

# Manilla Community Services District – Monitoring Wells Project

## Project Description

### 1. Introduction

The Manila Community Services District (MSCD) is proposing to install four groundwater monitoring wells at the MSCD wastewater treatment facility in Manila California (Figure 1). The wells will be used for groundwater monitoring as part of the Waste Discharge Requirements (WDR) and Monitoring and Reporting Program (MRP) Order No. R1-2023-0003 required by the North Coast Regional Water Quality Control Board. The monitoring wells are intentionally sited in disturbed/developed areas so as to avoid impacts to sensitive biological resources including Environmentally Sensitive Habitat Areas (ESHA), wetlands, and special status plants. Following is a description of the proposed wells' locations; design and construction methods; and operation.

#### 1.1 Location

The four proposed well locations are shown in Figures 1 and 2. Only the proposed wells are included in the proposed project. The existing well (Well 1) and the lined and unlined ponds will not be modified. Monitoring Wells 1R, 3 and 4 will be constructed on the perimeter berm of the existing infiltration ponds. Monitoring Well 2 will be constructed in a landscaped grass area adjacent to the existing wastewater treatment facility pump house.

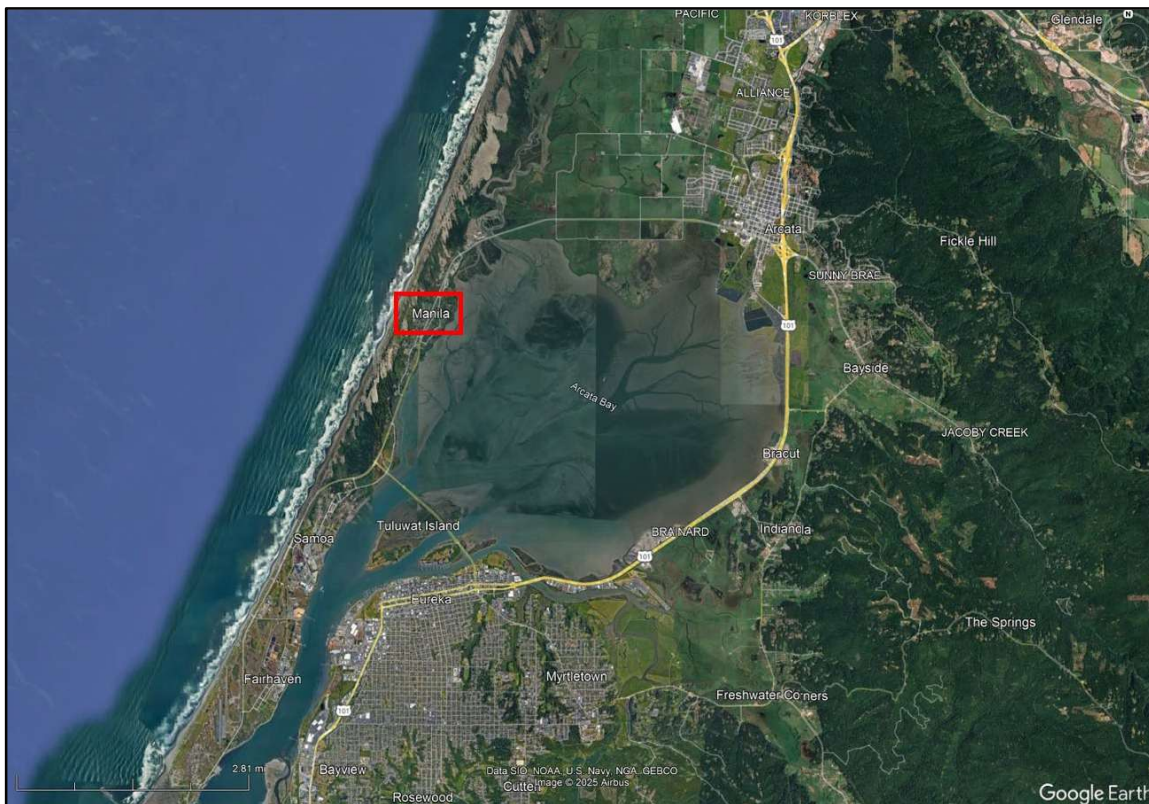
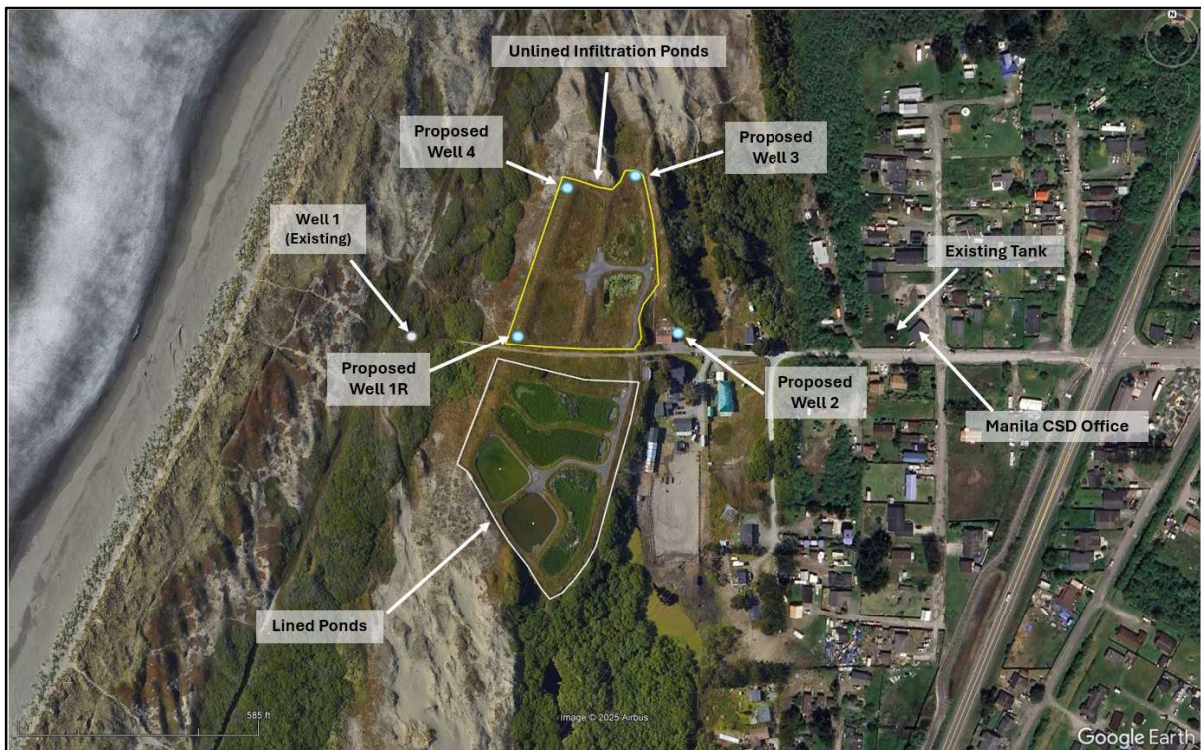


Figure 1. General area of proposed monitoring wells in Manila, California.



**Figure 2. Proposed monitoring well locations.**

## 1.2 Well Design

All monitoring wells will have a 2-inch diameter casing. Monitoring Well 1R will be constructed to a 35-ft depth and Monitoring Wells 2, 3 and 4 will be constructed to a 45-ft depth.

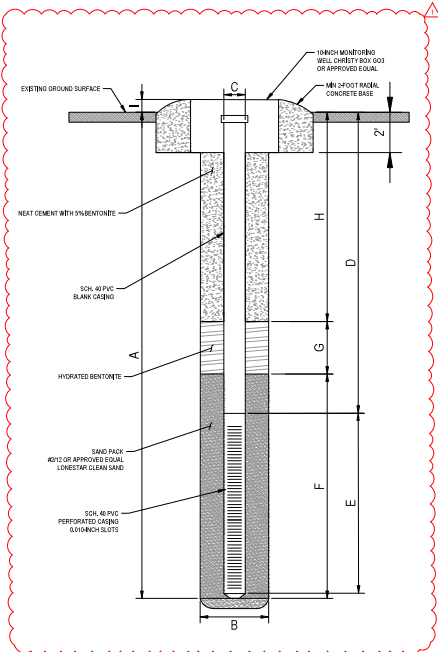
The borings will be six-inches in diameter and the constructed monitoring wells will be 2-inch diameter PVC pipe. A cap will be placed on the bottom of the well casings, and the wells will have 10-ft screen intervals for water intake. A filter pack will extend for a minimum of 2-ft above the screen perforations and will be comprised of clean, siliceous sand. Above the filter packs, a bentonite seal will be placed that is a minimum of 2-ft long. The borehole will be sealed with neat cement above the bentonite seal. The wells will be constructed flush to the ground surface, and the casings will be protected by a traffic rated Christy box. A concrete radial base extending 2-ft in every direction will be poured around the Christy boxes and will be sloped to support drainage away from the well casings.

## 1.3 Well Installation methods

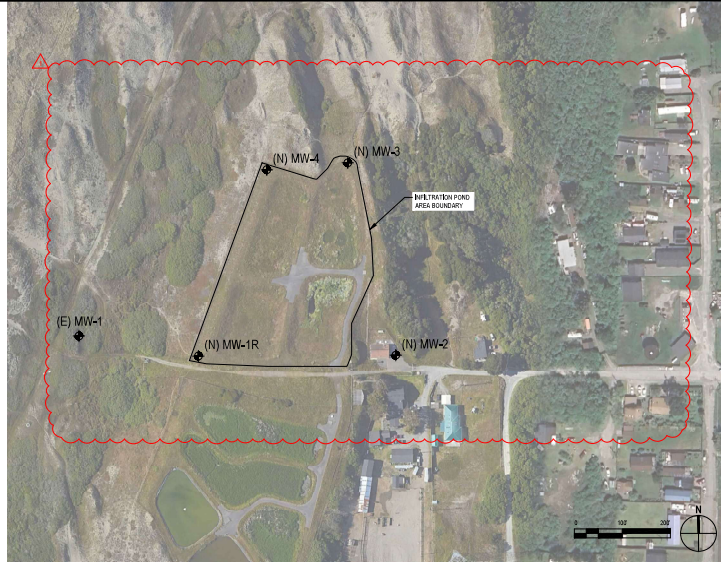
Proposed Monitoring Wells 1R, 3 and 4 are located so that during construction the drill rig can remain on a paved road that is on the perimeter of the infiltration pond. Monitoring Well 2 is located in a landscaped grass area and will require the drill rig to operate within the grass area. The drilling contractor will use an air rotary drill rig. Drilling and well construction will take approximately 1-2 days per well. All laydown and staging will occur on paved areas near the project site.

## 1.4 Well Operation

Depth to groundwater in each well will be measured on a monthly basis and groundwater quality monitoring will occur on an annual basis.



MONITORING WELL DETAIL  
NOT TO SCALE



MONITORING WELL LOCATIONS

SHEET GENERAL NOTES

- DRILLER CONTRACTOR'S SCOPE OF WORK**
- LOCATIONS OF MONITORING WELLS TO BE VERIFIED BY PROJECT ENGINEER PRIOR TO DRILLING.
  - DRILLER RESPONSIBLE FOR OBTAINING WELL DRILLERS PERMIT AND FOR EXECUTION OF PERMIT CONDITIONS. DRILLER TO NOTIFY COUNTY HEALTH DEPARTMENT PRIOR TO WELL CONSTRUCTION AND PLACEMENT OF SURFACE SEAL. BY FURNISHING BY PERMIT CONSTRUCTION.
  - MONITORING WELLS TO BE DRILLED USING A HOLLOW STEEL AUGER. MONITORING WELL LOCATIONS MAY REQUIRE A TRACK MOUNTED DRILLING EQUIPMENT TO ACCESS.
  - THE PROJECT ENGINEER RESERVES THE RIGHT TO INCREASE OR DECREASE THE DEPTH OF THE BORED HOLE BASED ON CUTTING MATERIALS ENCOUNTERED.
  - A REPRESENTATIVE SAMPLE OF CUTTING MATERIALS TO BE COLLECTED AT EACH CHANGE IN STRATA OR AT LEAST EVERY 5 FEET. SAMPLES TO BE LABELED AND STORED IN A MINIMUM OF QUARTZED WATERPROOF CONTAINERS THAT ARE STORED IN A MANNER TO PREVENT BREAKAGE OR LOSS.
  - WELL CASING TO BE CENTERED IN BOREHOLE WITH A MINIMUM ANNUAL SPACE OF 3/8" INCHES.
  - SAND PACK TO BE UNIFORMLY DISTRIBUTED AROUND SCREENED INTERVAL TO HEIGHT SHOWN. FILTER PACK SHOULD NOT BE STORED DIRECTLY ON THE GROUND OR IN CLOSE PROXIMITY TO POTENTIALLY CONTAMINATING MATERIALS.
  - BENTONITE SEAL ABOVE FILTER PACK TO BE PLACED AND HYDRATED PRIOR TO PLACING CEMENT SURFACE SEAL. BENTONITE TO BE ALLOWED SUFFICIENT HYDRATION TIME PRIOR TO CEMENT PLACEMENT.
  - CEMENT FOR SURFACE SEAL SHOULD BE MECHANICALLY MIXED AND PLACED IN A SINGLE OPERATION TO ENSURE A COMPLETE SEAL OF THE ANNULUS SPACE BETWEEN THE CASING AND BOREHOLE. IN ACCORDANCE WITH MINIMUM CEMENT TO BE PLACED BY IN A THREE PILE STARTING AT THE BOTTOM OF THE SEAL DEPTH AND PAVED SLOPE. AS THE CEMENT IS INTRODUCED, THE BOTTOM END OF THE TIREMEE PIPE SHOULD BE CONTINUOUSLY SUBMERGED IN THE CEMENT UNTIL THE SEAL IS COMPLETELY FILLED.
  - DURING DRILLING AND CONSTRUCTION THE WELL SHOULD BE FREE OF CONTAMINATING OR DESTRUCTIVE MATERIAL.
  - DRILLER RESPONSIBLE FOR DEVELOPING ALL NEW WELLS.
- SAMPLING AND TOP OF CASING SURVEY**
- WATER QUALITY SAMPLING AND TOP OF CASING SURVEY TO BE PERFORMED BY OTHERS.

**MONITORING WELL CONSTRUCTION SCHEDULE**

DESCRIPTION	TOTAL BORING DEPTH (FEET)	BORING DIAMETER (INCH)	CASING DIAMETER (INCH)	BLANK CASING LENGTH (FEET)	PERFORATED CASING LENGTH (FEET)	LENGTH OF SAND PACK (FEET)	BENTONITE TRANSITION SEAL (FEET)	SURFACE SEAL (FEET)	CASING HEIGHT ABOVE GROUND SURFACE (FEET)
	A	B	C	D	E	F	G	H	I
MONITORING WELL 1R	45	6	2	35	10	12	2	31	0.5
MONITORING WELL 2	35	6	2	25	10	12	2	21	0.25
MONITORING WELL 3	45	6	2	35	10	12	2	31	0.5
MONITORING WELL 4	45	6	2	35	10	12	2	31	0.5

						Drawn: C. GOLDEN Designer: B. WYMAN Drafting: B. WYMAN Design Check: L. HALLONER Project Manager: B. WYMAN Date: SEPT 2024 This document shall not be used for construction unless signed and sealed by the contractor.		Client: MANILA COMMUNITY SERVICES DISTRICT Project: WASTEWATER INFRASTRUCTURE IMPROVEMENT PROJECT Title: CIVIL DETAILS 7 OF 7 Project No.: 126179-05 ANSID: Sheet No. C-507	
Title: MONITORING WELL REVISION LOCATION AND DETAILS Issue: Issue Date: 05/20/20 Drawn: T. BELL Approved: B. WYMAN		Title: MONITORING WELL REVISION LOCATION AND DETAILS Issue: Issue Date: 01/10/24 Drawn: T. BELL Approved: B. WYMAN		Title: MONITORING WELL REVISION LOCATION AND DETAILS Issue: Issue Date: 01/10/24 Drawn: T. BELL Approved: B. WYMAN		Title: MONITORING WELL REVISION LOCATION AND DETAILS Issue: Issue Date: 01/10/24 Drawn: T. BELL Approved: B. WYMAN		Title: MONITORING WELL REVISION LOCATION AND DETAILS Issue: Issue Date: 01/10/24 Drawn: T. BELL Approved: B. WYMAN	