UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

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April 13, 2023

Lt. Col. ShaiLin KingSlack
U.S. Army Corps of Engineers
Walla Walla District
201 N. 3rd Avenue
Walla Walla, Washington 99362-1876

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, Concurrence Letter, and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Salmon City Sewer Pipeline Replacement; HUC 170602030403; Lemhi County, Idaho

Dear Lt. Col. KingSlack:

This letter responds to your February 7, 2023, request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Salmon City Sewer Pipeline Replacement. You also requested consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) [16 U.S.C. 1855(b)] for this action.

We reviewed the U.S. Army Corps of Engineers' (COE) consultation request and related initiation package. This review was conducted pursuant to Section 7(b) of the ESA of 1973 (16 U.S.C. 1531 et seq.) and its implementing regulations at 50 CFR 402; Section 305(b) of the MSA and implementing regulations at 50 CFR 600.920; and agency guidance for use of the ESA consultation process to complete EFH consultation. Your request qualified for our expedited review and analysis because it met our screening criteria and contained the required information on, and analysis of, your proposed action and its potential effects to listed species, designated critical habitat, and EFH. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. The parts of the document(s) we are incorporating by reference are explicitly stated in the sections below, where appropriate.

The COE determined the proposed action would have no effect on Snake River sockeye salmon. "No effect" determinations under Section 7 of the ESA are the province of action agencies, which may make such findings without seeking the agreement of NMFS. It is NMFS procedure to not provide any written concurrence with a Federal action agency's determination that its action will have "no effect" on any ESA listed species or designated critical habitat. Therefore, effects to sockeye salmon are not considered in this biological opinion (opinion).

We adopt by reference the following sections of the COE's final biological assessment (BA) (Littlejohn 2023): Location (pages 7–10); ESA Listed and Proposed Species (pages 11–16); Proposed Action (pages 16–33); Environmental Baseline (pages 33–40); and Analysis of Effects (pages 40–56). The referenced BA and other documents we have adopted are available in their entirety in our official project record, available at NMFS' Boise Office or by contacting Chad Fealko by email (chad.fealko@noaa.gov).

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in opinion and incidental take statement would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

NMFS biologist (C. Fealko) met with the City of Salmon (E. Penner) and Salmon Environmental Services LLC (L. Littlejohn) at the project site on September 28, 2022. The group discussed the nature of the pipeline replacement, project sequencing, scheduling, cofferdam and dewatering methods, fish salvage, riparian impacts, and consultation process. NMFS received a draft BA for review on December 21, 2022, and a revised copy was sent on December 27, 2022. NMFS provided minor comments back to the consultant and City of Salmon (City) on December 29, 2022. Comments were discussed by phone on January 6, 2023. NMFS received minor clarifications on the action by email on January 10, 2023. The February 7, 2023, consultation initiation package and final BA was complete, and formal consultation was initiated on that date.

On March 23, 2023, NMFS provided a copy of the proposed action and terms and conditions sections of the draft opinion to the action agency and the Shoshone-Bannock Tribes. The City, as the permit applicant, responded with concerns regarding the proposed incidental take limits by email on March 28, 2023. NMFS considered the City's concerns and made minor modifications in the analysis and incidental take statement to account for a clearer interpretation of the available fish density data and to provide more flexibility during implementation to account for potential site condition changes once construction begins. NMFS did not receive any comments from the Shoshone Bannock Tribes.

Proposed Action. The action being considered is the COE's proposed authorization for the City of Salmon to replace the City's sewer pipeline beneath the Salmon River under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 (Figure 1). The City is proposing to replace the existing sewer pipeline with approximately 504 feet of 24-inch diameter, gravity-fed high-density polyethylene (HDPE) pipeline. A 360-foot-long by 20-foot-wide trench will be excavated under the Salmon River to connect the pipeline to new manholes at the City headworks siphon on the eastside, and the main City lift station, on the

westside of the Salmon River. Cofferdams will isolate the work area into two segments and fish salvage measures will be implemented. The existing 20-inch diameter iron and concrete lined sewer pipeline will not be removed. A capped 470-foot-long by 10-inch diameter HDPE pipe will be inserted and grouted into this line for use in case of emergencies. Construction will occur between September 1 and December 1, probably in 2023. This is within the recommended in-water work window (USBWP 2005) and overlaps with seasonal low flows. The BA (Littlejohn 2023) included a detailed proposed action section (pages 16–33), which also clearly describes the project sequencing and conservation measures and is incorporated by reference.

Figure 1. The proposed sewer pipeline location is on the left of this sewer pipeline and cofferdam schematic (green line with arrow). The existing sewer pipeline is on the right (red line). The lift station is on northwest side (top of image); the headworks is on the southeast side (bottom of image). The rectangular polygons are generalized cofferdam locations. The actual coffer dams will not extend beyond the ordinary high-water mark (OHWM) (Littlejohn 2023).

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not. We considered whether a new sewer pipeline would affect the sewer treatment plant discharge and determined that it would not. The pipeline may result in less volume of treated material and the current issue of excess water seeping into the system will be eliminated. However, established discharge limits will not be affected and the new pipeline does not increase the amount of waste or type of waste material delivered to the treatment facility nor the water quality that is discharged from the system.

Status of Species and Designated Critical Habitat. We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discussed the function of the physical or biological features (PBFs) essential to the conservation of the species that create the conservation value of that habitat. We have augmented the BA's section on "ESA Listed and Proposed Species" (pages 3–6) with information from the species recovery plans (NMFS 2017) and the most recent biological viability update (Ford 2022). Together, this information represents the best available and most recent information on the status of the species considered in this consultation.

This opinion considers the status of the Snake River (SR) spring/summer Chinook evolutionarily significant unit (ESU) and the SR Basin steelhead distinct population segment (DPS). Both this ESU and this DPS are composed of multiple populations, which spawn and rear in different watersheds across the Snake River basin. Having multiple viable populations makes an ESU or DPS less likely to become extinct from a single catastrophic event (ICTRT 2010). NMFS expresses the status of an ESU or DPS in terms of the status and extinction risk of its individual populations, relying on McElhaney et al.'s (2000) description of a viable salmonid population (VSP). The four parameters of a VSP are abundance, productivity, spatial structure, and diversity. NMFS' recovery plan for SR spring/summer Chinook salmon and SR Basin steelhead (NMFS 2017) describe these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the ESU and the DPS.

For each species, NMFS maintains an online status of the species discussion (https://www.fisheries.noaa.gov/west-coast/consultations/esa-section-7-consultations-west-coast#contacts-and-species), incorporating information from the species' recovery plans (NMFS 2017), the most recent 5-year status reviews (NMFS 2022a, 2022b), the Biological Viability Assessment Update for Pacific Salmon and Steelhead (Ford 2022), and other best available information pertinent to the VSP parameters. NMFS updates the status of the species material annually and it is considered the best available information. For this document, we have incorporated that discussion by reference and a printed copy of the information has been retained in our project file in the event the material becomes unavailable in the future. To view the 5-year status reviews, the reader is directed to the following web addresses: SR spring/summer Chinook salmon (https://doi.org/10.25923/a3ay-dw78); and SR Basin steelhead (https://doi.org/10.25923/pxax-h320).

Overall, the SR spring/summer Chinook salmon ESU is at a moderate to high risk of extinction. While there have been improvements in abundance/productivity in several populations since the

time of listing, the majority of populations experienced sharp declines in abundance in recent years. If productivity remains low, the ESU's viability will become more tenuous. If productivity improves, populations could increase again, similar to what was observed in the early 2000s. This ESU continues to face threats from disease; predation; harvest; habitat loss, alteration, and degradation; and climate change (NMFS 2022a). On August 18, 2022, in the agency's 5-year review for SR spring/summer Chinook salmon, NMFS concluded that the species should remain listed as threatened (NMFS 2022a).

Based on information available for the 2022 viability assessment of SR Basin steelhead (Ford 2022), none of the DPS' five MPGs are meeting their recovery plan objectives and the viability of many populations remains uncertain. The recent, sharp declines in abundance are of concern and are expected to negatively affect productivity in the coming years. Overall, available information suggests that SR Basin steelhead continue to be at a moderate risk of extinction within the next 100 years. This DPS continues to face threats from tributary and mainstem habitat loss, degradation, or modification; predation; harvest; hatcheries; and climate change (NMFS 2022b).

In this opinion we examined the condition of critical habitat for SR Chinook salmon and SR Basin steelhead throughout the designated area and discuss the function of the physical or biological features (PBFs) essential to the conservation of the species that create the conservation value of that habitat. We have supplemented the BA's environmental baseline information (pages 33–40) with critical habitat information for SR spring/summer Chinook salmon and SR Basin steelhead at the scale of the ESA listings (see Table 1). Table 1 is based on the detailed information on the status of critical habitat throughout the designation area provided in the recovery plan for each species (NMFS 2017) and the most recent five-year review (NMFS 2022a, 2022b), which are incorporated by reference here.

Table 1 Critical habitat, designation date, Federal Register citation, and status summary for critical habitat considered in this opinion.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Snake River Spring/summer Chinook salmon	10/25/99; 64 FR 57399	Critical habitat consists of river reaches of the Columbia, Snake, and Salmon Rivers, and all tributaries of the Snake and Salmon Rivers (except the Clearwater River) presently or historically accessible to this evolutionarily significant unit (ESU) (except reaches above impassable natural falls, and Dworshak and Hells Canyon Dams). Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (NMFS 2017). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.
Snake River Basin steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 25 subbasins in Oregon, Washington, and Idaho. Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (NMFS 2017). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.

NMFS describes critical habitat in terms of essential PBFs of that habitat to support one or more life stages (e.g., sites with conditions that support spawning, rearing, migration, and foraging). For SR spring/summer Chinook salmon and SR Basin steelhead, PBFs include spawning gravel, water quality, water quantity, food (juvenile migration only), access, riparian vegetation, water temperature, substrate, water velocity, cover or shelter, space, and safe passage. Across the designations, the current ability of PBFs to support the species varies from excellent in wilderness areas to poor in areas of intensive human land use. Climate change and its influence on PBFs such as water quality, water quantity, temperature, and safe passage are expected to exacerbate current conditions for salmon, negatively affecting spawning and rearing conditions and potentially affecting future run timing (due to reduced adaptability). These impacts are expected to increase the difficulty of species recovery. A synthesis of current literature pertinent to these species' future habitat conditions can be found in NMFS' recovery plans (2017), recent climate vulnerability assessments (Crozier et al. 2019), and our 5-year reviews (NMFS 2022a, 2022b).

For both species, the construction and operation of water storage and hydropower projects in the Columbia River basin, including the run of river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor for juveniles and adults. However, several actions taken since 1995 have reduced the negative effects of the hydro system on juvenile and adult migrants. Recent examples include providing spill to dissolved gas caps at mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects; and maintaining and improving adult fish way facilities to improve migration passage for adult salmon and steelhead (NMFS 2020).

Action Area. "Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The COE described the action area (page 11) and we have adopted that description. Specifically, the action area includes:

- A 360-foot-long by 45-foot-wide southeast-northwest diagonal cross section of the Salmon River between the eastside headworks and westside lift station.

- The developed lift station site, access road, parking area, and the Idaho Department of Fish and Game's Lemhi Hole recreation site parking area on the westside of the river above the ordinary high-water mark (OHWM).

- The developed headworks site, access roads, and active floodplain on the eastside of the river above the OHWM.

- The west end of the Meadows Campground (private property) via existing undeveloped roads.

- The Salmon River from the proposed cofferdam location downstream to the City of Salmon's sewage treatment plant outlet (approximately 0.7 miles). This is the extent of habitat affected by water quantity impacts of the action.

This action area includes the projected extent of all project generated turbidity, noise, dewatering, water bypass routes, and other anticipated effects of the action.

Environmental Baseline. The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultations, and the impact of State or private actions, which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

We adopted the BA's Environmental Baseline section (pages 33–40) for the action area. The Salmon River in this location is essentially a migratory corridor for adult and juvenile salmon and steelhead. Some juvenile Chinook salmon and steelhead, as well as some adult steelhead, could overwinter here, but regular and extensive ice jams, (which can extend from Dead water to the action area, about 26 miles) are believed to substantially diminish this use. There is no spawning habitat present for either species. There is no quantitative fish density information for the action area. However, in 2022, during construction of the Salmon Whitewater Park, dewatering and fish salvage (via electrofishing) was completed over a much larger (2.36 acre) area of similar habitat located just 0.7 miles upstream. In that effort, 7 juvenile SR Chinook salmon (~3 fish per acre) and 31 juvenile SR steelhead/resident rainbow trout (~13 fish per acre) were captured and released without any observed mortalities. However, salvage work was completed in multiple segments on six separate days between September 13 and November 21. The highest fish densities observed in any one day (for a single site) was: (1) four juvenile Chinook salmon per acre on September 13 (3 fish from 0.75-acre salvage area); and (2) 70 juvenile steelhead per acre on November 21 (19 fish from 0.27-acre salvage area). Habitat conditions in the action area for this consultation are faster, have larger substrate, and less complex habitat than found at the Whitewater Park and fish densities are likely to be lower than those reported. Due to high annual variability in juvenile densities, as influenced by brood year run size and other factors, we make the conservative assumption that the highest fish densities observed in the area (from the upstream Whitewater Park site) also will be present at this work area (four juvenile SR Chinook/acre and 70 juvenile SR steelhead/acre).

The Salmon River is confined by a system of levees and berms on both sides of the river. The dominant substrate is embedded large gravel and cobble. Habitat conditions in the action area are poor, with few pools, limited undercut banks, low levels of large woody debris, urbanized and inaccessible floodplains, excessively warm summer water temperatures, and frequent winter icing. Riparian areas are predominantly developed for human uses such as housing, roads, and agriculture. A narrow band of trees does line the east bank of the Salmon River. Downed trees are typically removed by landowners and rarely reach the river.

The action is located in the mainstem Salmon River, just upstream of the Lemhi River confluence. This area falls within the boundaries for the Salmon River Lower Mainstem SR

spring/summer Chinook and Pahsimeroi River SR Basin steelhead populations, which belong to the Upper Salmon River and Salmon River major population groups (MPGs), respectively. The action area also serves as migratory adult and juvenile rearing/overwintering and migratory habitat for all upstream populations for both species (Table 2 and Table 3), all of which belong to the same two MPGs.

Table 2. SR spring/summer Chinook salmon abundance (most recent 10-year geometric mean [standard deviation]) and viability ratings (Ford 2022) and recovery plan role (NMFS 2017) for populations potentially affected by the proposed action. For productivity values, numbers in parentheses represent standard error and the number of qualifying estimates for productivities in a 20-year period.

Population (run timing)	**Abundance/Productivity Metrics**				**Integrated Spatial Structure and Diversity Risk Rating**	**Overall Risk Rating**	**Identified for viable status in ICTRT Recovery Scenario?[d]**
	ICTRT Threshold[b]	***Natural Spawning***	***ICTRT Productivity***	***Integrated A/P Risk***			
Upper Salmon River MPG Populations Affected by the Proposed Actions							
Salmon Lower Main *(spring/summer)*	2,000[a]	71 (sd 87)	1.30 (0.23 20/20)	High	Low	High	No
Salmon Upper Main *(spring/summer)*	1,000[b]	326 (sd 270)	1.13 (0.31 18/20)	High	Low	High	Yes
Pahsimeroi River *(summer)*	1,000	218 (sd 168)	1.26 (0.20 20/20)	High	High	High	Yes
Lemhi River[c] *(spring/summer)*	2,000	250 (sd 159)	1.63 (0.28 19/20)	High	High	High	Yes
Valley Creek *(spring/summer)*	500[d]	113 (sd 100)	1.63 (0.26 17/20)	High	Moderate	High	Yes
Salmon East Fork *(spring/summer)*	1,000	288 (sd 291)	2.00 (0.28 17/20)	High	high	High	Yes
Yankee Fork *(spring/summer)*	500	62 (sd 139)	0.99 (0.51 17/20)	High	High	High	No

[a]The North Fork and Panther Creek populations are not displayed since their confluences are located far enough downstream of the action area that juveniles are not likely to use the action area for rearing.

[b] ICTRT threshold establish the population size class as follows: 2,000 = Very Large; 1,000 = Large; 750 = Intermediate; and 500 = Basic.

[c] The confluence of the Lemhi River is downstream of the action area, but there is some limited potential for juveniles from that spawning population to migrate into the action area in the fall and potentially overwinter there.

[d] Populations marked 'yes' must be viable, which is defined as having a 5 percent or less risk of extinction over 100 years. One of the five populations must by highly viable (i.e., less than 1% risk of extinction in 100 years). All populations in the MPG must meet criteria for maintained status for the MPG to be viable. Maintained populations have a less than 25 percent chance of extinction in 100 years.

Table 3. Estimated SR Basin steelhead abundance (most recent 10-year geometric mean [range]) and viability ratings (Ford 2022) and recovery plan role (NMFS 2017) for populations potentially affected by the proposed action. For productivity values, numbers in parentheses represent standard error and the number of qualifying estimates for productivities in a 20-year period.

Population	Abundance/Productivity Metrics [a]				Integrated Spatial Structure and Diversity Risk	Overall Risk Rating	Identified for viable status in ICTRT Recovery Scenario? [d]
	ICTRT Minimum Threshold	*Natural Spawning Abundance*	*ICTRT Productivity*	*Integrated A/P Risk*			
Salmon River MPG Populations Affected by Proposed Actions							
Lemhi R.	1,000	3,502 (sd 2,562)	1.88 (0.17 16/20)	Moderate	Moderate	Maintained	No
Pahsimeroi R.	1,000			Moderate	Moderate	Maintained	No
East Fork Salmon R.	1,000			Moderate	Moderate	Maintained	No
Up Main. Salmon R.	1,000			Moderate	Moderate	Maintained	No

[a] Abundance and productivity values are generated from aggregate steelhead counts at Lower Granite Dam that are subsequently partitioned into four subgroups based on genetic stock identification. The Upper Salmon River stock group includes six populations. The displayed abundance and productivity values are for the entire subgroup, not just the four populations shown. The other two populations are Panther Creek and the North Fork Salmon River.

[d] Populations marked 'yes' must be viable, which is defined as having a 5 percent or less risk of extinction over 100 years. All populations in the MPG must meet criteria for maintained status for the MPG to be viable. Maintained populations have a less than 25 percent chance of extinction in 100 years.

NMFS' recovery plans (2017) identify general habitat recommendations at the MPG and individual population level, which are pertinent to the action area. Recommendations include calls for improving riparian function, connectivity, water quality (particularly temperature), and water quantity (particularly for Chinook salmon rearing habitat). Implementing these measures is expected to provide resilience to ongoing influences of climate change on both species. The Lower Mainstem SR spring/summer Chinook population, which primarily exhibits summer run timing and has lagged behind other populations in total abundance, is not currently identified in NMFS' example recovery scenario for this MPG (Ford 2022), but the population is one of two very large size populations in the MPG and could be used to satisfy viability criteria in lieu of other populations. The best scientific and commercial data available with respect to the adult abundance of all Chinook populations in and upstream of the action area indicate a substantial downward trend in abundance and productivity when comparing returns from 2010–2014 to 2015–2019. Over this period, declines in abundance ranged from 9 percent in the Lemhi (where extensive habitat improvements targeting SR Chinook have been accruing) to 87 percent in the Yankee Fork population. In NMFS' most recent status determination, declining abundance and productivity are identified as key reasons for the high-risk ratings for all populations.

The affected populations of SR Basin steelhead may be meeting criteria for maintained status but none of the affected populations are identified in NMFS' preliminary recovery scenario (NMFS 2017). At the MPG scale, 5-year geometric mean SR Basin steelhead natural adult abundance declined an average of 54 percent (range 31 to 71 percent) when comparing return years 2010– 2014 to 2015–2019. There is a great deal of uncertainty with individual population abundances in this MPG and the values remain unconfirmed estimates and we consider these numbers with caution.

Effects of the Action. Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

The BA provides a detailed discussion and comprehensive assessment of the effects of the proposed action in pages 41–61, and is adopted here (50 CFR 402.14(h)(3)). NMFS has evaluated this section and after our independent, science-based evaluation determined it meets our regulatory and scientific standards.

The temporary and long-term effects of this proposed action on species are:

- Excavators will need to enter the river to build temporary cofferdams and tracking over substrate could result in crushing or harassment of juvenile spring/summer Chinook salmon and steelhead. Few fish are expected to be affected given the low densities, timing of work, using the same tracked footprint, and induced fish displacement from the noise and equipment presence.

- Construction will require dewatering and fish salvage (probably electrofishing) from the footprint of each cofferdam, up to 0.42[1] acres of river habitat in total. Recent electrofishing fish salvage data from the upstream waterpark construction suggests that a total of approximately two juvenile SR spring/summer Chinook salmon and up to 29 juvenile SR Basin steelhead may be captured and relocated during the two salvage operations. It is possible that at least one individual of each species could die from salvage efforts[2].

- As water is removed from the work areas, there will be some pooling and interstitial habitat where emigrating fish could congregate before leaving the dewatered areas or before being salvaged. This could potentially result in the stranding or crushing of a few individuals as the coffer dams are completed and the pipeline trench is excavated.

- Any adult steelhead that are present during construction are expected to leave the work area and avoid being handled or harmed.

- If cofferdams are constructed from sheet pile, vibratory driving and removal of piles is expected to have only minor behavioral effects on any fish that are near the work areas. These effects do not rise to the level of harm. If constructed with bulk bags, the only

[1] BA estimated 0.38 acres of dewatered area. Based on feedback from the City regarding the potential need to field fit coffer dams to be stable for safe work and to account for potential changes or errors from the BA estimate, we increased the potential dewatered area by 10 percent.
[2] Mortality estimate applied a 5 percent electrofishing mortality value (McMichael et al. 1998).

anticipated harm is tied to potential crushing by equipment (addressed in first bullet) as bags will sit on the substrate and no additional noise related or disturbance impacts are expected.

- Placement and removal of cofferdams, trenching in the channel, and backfilling may all create minor short-term turbidity increases. Pumping turbid water to upland settling areas, dewatering work areas, and proposed sediment containment practices, will all help reduce the magnitude, duration, and frequency of turbidity events. Additionally, real-time turbidity will be monitored at 15-minute intervals approximately 600 feet downstream of the work area and construction will be paused if the average reading in a one-hour period represents an increase of more than 50 nephelometric turbidity (NTU) above background conditions, (which are in single digits at baseflow). This means net turbidity increases could exceed 50 NTUs from the work area downstream to the measurement point (600 feet) and possibly further downstream, but probably not beyond the Lemhi River confluence (about 900 feet downstream of the work area). At that point, volume increases by about 33 percent and is expected to obscure project generated changes in turbidity. Due to the width of the Salmon River, and work occurring in no more than half the channel at once, turbidity will not span the entire width of the affected downstream area. The few fish exposed to elevated turbidity within the 900-foot distance may experience minor harm such as gill flaring or modified feeding behavior. Alternatively, some of those fish may also safely move to adjacent unaffected habitat. Any fish exposed to turbidity increases less than 50 NTU over background levels are not expected to be harmed and should only experience temporary and minor behavioral modifications.

- Upstream and downstream fish passage will be maintained throughout construction by dewatering approximately half the Salmon River at one time and then switching sides for the rest of the pipeline installation.

- Replacing the pipeline will eliminate the current issue of groundwater and river water seeping into the sewer system. This should result in approximately 0.62 cubic feet per second of water remaining in the Salmon River or its hyporheic zone. This will provide a long-term benefit to all species and lifestages of fish from the crossing site downstream to the sewage treatment plant outfall (approximately 0.7 miles). No change to water quality discharge from the plant is anticipated as discharge limits are not affected.

- Riparian vegetation impacts will be limited to removal, in the dry, of a small group of young cottonwood trees that does not yet provide shade or allochthonous inputs and one large willow tree located more than 50 feet from the Salmon River. All disturbed sites will be replanted with native vegetation and the large willow will be left on the floodplain to contribute to natural processes. These modifications of the riparian area are not expected to affect the survival or condition/fitness of individual SR spring/summer Chinook salmon or SR Basin steelhead.

- Potential effects to species from introducing aquatic invasive species or project related chemical contamination were evaluated and found to have almost no potential to occur

given proposed conservation measures, construction practices, and site supervision requirements specified in the BA.

Because the action occurs in a migratory corridor or potential overwintering area, fish affected by the action could belong to any of the seven upstream populations of SR spring/summer Chinook salmon (Table 2) or any of the four upstream populations of SR Basin steelhead (Table 3). Construction related effects on the environment will be temporary and minor (i.e., sound, turbidity, space, and riparian vegetation) and most are not expected to lead to harm, harassment, or other fish injury pathways. The exceptions are juveniles killed during fish salvage and during equipment operations within the cofferdams if some individuals are stranded in pools, and temporary exposure to sublethal levels of turbidity in up to about 900 feet of the Salmon River for up to one hour. For SR Chinook, only juveniles from the prior spawning year would be exposed. For SR Basin steelhead, juveniles and some overwintering adults could be exposed. Although the area likely serves primarily as a migratory corridor, some juvenile overwintering/rearing may also occur.

As stated above, we estimate that a cumulative total of two juvenile SR spring/summer Chinook salmon and up to 29 juvenile SR Basin steelhead may be captured and relocated during both of the fish salvage operations and at least one individual of each species could die from salvage efforts. In addition, a very small number of fish may be crushed by equipment used within the dewatered area if stranded rather than salvaged. For this analysis, we assumed the number of fish stranded and vulnerable to crushing will be very small. In a worst-case situation we estimate that a total of two juvenile SR spring/summer Chinook salmon and two juvenile SR Basin steelhead may be killed during construction of the new sewer pipeline (salvage and stranding/crushing combined). These effects will be spread amongst fish originating from up to four populations of SR Basin steelhead and up to seven populations of SR spring/summer Chinook salmon. A small number of fish will also experience minor levels of non-lethal harm from exposure to temporary turbidity increases during the construction period. No adult steelhead are expected to be harmed. The project will occur in the fall of 2023 and should affect just one-year class of SR Chinook and possibly two-year classes of SR steelhead (due to longer freshwater juvenile residency).

Pages 46–57 of the BA evaluate the action's potential effects on PBFs of designated critical habitat. For this action area, modification of PBFs may affect juvenile freshwater rearing/overwintering or freshwater migration in areas designated as critical habitat for SR spring/summer Chinook salmon and SR Basin steelhead. Additionally, adult steelhead could potentially use the action area for overwintering and migration, but the absence of complex habitat and deep pools suggests utilization, other than migratory, is probably low.

Approximately half of the Salmon River within the pipeline site will be dewatered for two weeks before the flow is switched over to the other side, dewatering the other side of the river (i.e., also about 0.19 acres) for about two more weeks. This temporary loss of this habitat (two weeks for each segment) will comprise a very small reduction in the functioning of rearing/overwintering and migration habitat in the action area. The action area's available habitat will simultaneously increase in quantity for the same period of time when water volume is added to the other half of the river. But this will generally result in deeper and faster water and not necessarily high-quality habitat. Because the amount of water will not change during construction, the amount of drift

(i.e., forage) will likely not change. Very low densities of fish and predominantly migratory use patterns there also suggest forage impacts will be minor. Post-construction, available space will be essentially identical to baseline conditions.

Replacing the sewer line will eliminate ground and river water that currently seeps into the treatment system. Post-project, the river and hyporheic zone will retain approximately 0.62 cfs more water than under the baseline. This small increase in water volume will increase the amount of space marginally, have minor and localized positive effects on water temperature concerns, and have small positive effects on forage. These flow effects will be limited to about 0.7 miles of the Salmon River and its hyporheic zone, the distance between the current sewer line and the treatment plant outfall downstream.

For water quality, anticipated minor effects include: brief periods of low intensity turbidity. Turbidity levels will likely be slightly higher than 50 NTU over background within 900 feet of the work area up to one hour, but should remain below that threshold due to proposed monitoring and real-time construction adjustments. These short-term turbidity events would cause small reductions in the functioning of the action area as a rearing/overwintering and juvenile migration area. These impacts will be brief and no impact will persist following completion of construction.

Riparian vegetation impacts will be limited to removal of a small group of young cottonwood trees that do not yet provide shade or allochthonous inputs and one large willow tree located more than 50 feet from the Salmon River. All disturbed sites will be replanted with native vegetation and the large willow will be left on the floodplain to contribute to natural processes. The small size and type of impacts, along with the replanting efforts are expected to minimize the likelihood of any meaningful impact to the function of rearing/overwintering or juvenile or adult migration habitat in the action area.

Potential for introducing aquatic invasive species or having a project related impact on water quality from chemical contamination were both evaluated and found to have almost no potential to occur given proposed conservation measures, construction practices, and site supervision requirements specified in the BA.

Other PBFs affected by the action and addressed in detail in the BA include, floodplain connectivity, natural cover, and substrate, and juvenile forage. As discussed in the BA (pages 46–57) effects to these PBFs will be minor and short-term (less than two weeks) and will have little to no influence on the conservation value of critical habitat in the action area for SR spring/summer Chinook salmon and SR Basin steelhead.

Cumulative Effects. "Cumulative effects" are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. The BA evaluated potential cumulative effects in the action area (page 57) and found there were no known future State or private actions

being planned or reasonably certain to occur. For this reason, there are no known cumulative effects to consider in this opinion.

Integration and Synthesis. The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

Populations of SR spring/summer Chinook salmon and SR Basin steelhead abundance experienced population increases, relative to the time of ESA listing, through the mid-2000s. During the past six years, abundance has dropped, with many populations nearing levels observed when the species were listed. Observed declines have been similar for all populations in the ESU and DPS and are believed to be tied to recent ocean conditions (Ford 2022). In addition to abundance and productivity concerns for these species, climate factors will likely make it more challenging to increase abundance and recover the species (NMFS 2017; Crozier et al. 2019). All individual populations, including those affected by this action, are still at high risk of extinction and remain far below recovery plan abundance and productivity targets.

Anticipated juvenile fish mortalities can be used to estimate the total number of adult equivalents potentially removed from the affected populations. Using the estimated juvenile mortalities identified above, all construction related mortality would result in up to one fewer adult SR Chinook salmon[3] and one fewer adult SR Basin steelhead[3]. For SR spring/summer Chinook salmon this would affect only the 2023 brood. For SR Basin steelhead, impacts could be from the 2022 or 2023 brood, or both. Because the action area is principally a migratory corridor or rearing/overwintering habitat, fish affected by construction could belong to many different populations of SR Chinook salmon (up to seven populations) and SR Basin steelhead (up to four populations).

Although action area habitat conditions are poor under the environmental baseline (BA pages 33–40), the proposed action will not interact with these conditions in a way that could further reduce the survival or condition/fitness of fish utilizing the action area. In the short-term, the action will cause a temporary reduction in space by dewatering two short segments of the Salmon River for a total of four weeks. This loss of space will be caused by dewatering an area behind a cofferdam and is therefore related to the anticipated fish mortalities described above as resulting from stranding. This impact to the available space will last approximately four weeks before all cofferdams are removed and pre-project conditions return.

[3] This assumes that one of the two juveniles of each species killed by the action would have actually survived to return as an adult (a 50 percent survival). Over the prior 20 years, average smolt to adult return rates (SAR) for this SR spring/summer Chinook salmon MPG have not exceeded 1 percent and SR Basin steelhead SARs from the MPG have not exceeded 2.6 percent (Ford 2022). These SARs suggest potential loss of two juveniles is unlikely to actually manifest as a loss of even one individual adult in future return years.

We do not expect the mortality of a small number of juveniles from either species, or the very small and short-term impacts to habitat quantity and quality described above to appreciably alter the abundance, productivity, spatial structure, or diversity of SR spring/summer Chinook salmon and SR Basin steelhead. It is NMFS' opinion that when the effects of the action and cumulative effects are added to the environmental baseline, and in light of the status of the species, the effects of the action will not cause reductions in reproduction, numbers, or distribution that would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of SR spring/summer Chinook salmon or SR Basin steelhead.

With respect to critical habitat for SR spring/summer Chinook and SR Basin steelhead, there will be only minor effects with little to no influence on the functioning of critical habitat in the action area. Overall, the described effects on space will be limited to the 0.7-mile reach scale. Additionally, adverse effects to space will be temporary (i.e., 4 weeks) before returning to baseline conditions. Therefore, we do not expect a reduction in the conservation value of critical habitat in the action area, and the action will not affect the conservation value of the critical habitat at the HUC5 or designation scale.

There will also be a minor long-term benefit in space, forage, and water temperature PBFs at the site scale caused by eliminating the current seepage of 0.62 cfs of ground and river water into the pipeline. This will essentially increase flow levels in 0.7 miles of the Salmon River and its hyporheic zone by 0.62 cfs year-round. Effects from that increase will be minor though as the action area is predominantly used as a migration corridor and opportunities for enhanced growth and survival of fish is relatively small given the minor, yet positive influence. Effects to water quality (elevated turbidity) will also be very small and brief.

Conclusion. After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of SR spring/summer Chinook salmon or SR Basin steelhead or destroy or adversely modify their designated critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to Section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by interim guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and Section 7(o)(2) provide that taking that is

incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

Amount or Extent of Take. In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

1. Up to two juvenile SR Chinook salmon and 29 SR Basin steelhead will likely be harmed, harassed, or handled during salvage of dewatered areas during construction of the proposed sewer pipeline. Of these, up to one steelhead and one Chinook salmon may be killed during handling. Exceeding either the total number of fish handled or the stated number of mortalities during salvage would exceed the amount of take identified in this consultation.

2. A very small number of juvenile SR Chinook salmon and SR Basin steelhead could potentially be stranded in pools and/or crushed by instream equipment behind each cofferdam. Stranded and crushed fish are likely to be buried in stream substrate and therefore difficult to quantify or otherwise measure. In these instances, NMFS uses a surrogate to describe the extent of incidental take, pursuant to 50 CFR 402.14[I]. In this case, we use the dewatered area as a surrogate for the amount of take. Although somewhat coextensive with the proposed action, the area dewatered is directly related to the stranding take pathway. Additionally, the area can be measured and thus serves as a reasonable reinitiation trigger if exceeded. For this reason, a total of no more than 0.42 acres of the wetted Salmon River channel are authorized to be dewatered. Exceeding this limit will trigger the reinitiation provisions of this opinion.

3. Juvenile fish exposed to turbidity levels more than 50 NTU above background levels are likely to experience minor levels of harm for periods of up to one hour. The action is expected to produce some turbidity events exceeding this threshold, but such exceedances are expected to be confined to a 900-foot reach of the Salmon River. It is not reasonable to count the number of fish exposed to adverse turbidity levels. In these instances, NMFS uses a surrogate to describe the extent of incidental take, pursuant to 50 CFR 402.14[I]. In this case, we will rely on the proposed monitoring plan for turbidity levels in the action area. Although somewhat coextensive with the proposed action, the area of stream exposed to turbidity levels more than 50 NTU over background is directly related to the effect pathway. Additionally, the distance affected and the intensity of turbidity levels can be measured and thus serves as a reasonable reinitiation trigger if exceeded. For this reason, the amount of take will be exceeded if turbidity levels measured 600 feet downstream of any instream disturbance location is more than 50 NTU over the background conditions for up to one hour (recorded in 15-minute intervals and averaged for each 1-hour period). Exceeding this limit will trigger the reinitiation provisions of this opinion.

Effect of the Take

In the opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species.

Reasonable and Prudent Measures

"Reasonable and prudent measures" are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The COE shall:

1. Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from permitted activities and that the extent of take is not exceeded.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the ESA, the COE must comply (or must ensure that any applicant complies) with the following terms and conditions. The COE, as the Federal action agency, has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. To implement RPM 1 the COE shall require the City to:

    a. Maintain records of the number, species, and size of fish handled during any fish salvage event in order to verify the extent of take authorized by this opinion is not exceeded.

    b. If more than 29 juvenile steelhead or 2 juvenile Chinook salmon are captured during construction related fish salvage or if more than one fish of either species is killed during those activities, immediately stop work and contact NMFS to determine if or how the project shall proceed.

    c. Document the total dewatered area during construction.

        i. If more than 0.42 acres of the wetted portion of the Salmon River are dewatered, immediately contact NMFS to determine if or how the project shall proceed. Compliance with this condition requires real-time measurements of the dewatered channel area.

    d. Maintain a record of turbidity data collected at the identified monitoring sites (i.e., 600 feet downstream of worksite and baseline conditions above the site) whenever action related turbidity is being produced.

i. In the event downstream turbidity increases more than 50 NTU above background levels for more than one hour (as recorded in 15-minute intervals and averaged for each 1-hour period), immediately cease work and contact NMFS to determine how or if to proceed.

e. The City, on behalf of the COE, shall submit a post-construction report to the Snake River Basin Office email (nmfswcr.srbo@noaa.gov) by February 28 the year after construction. The report will address the monitoring identified in the proposed action and terms and conditions relevant to construction.

Conservation Recommendations
Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

NMFS has not identified any conservation recommendations at this time.

Effect of the Take. In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reinitiation of Consultation. Under 50 CFR 402.16(a): Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

Not Likely to Adversely Affect Determinations. The COE concluded the proposed action is not likely to adversely affect SR sockeye salmon designated critical habitat (see BA pages 58–59). Their rationale for their conclusion is described in the body of their effects section on critical habitat (pages 46–57). After our independent, science-based evaluation of the information in the biological assessment, we concur with the COE's conclusion and are adopting the information and analyses provided. In summary, any effects on the functioning of juvenile or adult migration habitat, either during or post-construction, will be insignificant or discountable.

MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Section 305 (b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means, "those

waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.0-5(b)).

The action area, as described above, is also EFH for Chinook salmon (PFMC 2014). The Pacific Fishery Management Council (PFMC) designated the following five habitat types as habitat areas of particular concern (HAPCs) for Pacific salmon: complex channel and floodplain habitat, spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation (PFMC 2014). The action area does not contain any HAPCs. Historically, the action area likely contained complex channel and floodplain habitat, but because historical land development practices have simplified instream habitat these features are no longer present.

ESA designated critical habitat and EFH overlap within the action area and the BA provides a detailed discussion and comprehensive assessment of the effects of the proposed action on pages 46–56. We have adopted that discussion here (50 CFR 402.14(h)(3)). NMFS has evaluated this section and after our independent, science-based evaluation, we determined it meets our regulatory and scientific standards.

NMFS determined that no Conservation Recommendations are necessary to avoid, minimize, or otherwise offset the impact of the proposed action on EFH. This concludes the MSA consultation.

The COE must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600. 920(l)).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through NOAA Institutional Repository [https://repository.library.noaa.gov/welcome]. A complete record of this consultation is on file at the Snake Basin Office in Boise, Idaho.

Please contact Mr. Chad Fealko, Salmon Field Office, 208-768-7707, and chad.fealko@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

cc:

K. Urbanek – COE
E. Traher – USFWS
C. Colter – SBT
J. Richards - IDFG
E. Penner – City of Salmon
B. Jones - COE

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