supply and reduced sustaining baseflows to local streams that support fishery habitats. As a result of conservation and other management efforts at local water agencies, the total pumping from Santa Margarita Groundwater Basin has decreased by 45% since 1997 (SMGWA 2021).

4.9.1.3 Hydrologic Hazards

Flood mapping by the Federal Emergency Management Agency (FEMA) indicates that the majority of the Proposed Project alignment is not within a Special Flood Hazard Area (100-year flood zone) (FEMA 2021). According to mapping compiled by FEMA, out of the total Proposed Project alignment area, a total of approximately 7.7 acres intersect the 100-year flood zone (i.e., 1% annual chance of flooding) that include areas where no base flood elevation data is known (Zone A) and where it has been estimated (Zone AE). These areas include a portion of Newell Creek and Zayante Creek as shown on Figure 4.9-1.



SOURCE: ESRI Imagry 2021,FEMA 2021, Santa Cruz County 2021

DUDEK

0 0.5 1 Miles

FIGURE 4.9-1

FEMA National Flood Hazards

Newell Creek Pipeline Improvement Project

INTENTIONALLY LEFT BLANK

There are four reservoir dams located in Santa Cruz County, all within the San Lorenzo Watershed, that are regulated by the State Division of Safety of Dams.[3] These dams include Oak Site Dam, Sempervirens Dam, Soda Lake Dam, and Newell Creek Dam. The latter is within the jurisdiction of the City of Santa Cruz and the remaining are the responsibility of state agencies or private entities. The reservoirs range in size from 20 acre-feet to over 10,000 acre-feet, with the oldest dam being constructed in the late 1890s and the newest in 1985. Three additional state-regulated dams located in neighboring counties also have the potential to affect Santa Cruz County residents and properties should those dams be compromised or catastrophically fail, however the Proposed Project area could only be affected by a release from the Loch Lomond Reservoir (i.e., failure of the Newell Creek Dam).

According to the records maintained by the City of Santa Cruz, there have been no recorded failures at Newell Creek Dam, the only dam owned by the City, and the risk of dam failure is considered low (City of Santa Cruz 2017). Events involving uncontrolled releases of water due to natural and human causes are relatively rare, but have occurred historically, although none of these events involved dam failure and the City has received confirmation as recently as 2016 by the Division of Safety of Dams that the dam is considered safe (City of Santa Cruz 2017).

Seiche waves are seismically induced waves that are produced in an enclosed or semi-enclosed body of water, such as reservoir, which can result in sloshing, wave overtopping, and damage to immediately adjacent structures. The project site is not located adjacent to any enclosed or semi-enclosed body of water as the northern most end of the alignment is approximately 2,000 feet downstream of the Newell Creek reservoir and outside of any potential seiche wave hazard area.

Similarly, the project alignment is located well inland and outside of any tsunami hazard inundation zone located along the coast.

4.9.2 Regulatory Framework

4.9.2.1 Federal

Clean Water Act

The CWA, as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality (33 United States Code Section 1251 et seq.). The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA establishes basic guidelines for regulating discharges of both point and non-point sources of pollutants into the waters of the United States.[4] The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA. Commonly relevant sections of the act are as follows:

- **Sections 303 and 304** provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish TMDLs for each

[3] There had been five dams, but the Mill Creek Dam was removed in September 2021.

[4] Point-source discharges are those emanating from a pipe or discrete location/process, such as an industrial process or wastewater discharge. Non-point source pollutants are those that originate from numerous diffuse sources and land uses, and which can accumulate in stormwater runoff or in groundwater.

pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. Once a water body is placed on the Section 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted and the water quality standards are attained, or there is sufficient data to demonstrate that water quality standards have been met and delisting from the Section 303(d) list should take place. TMDLs applicable to the Proposed Project are listed in Table 4.9-3.

- **Section 401 (Water Quality Certification)** indicates that a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a Section 401 water quality certification is issued, verifying compliance with water quality requirements, or waiving such a certification. States where the discharge would originate are generally responsible for issuing water quality certifications. CWA Section 404 permits (see description below) are subject to Section 401 certification.
- **Section 402 (National Pollutant Discharge Elimination System)** establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB and the nine RWQCBs, who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges. The NPDES General Construction Permit is discussed in Section 4.9.2.2, State. In general, in California, a NDPES permit also provides waste discharge requirements, although waste discharge requirements can be issued for discharges that are not within the coverage of the Section 402 NPDES program.

  The Municipal Stormwater Permitting Program under CWA Section 402 regulates stormwater discharges from municipal separate storm sewer systems (MS4s). MS4 permits are issued in two phases: Phase I, for medium and large municipalities, and Phase II for small municipalities. The Phase II Small MS4 General Permit requires the discharger to develop and implement best management practices (BMPs) through a coordinated storm water program with the goal of reducing the discharge of pollutants to the maximum extent practicable, which is the performance standard specified in Section 402(p) of the CWA. See Section 4.9.2.3, Local for the City's Stormwater Management Program.
- **Section 404** (**Discharge of Dredged or Fill Material into Waters of the United States)** establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the USACE and U.S. Environmental Protection Agency (EPA). Section 4.3, Biological Resources, addresses this requirement in greater detail. A Section 401 water quality certification generally is necessary for a Section 404 permit.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level, this includes the EPA, USACE, and the major federal land management agencies such as the U.S. Forest Service and Bureau of Land Management. At the state level, with the exception of tribal lands, the California Environmental Protection Agency (CalEPA) and its sub-agencies, including the SWRCB and the nine RWQCBs, have been delegated primary responsibility for administering and enforcing certain provisions of the CWA. At the local level, the Central Coast RWQCB and the County both have enforcement and implementation responsibilities under the CWA.

Federal Antidegradation Policy

The federal Antidegradation Policy (40 Code of Federal Regulations 131.12), first included in EPA's regulations in 1983, is designed to protect water quality and water resources. The policy requires states to develop statewide antidegradation policies and identify methods for implementing those policies. State antidegradation policies and implementation measures must include the following provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. State permitting actions must be consistent with the federal Antidegradation Policy.

4.9.2.2 State

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (first codified in the California Water Code Section 13000 et seq. in 1969) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters.[5] The act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. For discharges directly to surface water (waters of the United States) from a point source, an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (e.g., groundwater and isolated wetlands), waste discharge requirements are issued exclusively under state law. Waste discharge requirements typically require many of the same BMPs and pollution control technologies as NPDES permits.

California Antidegradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the state, not just surface waters. The policy requires that, with limited exceptions, whenever the existing quality of a water body is better than the quality established in individual basin plans, such high-quality water must be maintained and discharges to that water body must not unreasonably affect any present or anticipated beneficial use of the water resource. As stated in the Central Coast RWQCB Basin Plan, "discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State."

[5] "Waters of the state" are defined in the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]).

Water Quality Control Plan for the Central Coastal Basin

The Porter–Cologne Water Quality Control Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans), in which beneficial uses and water quality objectives are established, and which include implementation programs and policies to achieve those objectives (California Water Code Sections 13240 through 13247). Beneficial uses applicable to the Proposed Project are listed in Table 4.9-2. Of particular importance to the Proposed Project is the Basin Plan's water quality objective for turbidity, which states that an "increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 nephelometric turbidity units (NTU), increases shall not exceed 20%.
2. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.
3. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10%" (Central Coast RWQCB 2019).

Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as Amended)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted and administers the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires development and implementation of a stormwater pollution prevention plan (SWPPP), which would specify water quality BMPs designed to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

To receive coverage under the Construction General Permit, the project proponent must submit a Notice of Intent and permit registration documents to the SWRCB and applicable RWQCB. Permit registration documents include completing a construction site risk assessment to determine appropriate coverage level; detailed site maps showing disturbance area, drainage area, and BMP types/locations; the SWPPP; and, where applicable, post-construction water balance calculations and active treatment systems design documentation.

Sustainable Groundwater Management Act

In 2014, California enacted the "Sustainable Groundwater Management Act" (California Water Code Sections 10720-10737.8 et seq.) to bring the state's groundwater basins into a more sustainable regime of pumping and recharge. The legislation provides for the sustainable management of groundwater through the formation of local groundwater sustainability agencies and the development and implementation of GSPs. GSPs were required to be submitted to the DWR by January 31, 2020 for all basins designated as high- or medium-priority basins and as basins that are subject to critical conditions of overdraft. GSPs are required to be submitted to the DWR by January 31, 2022 for all other high- or medium-priority basins. GSPs are also encouraged for basins designated as low- and very low priority basins by the SWRCB. As indicated in Section 4.9.1.2, the

SMGWA is overseeing the preparation of the Santa Margarita GSP, which must be completed and submitted to the DWR by 2022, given that the groundwater basin is in the medium to high priority category, but is not subject to critical conditions of overdraft.

California Government Code

California Government Code Section 53091 (d) and (e) provides that facilities for the production, generation, storage, treatment, and transmissions of water supplies are exempt from local (i.e., county and city) building and zoning ordinances. The Proposed Project evaluated in this EIR relate to transmission of water supplies; therefore, these facilities are legally exempt from County of Santa Cruz and City of Santa Cruz building and zoning ordinances.

4.9.2.3 Local

As indicated above, the Proposed Project relates to transmission of water resources and therefore, these facilities are legally exempt from local building and zoning ordinances under California law. The following summaries of local regulations are provided for background information and to provide context to the analysis of regulations applicable to cumulative projects in the project area.

City of Santa Cruz Municipal Codes Regarding Stormwater

In 1998, the City adopted an ordinance, entitled "Stormwater and Urban Runoff Pollution Control," which is Chapter 16.19 of the City's Municipal Code. The ordinance established the legal authority to prohibit illicit connections and pollutant discharges to the City storm drain system. The ordinance also provides the City with the legal authority to conduct inspections and sampling. In addition, the ordinance contains a provision requiring the implementation of BMPs, as published by the Public Works Department, by certain types of facilities. The City also has the authority to terminate illicit connections and discharges, and to initiate enforcement actions for violations of the code. Potential enforcement actions include written notices, citations, termination of discharge, and monetary penalties. The ordinance prohibits non-stormwater discharges to the storm drain system with a few exceptions. The City revised the Stormwater Ordinance in July 2003 to update the ordinance and incorporate new Phase II stormwater regulations. Municipal Code Section 16.19.140 requires that any construction project, including those undertaken under any permit or approval granted pursuant to Titles 15 (Streets and Sidewalks), 18 (Buildings and Construction), and 24 (Zoning) of the City Code, shall implement BMPs, including the City's mandatory BMPs as detailed in the latest BMP manual published by the City's Public Works Department. BMPs are required to be maintained in full force and effect throughout the life of a project.

Title 24 of the Municipal Code includes provisions to ensure that new developments or remodeled sites are designed and constructed in a manner that limits alteration of drainage patterns, prevents erosion, and minimizes long-term impacts on water quality. Chapter 24.14, Environmental Resource Management, contains a section on Conservation Regulations that includes general provisions for drainage and erosion controls. Provisions pertaining to erosion control include requirements that site improvements be fitted to the topography and soil to create the least potential for erosion. Vegetation removal is limited to the amount necessary and according to the project approved erosion control plan.

County of Santa Cruz General Plan and Local Coastal Program

The County of Santa Cruz General Plan and LCP is a comprehensive, long-term planning document for the unincorporated areas of the County and includes the County's LCP, which was certified by the California Coastal Commission in 1994. The County General Plan and LCP provides policies and programs to establish guidelines for future growth and all types of physical developments. The County's certified LCP that applies to activities within the coastal zone is administered by the County Planning Department, pursuant to the California Coastal Act, and includes: (1) the LCP land use plan consisting of the policies and adopted land use, resource, constraint and shoreline access maps and charts contained in the General Plan/LCP document; and (2) the implementing ordinances.

The Proposed Project is not located within the coastal zone in unincorporated Santa Cruz County.

County of Santa Cruz Runoff and Pollution Control Ordinance

Chapter 7.79 of the Santa Cruz County Code addresses runoff and pollution control to protect the health, safety, and welfare of the public by protecting the surface and groundwater quality, groundwater recharge, beneficial uses, marine habitats, watershed health, and ecosystems of the receiving waters of the County, including the Monterey Bay, from discharge of pollutants and the adverse effects of hydromodification, and to comply with Federal and State laws concerning stormwater. This chapter requires compliance with industrial and construction NPDES discharge permits, where relevant. Additionally, prior to issuing a County permit under Title 16, Environmental and Resource Protection, a stormwater pollution control plan must be prepared addressing the use of BMPs during construction, including appropriate BMPs from the County Construction Site Stormwater Pollution Control BMP Manual.

4.9.3 Impacts and Mitigation Measures

This section contains the evaluation of potential environmental impacts associated with the Proposed Project related to hydrology and water quality. The section identifies the thresholds of significance used in evaluating the impacts, describes the methods used in conducting the analysis, and evaluates the Proposed Project's impacts and contribution to significant cumulative impacts, if any are identified. Mitigation measures are presented for identified significant or potentially significant impacts, and the level of significance with mitigation also is identified.

4.9.3.1 Thresholds of Significance

The thresholds of significance used to evaluate the impacts of the Proposed Project related to hydrology and water quality are based on Appendix G of the CEQA Guidelines and the City of Santa Cruz CEQA Guidelines. A significant impact would occur if the Proposed Project would:

A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

C. Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river or through the addition of impervious surface, in a manner which would: (i)

result in substantial erosion or siltation on or off site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows.

D. In flood hazards, tsunami, or seiche zones, risk release of pollutants due to project inundation.

E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.9.3.2 Analytical Methods

The following analysis considers whether the Proposed Project would directly or indirectly cause hydrologic and water quality impacts, taking into account the City's Standard Construction Practices.

Application of Relevant Standard Construction Practices

The City has adopted standard construction practices (see Section 3.6.6, Standard Construction Practices) that would be implemented by the City or its contractors during construction to avoid or minimize impacts. The Proposed Project includes standard construction practices that would avoid or minimize adverse water quality impacts during construction and operations. These construction practices address indirect impacts on water quality resulting from uncontrolled erosion and fugitive dust, uncontrolled runoff and sedimentation in waterways, and unintended spills of hazardous materials or deposition of trash and include the following: installation of erosion control BMPs (#1); providing stockpile containment and exposed soil stabilizing structures (#2); providing runoff control devices (#3); providing wind erosion controls (#4); locating and stabilizing spoil disposal sites (#5); storing equipment at least 65 feet from active channels to minimize potential hazardous spills (#6 and #7); preventing equipment leaks through regular maintenance (#8); and implementing proper waste/trash management (#9). If the Proposed Project would have potentially significant impacts even with the implementation of the above standard construction practices, the impact analysis identifies mitigation measures.

Impacts have been evaluated with respect to the thresholds of significance, as described above. In the event adverse environmental impacts would occur even with consideration of applicable policies and regulations and Proposed Project Standard Construction Practices described in Chapter 3, Project Description, if applicable, impacts would be potentially significant, and mitigation measures are provided to reduce impacts to less-than-significant levels.

4.9.3.3 Project Impact Analysis

Areas of No Impact

The Proposed Project would not have impacts with respect to the following thresholds of significance as described below:

- **Groundwater Impacts and Conflicts with Plans (Significance Thresholds B and E).** The Proposed Project does not require any use of groundwater supplies during the operational phase of the project. Any dewatering necessary in areas where trenchless construction methods may intercept water, if at all, would only be localized and temporary and would be disposed of in accordance with applicable

regulations. Furthermore, there would be no interference with groundwater recharge because the project would not create any substantive new impervious surfaces with the majority of improvements occurring below ground.

The Santa Margarita GSP has not been finalized at the time of this document writing; nonetheless, the Proposed Project would have no impact on groundwater supplies, either through decreases in groundwater availability, through interference with groundwater recharge, or by otherwise conflicting with or obstructing implementation of a sustainable groundwater management plan. The Proposed Project entails the replacement of existing water supply infrastructure and would not inhibit future management of groundwater resources in the Santa Margarita Groundwater Basin. In addition, the Proposed Project would implement Standard Construction Practices that are consistent with local, state and federal regulatory requirements and standard BMPs, which would be consistent with the Central Coast RWQCB Basin Plan.

Therefore, no impact would occur related to groundwater or potential to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

- **Pollutant Release due to Flood Hazard, Tsunami, or Seiche Zones (Significance Threshold D)**. As discussed above, the majority of the alignment is located outside of the 1% flood hazard zone, and there are no tsunami or seiche hazards in the vicinity of the alignment. The Proposed Project does not include the storage, handling, or disposal of any substantive quantities of hazardous materials as part of operations. Because the Proposed Project would not affect the depth, extent, or frequency of flooding on site or downstream, and would not involve storage of hazardous materials or pollutants, there would be no impact with respect to this criterion.

Project Impacts

Impact HYD-1: Surface Water Quality Standards and Waste Discharge Requirements (Significance Threshold A). Construction and operation of the Proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality, except for potential inadvertent release of drilling fluids in the Brackney North pipe section. In addition, the Proposed Project would not conflict with or obstruct implementation of a water quality control plan related to surface water. ***(Less than Significant with Mitigation)***

Impacts to water quality through exceedance of water quality standards, non-conformance with waste discharge requirements, or by other means can potentially result from the short-term effects of construction activity (e.g., erosion and sedimentation due to land disturbances, uncontained material and equipment storage areas, improper handling of hazardous materials) and the long-term effects of operation of the pipeline improvements (e.g., alteration of drainage patterns, use/handling of hazardous materials, and/or increases in impervious surfaces).

Construction

Erosion and Construction-Related Pollutants. The Proposed Project would involve earthwork activities including excavation for pipe trenches and trenchless pits to install the proposed pipeline. The majority of the Proposed Project would be installed using conventional (open cut) trenching methods where subsurface materials are

excavated, temporarily stockpiled in identified staging areas, and hauled off site or backfilled. The Proposed Project would include appropriate site restoration measures following completion of improvements, including stabilization of disturbed soils using erosion controls such as hydroseeding, hand-seeding, and/or restoration plantings, and maintaining pre-construction grading contours.

The primary potential pollutant of concern associated with construction activity is sediment (i.e., high turbidity) generated from site preparation, grading and excavation, and soil stockpile activities that expose soils to potential erosion from the effects of wind or rain. If not properly controlled, potential increases in sedimentation/siltation from construction activities on the site could adversely affect water quality of receiving surface waters. In addition to sediment, other pollutants associated with construction activity could include heavy metals, oil/grease, fuels, debris/trash from construction-related materials, and concrete curing compounds. Sediment can also be a carrier for these pollutants if they are released to soils.

The most intensive soil disturbance would occur during the initial phases of construction where open cut trenching methods would include the use of excavators and loaders to depths of at least 5 feet. The open trench construction method would occur along all proposed pipe sections, except for Brackney North, Brackney South, and a portion of Graham Hill North where trenchless and other construction methods are proposed. The excavated soils would be temporarily stockpiled and potentially evaluated for reuse as backfill. However, it is anticipated that excavated soils would be hauled off site. If temporarily stored, materials would be stored at designated staging areas that are not located in proximity to water bodies. Furthermore, stockpiled soils would be covered and contained in accordance with the Proposed Project Standard Construction Practice #2.

Construction would also occur adjacent to Newell Creek in two locations (Newell Creek Road and Glen Arbor Road pipe sections), although no work is planned within the creek or creek channels. Construction would occur adjacent to Zayante Creek for installation of the proposed pipe over Zayante Creek. Although, there would be no construction within the creek or creek channel, improvement of existing access and installation of a new abutment adjacent to an existing abutment on which the pipe would be placed, would occur immediately adjacent to Zayante Creek. Without adequate erosion controls and other BMPs, inadvertent transport of sediments or equipment fuels into the creek would result in water quality degradation. Trenchless construction methods proposed for the Brackney North and South pipe sections would reduce surface disturbance and prevent construction debris from entering the San Lorenzo River that is downslope of a portion of the alignment, although inadvertent release of drilling fluids could reach the river as reviewed further below.

As part of the City's Standard Construction Practices, which are included in the Proposed Project, the contractor would be required to implement water quality BMPs to avoid or substantially reduce the potential for pollutant contributions to Newell Creek, Zayante Creek and other drainages when construction occurs near these water bodies. The measures address potential sediment transport, erosion and inadvertent release of petroleum products used for equipment. These include the following, which are described in Section 3.6.3 and summarized below:

- Installation of erosion control BMPs consisting of construction site perimeter controls, stabilization of exposed soils and stockpiles, isolating spoil disposal sites and concrete wash sites from waterways or jurisdictional resources, installation of runoff control devices, and periodic inspection of BMPs including after rain events to verify they are functioning as intended and repaired/replaced if necessary (Standard Construction Practices #1 through #3 and #5);
- Implementation of wind erosion (dust) controls (Standard Construction Practice #4);

- Control of hazardous materials in a manner than prevents release to soil or surface water by establishing containment areas a minimum of 65 feet away from the active stream channel, with daily checks for vehicle fuel leaks, provision of spill kits, regular equipment inspections, and use of watertight containers and secondary containment (Standard Construction Practices #6 though #8);
- Keeping a tidy worksite and properly managing waste and trash (Standard Construction Practice #9).

Implementation of these measures would minimize the potential for indirect effects on water quality during construction caused by uncontrolled erosion and fugitive dust by installation of erosion BMPs (e.g., silt fences, fiber roles, covering stockpiles) and wind erosion controls (e.g., watering active construction areas, use of soil binders on exposed areas, covering haul trucks). Uncontrolled runoff and sedimentation in waterways would be minimized by providing runoff control devices along with the installation of erosion BMPs. Construction in or near streams would avoid the active channels. Unintended spills of hazardous materials or deposition of trash would be minimized by storing equipment at a distance from active channels, preventing equipment leaks, and implementing proper waste and trash management.

In addition, the construction contractors would be required to adhere to the NPDES Construction General Permit which mandates preparation and implementation of a SWPPP because the Proposed Project would disturb more than one acre of land. The SWPPP would include detailed BMPs to provide erosion control and hazardous materials measures for all construction activities. Coverage under the Construction General Permit requires a qualified individual (as defined by the SWRCB) to prepare the SWPPP that will address the potential for construction-related activities to contribute to pollutants to any receiving waterways. The SWPPP must describe the type, location, and function of stormwater BMPs to be implemented during construction and must demonstrate that the combination of BMPs selected is adequate to meet the discharge prohibitions, effluent standards, and receiving water limitations contained in the Construction General Permit.

Many of the construction water quality BMPs which are standard for most construction sites subject to the Construction General Permit, overlap with the City's Standard Construction Practices discussed above, but could include:

- Silt fences and/or fiber rolls installed along limits of work and/or the construction work area;
- Stockpile containment and exposed soil stabilization structures (e.g., Visqueen plastic sheeting, fiber rolls, gravel bags, and/or hydroseed);
- Runoff control devices (e.g., fiber rolls, gravel bag barriers/chevrons, etc.) used during construction phases conducted during the rainy season;
- Wind erosion (dust) controls, including use of a water truck;
- Prevention of fluid leaks (equipment inspections and use of drip pans) for construction vehicles;
- Dedicated refueling areas and dedicated storage of hazardous materials;
- Materials pollution management;
- Spill Response Control materials;
- Proper waste/trash management; and
- Regular inspections and maintenance of BMPs.

To obtain coverage under the Construction General Permit, the Proposed Project applicant (i.e., the City or its contractors) would submit to the RWQCB a Notice of Intent and associated permit registration documents, including a SWPPP and site plan, and would obtain a Waste Discharge Identification Number. As part of the process, these BMPs would be refined and/or added to as necessary in the SWPPP to meet the performance standards in the Construction General Permit. In addition, the City developed a Storm Water Management Program (SWMP) to fulfill the requirements of the NPDES General Permit from Small Municipal Separate Storm Sewer Systems (MS4), which include requirements to reduce the amount of pollutants discharged during construction efforts. Relevant to this project, the SWMP covers BMPs for Construction Site Storm Water Runoff Control (E.10) and Post Construction Storm Water Management (E.12). The City's Contractor would be required to use these BMPs for storm water discharge from construction work areas within construction areas within the City, which would be the GHWTP.

With implementation of the City's Standard Construction Practices, the Construction General Permit, and applicable MS4 requirements pertaining to construction erosion control and hazardous materials management, the Proposed Project would have a less-than-significant impact related to water quality standards and waste discharge requirements and would not substantially degrade surface or groundwater quality due to erosion or release of construction-related pollutants.

Potential Release of Drilling Fluids. Construction methods in Brackney North would include horizontal directional drilling (HDD), a trenchless method of installing pipe that involves the use of drilling fluid throughout the operation to transport the cuttings or drilled spoils and stabilize the hole for pipe placement. Construction methods for the Brackney South pipe section could include microtunneling or trenching into bedrock materials. If not conducted appropriately or as a result of unforeseen subsurface conditions, HDD can result in inadvertent drilling fluid release to the ground surface, which occurs when the fluid pressure is greater than the pressure of the surrounding ground. A fluid release could adversely affect receiving waters depending on the characteristics of the release. The closer the HDD borehole lies to a substantial slope, the higher the risk of inadvertent returns on the slope face. For the proposed HDD use for the Brackney North section, the inadvertent fluid return risk is high, as the alignment is relatively close to the slope adjacent to the San Lorenzo River channel, considering the required drilling mud pressures and unknown underground flow paths that might be present. These flow paths could include permeable soils near the HDD exit location, highly fractured rock (e.g., the Ben Lomond Fault Zone), or open rock discontinuities (e.g., rock joints or bedding planes). Inadvertent fluid returns along the San Lorenzo River channel could also indirectly affect water quality through erosion of soils and loose rock along steep slopes, causing a potentially significant impact. However, as discussed in Section 4.6, Geology and Soils, HDD activities would require implementation of Mitigation Measure GEO-2, which requires implementation of an inadvertent fluid return contingency plan that includes both preventative measures and also response measures that can minimize the effects in the unlikely event of a fluid return occurring.

Decommissioning Existing NCP. Abandonment of the existing pipeline would be achieved through injection of either a lightweight cellular grout or controlled low strength material following dewatering of the pipeline. If not managed appropriately, there is a risk of leakage associated with abandonment at segments that are steeply sloped due to high pressure from the injected materials at the lowest end of the pipe segment. However, the potential for leakage would be minimized through controls on the vertical distance between access points (no more than 60 feet), limiting horizontal distances between access points to 1,000 feet for pipe sizes of 20 inches or less, and 800 feet for pipe sizes greater than 20 inches.

The existing pipeline is exposed at a crossing of a tributary to the San Lorenzo River crossing location within the existing Pipeline Road pipe section in Henry Cowell Redwoods State Park. Removal of the segment presents risk of depositing sediment and debris into the stream. However, to minimize any potential for depositing sediment or debris into the river, the pipe segment would be cut at each end where it daylights to install concrete and rebar reinforcement to stabilize the section (Carollo 2021).

Therefore, with implementation of these construction approaches as part of the Proposed Project, the potential impacts to water quality would be less than significant, except for potential release of drilling fluids, which would be a significant impact as discussed above.

Operation and Maintenance

The water quality effects of operation and maintenance of the Proposed Project would not differ substantially from existing conditions because operational aspects of the improved pipeline would not change from what is already occurring under existing conditions. Operations would include continued implementation of pump start-up and valve operations at the FBPS as well as intermittent, periodic inspections and maintenance of air valves with access provided to the pipeline sections by existing roads and easements. The Brackney North pipeline section likely would have isolation and air valves on either end of the new pipeline and would not need to be accessed in the future unless removed for replacement. Other periodic maintenance activities include inspection and maintenance of existing culverts and other drainage features, however no new paved areas would be created that could become a source of polluted runoff. Therefore, during operation, the Proposed Project would have a less-than-significant impact with respect to water quality standards or waste discharge requirements and would not substantially degrade surface or groundwater quality.

Mitigation Measures

As described above, the Proposed Project would not result in significant impacts related to water quality, except for potential release of inadvertent release of drilling fluids during HDD trenchless construction methods proposed for the Brackney North pipe section. Implementation of Mitigation Measure GEO-2 (HDD Inadvertent Fluid Return Plan) that is included in Section 4.6, Geology and Soils, would reduce the potentially significant impact to a less-than-significant level.

Impact HYD-2: Alteration of Drainage Patterns (Significance Threshold C). The Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on or off site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows. ***(Less than Significant)***

As discussed under Impact HYD-1, the Proposed Project would consist primarily of installation of a new subsurface pipeline and would not substantially affect drainage patterns or hydraulics of existing surface waters within the Proposed Project area. Some improvements including creek crossings would involve above ground improvements; however, they do not involve creating any substantive new impervious surfaces. The

highest potential for erosion or transport of silt would occur during construction, which as discussed above in Impact HYD-1, would be addressed by implementation of the City's Standard Construction Practices and the Construction General Permit requirements pertaining to construction erosion control. Once construction is complete, disturbed areas would be restored and drainage patterns throughout the project area would largely remain the same as existing conditions. Implementation of the Proposed Project would not substantively increase the rate or amount of surface runoff nor exceed the capacity of existing or planned stormwater drainage systems. The potential for creating additional sources of polluted runoff is discussed in Impact HYD-1. Therefore, the Proposed Project would result in a less-than-significant impact with respect to alteration of drainage patterns.

Mitigation Measures

As described above, the Proposed Project would not result in significant impacts related to alteration of drainage patterns, and therefore, no mitigation measures are required.

4.9.3.4 Cumulative Impacts Analysis

This section provides an evaluation of cumulative hydrology and water quality impacts associated with the Proposed Project and other reasonably foreseeable future projects, as identified in Table 4.0-1 in Section 4.0, Introduction to Analysis, and as relevant to this topic. The geographic area of analysis for cumulative hydrology and water quality impacts includes other cumulative projects that could result in direct or indirect impacts to project site watersheds and underlying groundwater basins, Zayante Creek, Newell Creek or San Lorenzo River. The cumulative projects within the same geographic area as the Proposed Project are several City water CIP projects: two improvement projects at the GHWTP (Concrete Tanks Project and Facility Improvement Project) and improvements at Tait Diversion. Other cumulative projects include the Newell Creek Dam Inlet/Outlet Improvement Project and San Lorenzo Way Bridge Replacement, both of which would be completed prior to completion of the Proposed Project.

The Proposed Project would not contribute to cumulative impacts related to groundwater (Significance Threshold B), release of pollutants due to inundation by flood, tsunami, or seiche (Significance Threshold D), or conflicts with plans (Significant Threshold E) because it would have no impact related to these thresholds, as described above. Therefore, these significance thresholds are not further evaluated.

Impact HYD-3: Cumulative Water Quality Impacts (Significance Thresholds A and C). The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to water quality or alteration of drainage patterns. ***(Less than Significant)***

Potential soil erosion and water quality degradation from cumulative project sites could combine to cause potentially significant cumulative water quality impacts due to sedimentation of downstream water bodies. Cumulative development and redevelopment within the watersheds identified for the cumulative projects would potentially result in short-term erosion related impacts during construction and long-term erosion related to denuded soil, improper drainage, and lack of erosion control features at each cumulative project site. Similarly, incidental spills of petroleum products and hazardous materials during construction at each cumulative project site could occur during construction, resulting in cumulative water quality impacts.

However, short-term and long-term erosion BMPs and spill control BMPs would be employed at each site consistent with NPDES stormwater quality regulations, including the Construction General Permit and local MS4 permits. As described above, the impacts of the Proposed Project would be limited to potential water quality impacts during construction, which would mostly be less than significant through application of the City's Standard Construction Practices. In addition, the Proposed Project would have less than significant impacts related to alteration of drainages due to the predominantly below-grade nature of the pipe and limited addition or replacement of impervious surfaces. The impacts of the Proposed Project on hydrology and water quality would be temporary during construction and localized to the site, and upon completion of construction, there would be no operational impacts related to alteration of drainage or water quality. While the Proposed Project could potentially result in a significant water quality impact related to inadvertent release of drilling fluids, there are no other projects that would contribute to this impact, and thus, there would be no cumulative impact. Therefore, the Proposed Project, in combination with the past, present, and reasonably foreseeable future projects would result in less-than-significant cumulative impacts to hydrology and water resources.

4.9.4 References

Carollo. 2021. City of Santa Cruz Newell Creek Pipeline Felton/Graham Hill Replacement Project Technical Memorandum 1 Basis of Design. August 2021.

Central Coast RWQCB (Regional Water Quality Control Board). 2019. *Water Quality Control Plan for the Central Coastal Basin.* June 14, 2019 Edition.

City of Santa Cruz, 2010. *Storm Water Management Plan*, Final June 15, 2009 revised March 2010.

City of Santa Cruz Water Department, 2013. Watershed Lands Management Plan, Final Implementation Report, Newell, Zayante & Laguna Creek Tracts, April 2013.

City of Santa Cruz. 2017. Draft *Local Hazard Mitigation Plan 2017-2022*. 2017.

City of Santa Cruz, 2021. San Lorenzo Watershed. Accessed on June 22, 2021 at https://www.cityofsantacruz.com/government/city-departments/water/watershed/san-lorenzo-watershed,

FEMA (Federal Emergency Management Agency). 2021. National Flood Hazard Layer, geospatial database. Accessed June 298, 2021 at https://www.fema.gov/flood-maps/national-flood-hazard-layer.

Kennedy/Jenks Consultants. 2018. *San Lorenzo River and North Coast Watersheds Sanitary Survey Update.* Prepared for the Santa Cruz Water Department in association with the San Lorenzo Valley Water District. February 2018.

Mott MacDonald. 2021. Basis of Design Brackney Landslide Area Pipeline Risk Reduction Project. August 27, 2021.

Santa Margarita Groundwater Agency (SMGWA), 2021. Public Review Draft Santa Margarita Basin Groundwater Sustainability Plan, July 23, 2021.

Scotts Valley Water District (SVWD), 2021. *Santa Margarita Groundwater Basin.* Accessed on September 15, 2021 at https://www.svwd.org/about-your-water/santa-margarita-groundwater-basin.

United States Geological Survey (USGS), 2021a. Science in Your Watershed. Accessed on June 22, 2021 at Science in Your Watershed (usgs.gov).

USGS, 2021b. National Map Viewer. Accessed on August 25, 2021 at https://apps.nationalmap.gov/viewer/.

INTENTIONALLY LEFT BLANK