State of California
Regional Water Quality Control Board
Santa Ana Region

July 28, 2023

Staff Report

ITEM: **11**

SUBJECT: **UPDATE ON THE PROGRESS OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION AT THE FORMER FORD AERONUTRONICS SITE IN NEWPORT BEACH**

Summary:

Following several years of vapor intrusion investigation activities, the former Ford Aeronutronics facility (Site) is transitioning from assessment to remediation activities. The vapor intrusion investigation has identified 588 residential homes and 3 commercial properties to be evaluated for vapor intrusion. Of the 363 homes that have been evaluated for vapor intrusion to date, 29 homes were identified with vapor intrusion occurring and have been offered interim mitigation measures. The community impacted by the soil vapor plume continues to be highly interested in the status of the project and to date, the Santa Ana Water Board has hosted 10 informational meetings to provide updates to the general public and 15 smaller community-specific public meetings.

Background:

The former Ford Aeronutronics facility operated from 1957 until 1993 on approximately 98 acres (the Site) in the city of Newport Beach (see Figure 1). As part of its aerospace operations at the Site, Ford Motor Company (Ford) utilized chlorinated solvents, including trichloroethene (TCE). Historical operations at the site resulted in discharges of TCE and other chemicals to the soil and groundwater beneath the Site.

TCE is a volatile organic compound (VOC) that can migrate in the vapor phase from the subsurface soil and groundwater into the indoor air of overlying structures. TCE exposure is now known to raise a number of health concerns, which include cancer and other diseases, and can also cause health effects in the developing fetus from both acute and chronic exposure.

The facility was shut down in 1993. Structure demolition and environmental remediation were conducted at the Site through 1996. In 1996, based on information Ford provided to the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board), remediation of the Site's "Main Area" was deemed complete. In 1997, the Orange County Health Care Agency granted soil closure at the Site, with residual contamination left in place at concentrations that conformed with standards for the protection of human

health at that time. The environmental oversight responsibilities were transferred to the Santa Ana Water Board, focusing on continuation of the off-Site groundwater assessment and remediation activities. The land use for the Site was rezoned from "industrial" to "residential," and the area was redeveloped with single family homes.

Status of the Site Investigation and Remediation

The investigation has been divided into four distinct areas for environmental characterization purposes (see Figure 1), as described below:

- Main Area – The 90-acre active operations portion of the Site that consisted of 15 buildings in which Ford conducted research and development and manufactured electronic controls for missile and guidance systems. Chemicals were also stored in drums in the Main Area.
- AeroThermal Chemical (ATC) Building – The 8 acres on the southern portion of the Site is where rocket research was conducted, which included the development of liquid and solid propellants, testing and development of rocket motors, and ordinance assembly.
- The North Area – The impacted groundwater beneath the area located north of the Site. The groundwater plume originates from the Main Area and extends in a northerly direction. The principal contaminant of concern (COC) for the North Area is TCE.
- The Big Canyon Arroyo (BCA) Area – The impacted groundwater beneath the area located south of the Site. The groundwater plume originates from the ATC and extends in a southerly direction. The COCs for the BCA Area include TCE and its "daughter" products, produced during chemical degradation.

Following Ford's completion of the on-Site remediation in 1996, Santa Ana Water Board staff performed oversight of the following activities:

- Since 1996, groundwater monitoring of the North and BCA Areas has been conducted and is currently occurring on a semi-annual basis.
- From 2001 through 2004, active remediation was conducted in the BCA Area, which included enhanced in-situ bioremediation downgradient of the ATC Area.
- In 2006, 2008, and 2012, limited soil gas surveys were conducted, which concluded that health risks from vapor intrusion of TCE and other chemicals were not present. This conclusion was based on the screening levels and standards within the 2006-2012 time period.

In 2014, the USEPA published a memorandum regarding TCE acute exposure risk to pregnant women, which defined "accelerated" and "urgent acute" exposure levels (Action Levels) for TCE for commercial and residential properties. As a result, the San Francisco Bay Regional Water Quality Control Board updated their Environmental Screening Levels (ESLs) for TCE. ESLs are utilized in evaluating risk from exposure to impacted soil, soil gas, indoor air, and groundwater.

In 2017, Ford prepared and submitted a conceptual site model (CSM) to evaluate all of the Site's historical data, in order to compare that data to current ESLs and other guidance documents. The CSM identified the following data gaps:

- Potential for groundwater/surface water interaction of Bonita Creek in the North Area and of Big Canyon Creek in the BCA Area.
- Delineation of the downgradient extent of the TCE groundwater plume in the North Area.
- Evaluation of the North and BCA Areas for potential vapor intrusion of COCs, principally TCE, into the indoor air of the overlying structures, based on the potential for groundwater contaminants to enter the vapor phase, and the historical soil gas data.

Environmental assessment activities at the Site are mostly complete; most notably, the majority of the soil gas plume has been defined to below laboratory reporting limits. The soil gas plume is monitored two to three times a year at 424 subsurface locations. Indoor air sampling results, as part of the vapor intrusion investigation, have identified TCE and other chemicals in the indoor air at concentrations above ESLs in a number of homes, resulting in further evaluation, and implementation of an interim mitigation measure (i.e., installation of air purifiers). The interim mitigation has been offered to occupants of 29 homes, of those 29 homes, 7 homes have had concentrations of TCE over the TCE Action Levels.

As a result of the ongoing vapor intrusion assessment activities to date, access agreement request letters have been sent to a total of 588 residential units located throughout eight communities and three commercial businesses, requesting access to allow Ford's representatives to sample the indoor air (Figure 2). All of the commercial properties and 363 residential units had been sampled as of July 7, 2023. Due to the significant data set, eight residential community-specific human health risk assessments (HHRAs) and one commercial HHRA for the three commercial properties have been prepared and submitted by Ford's technical consultant, WSP USA Environment & Infrastructure, Inc. (WSP). Results from the HHRAs are being used to determine the next steps for the Site, ranging from remediation to monitoring activities. As additional indoor air monitoring data becomes available, addendums to the HHRAs are being prepared and submitted to ensure the next steps for each community remain protective of human health and the environment. To date, community-specific feasibility studies (FSs), or feasibility study/remedial action plans (FS/RAPs) have been submitted for seven communities and staff have commented on all of them. FS/RAPs were prepared for communities where it was determined to move forward with cleanup in the near-term. FSs were prepared for communities where it was important to evaluate the feasibility of potential remedial options. Additionally, for each FS or FS/RAP that have been reviewed by our staff, a public comment period was provided, including conducting public meetings to allow members of each affected community to comment on the respective draft FS or FS/RAP documents.

Proposed next steps for these communities may include one or a combination of the following short and long-term options:

- Ongoing monitoring of groundwater and/or soil gas to determine if concentrations are naturally decreasing over time (i.e., monitored natural attenuation).
- Installing and operating a soil vapor extraction (SVE) system to remove VOCs in soil gas.
- Installing and operating sub-slab depressurization systems (SSD) at properties where indoor air remains impacted by VOCs due to vapor intrusion.
- Ongoing monitoring of indoor air to ensure the effectiveness of the proposed remedy at providing long-term protection of public health (i.e., long-term monitoring).

Currently, two communities were identified for implementation of SVE to address the soil vapor plume. These two communities are where vapor intrusion have primarily been identified and where soil gas concentrations are the highest. There have been significant delays in implementing SVE due to permitting delays and securing electricity to power the SVE systems, including access. Progress is being made; however, delays are continuing to be observed outside of Ford's control. As a result of these delays, implementation of SSD systems is being offered to all residents within one community where vapor intrusion has been identified (22 homes). Installation of the SSD systems began on July 17, 2023 at select homes and will continue until all willing participants have SSD systems installed.

The Santa Ana Water Board has hosted ten informational meetings to communicate with the general public the status of ongoing vapor intrusion assessment activities and next steps, including discussions of the HHRAs, the SVE pilot test, and the remediation process. The meetings were held in September 2018, November 2018, February 2019, May 2019, November 2019, November 2020, July 2021, February 2022, July 2022, and February 2023. In addition to the general public meetings, we have also hosted 15 smaller community-specific meetings to discuss the results of the HHRA, draft FS or FS/RAP and conduct a public comment period, and discuss implementation of SSD systems. Additionally, Ford has hosted five community-specific meetings to discuss the SVE pilot test, remedial design and implementation plans, and pre-construction activities for the soil vapor extraction systems. At each public meeting, the Santa Ana Water Board case manager, Jessica Law, gives a visual presentation, followed by a question and answer session along with a subject matter expert panel. The panel typically includes Jessica Law (Santa Ana Water Board), Amanda Palumbo (California Office of Health Hazard Assessment -OEHHA), and Ford's environmental consultant project manager (WSP), and additional subject matter experts from WSP, if necessary, based on the meeting topics. The State Water Resources Control Board's Office of Public Participation (OPP) has been actively involved in and served as moderators at the first four public meetings. Ford's public relations consultant (i.e. Craig

Communications) has been managing the logistical elements of the public meetings, such as distributing meeting notifications, reservation of the venue, audio and video recording of the events and signing up attendees. Beginning in November 2019, due to limited resources in OPP, Craig Communications has served as moderators at the meetings. While Craig Communications has handled much of the meeting logistics, OPP remains strongly involved in supporting and advising Santa Ana Water Board staff on matters of public engagement for this project.

As environmental investigation and remediation at the Site advance, staff will keep the Board members informed on the status of this important project.

Recommendation:
This is an information item; no action is required. The Board may direct staff to provide additional updates and/or project specific updates.

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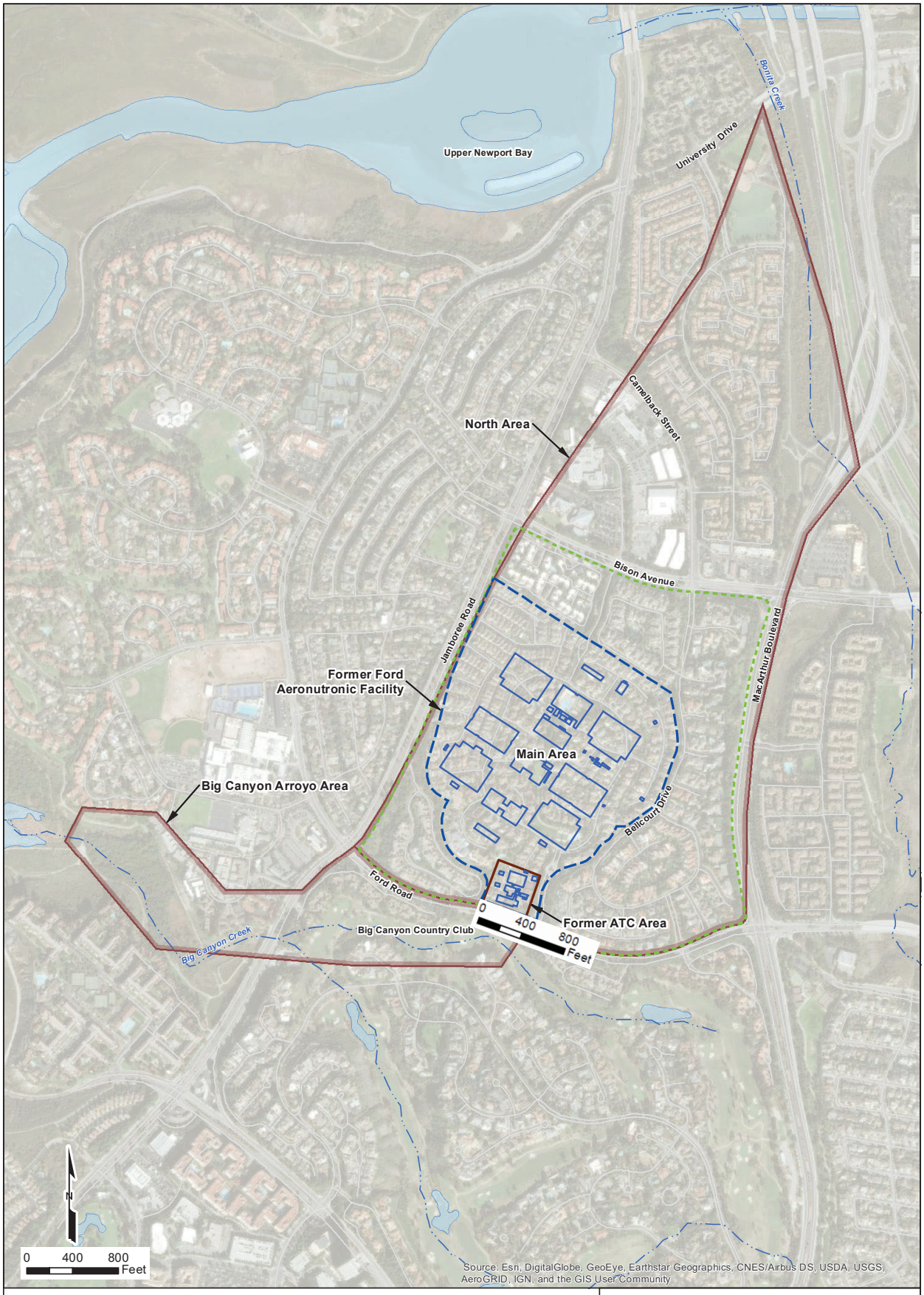

Explanation

- Approximate North Area and Big Canyon Arroyo boundaries (the study area)
- Approximate former Aeronutronic Facility boundary (the Site)
- Former facility property
- Approximate location of former Aeronutronic Facility buildings
- Approximate former Aerothermal Chemical (ATC) area
- Creek

SITE VICINITY MAP
Former Ford Aeronutronic Property
Newport Beach, California

wood.

By: DMO	Project No. 8620397107.1.1G
Date: 01/19/2021	Figure 1

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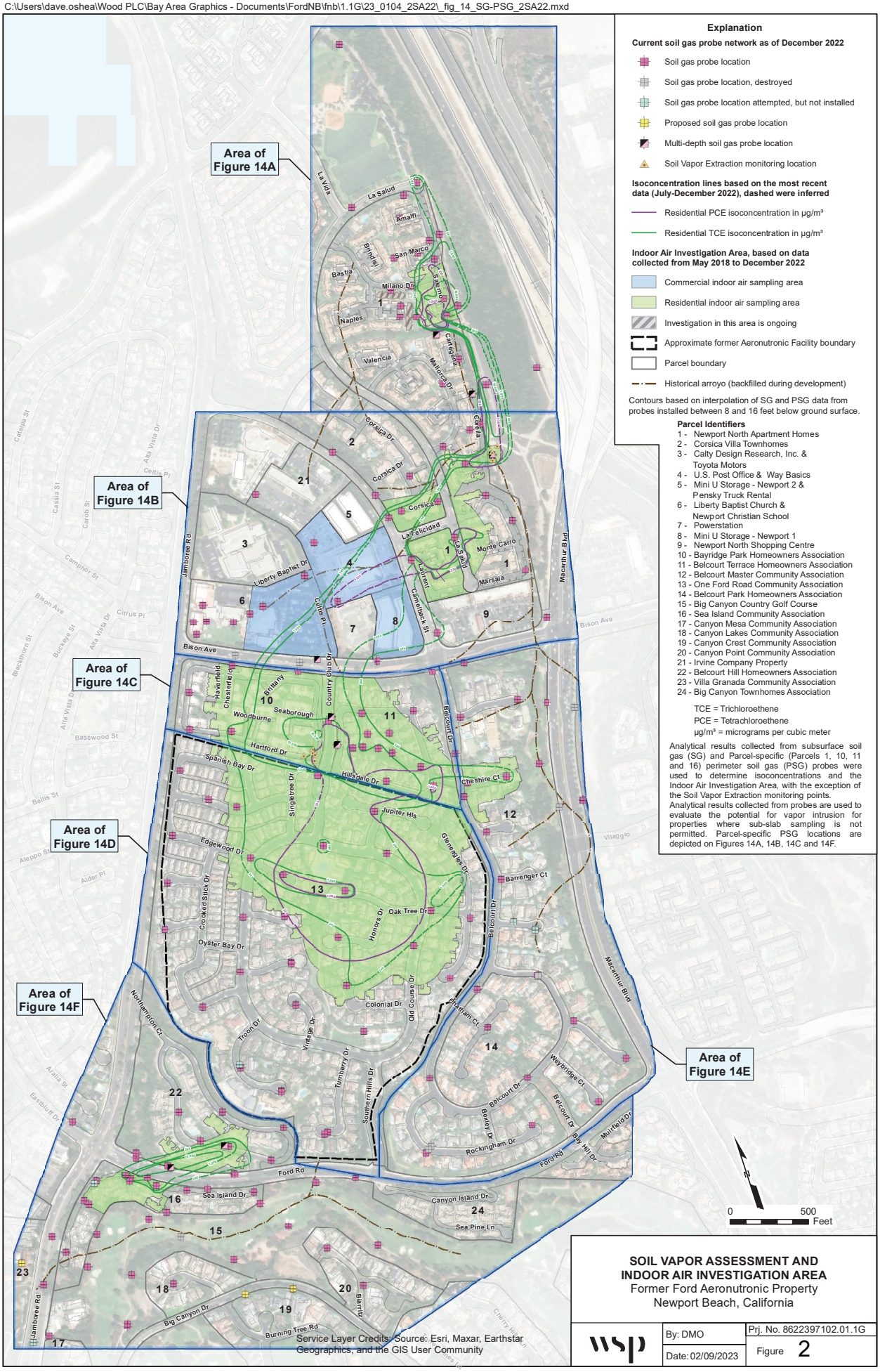

SOIL VAPOR ASSESSMENT AND INDOOR AIR INVESTIGATION AREA
Former Ford Aeronutronic Property
Newport Beach, California

wsp	By: DMO	Prj. No. 8622397102.01.1G
	Date: 02/09/2023	Figure 2