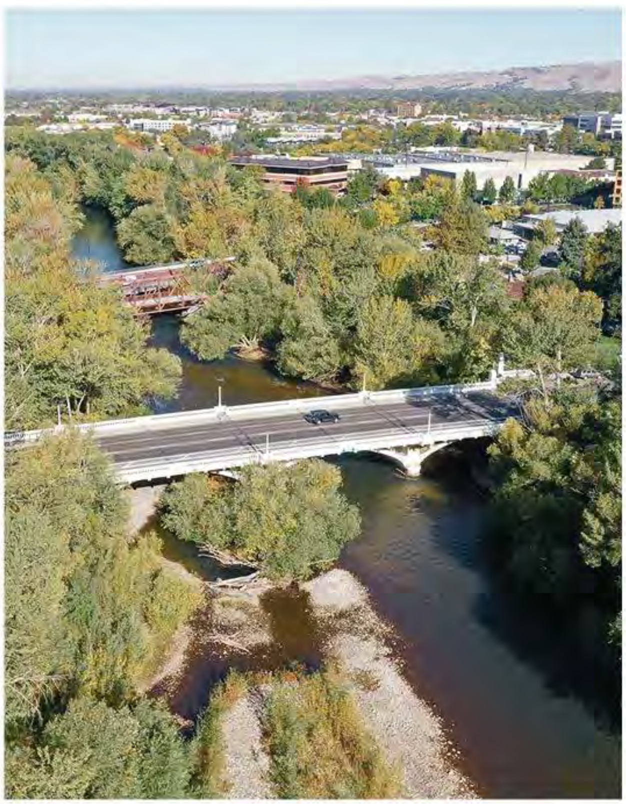
Ada County Highway District Stormwater Management Program

NPDES Phase II Permit #IDS028185

March 2024



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Acronyms

ACHD	Ada County Highway District
ACM	Alternative Control Measure
AU	Assessment Unit
AVL	Automatic Vehicle Location
BMP	Best Management Practice
CASQA	California Stormwater Quality Association
CGP	Construction General Permit
CSDC	Construction Site Discharge Control
CWA	Clean Water Act
GPS	Global Positioning System
EPA	Environmental Protection Agency
ESC	Erosion Sediment Control
FTE	Full Time Equivalent (position)
HOA	Homeowner Association
IDDE	Illicit Discharge Detection Elimination
IDEQ	Idaho Department of Environmental Quality
LA	Load Allocation
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
PCSM	Post-Construction Stormwater Management
ROW	Right of Way
SLD	Sheriff Labor Detail
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids

Section 1

Introduction

This Stormwater Management Program (SWMP) Document was developed by Ada County Highway District (ACHD) to describe the activities and control measures conducted to meet the terms and conditions of NPDES Permit #IDS028185. ACHD is regulated through a Phase I and Phase II Permit. This document addresses requirements of the Phase II Permit, IDS0281185. The National Pollutant Discharge Elimination System (NPDES) permit program is a requirement of the federal Clean Water Act (CWA), which is intended to protect and restore waters for “fishable, swimmable” uses. The EPA has delegated permit authority to state environmental agencies, and these agencies can set permit conditions in accordance with and in addition to the minimum federal requirements. As of July 1, 2021, the Idaho Department of Environmental Quality (IDEQ) has Permit authority through the Idaho Pollutant Discharge Elimination System (IPDES) Program.

The Environmental Protection Agency, Region 10 (EPA) reissued ACHD’s second cycle Phase II National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit (Permit) (No.IDS-028185), effective February 1, 2021. The current Permit is available at https://www.epa.gov/system/files/documents/2021-07/r10-npdes-ada-county-highway-district-ms4-ids028185-final-permit-mod-2021.pdf.

The Permit authorizes ACHD to discharge stormwater from ACHD’s MS4 outfalls to waters of the United States in accordance with the conditions and requirements of the Permit. The Permit covers urbanized area of the cities of Eagle, Meridian, and unincorporated Ada County (urbanized Ada County). A map of the Phase II Permit Area is included in Figure 1. The Permit expires on January 31, 2026.

This SWMP describes specific actions ACHD will take to ensure compliance with Permit requirements. The Permit requires ACHD to “maintain relevant regulatory mechanisms to control pollutant discharges into and from its MS4 and comply with the Permit.” (Permit,2.5.2). This SWMP document establishes the foundation on which ACHD will continue to build as best management practices (BMPs) are identified and implemented. Through the Permit required annual reporting process, ACHD will assess and report annually on the activities implemented, their effectiveness, recommend enhancements to the program, and implement changes as necessary to ensure continued permit compliance. The SWMP will be updated as needed to document these activities. Annual reports will be submitted to the IDEQ no later than April 4 of each year.

The Permit allows ACHD to discharge stormwater runoff from the MS4 into the state’s water bodies (i.e., streams, rivers, lakes, and wetlands) as long as programs are implemented to protect water quality by reducing the discharge of “nonpoint source” pollutants to the “maximum extent practicable” (MEP) through application of Permit-specified “best management practices” (BMPs). The BMPs specified in the Permit are collectively referred to as the Stormwater Management Program (SWMP) and grouped under the following SWMP components:

- Public Education and Outreach on Stormwater Impacts
- Illicit Discharge Detection and Elimination (IDDE)
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment
- Pollution Prevention and Good Housekeeping for MS4 Operations

1.1 Organization of Guidance Document

The contents of this document are based upon previous versions of ACHD's Phase II Stormwater Management Plan with updated content to address the second cycle NPDES Phase II requirements including updated effectiveness assessment strategies outlined in Section 1.5. The organization of this SWMP is based on EPA's Example Template: Storm Water Management Program Document, provided in Appendix B.1 of the Permit:

- **Section 1** addresses basic SWMP information including ACHD's jurisdiction, staff organization, receiving waters, and program information and analyses.
- **Section 2** addresses MS4 description and mapping information.
- **Section 3** addresses Permit requirements for targeting pollutants of concern and pollutant reduction activities.
- **Section 4** addresses ACHD's legal authorities allowed under Idaho law to implement and enforce the requirements of the Permit.
- **Section 5** addresses how ACHD meets the required program requirements to reduce pollutants in the MS4 to the maximum extent practicable.

Each section includes a summary of the relevant Permit requirements and a description of current and planned compliance activities.

1.2 ACHD Jurisdiction and Regulated Area

Established in 1972 as an independent government entity, the ACHD is responsible for all short-range planning, construction, maintenance, operations, rehabilitation and improvements to Ada County's urban streets, rural roadways (excluding state highways) and bridges. ACHD is the only consolidated countywide highway district in the State of Idaho. Geographically, the ACHD's jurisdiction includes Boise, Eagle, Garden City, Kuna, Meridian, and Star. The Phase II Permit Area includes urbanized portions of Eagle, Meridian, and unincorporated Ada County, as shown in Figure 1.

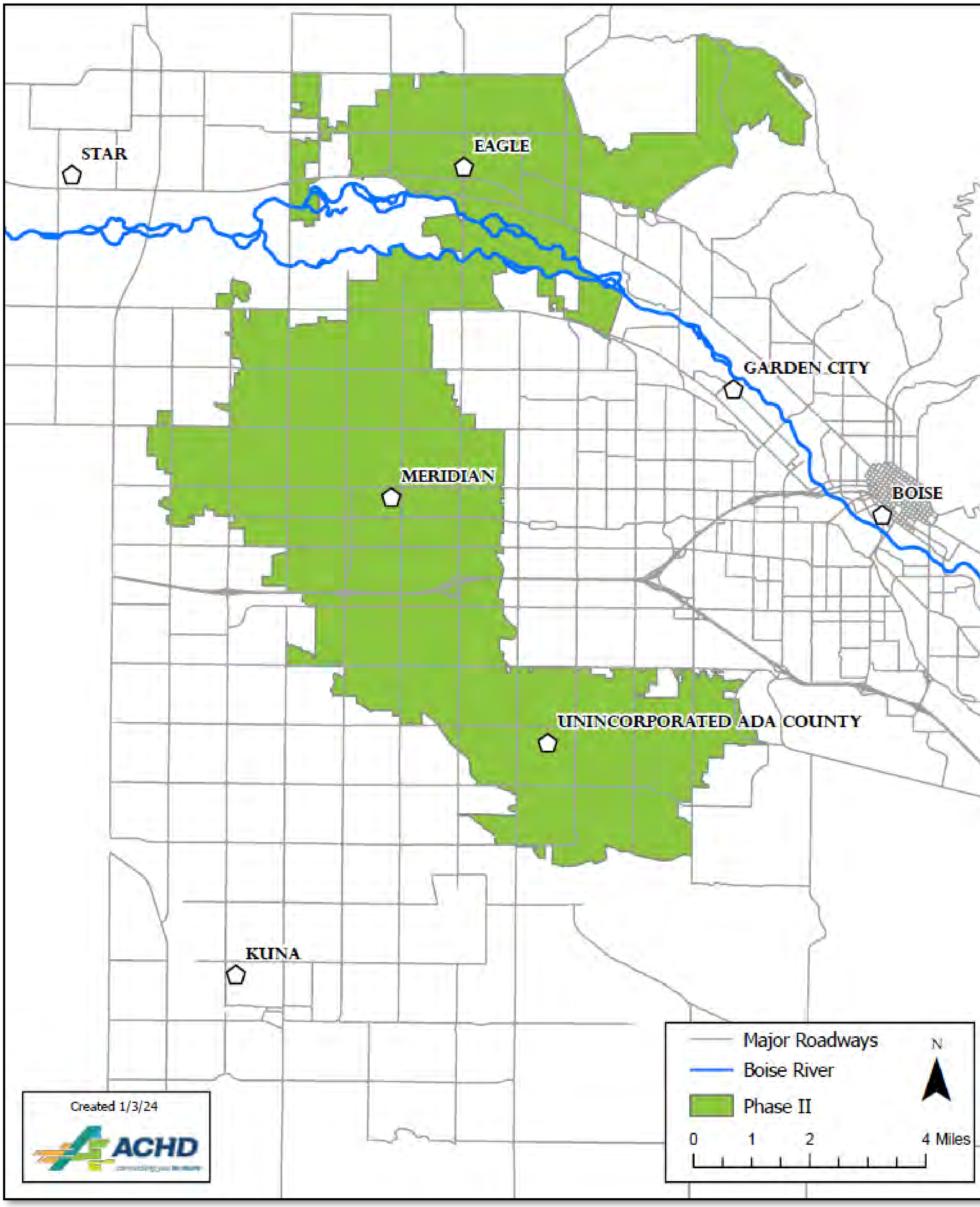

Figure 1. ACHD Phase II Permit Area

ACHD maintains and operates approximately 5,359 lane miles of roads and streets in Ada County, with an estimated value of three billion dollars. This infrastructure includes facilities that range from multi-lane, arterial streets with a computerized signal system, to narrow, farm-to-market roadways. To protect public safety and prevent property damage, ACHD designs and operates its stormwater drainage systems to prevent standing water on traveled areas. Roadways in urban settings typically have curbs and gutters that direct stormwater runoff to enclosed drainage systems, whereas stormwater from rural roadways typically flow to roadside ditches and swales. In recent years, ACHD has included Green Stormwater Infrastructure (GSI) BMPs into ACHD's stormwater management design standards and programmed funding for GSI implementation. All new, rebuilt, and retrofitted ACHD stormwater basins are vegetated to mitigate stormwater pollutants and GSI opportunities are explored for all new roadway projects.

1.3 Staff Organization

Five Commissioners govern the ACHD. Together, they are responsible for guiding the planning, development, and implementation of transportation facilities throughout the county. Elections are held every two years on a rotating basis, and each Commissioner represents a separate sub-district. A Commission appointed Director, who serves as chief administrator, manages the ACHD on a day-to-day basis.

Within the ACHD organization, the Environmental Department is the point of contact and Permit administrator for all MS4 NPDES Permit activities (Phase I and Phase II). The Environmental Department consists of nine full-time equivalent positions (FTEs) and one part-time student intern. Environmental Department FTE positions include Environmental Manager (1), Assistant Environmental Engineer (1), Environmental Programs Coordinator (1), Environmental Supervisor (1), Sr. Environmental Planner (1), and Environmental Specialist (4). The Maintenance Division performs countywide MS4 maintenance activities and plays a significant role in ACHD's stormwater management activities. Stormwater related FTEs in the Maintenance Department include 14 FTEs dedicated to stormwater system cleaning and 32 FTEs dedicated to street sweeping activities. Stormwater Management Program responsibilities and activities are performed by various departments within the ACHD organization and are summarized in Table 1.

Table 1. ACHD Stormwater Management Program Responsibilities

ACHD Department/Section	Summary of Activities	SWMP Control Measures*
Development & Technical Services Environmental	• Administration of ACHD's NPDES Phase I and Phase II stormwater permits • Review and inspection of construction controls for ACHD projects and private work in ACHD right-of-way (ROW) • Education and outreach activities • Wet and dry weather monitoring • Outfall delineation and inspection • Illicit discharge inspection and response, stormwater bmp design standards • GSI implementation and basin revegetation	Construction Site Stormwater Runoff Control, Public Education and Outreach, Public Participation, Post-Construction Stormwater Management, Illicit Discharge Detection and Elimination, Pollution Prevention/Good Housekeeping for MS4 Operations
Development & Technical Services Development Review	• Development project review • Inspection of public roadways and storm drain system in private development e.g., subdivisions and developer sponsored roadway projects	Post-Construction Stormwater Management

Table 1. ACHD Stormwater Management Program Responsibilities		
ACHD Department/Section	**Summary of Activities**	**SWMP Control Measures***
Development & Technical Services Construction	• Issuance of Work in ROW permits, collection of fees • Private construction in ROW inspections • Distribution of pollution prevention educational brochures	Construction Site Stormwater Runoff Control, Education and Outreach, Illicit Discharge Detection and Elimination
Development & Technical Services Project Inspection	• Inspection of ACHD projects for construction and new development controls • Construction General Permit administration for ACHD construction projects	Construction Site Stormwater Runoff Control, Post-Construction Stormwater Management
Development & Technical Services Design	• Incorporation of construction and new development controls into ACHD roadway project plans	Construction Site Stormwater Runoff Control, Post-Construction Stormwater Management
Development & Technical Services Traffic Operations	• Implementation of pollution prevention activities in traffic operations (e.g., roadway stripping, signal construction/installation)	Pollution Prevention/Good Housekeeping for MS4 Operations
Maintenance Operations Administration	• Administration and implementation of pollution prevention and good housekeeping at ACHD facilities and operation yards	Pollution Prevention/Good Housekeeping for MS4 Operations
Maintenance Operations Cloverdale	• Maintenance of MS4 system including detention and retention basins (ACHD and Homeowner Association (HOA)-owned) • Illicit discharge response • Storm drain system inspection and cleaning	Pollution Prevention/Good Housekeeping for MS4 Operations, Illicit Discharge Detection and Elimination
Maintenance Operations Adams	• Maintenance of MS4 system • Illicit discharge response • Street sweeping	Pollution Prevention/Good Housekeeping for MS4 Operations, Illicit Discharge Detection and Elimination
Planning and Project Management Capital Projects	• Incorporation of construction and new development controls into ACHD roadway project plans	Construction Site Stormwater Runoff Control, Post-Construction Stormwater Management
Communications	• Development and implementation of stormwater education and outreach resources	Public Education, Outreach, and Public Involvement
Human Resources Training	• Implementation and tracking of Permit required internal training resources	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control, Post-Construction Stormwater Management, Pollution Prevention/Good Housekeeping for MS4 Operations
Information Technology GIS	• Maintenance of the geographic information system storm drain layers and auxiliary tools.	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control, Post-Construction Stormwater Management

**See Section 5 of this document for a description of the SWMP control measures*

1.4 Receiving Waters

The waterbodies identified in Table 2 receive stormwater discharges from ACHD's MS4 outfalls in the Phase II Permit Area. These waterbodies are designated in Idaho's water quality standards (IDAPA 58.01.02.140.12) and assigned a waterbody assessment unit (AU) by IDEQ. More information associated with the AU's is available in Idaho's 2022 Integrated Report[1]. In addition to the waterbodies listed below, ACHD discharges to numerous conveyances including canals, laterals, and drains that are not within the AU database maintained by IDEQ. A complete list of Phase II Permit Receiving Waters and Outfall Ownership is available in Appendix B.

ACHD's MS4 does not discharge to another jurisdiction's MS4 in the Phase II Permit Area. A map and description of the entire Phase II MS4 is included in Section 2 and Appendix A.

Table 2. 2023 Phase II Assessment Unit Receiving Water and Outfall Ownership Summary

Receiving Waterbody	Assessment Unit	ACHD Owned*	Non-ACHD Owned	Total Outfalls
Dry Creek	ID17050114SW013_04	5	2	7
Eightmile Creek	ID17050114SW010_03	18	8	26
Eightmile Lateral	ID17050114SW010_03	0	1	1
Farmers Union Canal	ID17050114SW012_02	2	0	2
Fivemile Creek	ID17050114SW010_03	44	32	76
Ninemile Creek	ID17050114SW010_02	20	14	34
Tenmile Creek	ID17050114SW008_03	28	45	73
Total	-	117	102	219

**ACHD Owned also includes partial ownership with another entity*

1.5 SWMP Information, Analyses, and Assessment

A Permit required element of the SWMP is to "begin to assess, or participate in one or more efforts to assess, the understanding of the relevant messages and adoption of appropriate behaviors by their target audience(s). The resulting assessments must be used to direct future stormwater education and outreach resources most effectively." (Permit, 3.1.5) Effectiveness assessment is a process that is used to evaluate whether stormwater management activities are resulting in desired outcomes. This SWMP adopts an effectiveness assessment approach based on A Strategic Approach to Planning for and Assessing the Effectiveness of Stormwater Programs[2].

1.5.1 Outcome Levels

Six Outcome Levels are used to refer to the results of control measures and activities discussed in Sections 3 and 5 of this SWMP and shown in Figure 2. Outcome Levels help to categorize and describe the desired results or goals of programs and activities. For the purposes of this SWMP,

[1] www.deq.idaho.gov

[2] https://www.casqa.org/resources/stormwater-effectiveness-assessment/guidance-document

Outcome Levels 1-5 are the primary focus. As the Phase II SWMP matures, Outcome Level 6 will become more relevant.

Each Outcome Levels is described below:

- **Level 1 –Stormwater Program Activities** Level one outcomes provide direct feedback on whether the activities or control measures are being developed and implemented as planned and on schedule.
- **Level 2 – Barriers and Bridges to Action** Level two outcomes provide feedback on how effective the various control measures have been in raising awareness and changing attitudes of the target audiences.
- **Level 3 – Target Audience Actions** Level three outcomes provide feedback on how effective the activities and control measures have been in motivating target audiences to change their behaviors and implement appropriate BMPs.
- **Level 4 – Source Contributions** Level four outcomes provide feedback regarding reductions in the amounts of pollutants associated with the specific sources resulting from the implementation or enhancement of a BMP.
- **Level 5 – MS4 Characterization** Level five outcomes may be measured as reductions in one or more specific pollutants and may reflect effectiveness at a variety of scales ranging from site-specific to programmatic.
- **Level 6 – Receiving Water Conditions** Level six outcomes focus on compliance with water quality standards, protection of biological integrity, and beneficial use attainment.

Each outcome level is a building block to the next level. However, most often the outcome levels are presented in reverse order as shown in Figure 2. The reverse order allows planning and assessment activities to be developed by looking at the measured or observed effects and trying to establish the cause.

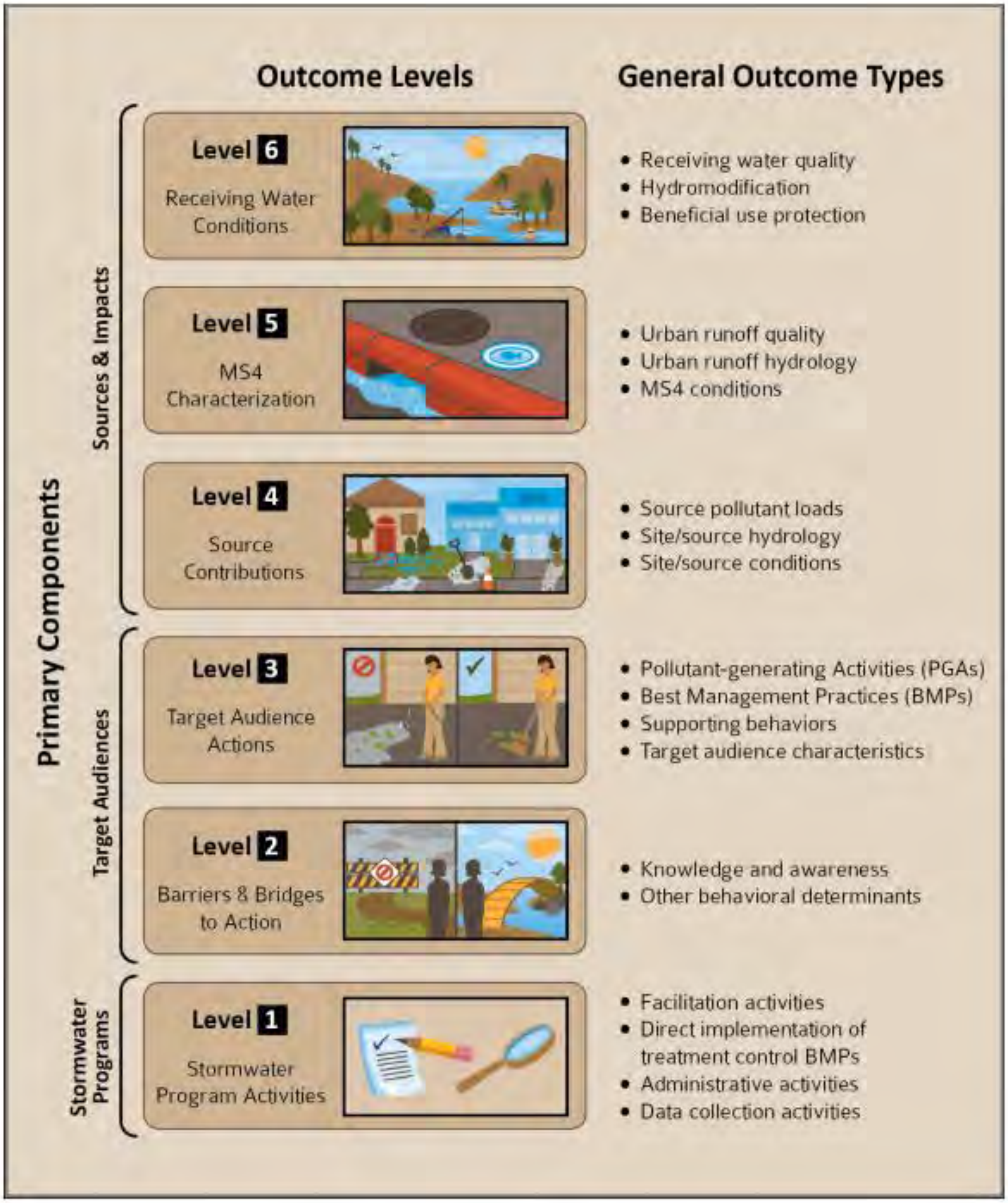

Figure 2. Six Outcome Levels and General Associated Outcome Type

(CASQA Stormwater Management Model, 2015)

1.5.2 Data Collection and Analysis Activities

Data collection and analysis provide the feedback necessary to plan and evaluate outcomes[3]. A range of data collection methods are used to meet specific desired outcomes and goals. The data collection methods used by ACHD depends on the activity being measured and intended outcome. Often, more than one data collection method will be used to collect meaningful data for a particular program or activity.

Internal Tracking by Stormwater Program *is the primary method ACHD will use to account for stormwater program activities which relies on good record keeping and can be used to document trends over time. An example is the number of catch basins cleaned or inspections completed in a year.*

Reporting to Stormwater Program *includes various types of program data reported to ACHD through citizens reports via the stormwater hotline, Tellus (ACHD's online portal), municipal staff, ACHD staff or IDEQ. Typically, these reports will require complaint investigations or site visits and involve potential illicit discharges and/or spill response.*

Interviews *will most often be performed in response to complaint investigations and inspection results. Interviews are useful to gain insight into current practices and assessing understanding of BMPs.*

Surveys *can be done via different methods and are designed to determine the knowledge, awareness, and behaviors of a specific population (school children, residents, etc.). For public education and involvement activities, surveys will be used to assess change in the public's awareness and attitudes regarding stormwater management.*

Inspections or Site Visits *- include any method used to directly observe or assess practices used by a target audience. They may be regulatory or part of an information gathering educational outreach effort. ACHD will document inspections of activities that can be visually assessed.*

Monitoring and Sampling *is performed as part of ACHD's phase II monitoring program. Both dry weather and wet weather monitoring programs provide data to assess ACHD's stormwater programs. Dry weather data collection is useful in detecting illicit discharges and source tracing when flow is present. These outcomes can be accomplished with relatively little data. In contrast, due to the variability of stormwater runoff and the resources needed to perform wet weather sample collection, long term data sets and extensive analysis are often needed to realize overall program improvement using wet weather monitoring data. ACHD is performing stormwater discharge characterization monitoring at one site in the Phase II Permit Area. See Section 3 for additional information.*

Multiple data collection methods are used to meet specific desired outcomes and goals.
The applicability of data collection assessment methods to specific outcome levels are depicted in Table 3.

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[3] https://www.casqa.org/resources/stormwater-effectiveness-assessment/guidance-document

Table 3. Data Collection Methods

Outcome Level	Outcome Type	Methods					
		Internal Tracking	Reporting to Stormwater Program	Interviews	Surveys	Inspections or Site Visits	Monitoring & Sampling
1	Administrative activities	▪					
	Facilitation activities	▪					
	Data Collection	▪			▪		
2	Awareness knowledge & attitudes			▪	▪		
3	Information seeking	▪	▪	▪	▪	▪	▪
	Pollution reporting	▪	▪	▪			
	Participating and involvement	▪	▪	▪	▪	▪	
	Administrative and procedure behaviors	▪	▪	▪	▪	▪	
	Implementation of control measures	▪	▪	▪	▪	▪	▪
	Regulatory compliance	▪	▪	▪	▪	▪	▪
4	Source pollutant loads				▪	▪	▪
	Site/source hydrology				▪	▪	▪
5	Urban runoff quality					▪	▪
	Urban runoff hydrology					▪	▪
6	Receiving water quality					▪	▪
	Hydromodification impacts					▪	▪
	Beneficial use protection					▪	▪

1.5.3 Assessment Methods

Assessment methods are activities, actions, or processes used to obtain and evaluate assessment data or information[4]. Like data collection, the methods of assessment vary depending on the control measure. Control measures refer to any action, activity, Best Management Practice, or other method used to control the discharge of pollutants in MS4 discharges. Table 4 represents outcome levels achieved through implementation of the stormwater program control measures. Specific activities are included as an example of outcome levels that can be achieved through activities performed to meet Permit requirements. As programs are implemented and data is collected, ACHD will evaluate the actual outcome of these implementation actions compared to the targeted outcome to determine the effectiveness of the action.

[4] https://www.casqa.org/resources/stormwater-effectiveness-assessment/guidance-document

Table 4. Applicable Assessment Methods for Specific Outcome Levels

Outcome Level	Stormwater Program Control Measure					
	Public Education & Outreach	Illicit Discharge Detection & Elimination	Construction Site Stormwater Runoff Control	Post-Construction Stormwater Management	Pollution Prevention/Good Housekeeping	Monitoring
Level 6 Receiving Water Conditions						• Pollution Reduction Activities
Level 5 MS4 Characterization		• Dry weather sampling program				• Wet weather sampling
Level 4 Source Contributions		• Mapping of MS4			• Catch basin inspection and cleaning • Street sweeping	• Subwatershed Monitoring • Pollutant load and reduction estimates
Level 3 Target Audience Actions	• Distribute educational messages to selected audiences	• Stormwater hotline • Illicit discharge complaint response	• Implement and enforce Construction Site Discharge Control Program	• Implement Policy 8000 (Drainage and Stormwater Management) 8200 Stormwater Design Manual	• Implement and update BMP manual for ACHD O&M activities	
Level 2 Barriers & Bridges to Action	• Assess audience's understanding		• Communicate with construction community	• Develop high priority inspection prioritization process		
Level 1 Stormwater Program Activities	• Publicly available website	• Conduct dry weather inspections • ACHD Staff training	• Inspection prioritization • ACHD Staff training	• Require O&M Plans • Review of proposed subdivision and new development	• ACHD Staff training • Maintain facility SWPPPs	

1.6 Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation

The Permit requires the implementation of control measures in all new areas added or transferred to ACHD's MS4, or areas for which ACHD becomes responsible for implementing stormwater quality controls, no later than one (1) year from the addition of the new areas.

ACHD implements the Phase I and Phase II SWMPs throughout Ada County. City annexations, if any, are evaluated annually and mapping updated. Whereas City boundaries may change slightly, this does not impact ACHD's overall jurisdiction and implementation of control measures.

Section 2

Description of Separate Stormwater System

This section shows a map of the stormwater system and provides a detailed description of the setting and system.

2.1 Physical Setting and Climate

Ada County is part of the Treasure Valley located in the Snake River Plain of southwest Idaho. The Treasure Valley is bound by the Boise Mountains to the north and the Owyhee Mountains to the south. The Boise River runs approximately east to west in the northern half of the county while the Snake River bounds the county's southern border. The physical setting of the county is a semiarid high mountain desert, characterized by cold wet winters and hot dry summers. Annually the area receives an average of 12 inches of precipitation with the majority received between the months of November through May.

2.2 Existing Land Use and Growth

Ada County covers approximately 1,060 square miles in southwestern Idaho and is the most populous county in the state. According to the Community Planning Association of Southwest Idaho (COMPASS) estimates, Ada County has a population of 544,590 people in 2023, with the majority (88.34%) living in one of Ada County's six municipalities: Boise, Meridian, Eagle, Garden City, Kuna, and Star. The remaining 11.66% of residents live in unincorporated Ada County.[5] A population summary for Ada County by city is provided in Table 5.

Table 5. Ada County Population by City

City	2023 Population	% Of County Total
Boise	247,040	45.36%
Meridian	138,620	25.45%
Unincorporated	63,510	11.66%
Eagle	35,360	6.49%
Kuna	29,880	5.49%
Garden City	12,990	2.39%
Star	17,190	3.16%
Total	544,590	100.0%

Source: COMPASS

[5] https://www.compassidaho.org/documents/prodserv/demo/2022PopulationEstimateOfficialHistoric.pdf

Recent projections by COMPASS suggest the population of the County could reach 674,000 people by 2040 — an increase of over 141,000 residents during the next 17 years. Growth in Ada County will be compounded by growth in neighboring counties. Together with Canyon County (expected to grow by over 340,000 residents by 2040), COMPASS predicts the region will be home to over 1 million people by 2040. Land uses in Ada County vary greatly by location. Most "urban" uses are found within the six municipalities located in north-central Ada County, while a more "rural" character pervades in the unincorporated areas. Irrigated agriculture, which was once a predominant feature in many areas of Ada County, has decreased as residential and other non-agricultural uses have become more prevalent. A unique feature of land use in Ada County is the prevalence of public lands (both federal and state owned and/or managed), which account for roughly 52% of the total land area. Within unincorporated Ada County, residential land uses are most common within Areas of City Impact, or one of four planned communities (Avimor, Cartwright Ranch, Dry Creek Ranch, or Hidden Springs) located in the northeastern part of Ada County. Much of southern Ada County remains undeveloped and falls within the Snake River Birds of Prey National Conservation Area, managed by the Bureau of Land Management, and/or within the Orchard Combat Training Center, used by the U.S. armed forces and Idaho National Guard for training and other military exercises.[6]

2.3 Description of Phase II MS4

The stormwater drainage system within the Phase II Permit Area is comprised of the ACHD-owned and operated MS4 and privately owned on-site drainage facilities. To add complexity, numerous irrigation/drainage conveyance systems are connected to the MS4 and conversely, the MS4 is connected to the irrigation/drainage systems. The irrigation and drainage districts are privately owned and operated and are not subject to NPDES MS4 permitting regulations.

Water does not follow natural drainage paths in much of the lower Boise Valley. Historically, most natural waterways in the valley were deepened, lengthened, straightened, and diverted to serve primarily as irrigation conveyances to water agricultural crops and provide flood control. Drains, laterals, and canals were also constructed for agricultural purposes. Today, these conveyance systems are used and managed in much the same way as in the past with the exception that much of the water is now used to irrigate urban landscapes instead of agricultural fields and cropland.

The Phase II MS4 serves the urbanized areas of the cities of Meridian, Eagle, and unincorporated Ada County. The current inventory of ACHD-owned stormwater facilities in the Phase II Permit Area are detailed in Table 6.

Table 6. Phase II Area Stormwater Facility Inventory

Structure Type	Inventory
Storm Drain Pipe (miles)	231
ACHD Outfalls	416
Total Outfalls (ACHD and private)	638
Storm Drain Inlets	9,154
Sediment/Combo Boxes	3,598
Seepage Beds	2,415

[6] https://adacounty.id.gov/developmentservices/strategic-planning-division/comprehensive-plans/

Table 6. Phase II Area Stormwater Facility Inventory	
Structure Type	**Inventory**
Swales	518
ACHD-owned Basins	43
Homeowner Association Basins (detention and retention)	581

Appendix B includes a complete outfall inventory for 2023 and the MS4 outfall locations identified as having dry weather flows caused by irrigation return flow or ground water seepage. More information is located under Dry Weather Outfall Screening Program in Section 5.2.2.4.

ACHD is responsible for all maintenance activities for ACHD-owned stormwater basins. Additionally, ACHD provides heavy maintenance for privately-owned stormwater basins that receive stormwater runoff from the right-of-way. Distinctions between light and heavy maintenance responsibilities are described in ACHD Policy 8200. Light maintenance predominately addresses aesthetic features of the stormwater control facility such as landscaping, litter control, and erosion control, whereas heavy maintenance addresses functional aspects such as sediment removal, rebuild, or replacement.

2.4 Map of the Phase II MS4

The ACHD Phase II MS4 stormwater infrastructure maps are presented in Appendix A. The maps are divided into nine sections to show a more detailed view of stormwater drainage system features. In the legend of each map, a spatial grid index shows which section of the map is being viewed. The features of the map can be turned on and off in the Layers tab of the PDF document. This allows viewers to determine which features are visible. Waterbodies designated in Idaho's water quality standards and assigned a waterbody AU by IDEQ are labeled on the map and symbolized as dark blue lines. A status report indicating use impairments of each AU is available by using the search tool in IDEQ's Final 2022 305(b) Integrated Report interactive map, available at https://mapcase.deq.idaho.gov/wq2022/.

Section 3

Targeting Pollutants of Concern

The ACHD's Phase II monitoring program is designed to meet Permit requirements by providing stormwater quality monitoring data that can be used to characterize the stormwater discharging from ACHD's Phase II outfalls and assess the effectiveness of programs discussed in Sections 5.1 - 5.5. To provide the information, the following monitoring activities are/will be performed:

- Wet weather stormwater discharge outfall monitoring/characterization
- Dry weather outfall screening/monitoring
- Pollutant reduction activities

This section focuses on wet weather stormwater outfall monitoring and pollutant reduction activities. Dry weather outfall screening and monitoring is discussed in greater detail in Section 5.2.1.

3.1 Monitoring/Assessment of MS4 Discharges to Impaired Waters

The data collected from the monitoring and assessment activities must, at a minimum, be sufficient to:

- Quantify pollutant loadings for the impairment pollutants from the portions of the MS4 discharging into the Boise River and its tributaries (MS4 Permit 4.2)
- Characterize temperature in stormwater discharges

ACHD developed a *Phase II Monitoring and Assessment Plan* (Monitoring Plan), which was submitted to EPA as an Alternate Control Measure (ACM) request on April 15, 2021. As described in the Monitoring Plan, ACHD will monitor wet weather discharges from an outfall in Meridian, Idaho. The Monitoring Plan describes the methods for data collection to achieve the two objectives listed above. A brief description is included below.

- **Site Characteristics:** The State monitoring site is located next to Fivemile Creek, near the intersection of E. State Ave. and Cathy Ln. in Meridian, Idaho. The catchment area discharges through an outfall directly into Fivemile Creek. The subwatershed is approximately 34 acres and consists of both residential and commercial land uses. Commercial land use within the subwatershed contains a restaurant, office buildings, shops, and churches. Existing drainage structures include a siphon drain, sand and grease traps, and catch basins. Open irrigation ditches can be seen throughout the subwatershed, but little is known about dry weather flows discharging from this outfall. Projects within the drainage area associated with ACHD's Five Year Work Plan include asphalt work, curb infill, curb replacement, and small storm drain improvements.
- **Sample Type:** Samples will be collected as either grab samples or composite samples. Grab samples will be achieved by attaching a sterile sample bottle to a sample pole and lowering it into the middle of the storm flow to fill the sample bottle. Composite samples will be flow-weighted and collected using automated sampling equipment throughout the duration of a storm.
- **Parameters:** The Monitoring Plan details the full list of parameters and the laboratory methods associated with each analysis. This list of constituents includes, but is not limited to, the following: Temperature, Total Phosphorus, *E.coli*, and Total Suspended Solids (TSS).

- **Frequency:** Wet weather discharge monitoring will be conducted at a minimum frequency of three wet weather events per Permit reporting year (Feb 1 – Jan 31). One of these monitored wet weather events will occur during September-October, as required by Permit Part 6.2.4.4. Though not required, effort will be made to separate sampling events by a minimum of 30 days to better represent seasonal variability.

A current status report of monitoring activities conducted each Permit reporting year is provided to IDEQ annually. A final report summarizing all monitoring and assessment data collected during the permit term will be submitted as an attachment to the Permit Renewal Application.

3.2 Pollutant Reduction Activities

To control impairment pollutants in their MS4 discharges, ACHD must:

- Define and implement at least two activities designed to reduce impairment pollutants from the MS4 (MS4 Permit 4.3)
- Quantify the estimated pollutant reduction accomplished resulting from such activities

ACHD developed the ***Meridian Stormwater Mitigation – E. State Avenue*** pollutant reduction activity and submitted to EPA for consideration on April 15, 2021. A second pollutant reduction activity, ***Reutzel Drive Stormwater Basin***, was submitted to IDEQ for consideration on January 27, 2023. Status reports of pollutant reduction activities are provided to IDEQ annually. A brief description of the pollutant reduction activities is provided below.

3.2.1 Pollutant Reduction Activity #1: Meridian Stormwater Mitigation – E. State Avenue

This pollutant reduction activity involves the construction of a stormwater facility in the State Avenue subwatershed in Meridian, Idaho. Stormwater runoff from the 34-acre watershed flows through a piped storm drain system and discharges through an ACHD-owned outfall into Fivemile Creek. Control structures within the watershed include storm drain manholes, a siphon drain, storm drain inlets, and sand and grease traps. To further reduce nutrients and sediment discharging from the MS4 to Fivemile Creek, ACHD hired a consultant to design and construct a vegetated stormwater facility. The facility will detain stormwater flows to allow for vegetation pollutant uptake, evapotranspiration, sedimentation, filtration, solar disinfection and/or soil infiltration to occur.

Stormwater flow and pollutant concentration data is collected at the State monitoring site to characterize the quality of stormwater discharging from the State Avenue subwatershed. This data, collected during wet weather events as described in the *Phase II Monitoring and Assessment Plan*, will be used to estimate load reductions attributed to the new stormwater facility. The State Avenue pollution activity timeline is listed in Table 7.

Table 7. Meridian Stormwater Mitigation – E. State Avenue Pollution Activity Timeline

Fiscal Year	Activity
2021	• Begin right-of-way acquisition for the project site parcel. • Install flow monitoring equipment in the storm drain upstream of the outfall into Fivemile Creek. • Begin research into development of the State monitoring site.
2022	• Install groundwater monitoring wells. • Construct the State monitoring site and install sampling equipment. • Begin wet weather discharge monitoring.
2023	• Design the stormwater facility.

Table 7. Meridian Stormwater Mitigation – E. State Avenue Pollution Activity Timeline	
Fiscal Year	**Activity**
	• Construct the stormwater facility. • Continue wet weather discharge monitoring.
2024	• Continue wet weather discharge monitoring. • Monitor/observe stormwater facility function.
2025	• Final report summarizing implementation and effectiveness of pollutant reduction activity to date.

3.2.2 Pollutant Reduction Activity #2: Reutzel Drive Stormwater Basin

This pollutant reduction activity involves the construction of a stormwater basin in unincorporated Ada County, near the intersection of Reutzel Drive and Eightmile Creek.

Stormwater runoff from a 14.71-acre watershed flows through a piped storm drain system and discharges through an ACHD-owned outfall into Eightmile Creek. Control structures within the watershed include storm drain inlets and sand and grease trap. To further reduce nutrients and sediment discharging from the MS4 to Eightmile Creek, ACHD hired consultants to design and construct a vegetated stormwater facility. The facility will detain stormwater flows to allow for vegetation pollutant uptake, evapotranspiration, sedimentation, filtration, solar disinfection and/or soil infiltration to occur.

Due to the elevation of the inlet pipe to the stormwater facility, it is infeasible to continuously monitor flow. Instead, ACHD will include calculated pollutant reduction estimates attributed to the new stormwater facility in the final report summarizing the implementation of the pollutant reduction activity. The Reutzel Drive stormwater basin activity timeline is listed in Table 8.

Table 8. Reutzel Drive Stormwater Basin Activity Timeline	
Fiscal Year	**Activity**
2023	• Construct the stormwater facility. • Conduct post-storm event observations
2024	• Continue to conduct post-storm event observations • Monitor/observe stormwater facility function.
2025	• Final report summarizing implementation and effectiveness of pollutant reduction activity to date.

Section 4

Legal Authority and Enforcement

ACHD is the governing agency responsible for construction and maintenance of all local roads, including the storm drain system, in Ada County, Idaho. ACHD's legal authority is based upon the laws of the State of Idaho. Specific authority is found in Title 40, Idaho Code, Chapters 13 and 14 https://legislature.idaho.gov/statutesrules/idstat/title40/. Because of the limited purpose of ACHD, as defined by the State Code, such legal authorities and provisions are interpreted as intended for facilities and operation and maintenance within the jurisdictional right-of-way of ACHD. ACHD does not provide police or enforcement power and must rely on the powers of municipal government.

Specific legal authority granted to ACHD through state code includes the following:

- **Powers and Duties of Highway Commissioners, Idaho Code 40-1406**
  https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/

  ACHD Commissioners are empowered to pass ordinances, rules, and regulations as necessary for carrying into effect or discharging all powers and duties conferred to a Countywide highway district by state code.

- **Drainage Authority, Idaho Code 40-1451(1)(d)**
  https://legislature.idaho.gov/statutesrules/idstat/Title40/T40CH14/SECT40-1415/

  ACHD has authority over drainage where it is necessary for motorist safety or necessary for right-of-way maintenance. This code provision limits the extent and nature of authority in which ACHD is empowered.

- **Subdivision Plat Review, Acceptance and Approval, Idaho Code 40-1415(6)**
  https://legislature.idaho.gov/statutesrules/idstat/Title40/T40CH14/SECT40-1415/

  Subdivision plats are required to be submitted to ACHD for acceptance and approval for highway design, drainage provisions, and traffic conditions.

- Common Law Authority

  ACHD has certain common law authority to control discharges of stormwater into any storm drains which are located within the public right-of-way by means of ACHD’s control and owner’s interest in the public right-of-way.

- Authority as a Municipal Corporation

  ACHD may have certain inherent authority as a municipal corporation by virtue of its ordinance authority to regulate discharges of stormwater into ACHD’s stormwater system.

ACHD implements the following ACHD policy sections and provisions to address stormwater system drainage and management, stormwater design, construction site illicit discharges and erosion and sediment control (respectively): *Section 8000 – Drainage & Stormwater Management, Section 8200 – Stormwater Design Manual, Section 6000 – Construction, Permits & Inspection, and Section 8300 – Construction Site Discharge Control Program* ().

The municipal governments of Meridian, Eagle, and Ada County do not have specific stormwater ordinances related to illicit discharge and construction site discharge control. However, these entities do have the following general nuisance related ordinances that can be used to assist ACHD in addressing stormwater related issues.

- **City of Eagle**
  - Ordinance No. 4-1-4 – General Nuisance; Procedures and Penalties https://codelibrary.amlegal.com/codes/eagleid/latest/eagle_id/0-0-0-1193
- **City of Meridian**
  - Ordinance (Chapter 2, 4-2-1) - Public Health and Safety, Nuisances https://library.municode.com/id/meridian/codes/code_of_ordinances?nodeId=TIT4PUHESA_CH2NU
- **Ada County**
  - Ordinance No. 5-2-4-2B – Deposit of Waste or Lighted Material on Public Ways https://codelibrary.amlegal.com/codes/adacountyid/latest/adacounty_id/0-0-0-1423

ACHD also works with other State and local entities to coordinate compliance addressing SWMP control measures provided in Table 9.

Table 9. Coordinated Compliance Activities

Agency	Summary of Activities	SWMP Control Measures*
City of Meridian	• Enforcement assistance in illicit discharge, erosion, and sediment control	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control
City of Eagle	• Enforcement assistance in illicit discharge, erosion, and sediment control	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control
Ada County Sheriff's Department	• Enforcement assistance in illicit discharge, erosion, and sediment control	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control
Idaho Department of Environmental Quality	• Enforcement assistance in illicit discharge response related to hazardous materials, petroleum products, and dust control (air quality) • IPDES compliance assistance	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control
Idaho Department of Water Resources	• Provide GIS coverage data and resources, information regarding irrigation/drainage districts and facilities, shallow/deep injection well program	Illicit Discharge Detection and Elimination, Post-Construction Stormwater Management
Idaho Department of Agriculture	• Enforcement assistance in illicit discharge response related to confined feeding operations waste in the right of way	Illicit Discharge Detection and Elimination
Irrigation and Drainage Districts	• Assist in locating drainage facilities, review roadway drainage plans	Illicit Discharge Detection and Elimination, Post-Construction Stormwater Management
ITD District 3	• Assist in locating stormwater facilities and illicit discharge activities • Erosion and sediment control on federally funded roadway projects	Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control
Public	• Report illicit discharges, participate in education and activities	Education and Outreach, Public Participation, Illicit Discharge Detection and Elimination

Table 9. Coordinated Compliance Activities		
Agency	**Summary of Activities**	**SWMP Control Measures***
Service Organizations	• Assist in storm drain marking, participate in education activities	Education and Outreach, Public Participation

**See Section 5 of this document for a description of the SWMP control measures*

Section 5

Stormwater Control Measures to Reduce Pollutants to the Maximum Extent Practicable

The following sections describe ACHD's program to reduce pollutants in the MS4 discharges to the maximum extent practicable, as required by Permit Part 3. Each section summarizes the mandatory program and describes how ACHD meets each program component. The compliance and implementation status for each program component, Permit reference, and location of updated information (SWMP or Annual Report) is provided in Appendix C.

The stormwater control measures are:

- Public Education and Outreach on Stormwater Impacts
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment Projects
- Pollution Prevention/Good Housekeeping for MS4 Operations.

These measures are described in greater detail in the following sections:

5.1 Public Education and Outreach on Stormwater Impacts

To educate and involve members of the public about stormwater pollutants, ACHD must conduct, or contract with other entities to conduct, an ongoing education, outreach, and public involvement program based on stormwater issues of significance in the ACHD's jurisdiction. When applicable, ACHD must comply with State and local public notice requirements when conducting public involvement activities.

5.1.1 Permit Requirements

Within one year of the Permit effective date (MS4 Permit 3.1), ACHD must, at a minimum:

- ✓ Select at least one audience and focus its efforts on conveying relevant messages.
  - Distribute and/or offer at least eight (8) educational messages or activities over the permit term to selected audience(s) (3.1.3 and 3.1.4).
  - Begin to assess, and track, activities to gauge the audience's understanding of the relevant messages and adoption of appropriate behaviors (3.1.5 and 3.1.6).
- ✓ Target specific educational material to the construction/engineering/design community regarding construction site runoff control and permanent stormwater controls (3.1.7).
- ✓ Maintain and advertise a publicly accessible website to provide all relevant SWMP materials (3.1.8).

5.1.2 Current Compliance Activities

Due to the proximity and shared media markets, the education and outreach program includes material and activities currently being performed via the Boise area NPDES Phase I Partners for Clean Water. ACHD's current educational activities include the following:

- ACHD Environmental staff distributes educational materials throughout the year in formal training events, public events, and informal settings such as complaint response.
- ACHD Partners and volunteer groups conduct storm drain marking and distribute educational flyers focused on stormwater issues and the effects of illicit discharges to the storm drain system.
- Outreach and targeted advertising include radio sponsorships, magazine advertisements, social media posts, public service announcements, digital billboards, commuter bus wraps, and a regularly maintained Partners for Clean Water website (Partners for Clean Water).
- ACHD regularly maintains and promotes its website at www.achdidaho.org. The website has a section dedicated to stormwater http://www.achdidaho.org/Departments/Engineering/Stormwater/stormwater.aspx where the NPDES Phase I and Phase II SWMPs are posted along with the following required information.
  - Phone numbers and information to report illicit discharges, illicit connections, and illegal dumping activity.
  - Reports, plans, and documents relevant to the Permit and Program.
  - Information regarding policies and/or guidance documents related to ACHD's requirements for construction and permanent stormwater management control. This includes education opportunities, training, licensing, and permitting process for ACHD's jurisdiction.
  - ACHD contact information.

5.1.3 Planned 2023 Compliance Activities

ACHD conducts the Permit-required activities to limit stormwater pollution potential and has made necessary program updates to maintain compliance with the current stormwater permit. Table 10 presents the work plan for 2023 SWMP activities related to Public Education and Outreach Activities.

Table 10. 2024 Public Education and Outreach on Stormwater Impacts Work Plan

Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Inform the public and seek involvement in the SWMP update	Environmental	Communications	9/30/2024
Update the Phase II Stormwater Management Program document using feedback from the public.	Environmental	Communications	1/1/2025
Post SWMP to public website	Environmental	Information Technology	4/4/2024
Continue to implement the education and outreach program by distributing current educational resources to target audiences.	Environmental	Communications	Ongoing
Update as needed current education and outreach materials to ensure priority topics and target audiences are addressed.	Environmental	Communications	Ongoing
Update the ACHD stormwater webpage annually.	Environmental	Information Technology	Ongoing
Continue education and outreach via Partners for Clean Water.	Environmental	N/A	Ongoing

5.2 Illicit Discharge Detection and Elimination

To detect and eliminate illicit discharges into the MS4, ACHD must implement and enforce a program to the extent allowable under Idaho state law. The Illicit Discharge Detection and Elimination (IDDE) Program contains several SWMP elements detailed in Section 5.2.2. below.

5.2.1 Permit Requirements

No later than August 4, 2025, ACHD must update the existing illicit discharge management program as necessary to meet the following required program components (MS4 Permit 3.2):

- ✓ Maintain and update the MS4 map and outfall inventory (3.2.2).
- ✓ Enforce an ordinance that effectively prohibits illicit discharges into the MS4 (3.2.3).
- ✓ Respond to complaints or reports of illicit discharges from the public (3.2.4).
- ✓ Keep track of complaints/reports, and any Response Actions Taken (3.2.4).
- ✓ Conduct MS4 outfall screening inspections during dry weather (3.2.5).
- ✓ Follow-up to determine the source of a recurring illicit discharge identified as a result of complaints, or of the dry weather screening investigations within thirty (30) days (3.2.6).
- ✓ Take appropriate action to address the source of an ongoing illicit discharge (3.2.6).
- ✓ Prevent and respond to spills to the MS4, as appropriate (3.2.7).
- ✓ Coordinate with other entities to educate employees and members of the public for the proper disposal of used oil and toxic materials (3.2.8).
- ✓ Ensure the appropriate Permittee staff are trained to conduct these activities (3.2.9).

The most significant illicit discharge response in the Phase II Permit Area during reporting year 2023-2024 took place on April 26th, 2022.

A vehicle struck a utility pole during a rainstorm resulting in the release of motor oil from the vehicle and mineral oil from the utility transformer box. An unknown quantity of oil flowed into a nearby storm drain inlet. The utility company contained the spill, removed the material from the right-of-way, and hired an environmental contractor to service the storm drain system. ACHD confirmed cleanup was completed and no impacts were observed to the downstream waterway.

5.2.2 Current Compliance Activities

ACHD currently conducts numerous IDDE compliance activities that include the following required components: MS4 Map and Outfall Inventory, Regulatory Mechanism, and Illicit Discharge Complaint Report and Response Program, Spill Response, and the Dry Weather Outfall Program as described in the following sections.

5.2.2.1 MS4 Map and Outfall Inventory

ACHD maintains and updates a GIS map and inventory of the Phase II Permit Area MS4. This map and inventory are managed and maintained as follows:

- Update the Phase II MS4 map to address new development, redevelopment, field verification, and maintenance activities.
- Maintain a complete inventory of MS4 outfalls including spatial location and general information regarding dimensions, shape, material, ownership, and receiving waters (Appendix D).

- Maintain an inventory of ongoing dry weather flows caused by irrigation return flows and/or groundwater seepage (Appendix D).

5.2.2.2 Regulatory Mechanism

Illicit discharges are prohibited via ACHD ordinance, as described in ACHD Policy 8015.2.1. Illicit discharge to any stormwater drain, including both the MS4 and any ACHD owned stormwater drain or facility, is prohibited and a violation of this ordinance unless the discharge is exempted as an allowed non-stormwater discharge described in Part 2.4 of the Phase II NPDES permit (#IDS028185).

5.2.2.3 Illicit Discharge Complaint Report and Response Program

ACHD responds to illicit discharge complaints received through the stormwater pollution hotline, public reports via the ACHD website (Tellus@achdidaho.org), anonymous tips, and other government agency referrals. ACHD performs the following:

- Conduct site assessments and evaluate impact to the storm drain system, waterways, and soil.
- As appropriate, coordinate with responsible parties, environmental cleanup contractors, and local agencies such as police, fire department, State Communications, and Idaho Department of Environmental Quality for proper cleanup and disposal.
- Provide assistance and education on proper cleanup, disposal, and best management practices.
- Implement and enforce Resolution 2151, *ACHD Policy for Right-of-Way Spill, Container, and Debris Response.*
- Implement and maintain the 2023 ACHD Spill Response Plan (Spill Plan) to guide ACHD spill response in the public ROW.
- Document illicit discharge and spill response activities.
- Provide on-call staff for after hour illicit discharge and spill response.

In permit year 2023-2024 (February 1, 2023 – January 31, 2024), 15 stormwater complaints were responded to in the Phase II Permit Area. These complaints are summarized in Table 11. Appendix E includes a location map depicting where the illicit discharges occurred, a list of complaints received, and a summary of follow-up actions taken.

Table 11. Complaints Received by Pollutant Type and Category

Pollutant Type	Category of Complaint					2023–2024	2022-2023
	Commercial	Construction	Residential	Industrial	Unknown		
Concrete/Stucco/ Grout	0	2	1	0	0	3	1
Petroleum/ Automotive Fluids	0	1	5	0	0	6	12
Paint/Stain	0	0	1	0	0	1	2
Sediment	1	0	0	0	0	1	1
Garbage Liquid	0	0	0	0	0	0	1
Debris/Litter	0	0	1	0	1	2	1
Washwater	2	0	0	0	0	2	0
Other*	0	0	0	0	0	0	1
Total	3	3	8	0	1	15	18

**Adhesive*

5.2.2.4 Dry Weather Outfall Screening Program

ACHD implements the Dry Weather Outfall Screening (DWOS) Plan available in Appendix F. This plan describes the overall approach to dry weather outfall screening and provides comprehensive guidance for outfall investigation efforts, including prioritization of outfalls, data collection efforts, recordkeeping, evaluation, and assessment. Specifically, ACHD accomplishes the following actions to support screening efforts:

- Implement the Dry Weather Outfall Screening Program that involves visual dry weather inspections and sampling of dry weather flows.
- Dry weather inspections include site evaluation, flow estimation, discharge water quality analysis, and flow source tracing.
- Conduct visual dry weather inspections on a randomized portion of the entire outfall inventory to determine if the outfall has dry weather flow. A minimum of 20% of all outfalls in the Phase II area are inspected annually.
- Inspect and sample outfalls with known dry weather discharges during three distinct time periods (pre-irrigation, during irrigation, and post- irrigation) to better characterize flow duration and pollutant loads.
- Dry weather flows are currently screened for total suspended solids, total phosphorus (TP), dissolved orthophosphate, total chlorine, total phenols, total copper, detergents as surfactants, and *E. coli*.

5.2.3 Planned 2024 Compliance Activities

ACHD conducts the Permit-required activities to limit stormwater pollution potential and has made necessary program updates to maintain compliance with the current stormwater permit. Table 12 includes the illicit discharge detection and elimination work plan for the 2024 SWMP.

Table 12. 2024 Illicit Discharge Detection and Elimination Work Plan			
Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Continue to conduct dry weather inspection and follow-up screening of 20% of the Phase II outfall inventory.	Environmental	N/A	Ongoing
Continue to address right-of-way spills and illicit discharges to include proper cleanup, disposal, tracking, and reporting.	Environmental	Maintenance	Ongoing
Annual review and update of Spill Response Plan	Environmental	Maintenance	4/1/24
Conduct Spill Response Plan Training for ACHD staff	Environmental	Maintenance	4/1/24
Draft IDDE Enforcement Response Policy	Environmental	Environmental	7/31/24
Update DWOS Plan to incorporate 2021 Permit references for Phase I and Phase II	Environmental	N/A	11/30/24
Continue illicit discharge training for new employees	Human Resources	Environmental	ongoing
Complete GIS map update of Phase II MS4 for inclusion in SWMP	Environmental	GIS	1/31/25
Update Phase II Outfall Inventory for annual report	Environmental	N/A	1/31/25
Update list of dry weather flows caused by irrigation and groundwater for inclusion in SWMP	Environmental	N/A	1/31/25

5.3 Construction Site Stormwater Runoff Control

Through regulatory mechanism to the extent allowable under Idaho state law, ACHD must require erosion controls, sediment controls, and waste materials management controls to be used and maintained at construction projects from initial clearing through final stabilization. (MS4 Permit 3.3) ACHD implements and enforces the Construction Site Discharge Control (CSDC) Program to fulfill Phase II Permit requirements and reduce the discharge of pollutants from public and private construction activity within ACHD's jurisdiction. The CSDC program regulates construction activities through the issuance of Temporary Highway Use Permits, construction contracts, activities performed by ACHD's Maintenance Department, capital improvement projects, and acceptance of public roads from new subdivision development.

5.3.1 Permit Requirements

To control the discharge of stormwater and pollutants from land disturbance during the construction phase, ACHD must:

- ✓ Require appropriate erosion, sediment, and waste management requirements for construction site activity that results in land disturbance of one (1) acre or more (3.3.3).
- ✓ Establish installation and use guidelines for required erosion/sediment/waste management during all phases of construction site activity (3.3.3).
- ✓ At a minimum, review preconstruction site plans for construction sites that will result in land disturbance of one (1) or more acres, using a checklist or similar process to consider and address potential water quality impacts from the site activities (3.3.4).
- ✓ Inspect and enforce erosion, sediment, and waste management requirements on construction sites (3.3.5).
- ✓ Establish an inspection prioritization plan (3.3.5).

- ✓ Establish an enforcement response policy (3.3.6).
- ✓ Ensure that Permittee staff is trained to conduct these activities (3.3.7).

5.3.2 Current Compliance Activities

ACHD currently implements numerous activities to provide runoff control and stormwater pollution prevention from construction sites. The CSDC Program Manual includes all aspects of the CSDC Program from governing ordinances and policies to plan review and approval, construction site inspection, permit violations and enforcement, and education and training. This manual is available in Appendix G.

- Oversight of the CSDC Program is the responsibility of the Environmental Department which includes an Environmental Specialist (ES) that specializes in erosion and sediment control.
- The ES performs implementation activities required by Policy 8300 (Construction Discharge Control Program) and Policy 6000 (Permits and Inspection) including plan review, inspection support, permit tracking, record keeping, and enforcement.
- The ES implements and oversees prioritized inspections of construction sites and assist construction site operators in correcting problems and policy violations.
- Zone Inspectors and Subdivision Inspectors also conduct inspections and enforcement activities within their areas of responsibility. ACHD Project Inspectors are responsible for oversight and implementation of the Stormwater Pollution Prevention Plan (SWPPP) by contractors on ACHD projects.

5.3.3 Planned 2024 Compliance Activities

ACHD conducts the Permit-required activities to limit stormwater pollution potential and has made necessary program updates to maintain compliance with the current stormwater permit. Table 13 presents work plan for 2024 SWMP activities related to construction site stormwater runoff control activities.

Table 13. 2024 Construction Site Stormwater Runoff Control Work Plan

Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Review erosion and sediment control and dewatering plans for ACHD projects and projects impacting the public right-of-way	Environmental	N/A	Ongoing
Perform prioritized inspection of construction sites and enforcement of control measures for permitted work	Environmental	Development Services	Ongoing
Assist construction site operators in correcting problems and policy violations	Environmental	N/A	Ongoing
Investigate, track, and resolve complaints originating from construction sites in a timely and consistent manner	Environmental	N/A	Ongoing
Provide training and assistance to inspection staff to implement the Construction Site Discharge Control Enforcement Response Policy	Environmental	Engineering Services	Ongoing
Review and update Construction Site Discharge Control Manual	Environmental	N/A	6/1/2024

5.4 Post-Construction Stormwater Management for New Development and Redevelopment

Through a regulatory mechanism to the extent allowable under Idaho state law, ACHD must require the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites. This section describes activities ACHD conducts or will implement to fulfill Phase II Permit (MS4 Permit 3.4) requirements for a post-construction stormwater management (PCSM) program.

5.4.1 Permit Requirements

To control the discharge of stormwater and pollutants from land disturbing activities and after construction is completed, ACHD must:

- ✓ Require the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites that result from land disturbance of 1 acre or more (3.4.2).
  - – Permanent stormwater controls must be sufficient to retain onsite the runoff volume produced from a 24-hour, 95th percentile storm event; or sufficient to provide the level of pollutant removal greater than the pollutant removal expected by using onsite retention of runoff volume produced from a 24 hour, 95th percentile storm event.
  - – Alternatively, stormwater treatment requirements must be required that can attain an equal or greater level of water quality benefits as onsite retention of stormwater discharges from new development and redevelopment sites.
  - – Other alternatives may be allowed for projects to meet the onsite retention requirement at a particular project site based on technical infeasibility, and/or site constraints.
- ✓ Establish proper installation and use guidelines for permanent stormwater controls – the Permittee may establish different types of controls for different types and/or sizes of site development activity (3.4.3).
- ✓ At a minimum, review and approve preconstruction plans for permanent stormwater controls at new development and redevelopment sites that result from land disturbance of one (1) or more acres (3.4.4).
- ✓ Periodically inspect “high priority” permanent stormwater controls for proper installation and operation, using an inspection prioritization system (3.4.5).
- ✓ Maintain an inspection prioritization plan and enforcement response policy (3.4.5).
- ✓ Maintain a database inventory to track and manage the operational condition of permanent stormwater controls (3.4.6).
- ✓ Ensure the appropriate Permittee staff is trained to conduct these activities (3.4.7).

5.4.2 Current Compliance Activities

ACHD’s stormwater policy consists of Section 8000 Drainage and Stormwater Management and Section 8200 Stormwater Design Manual. Together these policies establish the standards for new stormwater facilities and retrofitting existing stormwater facilities. Policy updates adopted most recently included revised BMPs and Green Stormwater Infrastructure (GSI) BMPs. The policies include:

- A list of the approved BMPs
- Performance standards
- Design review submittal requirements

- Guidelines and checklists for creating Operations & Maintenance Plans
- Inspection checklists for landscape-based treatment facilities

5.4.2.1 PCSM Plan Review, Inspection, and Maintenance

The ACHD requires operators to install permanent stormwater facilities at new development and redevelopment sites. Project review and approval procedures, in part, are found in ACHD's Development Policy Manual (Section 7000). Plan review, inspection, and maintenance of projects reviewed and approved by Development & Technical Services (DTS) staff are summarized as follows:

- Resident Engineer must inspect and ensure that roadway facilities, including roadway drainage facilities, are constructed correctly; and to ensure that a set of "record drawings", which denote the final ACHD stormwater system, are delivered to ACHD.
- ACHD DTS staff review proposed subdivision and development plans to ensure compliance with ACHD policies and procedures. A review template is used that incorporates a plan review checklist of items that typically require comments, including a section on drainage. This template is drafted in a letter format so staff can send the checklist, complete with comments, to the applicant upon completion of the plan review.
- ACHD staff performs an inspection of the facilities before final approval of the constructed project. The inspection is documented and placed in the project file for future reference.
- Once new developments have been accepted by ACHD; following the warranty period, Maintenance staff perform ongoing maintenance and inspection of existing BMPs in the ACHD right-of-way.
- Stormwater basin and swale maintenance responsibilities are documented as conditions of approval in the required operation and maintenance manual (O&M Manual) for new subdivisions with public roadways that will be maintained by ACHD. See ACHD policy 8012.5.
- Private-owned stormwater facilities that receive drainage from the right-of-way have shared maintenance responsibility between the owner and ACHD unless otherwise noted in the approved O&M Manual. Homeowners' associations are responsible for light maintenance that typically address aesthetic features such as landscaping, litter control and erosion control. ACHD provides heavy maintenance that typically addresses functional aspects such as sediment removal, rebuild, or replacement.
- Subsurface facilities e.g., seepage beds, storm drain inlets, pipes, and sand and grease traps, are maintained according to maintenance areas on a rotational basis.

5.4.2.2 ACHD Stormwater Facilities

Since adoption of ACHD Policy 8202.5 in 2015 and updates in 2017, all new and rebuilt ACHD stormwater basins are required to be vegetated and address Pollutants of Concern. Additionally, in 2016, ACHD Commission directed staff to begin retrofitting ACHD-owned stormwater basins. Currently, all ACHD stormwater facilities associated with roadways and intersections are built to address water quality and incorporate GSI where possible. The goal of these facilities is to establish native or naturalized vegetation with healthy soils that function to remove stormwater pollutants with added aesthetic and ecological benefits to the community. ACHD has implemented measures to increase the likelihood of successfully vegetated stormwater facilities that include the following:

- Environmental staff participate in an interdisciplinary project team of ACHD staff that review projects from conception to construction. Comments are submitted to an ACHD Project Manager for discussion with the project team and consultants.
- ACHD requires installation of temporary irrigation systems for establishing native/drought tolerant vegetation in ACHD-owned stormwater basins and swales.

- ACHD developed an *Ada County Highway District Stormwater Management Basin Revegetation Guidance Manual* and updated contract specifications related to plant material and soil amendments.
- ACHD staff develop site specific Plant Establishment Plans for use by contractors during the warrantee period prior to ACHD accepting a vegetated stormwater facility. These plans provide maintenance guidance during the plant establishment phase of a GSI facility.
- Maintenance of new ACHD facilities by ACHD staff and contracted provider consist of an iterative stewardship approach that involves manual and mechanical weed removal, plant vegetation maintenance to maximize seed dispersal, erosion control, and trash and sediment removal. Maintenance and inspections are conducted once a month during early spring and twice monthly during the growing season. The plan establishment period for each project facility is typically three to four growing seasons.

5.4.2.3 Prioritization, Tracking, and Enforcement

ACHD conducts inspections on priority stormwater basins that receive right-of-way drainage and discharge directly to surface waterbodies. These inspections inform development of educational materials, inventory tracking, and maintenance, when necessary, as described below.

Prioritization

- Results of stormwater basin priority inspections are used to guide the development of education and outreach materials.
- Stormwater basin inspection follow-up actions are coordinated with the facility owner.
- ACHD will be reviewing the current inspection prioritization and determining strategies to develop an inspection prioritization and documentation process as required in Part 3.4.5. no later than August 4, 2025. Progress toward meeting this goal will be provided in annual work plan updates provided in Table 14.

Tracking

- Tracking of operation and maintenance of the permanent stormwater controls inventory is conducted using ArcGIS and work order processing software. ACHD regularly conducts a county-wide desktop analysis to update the stormwater basin inventory and attribute data. Quality assurance and quality control of the stormwater basin inventory will be an ongoing effort as new stormwater basins are built.

Enforcement

- Enforcement of permanent stormwater control upkeep is currently an undocumented progression of outreach to the facility owner consisting of verbal notice, written notice, legal notice, and finally billing the owner for maintenance action. An enforcement response policy will be developed and implemented as required in Part 3.3.6 no later than August 4, 2025. Progress toward meeting this goal will be provided in annual work plan updates provided in Table 14.

5.4.3 Planned 2024 Compliance Activities

ACHD conducts the Permit-required activities to limit stormwater pollution potential and has made program updates to maintain compliance with the current stormwater permit. Table 14 includes the work plan for 2024 SWMP activities related to post-construction stormwater management activities.

Table 14. 2024 Post-Construction Stormwater Management Work Plan			
Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Update the inspection prioritization for new development and redevelopment permanent stormwater controls	Environmental	N/A	5/31/2024
Inspect prioritized permanent stormwater controls and conduct necessary follow-up	Environmental	Maintenance	1/31/2025
Draft an enforcement response policy for maintenance of permanent stormwater controls.	Environmental	Development Review Legal	12/31/2024
Review DTS staff PCSM training needs	Environmental	Development Review	12/31/2024
Continue to require and review permanent stormwater control plans	Development Review	Environmental	Ongoing
Continue to update and track the permanent stormwater control inventory	Environmental	GIS	Ongoing

5.5 Pollution Prevention/Good Housekeeping for MS4 Operations

This section describes activities ACHD conducts or will implement to fulfill Phase II Permit requirements (MS4 Permit 3.5) for pollution prevention and good housekeeping practices.

5.5.1 Permit Requirements

To control the discharge of stormwater pollutants from ACHD activities, ACHD must:

- ✓ Inspect catch basins and inlets at least once every five years or develop an inspection prioritization plan (3.5.2).
- ✓ Maintain or clean catch basins based on those inspections (3.5.2).
- ✓ If applicable, maintain O&M Procedures for Streets, Roads, Highways and Parking Lots, including specific schedules for inspection and maintenance, and appropriate pollution prevention/good housekeeping actions (3.5.3).
- ✓ Inventory and manage Street/Road Maintenance Materials (3.5.4).
- ✓ Use best practices to reduce the discharge of pollutants to the MS4 associated with the Permittee's application and storage of pesticides, herbicides, and fertilizers (3.5.4).
- ✓ Implement a Street, Road, Highway and Parking Lot Sweeping Management Plan (3.5.5).
- ✓ Maintain O&M Procedures for Other Municipal Areas and Activities to protect water quality
- ✓ Maintain inventory and/or map of all streets, roads, highways, and public parking lots owned, operated, or maintained by ACHD in the Permit Area and identify their selected sweeping frequency (3.5.5).
- ✓ Conduct O&M activities in a manner that reduces the discharge of pollutants through the MS4 to protect water quality. Review, and update as necessary, existing procedures for inspection and maintenance schedules to ensure pollution prevention and good housekeeping practices are conducted for listed activities (3.5.6).
- ✓ Develop site-specific Pollution Prevention Plans for Permittee-owned Facilities (3.5.8).
- ✓ Work cooperatively with other entities to control litter on a regular basis (3.5.9).
- ✓ Ensure the appropriate Permittee staff is trained to conduct these activities (3.5.10).

5.5.2 Current Compliance Activities

Operation and Maintenance are essential components of good housekeeping. Good housekeeping activities and programs tracked and evaluated within the Phase II Permit Area include:

- Street Sweeping (5.5.2.1)
- Storm Drain System Maintenance (5.5.2.2)
- Winter Maintenance (5.5.2.3)
- Pesticide, Herbicide, and Fertilizer Applications (5.5.2.4)
- Additional Pollution Prevention and Good Housekeeping for Municipal Operations (5.5.2.5)
- Operation and Maintenance activities outside of the Phase II area and addressed in ACHD's Phase I Permit include: Fleet maintenance and vehicle washing operations.
  - Building maintenance
  - Snow removal and snow disposal site operations and maintenance
  - Spill prevention and control for refueling facilities

ACHD implements the ACHD Maintenance and Operations Stormwater Best Management Practices Manual. These BMPs, used in conjunction with specific activities ACHD performs, will protect water quality, and reduce the discharge of pollutants to the storm drain system.

ACHD works with Ada County residents and businesses to remove or eliminate pollutants in the environment through the Adopt-a-Highway and Commuteride programs.

In reporting year 2023-2024, Adopt-a-Highway volunteers successfully completed 105 roadside cleanup events, removing 13,100 pounds of debris.

In calendar year 2023, the Commuteride Program maintained an average of 84 commuter van routes and 522 participants resulting in 136,096 passenger trips, 3,939,881 total miles removed from roadways, and preventing 3,092 tons in CO_2 emissions across the Treasure Valley.

ACHD currently operates two maintenance yards, three gravel pits, and four equipment and material storage areas all located within the Phase I Permit Area. The location of these facilities is included in the MS4 Stormwater Infrastructure Map in Appendix A. The SWPPPs associated with these facilities are included in the Phase I Stormwater Management Plan on ACHD's website at http://www.achdidaho.org/Departments/Engineering/Stormwater/resources.aspx. During 2023-2024, ACHD will continue development of three new sites: a traffic materials storage area at 3341 Franklin Road in Boise, Idaho, a maintenance yard at 4377 S. Apple Street in Boise, and a maintenance yard at 3764 Ustick Road in Meridian, Idaho. The future Ustick Maintenance Yard is located within the Phase II Permit Area.

5.5.2.1 Street Sweeping

The county is organized into nine sweeping zones to include residential sweeping routes, arterial/collector routes, and downtown routes. The nine sweeping zones are further subdivided into 228 maintenance areas to help the Maintenance and Operation staff track and communicate maintenance activities on a smaller scale. Mechanical sweepers are used primarily on residential streets, while vacuum sweepers are used on arterial/collector streets, residential streets, and downtown streets. ACHD staff sweeps the arterial/collector streets early in the morning and then moves to residential streets. All streets within a residential zone are completed before moving into the next zone. Sweeping effectiveness is evaluated using written daily logs and data collected by the Broom Crew. In reporting year 2023, eight street sweepers operating in the Phase II Permit Area utilized global positioning system (GPS) based automatic vehicle location (AVL) hardware to digitally track sweeping activities. AVL data was used in 2023 to determine that ACHD successfully swept 100% of the MS4 connected streets at least once in the Phase II Permit area, removing 5,104 cubic yards of debris. ACHD will continue to implement digital tracking of sweeping activities in 2024-2025.

5.5.2.2 Storm Drain System Maintenance

In the Phase II Permit Area, ACHD owns and operates a storm drain system currently composed of 231 miles of storm drain pipe, 9,154 storm drain inlets, 3,598 sand and grease traps (sediment tanks), and 43 detention and retention basins. ACHD is also responsible for providing heavy maintenance on 581 privately-owned stormwater basins. ACHD Maintenance staff performs the maintenance activities on ACHD's storm drain system with assistance from participants in the Sheriff Labor Detail Program (SLD). A summary of the drainage maintenance activities performed by ACHD crews and participants from the SLD Program during reporting year 2023-2024 (February 1, 2023-January 31, 2024) are provided in Tables 15 and 16, respectively.

Table 15. ACHD Drainage Maintenance Activities Summary

Drainage Maintenance Activity	Quantity
Storm Drain Inlets Inspected/Cleaned	2,055
Manholes & Irrigation Boxes Inspected/Cleaned	1,022
Sediment Tanks Cleaned	777
Debris Removed (cubic yards)	98
Drop Inlets Repaired or Installed	243
Irrigation Crossing Installed/Repairs (feet)	1,246
Sink Hole/Cave-In Repairs	98
Curb Replacement (feet)	4,173
Basins Repaired or Installed	38
Drainage Complaint Investigation	33

Table 16. SLD Program Activities Summary*

Description	Debris (CY)	Bags (#)	Blocks (#)	Lane Miles	SLD Hours	ACHD Hours
Right-of-way Weed Control & Cleaning	642	901	472	29	4,132	2,109
Alley Cleaning	267	63	384	10	1,301	589
Basin Cleaning	225	35	82[1]	NA	759	453
Sidewalk Cleaning	228	170	324	32	1,438	760
Yard Work	29	184	114	NA	993	537
TOTALS	1,391	1,353	1,376	71	8,623	4,448

**SLD Program activities include work conducted throughout Ada County*

[1]*Number of basins cleaned*

ACHD completed an evaluation of the Inlet and Catch Basins Inspection and Cleaning Program in reporting year 2022 – 2023. A program prioritization and implementation were developed in February 2023. Implementation progress will be reported annually.

5.5.2.3 Winter Maintenance

Ada County Highway District maintenance staff is responsible for providing safe ACHD roadways for the traveling public. During winter maintenance, staff uses sand, salt, sand/salt mix, and magnesium chloride (MgCl) to address snow and ice conditions on ACHD roadways. Sand stored at the Adams and Cloverdale Maintenance yards is mixed with salt for storage purposes to prevent sand from freezing. The ratio of sand to salt used for winter maintenance varies based on weather conditions, grades, and traffic volume.

During 2021-2022, ACHD discontinued the practice of dyeing salt for winter maintenance applications due to the chemical makeup of the dye and the potential negative impact the dye may have on waterways. The ACHD has limited the use of previously dyed salt to rural areas of Ada County that do not have a direct connection to surface waters.

A summary of snow and ice control materials applied to ACHD roads each reporting year (February 1, 2021 – January 31, 2024) is included in Table 17. During this time, ACHD treated 17,657 miles of roadway and the National Weather Service at the Boise Airport recorded 40.7 inches of snow.

Table 17. Maintenance Materials Usage and Snowfall Total

Deicing Material	Location		Yearly Totals of Material Applied*		
	Cloverdale	Adams	2023-2024	2022-2023	2021-2022
Sand/Salt Mix (tons)	2,356	4,891	7,247	2,614	1,135
MgCl (gal)	384,131	424,269	808,400	664,797	540,545
Salt (tons)	1,240	1,349	2,589	3,601	3,279
Snowfall Total (inches)			40.7	18.8	34.3

**Total materials usage includes all of Ada County*

5.5.2.4 Pesticide, Herbicide and Fertilizer Application

The ACHD contracts with a chemical applicator to apply pesticide, herbicide, and fertilizer at three vegetated stormwater basins and five park and ride lots throughout the Phase II Permit Area. The contracted applicator records the type of material used and the location and amount applied. In 2023-2024, the amount of fertilizer applied was inadvertently not recorded. Organic slow-release fertilizers were used to improve nutrient uptake by plants to reduce the potential of fertilizer runoff to surface water or infiltration to groundwater. The contractor utilized manual and mechanical weed management practices in place of chemical applications where possible in 2023-2034 resulting in considerably less chemical applications compared to previous reporting years. Data collected from chemical applications at ACHD facilities in the Phase II Permit Area during reporting year 2023-2024 (February 1, 2023– January 31, 2024) is summarized in Table 18.

Table 18. Fertilizer, Herbicide, and Pesticide Use at ACHD Facilities					
Type	Application Amount Active Ingredient (lbs[6])		Application Totals (lbs[6])		
	Location		Year		
	Vegetated Basins (3[B])	Park & Ride (4)	23-24[B]	22-23[C]	21-22[D]
Organic lawn fertilizer[3]	--[A]	--[A]	--[A]	765	1,376
Turf weed control[2]	32	102	134	147	844
Tree/shrub, bed weed control[4]	51	53	104	791	1,779
Pre-emergent herbicide[1]	-	-	-	22	0
Aquatic plant herbicide[5]	-	-	-	7	7
Fungicide	-	-	-	0	0
Pesticide	-	-	-	144	0

[1]N/A; [2]Trimec Classic, Trimec 992, Q4, Speedzone; [3]16-16-16, 21-2-15, 19-0-6, 21-0-4 w/ Merit; [4]Roundup Pro, Glystar Plus; [5]Flumigard; [6]Gallons to pounds conversion based on density of water (8lb/gal)

[A] No data recorded

[B] One additional basin (Pine Ave.) added in 2023-2024

[C] Four park and ride lots received chemical applications and one park and ride lot received mechanical weed control

[D] Includes chemical applications data for five park and ride lots

5.5.3 Planned 2024 Compliance Activities

ACHD conducts the Permit-required activities to limit stormwater pollution potential and has made necessary program updates to maintain compliance with the current stormwater permit. Table 19 presents the work plan for 2024 SWMP activities related to pollution prevention and good housekeeping.

Table 19. 2024 Pollution Prevention/Good Housekeeping Work Plan			
Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Analyze and report street sweeping activities using automatic vehicle location software. Continue refinement of sweeping data	Environmental	GIS	Ongoing
Continue to implement operation and maintenance programs and best management practices to reduce/prevent pollutant runoff from ACHD activities/operations	Maintenance	Environmental	Ongoing
Continue to implement street sweeping program	Maintenance	Environmental	Ongoing
Continue to implement storm drain cleaning	Maintenance	Environmental	Ongoing
Evaluate Inlet and Catch Basin Cleaning program prioritization implementation	Environmental	Maintenance	9/30/2024

Table 19. 2024 Pollution Prevention/Good Housekeeping Work Plan			
Task Description	Lead ACHD Department	Supporting ACHD Department	Time Frame
Finalize the Street Sweeping Prioritization and Implementation Plan.	Environmental	Maintenance	9/30/2024
Continue to update and maintain the MS4 map	Environmental	GIS	Ongoing

Section 6

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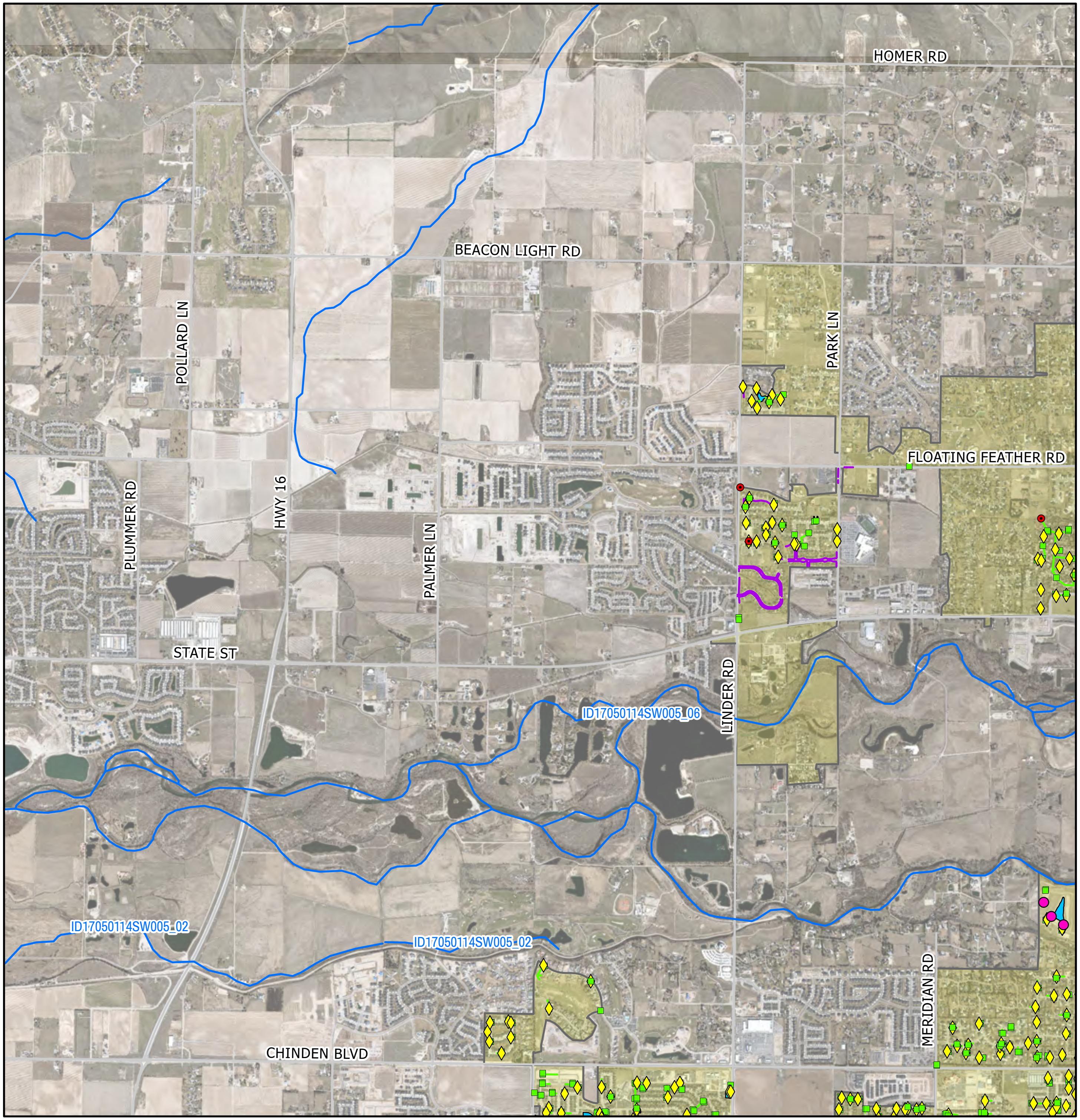
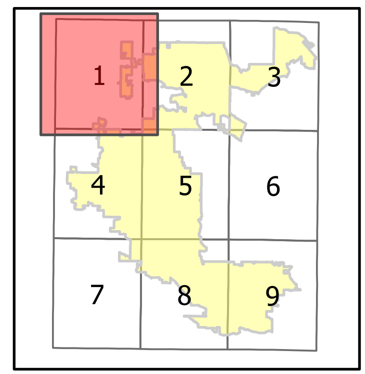
Appendix A: MS4 Stormwater Infrastructure Maps



2024 Phase II MS4 Stormwater Infrastructure Map

- Maintenance Yard
- Material Storage
- ACHD Owned Outfalls
- Dry Weather Flow
- Pretreatment Structure
- Storm Drain Inlet
- Basins
- Phase II Permit Area
- Storm Drain Pipe
- Seepage Bed Pipe
- Waterbody Assessment Units
- Major Roadways
- Swale and Ditch
- Bioretention Swale
- Park and Ride Lot
- Snow Disposal Site



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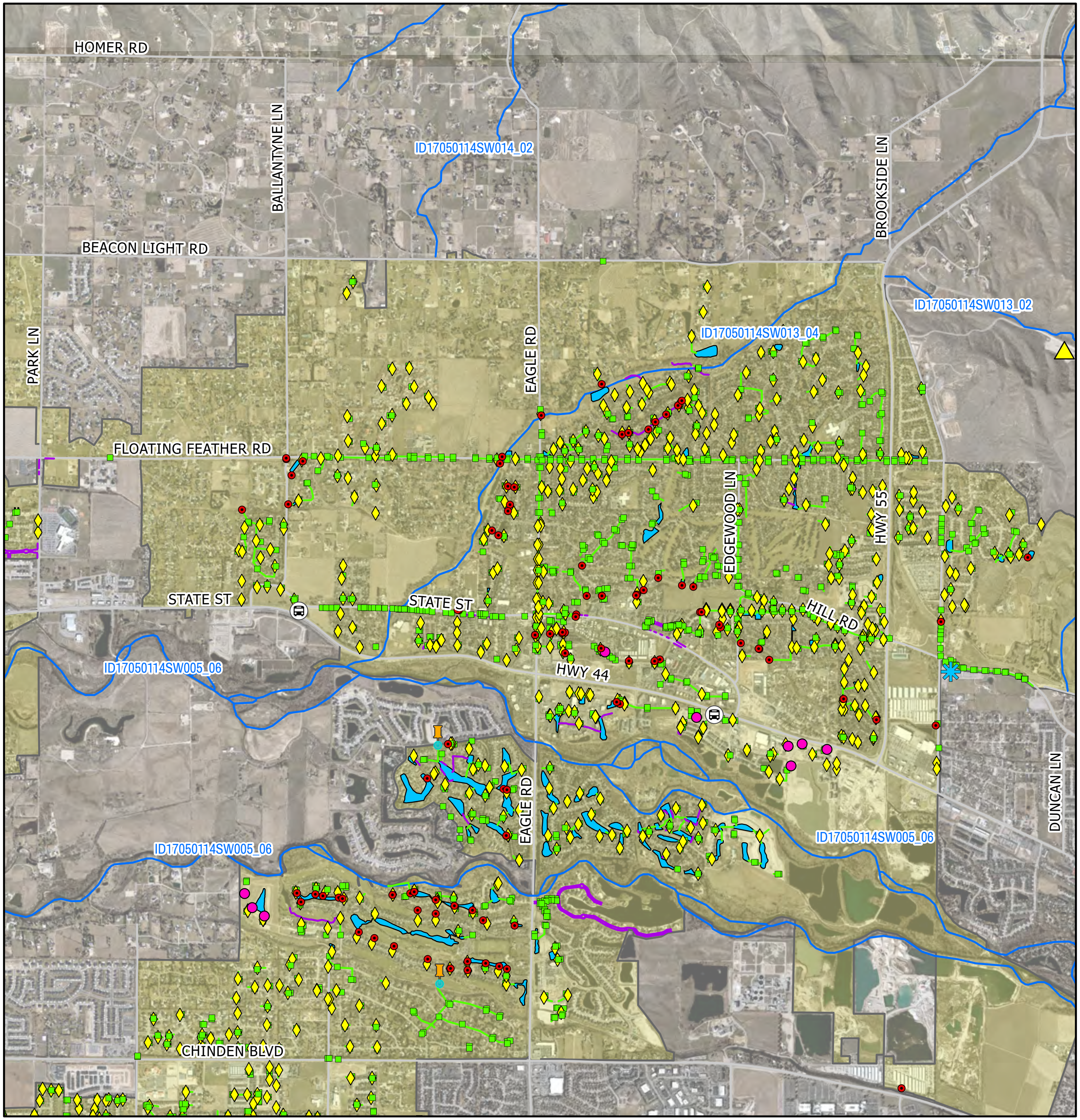
This Map is a representation of features on the ground and is not survey-grade accurate. ACHD will not be liable for any inaccuracies thereon.



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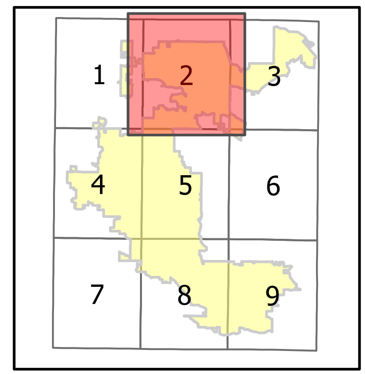

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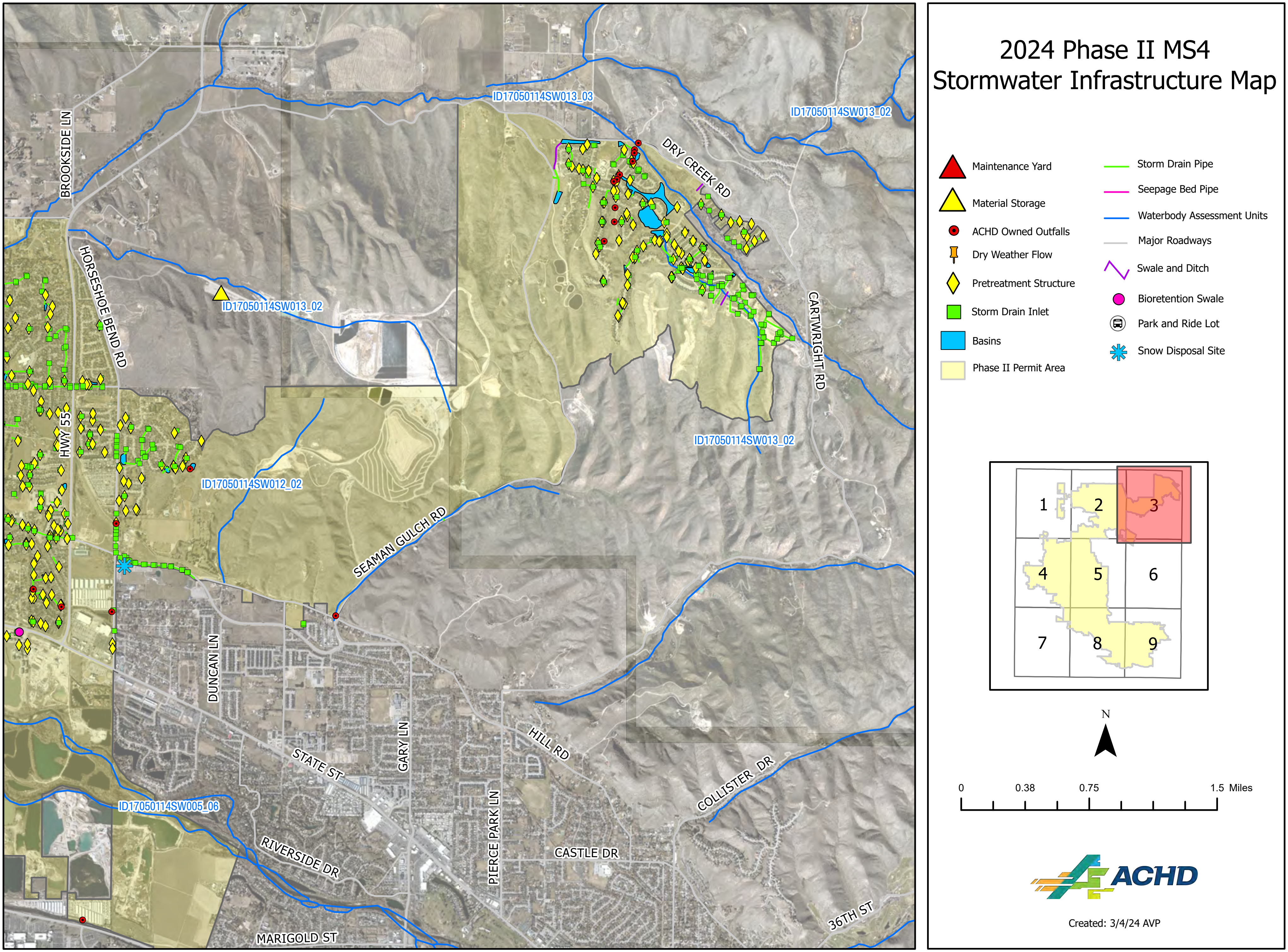

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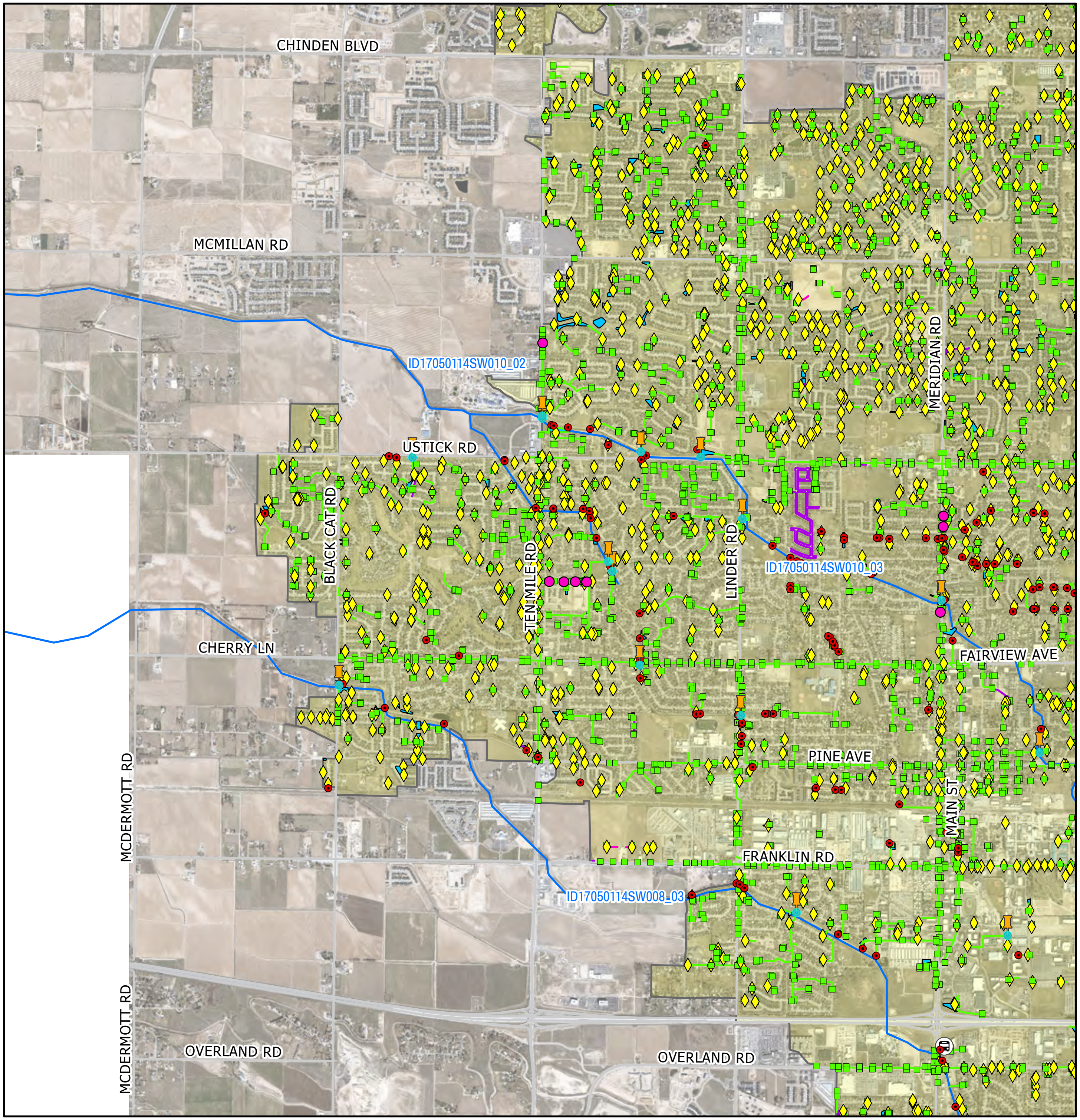

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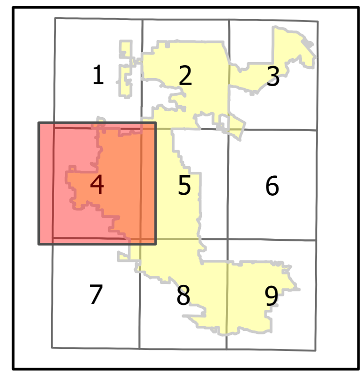

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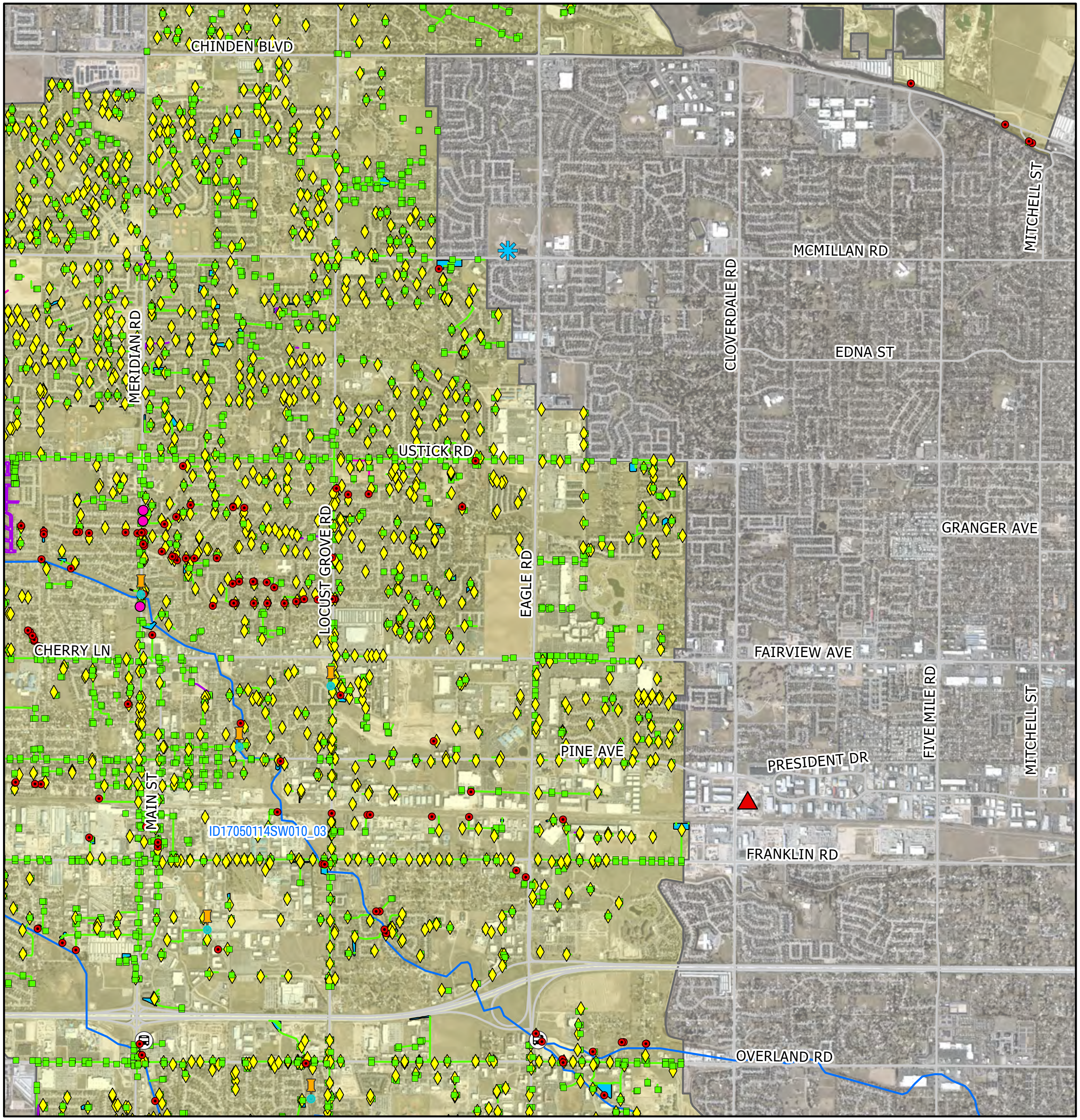

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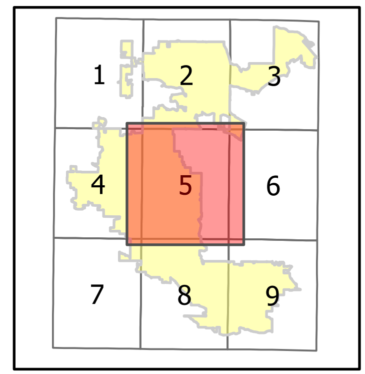

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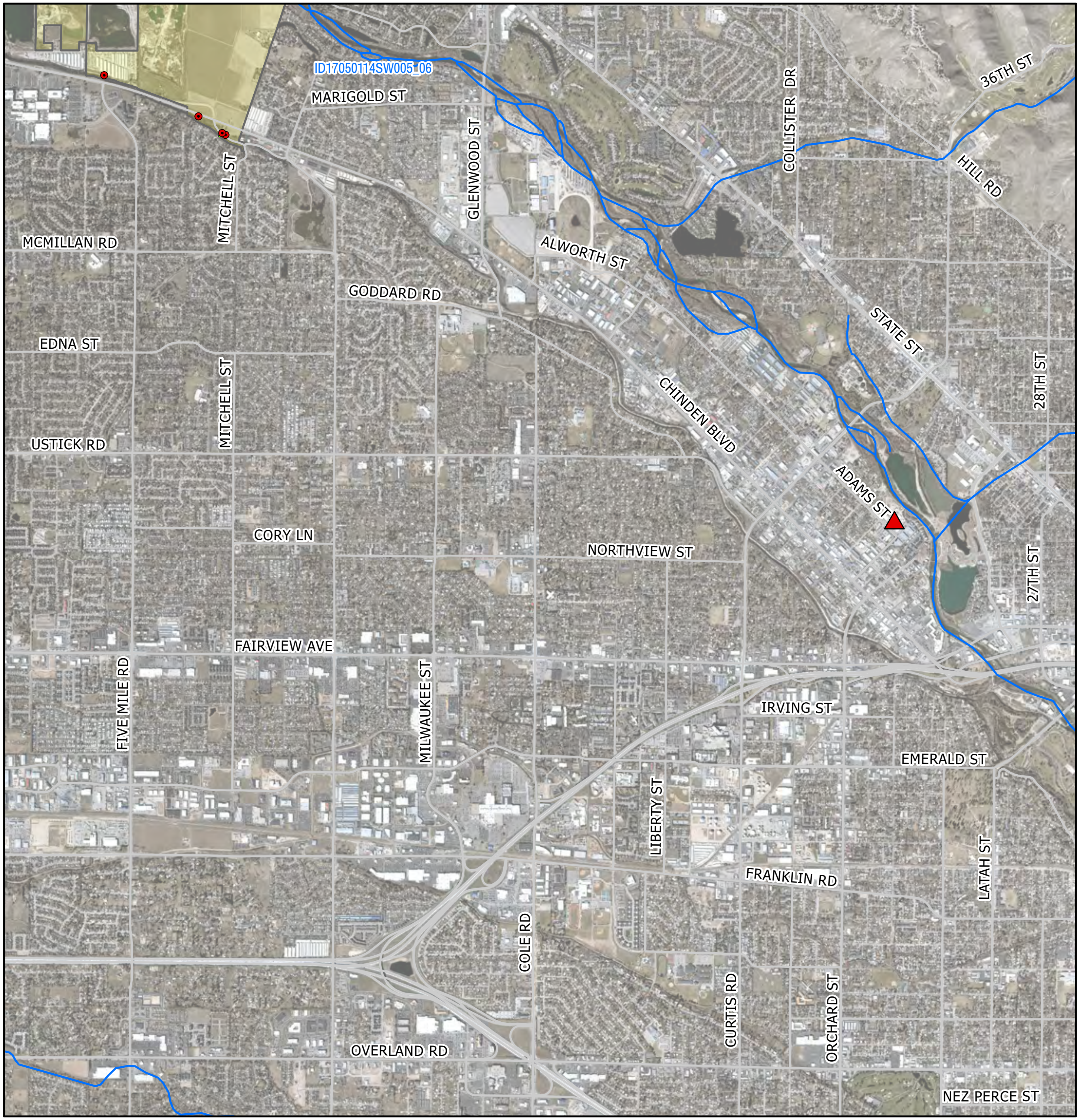

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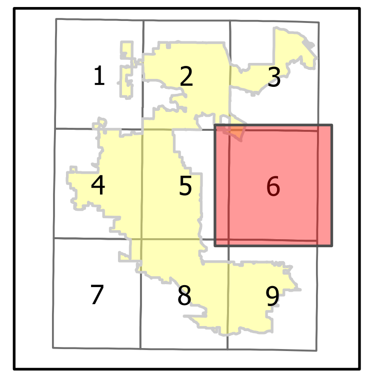

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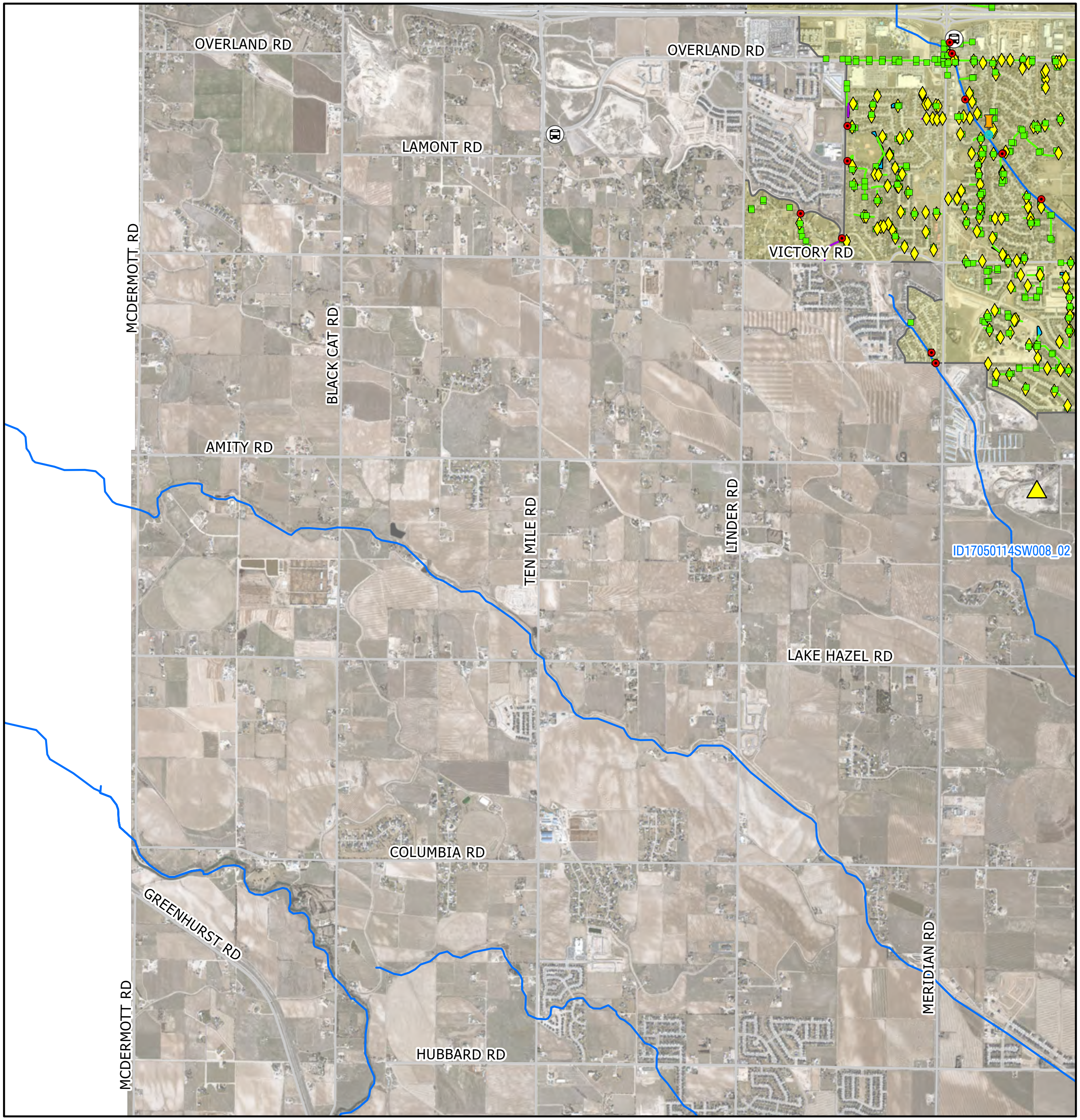

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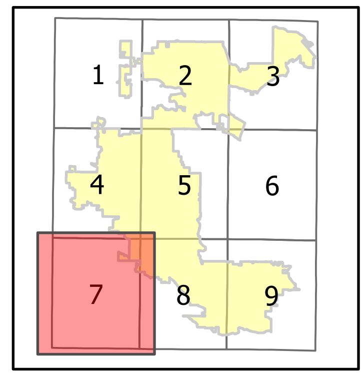

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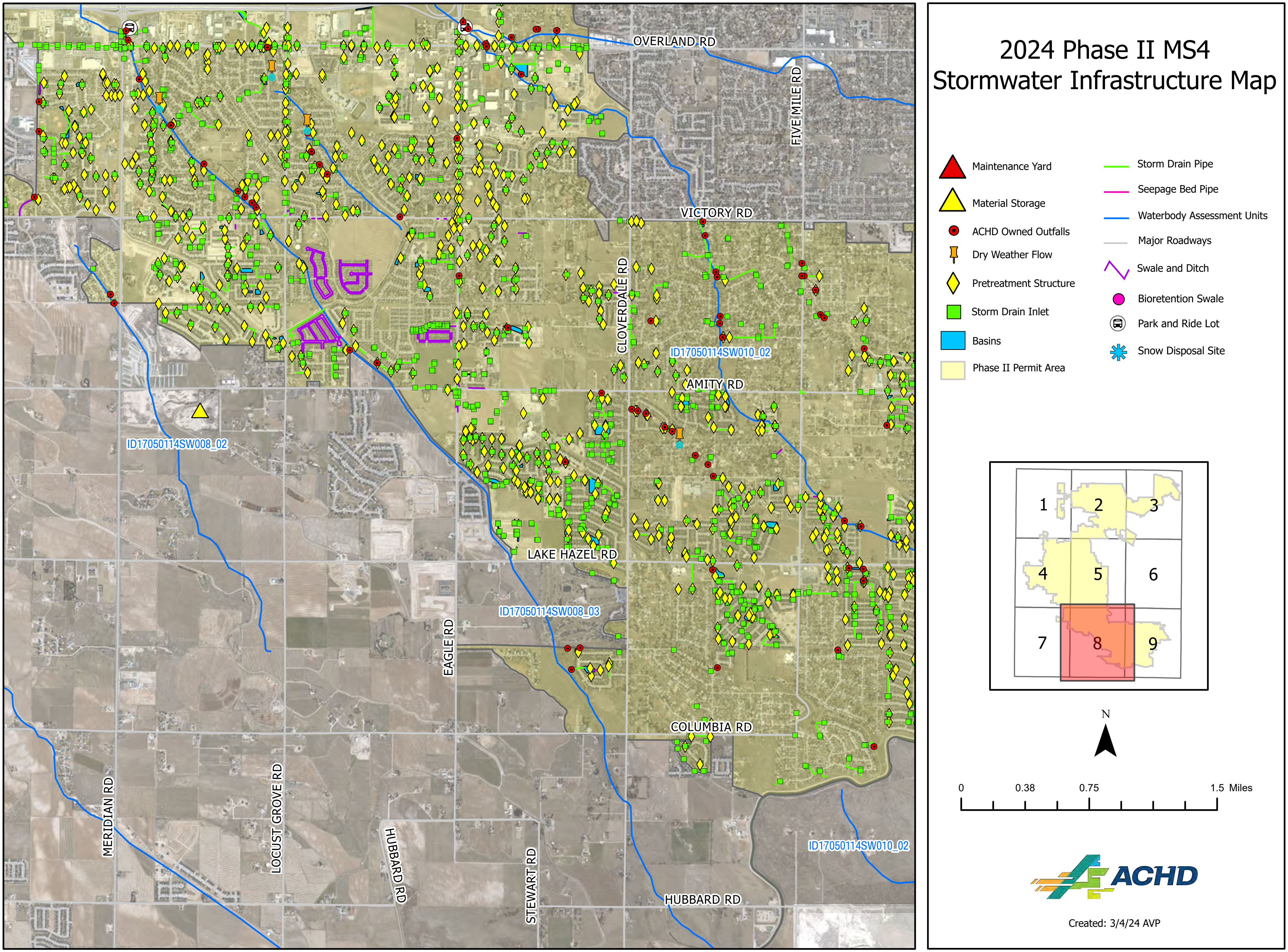

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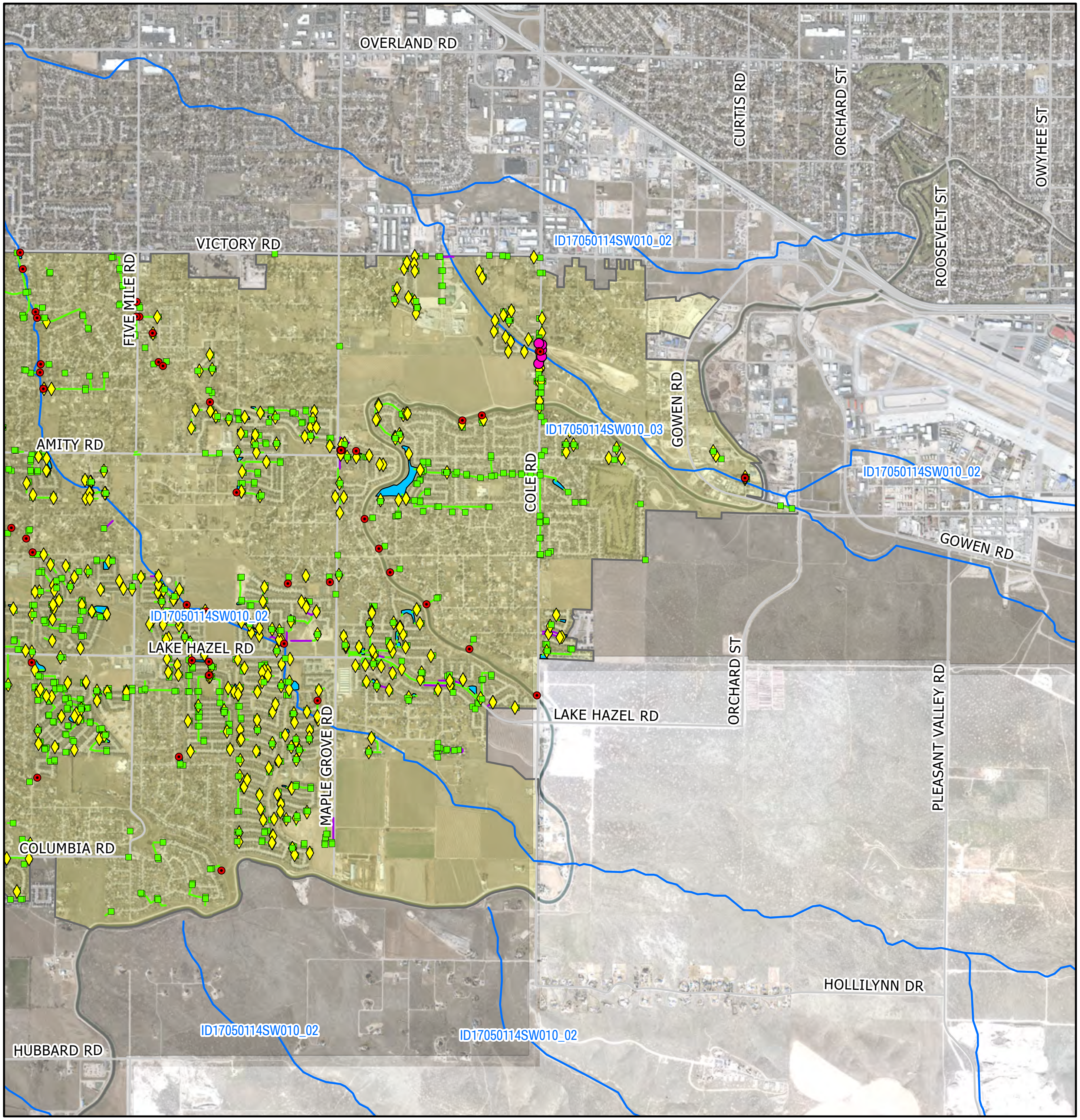
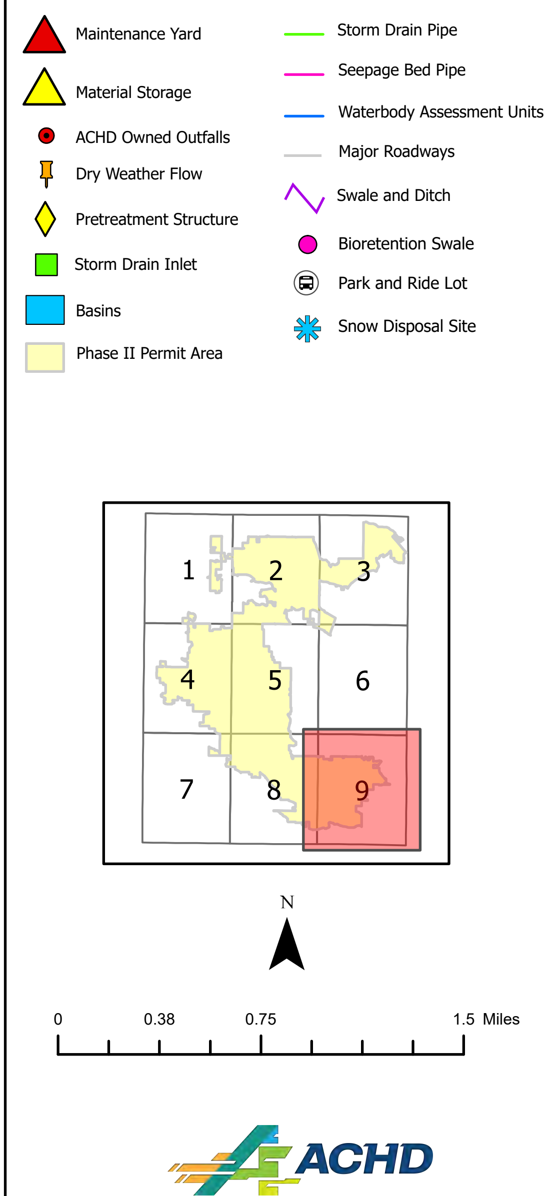


2024 Phase II MS4 Stormwater Infrastructure Map



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Appendix B: Phase II Receiving Waters and Outfall Ownership

Phase II Permit Area Receiving Waters and Outfall Ownership WY2023

RECEIVING WATER	OUTFALL OWNERSHIP		OUTFALL TOTAL
	ACHD	NON-ACHD	
Ballentine Canal	3	1	4
Boise River	0	1	1
Boller Lateral	4	0	4
Bresheres Lateral	3	0	3
Creason Lateral	6	3	9
Cunningham Lateral	1	0	1
Downey Sublateral	4	0	4
Dry Creek	5	2	7
Dry Creek Canal	6	7	13
Dry Creek Lateral	9	0	9
Eagle Drain	19	14	33
Eightmile Creek	18	8	26
Eightmile Lateral	0	1	1
Evans Drain	2	11	13
Farmers Union Canal	2	0	2
Finch Lateral	4	0	4
Fivemile Creek	44	32	76
Fivemile Creek Lateral	2	0	2
Graham Gilbert Canal	4	0	4
Gruber Lateral	4	12	16
Hardin Drain	2	0	2
Hon Lateral	1	0	1
Jackson Drain	12	7	19
Jackson Drain Waste Ditch	1	0	1
Jackson Stub Drain	20	0	20
Kennedy Lateral	0	1	1
Lateral 10A	2	4	6
Lateral 16	8	1	9
Mason-Catlin Canal	7	0	7
Milk Lateral	1	0	1
New York Canal	8	1	9
Ninemile Creek	61	33	94
North Slough	1	0	1
Onweiler Lateral	1	0	1
Painter Lateral	1	0	1
Paris Lateral	1	0	1
Purdam Gulch Drain	1	0	1
Ridenbaugh Canal	4	13	17
Rutledge Lateral	4	2	6
Safford Sublateral	1	3	4
Settler's Canal	6	0	6
Sky Pilot Drain	2	0	2
Snider Lateral	2	0	2
South Slough	7	3	10
Spoils Bank Canal	3	0	3
Tenmile Creek	28	45	73
Tenmile Feeder Canal	12	0	12
Tenmile Sub Drain	4	12	16
Thurman Drain	2	0	2
Thurman Mill Canal	19	4	23
Thurman Mill Drain	0	1	1
Unnamed	52	0	52
Wood Lateral	2	0	2
Total 53	**416**	**222**	**638**

Appendix C: Compliance and Implementation Status

Stormwater Management Program Compliance and Implementation Status - Phase II																
Stormwater Management Program Areas and Program Control Measures (PCM)	Permit Reference	Stormwater Management Program Task Summary	Permit Language and Conditions	Permit Compliance Date	ACHD Status											
					Completed	Ongoing	Update									
							2021-2022 Permit Year 1		2022-2023 Permit Year 2		2023-2024 Permit Year 3		2024-2025 Permit Year 4		2025 -2026 Permit year 5	
							SWMP	Annual Report	SWMP	Annual Report	SWMP	Annual Report	SWMP	Annual Report	SWMP	Annual Report
Stormwater Management Program	**2.5.2**	Maintain Adequate Legal Authority	Permittee must develop and/or update (as needed) relevant regulatory mechanisms to control pollutant discharges into and from its MS4 and comply with this Permit.	8/4/2025	2/1/2023 Review/Update as Needed	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	2.5.3	Update SWMPP to include Implementation Schedule for 2021 Permit	The Permittee must maintain a written SWMP document to describe in detail how the Permittee will comply with the required stormwater management control measures in this Permit.	4/4/2022	4/1/2023 Review/Update as Needed	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	2.5.3	Post SWMPP on Website	Post SWMPP on Website.	4/4/2022	4/1/2023 Update as Needed	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	5	Required Response to Excursions Above Idaho Water Quality Standards	The Permittee presumed to be in compliance with Idaho Water Quality Standards if in compliance with Permit. If discharge from MS4s causes or contributes to an excursions, Permittee remains in compliance as long as SWMP control measures are implemented and Permittee undertakes the following actions: Notification, Adaptive Management Report, Review and Approval of Adaptive Management Report, Implementation, Reporting, and Permit Revision.	within 30 days	NA	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	8.2	Permit Renewal Application	If Permittee intend to continue operational control and management, must apply for and obtain a new permit. The following attachments must be submitted: Updated SWMP document, MS4 Map and Outfall Inventory, list of MS4 outfall locations with dry weather flows, Enforcement Response Policy for Construction Site Runoff Control, Enforcement Response Policy for Permanent Stormwater Management Controls, Permittee's adaptive management actions to date, Monitoring/Assessment activities, and implementation and effectiveness of Pollutant Reduction Activities to date.	8/4/2025		X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
PCM 1 Public Education and Outreach	**3.1.2**	Conduct Public Education, Outreach, and Involvement Program	Permittee must include coordination and education efforts target at least one of four audiences listed in 3.1.4. Must inform and engage interested stakeholders in Permittee's development and implementation of SWMP controls measures. Must include activities in 3.1.3 through 3.1.8.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.1.3	Stormwater Education Activities	Permittee must offer at least eight education messages or activities over the permit term to selected audiences in 3.1.4.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.1.4	Target Audience(s) and Topics	The Permittee must select at least one audience from the following list and convey relevant messaging: General Public, Business/Industrial/Commercial/Institutions, Construction/Development, or Elected Officials, Land Use Policy and Planning Staff.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.1.5	Assessment	The Permittee must begin to assess the understanding of the relevant messages and adoption of appropriate behaviors by their target audience(s). Resulting assessment must be used to direct future stormwater education.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.1.6	Tracking	The Permittee must track and maintain records of their education, outreach, and public involvement activities.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.1.7.1	Education on SWMPP Control Measures: Construction	At least twice during the Permit term, the Permittee must provide educational materials for construction operators working in their jurisdiction.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.1.7.2	Education on SWMPP Control Measures: Permanent Stormwater Controls	At least twice during the Permit term, the Permittee must provide opportunity and/or conduct training sufficient to educate and ensure that engineers, site designers, and/or appropriate audiences in their jurisdiction are aware and informed of appropriate selection, design, installation, use, and maintenance of permanent stormwater controls imposed by the Permittee.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.1.8	Publicly Accessible Website	The Permittee must maintain and promote at least one publicly accessible website with information on the SWMP implementation, points of contact, and education materials. Minimum features: Phone numbers, and/or other direction to assist the public to report illicit discharges, Reports, plans, strategies, or documents generated in compliance with this Permit, Information regarding policies and/or guidance documents related to requirements for construction and permanent stormwater management control, and Permits contact information.	8/4/2025	2/1/2023	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
PCM 2 Illicit Discharge Detection and Elimination	**3.2.2**	Municipal Separate Storm Sewer System Map and Outfall Inventory	The Permittee must update or develop a map of their MS4(s) and all associated outfall locations under its operational control in the Permit Area. Must maintain an outfall and interconnection inventory to accompany the map with outfall locations, physical condition, and a framework for inspections, dry weather discharge screenings, maintenance, and other activities	8/4/2025			☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.2.3	Regulatory Mechanism/Enforcement Escalation Procedures	The Permittees must prohibit non-stormwater discharges into the MS4 (except those conditionally allowed by Part 2.4) through enforcement of a regulatory mechanism. The Permittees must implement appropriate enforcement procedures and actions, including a written policy of enforcement escalation procedures for recalcitrant or repeat offenders, to ensure compliance. The ordinance or regulatory mechanism must authorize the permittee to control and respond to the discharge of spills, prohibit illicit connections or dumping into the MS4, to prohibit/eliminate non stormwater discharges to the MS4.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Stormwater Management Program Control and Implementation Status - Phase II																
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PCM 2 Illicit Discharge Detection and Elimination	3.2.4	Illicit Discharge Complaint Report and Response Program	The Permittee must respond in the following manner to reports of illicit discharges from the public: receipt of complaints or reports from the public, response to complaints or reports from the public, and tracking of complaints or reports and actions taken.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.2.5	Dry Weather Outfall Screening Program	The Permittee must conduct a dry weather analytical and field screening monitoring program to identity non-stormwater flows from MS4 outfalls during dry weather. The program must include the following: outfall identification and screening protocols, number of outfalls to be screened, monitoring of illicit discharges, and maintain records of dry weather outfall screening program.	8/4/2025	2/1/2023	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	3.2.6	Illicit Discharge Detection and Elimination Follow-up	Within thirty days of its detection, the Permittee must investigate recurring illicit discharges identified as a result of complaints or identified as result of the dry weather screening investigations and sampling, to determine the source of such discharge.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.2.7	Prevention and Response to Spills	The Permittee must maintain written spill response procedures and must coordinate their own spill prevention containments, and response activities with the appropriate departments, programs, and agencies in the Permit Area.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
	3.2.8	Proper Disposal of Used Oil and Toxic Materials	The Permittee must coordinate with appropriate local entities to educate the Permittee's employees and members of the public of the proper management, disposal, or recycling of used oil, vehicle fluids, toxic materials, and other household hazardous wastes in the Permittee's jurisdiction.	8/4/2025		X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.2.9	Illicit Discharge Detection and Elimination Training for Staff	The Permittee's construction inspectors, maintenance field staff, and code compliance officers must be sufficiently trained to conduct dry weather screening activities and to response to reports of illicit discharges and spills into the MS4. The Permittee must provide orientation and training for new staff. Outside parties must be trained or otherwise qualified.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PCM 3 Construction Site Stormwater Runoff Control	3.3.2	Regulatory Mechanism	The Permittee must require erosion controls, sediment controls, and waste materials management controls to be use and maintained at construction projects. The Permittee's regulatory mechanism must require construction site operators to maintain effective controls to reduce pollutants in stormwater discharges. For construction projects in the Permittee's jurisdiction that disturb one or more acres, the Permittee must refer project site operators to obtain NPDES permit coverage.	8/4/2025	Policy 8300 last updated 1/25/17	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.3.3	Construction Site Runoff Control Specifications	The Permittee must require construction site operators to use erosion, sediment, and waste material management controls at construction project sites that result in land disturbance of greater than or equal to one acre. Construction site runoff control specifications must consist of: requirements for use of erosion controls, sediment control, and waste materials management/pollution prevention practices, sizing criteria, performance criteria, illustrations, design examples, and recommendations for operation and maintenance, specifications for long term operation and maintenance of such construction site runoff control practices.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.3.4	Pre-Construction Site Plan Review	The Permittee must review preconstruction site plans from construction project site activity that will result in land disturbance of one or more acres. Site plan review procedures must include consideration of the site's potential water quality impacts and must demonstrate compliance with the regulatory mechanism. Any preconstruction site plan contains site-specific measures that meet the Permittee's runoff control specifications.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.3.5	Construction Site Inspection and Enforcement	The Permittee must inspect construction sites in their jurisdiction that disturb one or more acres. The Permittee must establish an inspection prioritization system to identify the minimum frequency and type of inspections. Follow-up actions must be taken to ensure compliance. Construction site inspections must include: a review of the site plan to determine if the intended control measures were installed, implemented, and maintained, an assessment of the site's compliance with the Permittee's requirements, visual observation of any existing or potential non-stormwater discharges, illicit connections, and/or discharge of pollutants from site, education or instruction to the construction site operated, and a written or electronic inspection report.	8/4/2025	2/1/2023	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	3.3.6	Enforcement Response Policy for Construction Site Runoff Control	The Permittee must develop, implement, and maintain a written escalating enforcement response policy (ERP) or plan appropriate to its organization. The ERP must address enforcement of construction site runoff controls for all construction projects in their jurisdictions. Each ERP must describe the Permittee's potential response to violations with appropriate educational or enforcement responses.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☑	☐	☐	☐	☐
	3.3.7	Construction Site Runoff Control Training for Staff	The Permittee must ensure that all persons responsible for preconstruction site plan review, site inspections, and enforcement of all the Permittee's requirements are trained. The Permittee must provide training for new staff working on construction runoff control. If the Permittee utilize outside parties to review plans and/or conduct inspections. Outside parties must be trained or otherwise qualified.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Stormwater Management Program Compliance and Implementation Status - Phase II

Stormwater Management Program Areas and Program Control Measures (PCM)	Permit Reference	Stormwater Management Program Task Summary	Permit Language and Conditions	Permit Compliance Date	ACHD Status: Completed	Ongoing	Update: 2021-2022 Permit Year 1 SWMP	2021-2022 Permit Year 1 Annual Report	2022-2023 Permit Year 2 SWMP	2022-2023 Permit Year 2 Annual Report	2023-2024 Permit Year 3 SWMP	2023-2024 Permit Year 3 Annual Report	2024-2025 Permit Year 4 SWMP	2024-2025 Permit Year 4 Annual Report	2025 -2026 Permit year 5 SWMP	2025 -2026 Permit year 5 Annual Report
PCM 4 Post-Construction Stormwater Management for New and Redevelopment	**3.4.2**	Regulatory Mechanism	The Permittee must require the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites that result in land disturbance of greater than or equal to one acre and that discharge into the MS4. Required permanent stormwater controls must be sufficient to retain the runoff volume produced from a 24-hour, 95th percentile storm event; or sufficient to provide the level of pollutant removal greater than pollutant removal expected by using onsite retention of runoff volume produced from a 24-hour, 95th percentile storm event.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.4.3	Permanent Stormwater Controls Specifications	The Permittee must specify permanent stormwater controls for project sites in their jurisdiction to install for sites that result in land disturbance of greater than or equal to one acre and that discharge into the MS4. The written specifications must include: specification for the use of site-based practices suitable to local soils and hydrologic conditions, acceptable control practices, and specification for proper long-term operation and maintenance.	8/4/2025	Policy 8000 & 8200 last updated 8/2017	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.4.4	Permanent Stormwater Controls Plan Review and Approval	The Permittee must review and approve preconstruction plans for permanent stormwater controls at new development and redevelopment sites that result in land disturbance of greater than one or equal to one acre and that discharge into the MS4. The permittee must review plans for consistency with the regulatory mechanism and specifications.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.4.5	Permanent Stormwater Controls Inspection and Enforcement	The Permittee must inspect high priority permanent stormwater controls at new development and redevelopment sites that result in land disturbance of greater than or equal to one acre and that discharge into the MS4. The Permittee must establish an inspection prioritization system to identify sites for inspections of permanent control installation and operation. The Permittee must identify permanent stormwater controls at new development and redevelopment sites and schedule associated inspections to occur at least once annually. The Permittee must develop and implement an enforcement response policy.	8/4/2025		X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.4.6	Operations and Maintenance of Permanent Stormwater Controls	The Permittee must maintain a database inventory to track and manage the operational condition of permanent stormwater controls in its jurisdiction. All available data on existing permanent controls known to the Permittee must be included in the database inventory. The Permittee must begin tracking at the time the Permittee takes ownership, using a database that incorporated geographic information system (GIS) information and/or developed in conjunction with the MS4 Map. The tracking system must also include reference to the type and number of permanent stormwater controls; O&M requirements activity and schedule; responsible party; and any applicable self-inspection schedule.	8/4/2025		X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.4.7	Permanent Stormwater Controls Training for Staff	The Permittee must ensure that all persons responsible for reviewing site plans for permanent stormwater controls, and/or for inspecting the installation and operation of permanent stormwater controls, are trained, or otherwise qualified to conduct such activities. The Permittee must provide training for new staff and outside parties.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PCM 5 Pollution Prevention & Good Housekeeping for Municipal Separate Storm Sewer System Operations	**3.5.2**	Inspection and Cleaning of Catch Basins and Inlets	The Permittee must inspect all Permittee-owned or operated catch basins and inlets in the MS4 at least once every five years and take all appropriate maintenance or cleaning action based on those inspections to ensure the catch basins and inlets continue to function as designed. The Permittee may establish a catch basin inspection prioritization system, and establish alternate inspection frequency.	8/4/2025		X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	3.5.3	O&M Procedures for Roads and Parking Lots	Where the Permittee is responsible for the O&M of streets, roads, highways, and/or parking lots, the Permittee must ensure those procedures are conducted in a manner to protect water quality and reduce the discharge of pollutant through the MS4. The Permittee must establish specific schedules for inspection and maintenance, and must consider water conservation measures.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.5.4	Inventory and Management of Road Maintenance Materials	Where the Permittee is responsible for the O&M of streets, roads, highways, and/or parking lots, the Permittee must reduce pollutants in discharges to the MS4 and waters of the U.S. from street/road maintenance material storage stockpiles. The Permittee must maintain an inventory of street/road maintenance materials stored at locations within the Permit Area that drain into the MS4. The Permittee must assess the physical adequacy of each Material Storage Location to prevent potential adverse water quality impacts and must make any structural or nonstructural improvements as necessary to eliminate any such impacts.	8/4/2025	2/1/2023	X	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
	3.5.5	Street Sweeping	Where the Permittee is responsible for the O&M of streets, roads, highways, and/or parking lots, the Permittee must sweep those areas that discharge into the MS4 at lease one annually. The sweeping management plan must include: an inventory and/or map of all streets, roads, highways, and public parking lots and identify their selected sweeping frequency, a discussion of any areas where sweeping is technically infeasible, and an overall description of their street sweeping activities to minimize pollutant discharges into the MS4 and receiving water.	8/4/2025	2/1/2023	X	☐	☑	☐	☑	☑	☑	☐	☐	☐	☐

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PCM 5 Pollution Prevention & Good Housekeeping for Municipal Separate Storm Sewer System Operations	3.5.6	O&M Procedures for Other Municipal Areas and Activities	The Permittee must conduct their municipal O&M activities in a manner that reduces the discharge of pollutants through the MS4 to protect water quality. The Permittee must review, and update as necessary, existing procedures for inspection and maintenance schedules to ensure pollution prevention and good housekeeping practices are conducted for the following activities: grounds/park and open space maintenance; fleet maintenance and vehicle washing operations; building maintenance; snow management and snow disposal site O&M; solid waste transfer activities; municipal golf course maintenance; materials storage; heavy equipment storage areas; hazardous materials storage; used oil recycling; and spill control and prevention measures for municipal refueling facilities.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.5.7	Requirements for Pesticides, Herbicides, and Fertilizer Applications	The Permittee must implement practices to reduce the discharge of pollutants of the MS4 associated with the Permittee's application and storage of pesticides, herbicides, and fertilizer in the Permit Area. Such areas include the individual Permittee's public rights-of-way, and/or landscaped areas.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.5.8	SWPPPs for Permittee Facilities	The Permittee must develop and implement site-specific SWPPPs to manage stormwater discharges from all Permittee-owned material storage facilities, heavy equipment storage areas, and maintenance yards identified in the inventory. Permittee-owned facilities discharging stormwater associated with industrial activity must obtain separate NPDES permit coverage.	8/4/2025		NA	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3.5.9	Litter Control	Throughout the Permit term, the Permittee must implement methods to reduce litter in their jurisdiction. The Permittee must work to cooperatively with others to control litter on a regular basis, and after major public events.	8/4/2025	2/1/2023	X	☑	☐	☑	☐	☑	☐	☐	☐	☐	☐
	3.5.10	Pollution Prevention/Good Housekeeping Training for Staff	The Permittee must ensure that all persons responsible for the stormwater infrastructure management and O&M activities as required by this Part are trained and otherwise qualified to conduct such activities. The Permittee must provide training for new staff working on infrastructure management and O&M activities. Outside parties must be trained or otherwise qualified.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Monitoring and Assessment	6.1	Compliance Evaluation	At least once per year, the Permittee must evaluate their compliance with the requirements of this Permit. This self-evaluation includes assessment of progress toward implementing the SWMP control measures in Part 3, and implementation of individual or collective actions to comply with any additional requirements identified pursuant to Part 4.	Annually	4/1/2024	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	6.2.2	Monitoring/Assessment Plan and Objectives	The Permittee must each develop and submit a Monitoring/Assessment Plan designed to quantify pollutant loadings from the MS4s and the quality assurance objectives. The EPA will review and propose to revise this Permit.	8/4/2025	4/15/2021		☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	6.2.4	Wet Weather Discharge Monitoring	If the Permittee monitor wet weather discharges from MS4 outfalls, the location of monitoring must be identified, the sample collection must be identified, the pollutants to be sampled must be identified, the samples must be collected at a frequency identified, the Permittee must develop a Quality Assurance Project Plan, and the Permittee must submit all data collected to EPA.	8/4/2025	Monitoring Plan 4/15/2021 QAPP 1/25/2022		☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	6.2.5	Quality Assurance Requirements	The Permittee must develop a Quality Assurance Project Plan (QAPP) for any monitoring or quantitative assessment activities conducted in compliance with this Permit. Any existing QAPP may be modified to meet the requirements.	8/4/2025	QAPP Update 1/25/2022		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6.2.6.1	Quality Assurance Project Plan Content	The QAPP must be designed to assist the Permittee in planning for the collection and analysis of any stormwater discharge, receiving water quality, catch basin sediments, and/or other types of information collected in compliance with this Permit, and in explaining data anomalies when they occur.	8/4/2025	QAPP Update 1/25/2022		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6.2.5.2	Quality Assurance Project Plan Updates and Availability	The Permittee must amend and update the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP. Copies of the QAPP must be maintained by the Permittee as part the Monitoring/Assessment Plan, updated as necessary, and made available to EPA and/or IDEQ upon request.	8/4/2025	QAPP Update 1/25/2022		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6.2.6	Analytical Methods	Sample collection, preservation, and analysis must be conducted according to sufficiently sensitive methods/test procedures approved, unless otherwise approved by the EPA, unless other procedures have been specified in this Permit. The Permittee must use a method that detects and quantifies the level or pollutant or must use a method that can achieve a maximum Minimum Level (MLs) less than or equal to those in Table 6.2.8, permittee may request different MLs.	8/4/2025	Monitoring Plan 4/15/2021 QAPP 1/25/2022		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6.3	Recordkeeping	The Permittee must retain records and information documenting implementation of all control measures required by this Permit for a period of at least five years from the date of the report, sample, or measurement, or for the term of this Permit, whichever is longer. At a minimum, the Permittee must retain all records associated with this Permit in a location and format that are accessible to EPA and IDEQ. The Permittee must make all records described above available to the public if requested to do so in writing.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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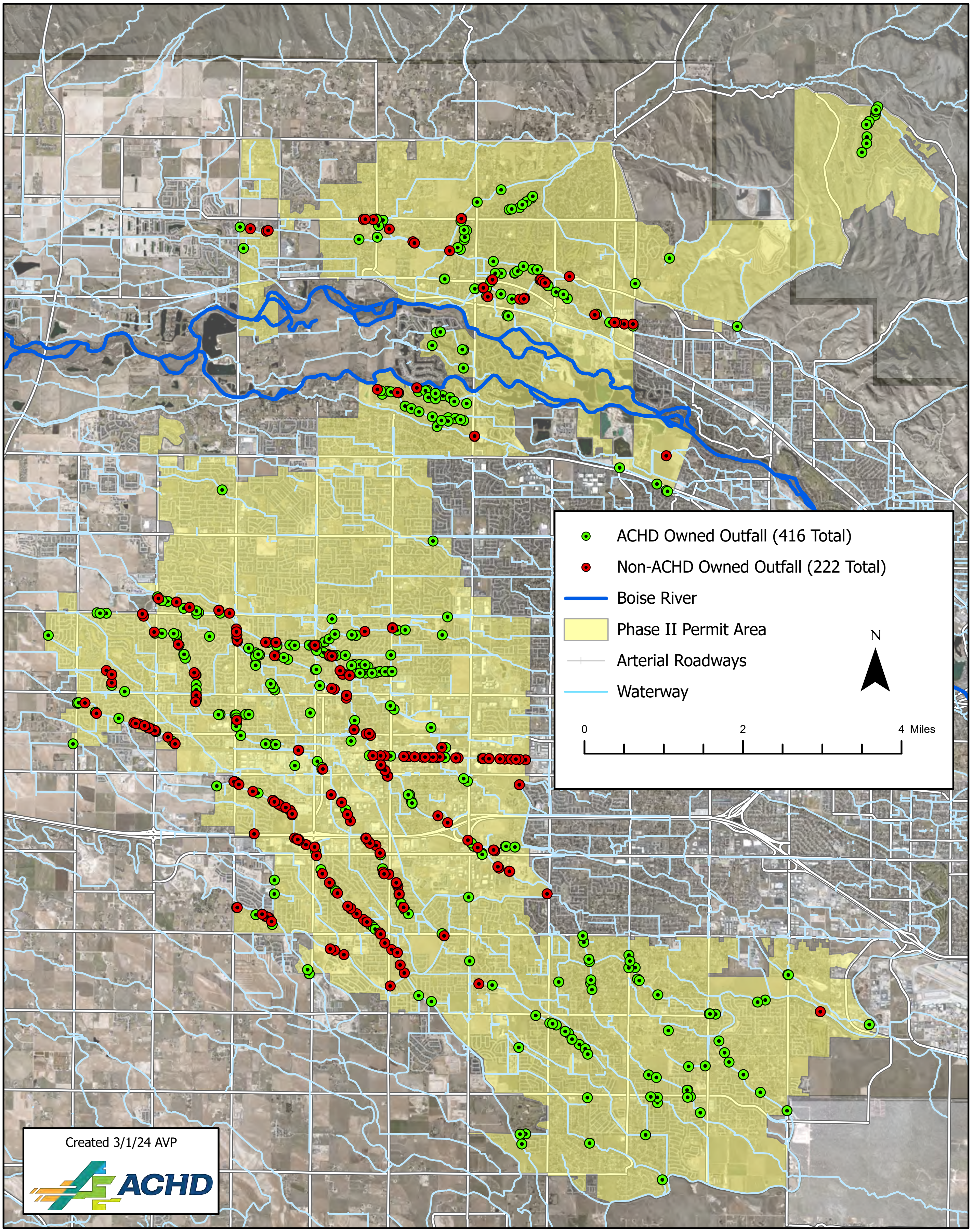
Pollutant Reduction Activities	**2.6.2**	Pollutant Reduction Activity Descriptions	An Alternative Control Measure (ACM) also includes the Permittee's specific actions to address discharges to impaired waters as specified in Part 4. The Permittee must submit at least one Monitoring/Assessment Plan to assess pollutant discharges from the MS4 into impaired receiving waters as required by Part 4.2. The Permittee must submit a written description of at least two Pollutant Reduction Activities.	2/1/2023	Monitoring and Assessment Plan and 1st PRA submitted 4/2021	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	4.3	Pollutant Reduction Activity 1	The Permittee must submit a written description of a Pollutant Reduction Activities to address expectations in the applicable Total Maximum Daily Load (TMDL) analyses identified in Part 4.3.	8/4/2025	X		☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
	4.3	Pollutant Reduction Activity 2	The Permittee must submit a written description of a Pollutant Reduction Activities to address expectations in the applicable Total Maximum Daily Load (TMDL) analyses identified in Part 4.3.	8/4/2025	4/1/2024	X	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐
Reporting	**6.4.2**	Stormwater Management Program Annual Report	The Permittee must submit an Annual Report to the EPA and IDEQ. The reporting period for Year 1 Annual Report can be found in Table 6.4.2. EPA recommends the Permittee use the Annual Report Format provided in Appendix B. The Annual Report must reflect the status of the Permittee's implementation of the Permit requirements during the relevant reporting period, and must include: any summaries, descriptions, and/or other information the Permittee used to demonstrate compliance, a current website address, notification to EPA and IDEA that the Permittee is relying on another Permittee, notification or any annexations, incorporations, or jurisdictional boundary changes, and point(s) of contact responsible SWMP implementation for the Permittee.	4/4/2022	4/1/2024	X	☐	☑	☐	☑	☐	☑	☐	☐	☐	☐
	6.4.3	Monitoring/Assessment Report	The Permittee must submit a final report summarizing any/all monitoring/assessment data collected during the permit term as an attachment to the Permit Renewal Application. All Final Monitoring/Assessment Reports must summarize and evaluate the information collected and include reference to: the data, exact place, and time of sampling or measurements, the name(s) of the individual(s) who performed the sampling or measurements; the date(s) analyses were performed; the names of the individual(s) who performed the analysis; and the results of such analyses.	8/4/2025		X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6.4.4	Pollutant Reduction Activity Report	The Permittee must submit a Pollutant Reduction Activity Report summarizing actions conducted during the Permit term to reduce pollutant loadings from the Permittee's MS4. The final Pollutant Reduction Activity Report must summarize the actions identified in Part 4 and must quantify any load reductions accomplished to date.	8/4/2025	4/1/2024	X	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐

Appendix D: Phase II Outfall Inventory, Map, and Dry Weather Irrigation and Groundwater Flows

Phase II Outfall Inventory
February 1, 2023 - January 31, 2024



2023 Outfall Inventory Phase II Permit Area Ada County, Idaho
February 1, 2023 - January 31, 2024

#	OUTFALL ID	OWNERSHIP	RECEIVING WATER	PIPE DIAMETER	PIPE TYPE	LATITUDE	LONGITUDE
1	2n1e01_001	ACHD	New York Canal	12	PVC	43.543857	-116.274253
2	2n1e02_001	ACHD	Cunningham Lateral	12	PVC	43.539270	-116.309750
3	2n1e02_002	ACHD	Eightmile Creek	0	Siphon Drain	43.543376	-116.296032
4	2n1e02_003	ACHD	Boller Lateral	22	HDPE	43.545156	-116.306847
5	2n1e02_004	ACHD	Boller Lateral	18	HDPE	43.545166	-116.306818
6	2n1e02_005	ACHD	Boller Lateral	24	HDPE	43.546135	-116.306845
7	2n1e02_006	ACHD	Boller Lateral	18	HDPE	43.546223	-116.308532
8	2n1e02_007	ACHD	Eightmile Creek	0	Open Ditch	43.546292	-116.298558
9	2n1e02_008	ACHD	Eightmile Creek	0	Open Ditch	43.546187	-116.299247
10	2n1e03_002	ACHD	Paris Lateral	0	Open Ditch	43.537679	-116.323806
11	2n1e03_003	ACHD	Unnamed	0	Drop Inlet	43.545993	-116.324438
12	2n1e04_001	ACHD, Irrigation	Tenmile Creek	12	PVC	43.537437	-116.340825
13	2n1e04_002	ACHD, Irrigation	Unnamed	0	open ditch	43.539232	-116.341293
14	2n1e04_003	ACHD	Unnamed	12	PVC	43.539288	-116.339851
15	2n1e11_001	ACHD	Hon Lateral	15	RCP	43.531063	-116.305461
16	3n1e05_001	ACHD	South Slough	12	PVC	43.630401	-116.361747
17	3n1e05_002	ACHD	South Slough	12	RCP	43.631266	-116.371060
18	3n1e05_003	ACHD	South Slough	12	PVC	43.631222	-116.373097
19	3n1e05_004	ACHD	South Slough	12	RCP	43.631654	-116.374264
20	3n1e05_005	Irrigation	South Slough	12	RCP	43.631667	-116.374311
21	3n1e05_006	Irrigation	South Slough	12	RCP	43.631594	-116.374291
22	3n1e05_007	ACHD	Milk Lateral	15	CMP	43.633713	-116.360454
23	3n1e05_008	ACHD	Jackson Stub Drain	12	PVC	43.623657	-116.374321
24	3n1e05_009	ACHD	Jackson Stub Drain	12	PVC	43.623656	-116.374416
25	3n1e06_001	Private	Fivemile Creek	8	CMP	43.620334	-116.388808
26	3n1e06_002	Private	Fivemile Creek	15	SMP	43.620497	-116.389466
27	3n1e06_003	ACHD	Fivemile Creek	12	RCP	43.623883	-116.393608
28	3n1e06_004	ACHD	Fivemile Creek	12	RCP	43.623916	-116.393604
29	3n1e06_005	ACHD,Irrigation	Jackson Drain	30	CMP	43.623309	-116.384483
30	3n1e06_006	Private	Jackson Drain	12	CMP	43.622882	-116.384986
31	3n1e06_007	ACHD	Jackson Drain	36	CMP	43.623110	-116.386470
32	3n1e06_008	Private	Jackson Drain	12	CMP	43.623078	-116.386757
33	3n1e06_009	Private	Jackson Drain	12	SMP	43.623735	-116.387399
34	3n1e06_010	Private	Jackson Drain	12	ADS	43.626357	-116.389436
35	3n1e06_011	Private	Jackson Drain	12	CMP	43.626367	-116.389474
36	3n1e06_012	ACHD, Private	Jackson Drain	12	CMP	43.626380	-116.390046
37	3n1e06_013	Irrigation	Jackson Drain	12	PVC	43.626527	-116.390083
38	3n1e06_014	ACHD	Jackson Drain	12	PVC	43.626638	-116.390331
39	3n1e06_015	ACHD	Jackson Drain	12	CMP	43.626650	-116.390532
40	3n1e06_016	ACHD	Jackson Drain	12	PVC	43.627004	-116.391579
41	3n1e06_017	ACHD	Jackson Drain	12	CMP	43.627406	-116.393337
42	3n1e06_018	ACHD	Jackson Drain	12	PVC	43.627530	-116.393436
43	3n1e06_019	ACHD	Jackson Drain	12	RCP	43.628389	-116.393393
44	3n1e06_020	ACHD	South Slough	12	CMP	43.629518	-116.390175
45	3n1e06_021	ACHD	South Slough	12	PVC	43.630295	-116.384531
46	3n1e06_022	Irrigation	South Slough	12	RCP	43.630935	-116.381240
47	3n1e06_023	ACHD	South Slough	12	PVC	43.630240	-116.384519
48	3n1e06_024	ACHD	Settlers Canal	12	RCP	43.620972	-116.392463
49	3n1e06_025	ACHD	Jackson Stub Drain	12	PVC	43.623309	-116.384483
50	3n1e06_026	ACHD	Jackson Stub Drain	18	RCP	43.624472	-116.380379
51	3n1e06_027	ACHD	Jackson Stub Drain	12	RCP	43.624834	-116.381120
52	3n1e06_028	ACHD	Jackson Stub Drain	18	PVC	43.624882	-116.382374
53	3n1e06_029	ACHD	Jackson Stub Drain	18	PVC	43.624882	-116.382483
54	3n1e06_030	ACHD	Jackson Stub Drain	12	PVC	43.624879	-116.383865

55	3n1e06_031	ACHD	Jackson Stub Drain	15	PVC	43.624721	-116.384513
56	3n1e06_032	ACHD	Downey Sublateral	12	PVC	43.626555	-116.386104
57	3n1e06_033	ACHD	Downey Sublateral	12	PVC	43.626531	-116.388345
58	3n1e06_034	ACHD	Downey Sublateral	12	PVC	43.626527	-116.389185
59	3n1e06_035	ACHD	Finch Lateral	12	CMP	43.628980	-116.391333
60	3n1e06_036	ACHD	Finch Lateral	12	PVC	43.630380	-116.388761
61	3n1e06_037	ACHD	Finch Lateral	12	PVC	43.630206	-116.383412
62	3n1e06_038	ACHD	Onweiler Lateral	12	PVC	43.633188	-116.389538
63	3n1e06_039	ACHD	Unnamed	18	PVC	43.656609	-116.417412
64	3n1e06_040	ACHD	Downey Sublateral	12	PVC	43.626661	-116.374644
65	3n1e06_041	ACHD	Jackson Stub Drain	12	PVC	43.623660	-116.374616
66	3n1e06_042	ACHD	Jackson Stub Drain	12	PVC	43.623624	-116.375546
67	3n1e06_043	ACHD	Jackson Stub Drain	12	PVC	43.623619	-116.376046
68	3n1e06_044	ACHD	Jackson Stub Drain	12	PVC	43.623639	-116.377394
69	3n1e06_045	ACHD	Jackson Stub Drain	12	PVC	43.623466	-116.378182
70	3n1e06_046	ACHD	Jackson Stub Drain	12	RCP	43.623331	-116.379357
71	3n1e06_047	ACHD	Jackson Stub Drain	12	RCP	43.623326	-116.381055
72	3n1e06_048	ACHD	Jackson Stub Drain	12	PVC	43.623321	-116.382407
73	3n1e06_049	ACHD	Jackson Stub Drain	12	PVC	43.623307	-116.384249
74	3n1e06_050	ACHD	Jackson Stub Drain	12	PVC	43.623312	-116.384389
75	3n1e06_051	ACHD	Jackson Stub Drain	12	PVC	43.623312	-116.384389
76	3n1e06_052	ACHD	Fivemile Creek	15	PVC	43.623918	-116.393341
77	3n1e07_001	Private, Irrigation	Fivemile Creek	18	CMP	43.612973	-116.383776
78	3n1e07_003	ACHD, Private, Irrigation	Fivemile Creek	15	CMP	43.612938	-116.383734
79	3n1e07_004	ACHD	Fivemile Creek	14	ADS	43.612975	-116.383722
80	3n1e07_005	ACHD	Fivemile Creek	12	ADS	43.614647	-116.383614
81	3n1e07_006	Private	Fivemile Creek	12	RCP	43.608233	-116.378983
82	3n1e07_007	ACHD	Fivemile Creek	12	CMP	43.608256	-116.379891
83	3n1e07_008	Private	Gruber Lateral	12	CMP	43.608230	-116.377030
84	3n1e07_009	ACHD, Irrigation	Jackson Drain	18	RCP	43.617386	-116.374670
85	3n1e07_010	Private, Irrigation	Fivemile Creek	18	CMP	43.606433	-116.376915
86	3n1e07_011	Private	Fivemile Creek	10	PVC	43.605482	-116.375868
87	3n1e07_012	Private	Fivemile Creek	12	CMP	43.605550	-116.375889
88	3n1e07_013	Private	Fivemile Creek	12	CMP	43.606559	-116.376975
89	3n1e07_014	Irrigation	Fivemile Creek	18	ADS	43.611955	-116.379574
90	3n1e07_015	ACHD, Private	Fivemile Creek	18	ADS	43.611927	-116.379621
91	3n1e07_016	Irrigation	Fivemile Creek	10	PVC	43.612066	-116.379715
92	3n1e07_017	Irrigation	Fivemile Creek	18	PVC	43.612294	-116.379957
93	3n1e07_018	Irrigation	Fivemile Creek	8	CMP	43.612214	-116.380700
94	3n1e07_019	Private	Fivemile Creek	12	CMP	43.619233	-116.385685
95	3n1e07_020	Irrigation	Fivemile Creek	15	CMP	43.619236	-116.385783
96	3n1e07_021	Private	Fivemile Creek	12	CMP	43.618712	-116.385800
97	3n1e07_022	Private	Gruber Lateral	12	CMP	43.608215	-116.375960
98	3n1e07_023	Private	Ninemile Creek	12	PVC	43.605723	-116.391516
99	3n1e07_025	ACHD, Private, Irrigation	Ninemile Creek	12	RCP	43.605689	-116.391748
100	3n1e07_026	ACHD	Ninemile Creek	12	RCP	43.606002	-116.391740
101	3n1e07_027	ACHD	Ninemile Creek	12	PVC	43.607127	-116.392932
102	3n1e08_001	Private	Gruber Lateral	12	CMP	43.608139	-116.371219
103	3n1e08_002	ACHD, Private	Gruber Lateral	15	RCP	43.608099	-116.370939
104	3n1e08_003	ACHD	Gruber Lateral	12	CMP	43.608113	-116.370674
105	3n1e08_004	Private	Gruber Lateral	12	CMP	43.608091	-116.370062
106	3n1e08_005	Private	Gruber Lateral	12	CMP	43.608071	-116.368470
107	3n1e08_006	Private	Gruber Lateral	8	PVC	43.608042	-116.366513
108	3n1e08_007	Private	Gruber Lateral	12	CMP	43.608038	-116.365831
109	3n1e08_008	ACHD	Gruber Lateral	12	CMP	43.608008	-116.364530
110	3n1e08_009	Private	Gruber Lateral	12	CMP	43.608031	-116.363857
111	3n1e08_010	Private	Gruber Lateral	12	CMP	43.607973	-116.362655
112	3n1e08_011	Irrigation	Gruber Lateral	12	CMP	43.607928	-116.358123
113	3n1e08_012	Private	Gruber Lateral	12	PVC	43.607927	-116.358101

114	3n1e08_013	Private	Gruber Lateral	12	CMP	43.607939	-116.357537
115	3n1e08_014	Private	Jackson Drain	15	ADS	43.609846	-116.361663
116	3n1e08_015	ACHD	Jackson Drain	12	PVC	43.616727	-116.373711
117	3n1e08_016	Irrigation	Evans Drain	18	CMP	43.608104	-116.362150
118	3n1e08_017	ACHD	Jackson Drain	12	PVC	43.609817	-116.360667
119	3n1e08_019	ACHD	Evans Drain	15	RCP	43.608004	-116.360836
120	3n1e08_020	ACHD	Gruber Lateral	12	PVC	43.608193	-116.374491
121	3n1e08_021	ACHD	Jackson Drain Waste Ditch	12	CMP	43.613459	-116.364414
122	3n1e09_001	Private	Evans Drain	12	CMP	43.607667	-116.340573
123	3n1e09_002	Private	Evans Drain	12	CMP	43.607776	-116.342179
124	3n1e09_003	Private	Evans Drain	12	CMP	43.607788	-116.343005
125	3n1e09_004	Private	Evans Drain	12	PVC	43.607794	-116.344195
126	3n1e09_005	Private	Evans Drain	12	ADS	43.607791	-116.345839
127	3n1e09_006	Private	Evans Drain	12	PVC	43.607809	-116.346986
128	3n1e09_007	Private	Evans Drain	6	PVC	43.607819	-116.347000
129	3n1e09_008	Private	Evans Drain	6	PVC	43.607863	-116.349741
130	3n1e09_009	Private	Evans Drain	12	PVC	43.607851	-116.349757
131	3n1e09_010	Private	Evans Drain	12	ADS	43.607860	-116.351231
132	3n1e09_011	ACHD	Evans Drain	12	PVC	43.607869	-116.351501
133	3n1e16_001	ACHD, Private	Fivemile Creek	12	RCP	43.591730	-116.343056
134	3n1e16_002	ACHD	Fivemile Creek	8	RCP	43.591724	-116.343100
135	3n1e16_004	Irrigation	Ridenbaugh Canal	16	CMP	43.603115	-116.342089
136	3n1e16_006	ACHD	Fivemile Creek	12	PVC	43.591123	-116.348365
137	3n1e16_007	Private	Fivemile Creek	6	PVC	43.591154	-116.348461
138	3n1e16_008	Irrigation	Fivemile Creek	15	CMP	43.590998	-116.348138
139	3n1e16_009	Private	Eightmile Lateral	12	CMP	43.591580	-116.352433
140	3n1e16_010	ACHD	Eightmile Creek	12	CMP	43.591818	-116.353434
141	3n1e16_011	ACHD	Fivemile Creek	15	CMP	43.592401	-116.354032
142	3n1e16_012	ACHD, Irrigation	Eightmile Creek	36	PVC	43.590561	-116.351384
143	3n1e16_014	ACHD	Fivemile Creek	12	CMP	43.591832	-116.345311
144	3n1e16_015	ACHD	Fivemile Creek	12	CMP	43.591821	-116.345501
145	3n1e17_001	Irrigation	Fivemile Creek	15	ADS	43.596084	-116.360040
146	3n1e17_003	Private	Fivemile Creek	12	CMP	43.597337	-116.362510
147	3n1e17_004	ACHD	Fivemile Creek	12	CMP	43.599565	-116.368978
148	3n1e17_005	ACHD	Fivemile Creek	12	CMP	43.599619	-116.369037
149	3n1e17_006	ACHD	Fivemile Creek	12	CMP	43.601136	-116.369655
150	3n1e17_007	ITD	Fivemile Creek	24	CMP	43.592913	-116.354931
151	3n1e17_008	ACHD	Fivemile Creek	0	Open Ditch	43.599835	-116.369163
152	3n1e17_009	ACHD	Fivemile Creek	0	Open Ditch	43.601136	-116.370000
153	3n1e17_010	ACHD	Snider Lateral	18	CMP	43.603689	-116.355156
154	3n1e17_011	ACHD	Snider Lateral	12	RCP	43.604166	-116.356102
155	3n1e18_002	ACHD, ITD	Tenmile Creek	12	PVC	43.590637	-116.393166
156	3n1e18_003	ACHD	Tenmile Creek	12	PVC	43.591436	-116.393401
157	3n1e18_004	Irrigation	Tenmile Creek	12	PVC	43.591458	-116.393465
158	3n1e18_005	ACHD	Fivemile Creek	15	RCP	43.604532	-116.375366
159	3n1e18_006	Irrigation	Fivemile Creek	15	RCP	43.604511	-116.375242
160	3n1e18_007	ACHD, Private	Fivemile Creek	15	RCP	43.604506	-116.375156
161	3n1e18_008	Irrigation	Ninemile Creek	12	ADS	43.590456	-116.377000
162	3n1e18_009	Private	Ninemile Creek	12	PVC	43.590453	-116.376983
163	3n1e18_010	Private	Ninemile Creek	12	PVC	43.591821	-116.378025
164	3n1e18_011	Irrigation	Ninemile Creek	10	PVC	43.592218	-116.379553
165	3n1e18_012	Private	Ninemile Creek	12	CMP	43.592595	-116.379971
166	3n1e18_013	Private	Ninemile Creek	10	CMP	43.593140	-116.380503
167	3n1e18_014	Private	Ninemile Creek	15	CMP	43.593168	-116.380610
168	3n1e18_015	Irrigation	Ninemile Creek	12	PVC	43.596274	-116.384517
169	3n1e18_016	Private	Ninemile Creek	12	CMP	43.597443	-116.385243
170	3n1e18_017	ACHD, City of Meridian	Ninemile Creek	10	PVC	43.598306	-116.385683
171	3n1e18_018	ACHD	Ninemile Creek	12	PVC	43.599714	-116.386764
172	3n1e18_019	Private	Ninemile Creek	10	PVC	43.599650	-116.386728

173	3n1e18_020	City of Meridian	Eightmile Creek	15	PVC	43.601031	-116.389398
174	3n1e19_001	Private	Tenmile Creek	8	RCP	43.575836	-116.376873
175	3n1e19_002	ACHD	Tenmile Creek	12	RCP	43.576515	-116.378070
176	3n1e19_003	ACHD	Tenmile Creek	12	PVC	43.576892	-116.378542
177	3n1e19_004	ACHD	Tenmile Creek	12	PVC	43.577379	-116.379367
178	3n1e19_005	Irrigation	Tenmile Creek	12	PVC	43.577820	-116.380112
179	3n1e19_006	ACHD, Irrigation	Tenmile Creek	12	PVC	43.577869	-116.380202
180	3n1e19_008	Private	Tenmile Creek	6	PVC	43.577917	-116.380421
181	3n1e19_009	Private	Tenmile Creek	12	CMP	43.578287	-116.381042
182	3n1e19_010	Private	Tenmile Creek	16	CMP	43.579307	-116.382728
183	3n1e19_011	ACHD	Tenmile Creek	12	CMP	43.580165	-116.384180
184	3n1e19_012	Irrigation	Tenmile Creek	12	PVC	43.580219	-116.384259
185	3n1e19_013	Irrigation	Tenmile Creek	15	CMP	43.580286	-116.384199
186	3n1e19_014	Irrigation	Tenmile Creek	12	PVC	43.580287	-116.384341
187	3n1e19_015	Private	Tenmile Creek	6	PVC	43.580693	-116.384993
188	3n1e19_016	Irrigation	Tenmile Creek	15	CMP	43.583059	-116.387605
189	3n1e19_017	ACHD	Tenmile Creek	15	PVC	43.583427	-116.388100
190	3n1e19_018	ACHD	Tenmile Creek	24	ADS	43.583466	-116.388030
191	3n1e19_019	ACHD	Tenmile Creek	18	ADS	43.584794	-116.389438
192	3n1e19_020	Irrigation	Tenmile Creek	12	CMP	43.584957	-116.389670
193	3n1e19_021	Irrigation	Tenmile Creek	24	ADS	43.586583	-116.391451
194	3n1e19_022	ACHD	Tenmile Creek	10	CMP	43.587325	-116.391818
195	3n1e19_024	Private	Tenmile Creek	18	ADS	43.589875	-116.392978
196	3n1e19_025	Private	Ninemile Creek	12	CMP	43.586582	-116.374742
197	3n1e19_026	Irrigation	Ninemile Creek	12	PVC	43.586641	-116.375911
198	3n1e19_027	Private	Ninemile Creek	6	SMP	43.586978	-116.376196
199	3n1e19_028	ACHD	Ninemile Creek	18	PVC	43.587570	-116.376327
200	3n1e19_030	ACHD	Ninemile Creek	12	CMP	43.590122	-116.376864
201	3n1e20_001	ACHD	Ninemile Creek	24	ADS	43.579371	-116.369769
202	3n1e20_002	ACHD	Ninemile Creek	12	CMP	43.580192	-116.370698
203	3n1e20_003	Private	Ninemile Creek	8	CMP	43.580541	-116.370957
204	3n1e20_004	ACHD	Ninemile Creek	12	CMP	43.581250	-116.371608
205	3n1e20_005	ACHD	Ninemile Creek	8	PVC	43.581304	-116.371643
206	3n1e20_007	ACHD	Ninemile Creek	8	PVC	43.582856	-116.372090
207	3n1e20_008	Irrigation	Ninemile Creek	2	PVC	43.582976	-116.372117
208	3n1e20_010	Irrigation	Ninemile Creek	8	PVC	43.583009	-116.372127
209	3n1e20_011	ACHD	Ninemile Creek	12	CMP	43.583020	-116.372147
210	3n1e20_012	Irrigation	Ninemile Creek	10	PVC	43.583032	-116.372128
211	3n1e20_013	Private	Ninemile Creek	12	CMP	43.584388	-116.372446
212	3n1e20_014	Private	Ninemile Creek	8	PVC	43.584818	-116.372745
213	3n1e20_015	Private	Ninemile Creek	12	CMP	43.585037	-116.372852
214	3n1e20_016	Private	Ninemile Creek	12	PVC	43.585064	-116.372885
215	3n1e20_017	ACHD	Ridenbaugh Canal	10	CMP	43.575795	-116.361249
216	3n1e20_020	ACHD	Unnamed	12	PVC	43.582504	-116.354648
217	3n1e21_001	Private	Eightmile Creek	15	CMP	43.587255	-116.344346
218	3n1e21_002	Private	Eightmile Creek	12	CMP	43.587284	-116.344419
219	3n1e21_003	Irrigation	Eightmile Creek	18	RCP	43.587271	-116.344444
220	3n1e21_004	Private	Eightmile Creek	12	CMP	43.587296	-116.344490
221	3n1e21_005	Irrigation	Eightmile Creek	12	CMP	43.587263	-116.344432
222	3n1e21_007	Private	Eightmile Creek	12	CMP	43.587847	-116.347072
223	3n1e21_008	ACHD, Private	Eightmile Creek	12	CMP	43.587985	-116.347203
224	3n1e21_009	Private	Eightmile Creek	12	CMP	43.588112	-116.347344
225	3n1e21_011	Irrigation	Ridenbaugh Canal	12	PVC	43.583208	-116.334913
226	3n1e21_012	ACHD	Eightmile Creek	18	RCP	43.590321	-116.351307
227	3n1e25_001	ACHD	Tenmile Feeder Canal	12	PVC	43.561489	-116.293937
228	3n1e25_002	ACHD	Tenmile Feeder Canal	15	CMP	43.561469	-116.293857
229	3n1e25_003	ACHD	Tenmile Feeder Canal	15	CMP	43.561469	-116.293768
230	3n1e25_004	ACHD	Tenmile Feeder Canal	15	CMP	43.561465	-116.293934
231	3n1e25_005	ACHD	Tenmile Feeder Canal	12	ADS	43.561451	-116.293859

232	3n1e25_006	ACHD	Tenmile Feeder Canal	0	open ditch	43.561421	-116.292361
233	3n1e25_007	ACHD	New York Canal	12	PVC	43.563678	-116.281827
234	3n1e25_008	ACHD	New York Canal	12	CMP	43.564052	-116.279894
235	3n1e25_009	ACHD	Fivemile Creek	12	RCP	43.568716	-116.274276
236	3n1e25_010	ACHD	Fivemile Creek	12	PVC	43.568676	-116.274134
237	3n1e25_011	ACHD	Fivemile Creek	18	PVC	43.568679	-116.274134
238	3n1e26_001	ACHD	Tenmile Feeder Canal	15	CMP	43.567468	-116.311603
239	3n1e26_002	ACHD	Tenmile Feeder Canal	15	CMP	43.567744	-116.312040
240	3n1e26_003	ACHD	Tenmile Feeder Canal	12	PVC	43.569835	-116.312661
241	3n1e26_004	ACHD	Tenmile Feeder Canal	12	PVC	43.571011	-116.313974
242	3n1e26_005	ACHD	Painter Lateral	12	PVC	43.569788	-116.314253
243	3n1e26_006	ACHD	Tenmile Feeder Canal	12	CMP	43.564880	-116.306912
244	3n1e27_001	ACHD	Eightmile Creek	18	CMP	43.565756	-116.323470
245	3n1e27_002	ACHD	Eightmile Creek	12	PVC	43.574393	-116.325591
246	3n1e27_003	ACHD	Eightmile Creek	12	PVC	43.575582	-116.325869
247	3n1e27_004	ACHD	Eightmile Creek	12	PVC	43.571302	-116.324300
248	3n1e27_005	ACHD	Eightmile Creek	12	CMP	43.570874	-116.324139
249	3n1e27_006	ACHD	Eightmile Creek	12	PVC	43.567535	-116.323748
250	3n1e27_007	ACHD	Eightmile Creek	8	RCP	43.566939	-116.323812
251	3n1e27_008	ACHD	Tenmile Feeder Canal	12	CMP	43.567106	-116.331852
252	3n1e27_009	ACHD	Unnamed	12	CMP	43.572086	-116.314251
253	3n1e27_010	ACHD	Unnamed	6	PVC	43.610888	-116.384489
254	3n1e28_001	Private	Ninemile Creek	12	ADS	43.566661	-116.351903
255	3n1e28_002	ACHD	Ninemile Creek	8	PVC	43.570831	-116.354281
256	3n1e28_003	ACHD	Ninemile Creek	15	ADS	43.566447	-116.348545
257	3n1e29_001	Private	Ridenbaugh Canal	4	PVC	43.566150	-116.374183
258	3n1e29_003	Private	Tenmile Creek	12	CMP	43.572804	-116.373875
259	3n1e29_005	Private	Tenmile Creek	8	PVC	43.570008	-116.371726
260	3n1e29_007	Irrigation	Tenmile Creek	18	PVC	43.568552	-116.370661
261	3n1e29_008	Private	Tenmile Creek	12	PVC	43.572247	-116.372458
262	3n1e29_009	Private	Tenmile Creek	8	PVC	43.572236	-116.372446
263	3n1e29_010	Irrigation	Ridenbaugh Canal	15	CMP	43.575404	-116.360727
264	3n1e29_011	ACHD	Tenmile Creek	12	PVC	43.564438	-116.367000
265	3n1e29_012	ACHD	Unnamed	12	PVC	43.563368	-116.363797
266	3n1e30_001	Private	Ridenbaugh Canal	12	SMP	43.572854	-116.389316
267	3n1e30_002	Private	Ridenbaugh Canal	12	SMP	43.572604	-116.388252
268	3n1e30_003	Private	Ridenbaugh Canal	12	CMP	43.571824	-116.385873
269	3n1e30_004	Private, Irrigation	Tenmile Creek	12	CMP	43.575623	-116.376673
270	3n1e30_006	Private	Tenmile Creek	8	CMP	43.574000	-116.375616
271	3n1e33_001	ACHD	Ninemile Creek	12	RCP	43.560951	-116.337550
272	3n1e33_007	ACHD	Unnamed	15	PVC	43.555085	-116.341746
273	3n1e34_002	ACHD	Ninemile Creek	12	CMP	43.555704	-116.326554
274	3n1e34_004	ACHD	Ninemile Creek	12	PVC	43.558078	-116.330138
275	3n1e34_005	ACHD	Ninemile Creek	12	PVC	43.559237	-116.332362
276	3n1e34_006	ACHD	Ninemile Creek	12	PVC	43.559460	-116.333313
277	3n1e34_007	ACHD	Ninemile Creek	12	PVC	43.559594	-116.334018
278	3n1e34_008	ACHD	Ninemile Creek	18	CMP	43.557739	-116.329271
279	3n1e34_009	ACHD	Ninemile Creek	18	PVC	43.556593	-116.328391
280	3n1e34_010	ACHD	Ninemile Creek	12	PVC	43.554938	-116.325067
281	3n1e34_011	ACHD	Ninemile Creek	12	PVC	43.553945	-116.324424
282	3n1e34_012	ACHD	Ninemile Creek	0	Drop Inlet	43.556657	-116.328391
283	3n1e35_001	ACHD	Eightmile Creek	12	PVC	43.549775	-116.307142
284	3n1e35_002	ACHD	Eightmile Creek	12	RCP	43.550233	-116.309084
285	3n1e35_003	ACHD	Wood Lateral	12	CMP	43.551938	-116.294876
286	3n1e35_004	ACHD	Wood Lateral	12	CMP	43.551818	-116.299057
287	3n1e35_005	ACHD	Eightmile Creek	0	Open Ditch	43.547473	-116.299389
288	3n1e35_006	ACHD	Unnamed	12	PVC	43.558366	-116.304209
289	3n1e35_007	ACHD	Eightmile Creek	12	PVC	43.547476	-116.299201
290	3n1e36_001	ACHD	New York Canal	15	CMP	43.547173	-116.280987

291	3n1e36_002	ACHD	New York Canal	24	CMP	43.550387	-116.285274
292	3n1e36_003	ACHD	New York Canal	12	CMP	43.552672	-116.288907
293	3n1e36_004	ACHD	New York Canal	12	PVC	43.554382	-116.290038
294	3n1e36_005	ACHD	New York Canal	18	HDPE	43.556519	-116.291477
295	3n1w01_001	ACHD, City of Meridian	Fivemile Creek	18	RCP	43.626377	-116.403537
296	3n1w01_002	City of Meridian	Fivemile Creek	26	RCP	43.626367	-116.403904
297	3n1w01_004	ACHD	Fivemile Creek	12	PVC	43.625728	-116.400599
298	3n1w01_006	ACHD	Fivemile Creek	12	CMP	43.629650	-116.413454
299	3n1w01_007	Private	Fivemile Creek	12	CMP	43.630150	-116.413422
300	3n1w01_008	Irrigation	Fivemile Creek	12	PVC	43.630677	-116.413536
301	3n1w01_009	Private	Fivemile Creek	12	CMP	43.631208	-116.413575
302	3n1w01_010	Private	Fivemile Creek	12	CMP	43.629158	-116.413336
303	3n1w01_011	Irrigation	Fivemile Creek	12	PVC	43.628971	-116.413258
304	3n1w01_012	ACHD	Fivemile Creek	12	CMP	43.626615	-116.408022
305	3n1w01_013	ACHD	Fivemile Creek	15	CMP	43.626872	-116.408657
306	3n1w01_015	ACHD	Fivemile Creek	12	CMP	43.626519	-116.407663
307	3n1w01_016	Irrigation	Creason Lateral	12	PVC	43.628341	-116.393766
308	3n1w01_017	ACHD	Creason Lateral	12	PVC	43.628351	-116.394180
309	3n1w01_018	ACHD	Creason Lateral	12	PVC	43.628359	-116.395196
310	3n1w01_019	ACHD	Creason Lateral	8	PVC	43.628295	-116.398827
311	3n1w01_020	ACHD	Creason Lateral	12	PVC	43.628364	-116.399815
312	3n1w01_021	ACHD	Creason Lateral	12	ADS	43.628791	-116.405587
313	3n1w01_022	Irrigation	Creason Lateral	18	ADS	43.628836	-116.406168
314	3n1w01_023	ACHD	Fivemile Creek	18	PVC	43.626048	-116.401580
315	3n1w01_024	Irrigation	Creason Lateral	18	CMP	43.628804	-116.403565
316	3n1w01_025	ACHD	Creason Lateral	10	CMP	43.628357	-116.400080
317	3n1w01_026	ACHD	Fivemile Creek	12	CMP	43.627726	-116.410443
318	3n1w01_027	ACHD	Settlers Canal	0	Drop Inlet	43.626187	-116.408643
319	3n1w01_028	ACHD	Settlers Canal	0	Drop Inlet	43.626080	-116.408643
320	3n1w01_029	ACHD	Settlers Canal	10	CMP	43.624851	-116.408633
321	3n1w01_030	ACHD	Settlers Canal	10	CMP	43.624589	-116.408638
322	3n1w01_031	ACHD	Unnamed	0	Drop Inlet	43.621112	-116.404622
323	3n1w01_032	ACHD	Unnamed	0	Drop Inlet	43.621230	-116.404826
324	3n1w01_033	ACHD	Unnamed	0	Drop Inlet	43.620477	-116.404196
325	3n1w01_034	ACHD	Unnamed	0	Drop Inlet	43.620568	-116.404194
326	3n1w01_035	ACHD	Unnamed	10	PVC	43.620847	-116.404373
327	3n1w01_036	ACHD	Unnamed	12	PVC	43.620112	-116.403782
328	3n1w01_037	ACHD	Unnamed	12	PVC	43.628386	-116.403327
329	3n1w01_038	ACHD	Unnamed	12	PVC	43.628183	-116.403328
330	3n1w01_039	ACHD	Finch Lateral	18	PVC	43.628362	-116.393613
331	3n1w02_001	ACHD	Ninemile Creek	12	PVC	43.619429	-116.423554
332	3n1w02_002	ACHD	Ninemile Creek	6	PVC	43.620040	-116.423539
333	3n1w02_003	ACHD	Ninemile Creek	12	PVC	43.620964	-116.423558
334	3n1w02_004	Private	Ninemile Creek	15	CMP	43.622816	-116.423690
335	3n1w02_005	ACHD	Ninemile Creek	12	CMP	43.622764	-116.423607
336	3n1w02_006	Private	Ninemile Creek	6	PVC	43.623156	-116.424097
337	3n1w02_007	ACHD	Ninemile Creek	12	CMP	43.625782	-116.426339
338	3n1w02_008	ACHD	Ninemile Creek	12	RCP	43.626106	-116.426543
339	3n1w02_009	ACHD	Ninemile Creek	8	PVC	43.626478	-116.426671
340	3n1w02_010	ACHD	Ninemile Creek	24	RCP	43.626488	-116.426744
341	3n1w02_011	ACHD	Ninemile Creek	12	CMP	43.628175	-116.427950
342	3n1w02_012	Irrigation	Ninemile Creek	12	ADS	43.628312	-116.428169
343	3n1w02_013	ACHD	Ninemile Creek	12	ADS	43.629602	-116.428551
344	3n1w02_014	ACHD	Ninemile Creek	10	PVC	43.630010	-116.428638
345	3n1w02_015	ACHD	Ninemile Creek	12	ADS	43.630127	-116.428682
346	3n1w02_016	ACHD	Ninemile Creek	12	PVC	43.630276	-116.429305
347	3n1w02_017	ACHD	Ninemile Creek	10	PVC	43.630284	-116.432265
348	3n1w02_018	ACHD	Fivemile Creek Lateral	24	PVC	43.629813	-116.420302
349	3n1w03_002	ACHD	Ninemile Creek	45	RCP	43.630317	-116.434011

350	3n1w03_003	Irrigation	Ninemile Creek	4	SMP	43.630524	-116.434224
351	3n1w03_005	ACHD	Ninemile Creek	6	PVC	43.633680	-116.437152
352	3n1w03_006	ACHD	Ninemile Creek	6	PVC	43.633763	-116.437159
353	3n1w03_007	Irrigation	Ninemile Creek	12	PVC	43.633820	-116.437251
354	3n1w03_008	Private	Ninemile Creek	12	CMP	43.633409	-116.436932
355	3n1w03_009	ACHD	Safford Sublateral	12	RCP	43.620715	-116.444787
356	3n1w03_010	Private	Safford Sublateral	10	SMP	43.621190	-116.444805
357	3n1w03_011	Private	Safford Sublateral	12	RCP	43.622704	-116.444810
358	3n1w03_012	Private	Safford Sublateral	10	CMP	43.623422	-116.446187
359	3n1w03_013	ACHD	Rutledge Lateral	12	RCP	43.633877	-116.447900
360	3n1w03_014	ACHD	Settlers Canal	12	RCP	43.619606	-116.441528
361	3n1w03_016	ACHD	Rutledge Lateral	12	PVC	43.633884	-116.446306
362	3n1w03_017	ACHD	Rutledge Lateral	12	PVC	43.633964	-116.448654
363	3n1w04_010	ACHD	Sky Pilot Drain	12	PVC	43.629776	-116.460883
364	3n1w04_011	ACHD	Sky Pilot Drain	12	ADS	43.629757	-116.460927
365	3n1w09_009	ACHD	Purdam Gulch Drain	12	PVC	43.609953	-116.454408
366	3n1w10_011	ACHD, City of Meridian	Tenmile Creek	12	PVC	43.614679	-116.442951
367	3n1w10_013	Irrigation	Tenmile Creek	15	ADS	43.615565	-116.448584
368	3n1w10_014	ACHD	Tenmile Creek	15	CMP	43.615787	-116.448854
369	3n1w10_015	Private	Tenmile Creek	12	CMP	43.617463	-116.451493
370	3n1w10_016	ACHD	Tenmile Creek	12	RCP	43.617495	-116.453050
371	3n1w10_017	ACHD	Tenmile Creek	12	CMP	43.617393	-116.453244
372	3n1w10_018	ACHD	Tenmile Creek	12	CMP	43.617472	-116.453453
373	3n1w10_019	ACHD	Tenmile Creek	12	CMP	43.617400	-116.453429
374	3n1w10_020	ACHD	Tenmile Sub Drain	12	CMP	43.612816	-116.434740
375	3n1w10_021	Private	Tenmile Sub Drain	12	CMP	43.613916	-116.439148
376	3n1w10_022	Private	Tenmile Sub Drain	8	RCP	43.613770	-116.438654
377	3n1w10_023	Private	Tenmile Sub Drain	12	CMP	43.613056	-116.435712
378	3n1w10_025	Irrigation	Tenmile Sub Drain	12	PVC	43.613367	-116.436404
379	3n1w10_026	Irrigation	Tenmile Sub Drain	8	SMP	43.613374	-116.436479
380	3n1w10_027	Private	Tenmile Sub Drain	12	CMP	43.613692	-116.437800
381	3n1w10_030	Private	Tenmile Sub Drain	8	RCP	43.612989	-116.435334
382	3n1w10_031	Irrigation	Tenmile Sub Drain	6	CMP	43.612529	-116.433847
383	3n1w10_032	Irrigation	Tenmile Sub Drain	15	CMP	43.612497	-116.433846
384	3n1w11_001	Private	Tenmile Sub Drain	12	CMP	43.610124	-116.428734
385	3n1w11_002	Private	Tenmile Sub Drain	12	ADS	43.610220	-116.428815
386	3n1w11_003	ACHD	Tenmile Sub Drain	12	CMP	43.610523	-116.429357
387	3n1w11_004	Private	Tenmile Sub Drain	12	CMP	43.611339	-116.430560
388	3n1w11_005	Private	Ninemile Creek	15	CMP	43.618534	-116.423522
389	3n1w11_006	West Ada School District	Ninemile Creek	6	CMP	43.617816	-116.423671
390	3n1w11_007	ACHD	Ninemile Creek	10	PVC	43.615516	-116.417888
391	3n1w11_010	ACHD	Ninemile Creek	12	CMP	43.615551	-116.417497
392	3n1w11_014	ACHD	Ninemile Creek	10	PVC	43.618086	-116.423488
393	3n1w11_015	Irrigation	Ninemile Creek	36	RCP	43.619023	-116.423538
394	3n1w11_016	ACHD	Ninemile Creek	18	PVC	43.619028	-116.423538
395	3n1w11_017	ACHD	Ninemile Creek	12	PVC	43.619029	-116.423565
396	3n1w11_023	ACHD	Ninemile Creek	12	CMP	43.615486	-116.413725
397	3n1w11_026	ACHD	Tenmile Sub Drain	15	PVC	43.612330	-116.433602
398	3n1w11_027	ACHD	Tenmile Sub Drain	15	PVC	43.612330	-116.433602
399	3n1w12_002	ACHD, Private	Rutledge Lateral	18	RCP	43.609126	-116.397629
400	3n1w12_003	Private	Rutledge Lateral	30	RCP	43.609123	-116.397729
401	3n1w12_004	Irrigation	Rutledge Lateral	12	RCP	43.609113	-116.397627
402	3n1w12_005	ACHD, Irrigation	Ninemile Creek	12	PVC	43.610136	-116.403411
403	3n1w12_006	ACHD	Ninemile Creek	12	CMP	43.610222	-116.405976
404	3n1w12_009	ACHD	Ninemile Creek	12	CMP	43.610263	-116.405936
405	3n1w12_011	Private	Ninemile Creek	8	CMP	43.614539	-116.413268
406	3n1w12_012	ACHD	Ninemile Creek	12	CMP	43.614843	-116.413320
407	3n1w12_013	ACHD	Ninemile Creek	12	PVC	43.610153	-116.404004
408	3n1w12_014	ACHD	Ninemile Creek	15	RCP	43.615481	-116.413490

409	3n1w12_015	ACHD	Ninemile Creek	12	PVC	43.614928	-116.413335
410	3n1w12_016	ACHD	Ninemile Creek	24	PVC	43.613966	-116.413343
411	3n1w12_017	ACHD	Ninemile Creek	12	CMP	43.611730	-116.412242
412	3n1w12_018	ACHD, Irrigation	Ninemile Creek	24	CMP	43.615455	-116.413459
413	3n1w12_019	ACHD	Ninemile Creek	12	PVC	43.613400	-116.413416
414	3n1w12_020	ACHD	Unnamed	12	RCP	43.615597	-116.410234
415	3n1w12_021	ACHD, Private	Unnamed	12	RCP	43.606314	-116.398577
416	3n1w12_022	ACHD	Unnamed	18	RCP	43.615974	-116.394828
417	3n1w12_023	ACHD	Unnamed	0	Drop Inlet	43.615597	-116.410846
418	3n1w12_024	ACHD	Unnamed	12	CMP	43.615595	-116.411032
419	3n1w12_025	ACHD	Ninemile Creek	12	CMP	43.615476	-116.413452
420	3n1w13_001	Private	Tenmile Creek	12	CMP	43.598686	-116.401194
421	3n1w13_002	ACHD	Tenmile Creek	10	SMP	43.598689	-116.401158
422	3n1w13_003	Private	Tenmile Creek	10	CMP	43.598633	-116.400765
423	3n1w13_004	ITD	Kennedy Lateral	12	CMP	43.593779	-116.408680
424	3n1w13_005	Private	Tenmile Creek	6	PVC	43.592688	-116.397401
425	3n1w13_006	Private	Tenmile Creek	4	PVC	43.592678	-116.397336
426	3n1w13_007	Private	Tenmile Creek	12	RCP	43.592862	-116.397556
427	3n1w13_008	Private	Tenmile Creek	4	PVC	43.592779	-116.397650
428	3n1w13_009	Private	Tenmile Creek	4	PVC	43.592799	-116.397696
429	3n1w13_010	Private	Tenmile Creek	12	PVC	43.592881	-116.397939
430	3n1w13_011	Private	Tenmile Creek	4	PVC	43.593066	-116.398479
431	3n1w13_012	Private	Tenmile Creek	12	CMP	43.591870	-116.395631
432	3n1w13_013	Private	Tenmile Creek	12	CMP	43.597321	-116.399169
433	3n1w13_014	Irrigation	Tenmile Creek	10	CMP	43.597479	-116.399139
434	3n1w13_015	Private	Tenmile Creek	12	CMP	43.598096	-116.399645
435	3n1w13_016	ACHD	Tenmile Creek	15	RCP	43.598182	-116.399816
436	3n1w13_018	Private	Tenmile Creek	4	PVC	43.599252	-116.402636
437	3n1w13_019	ACHD	Tenmile Creek	12	CMP	43.599698	-116.403627
438	3n1w13_020	Private	Tenmile Creek	10	SMP	43.599659	-116.403651
439	3n1w13_021	Private	Tenmile Creek	12	PVC	43.599662	-116.403684
440	3n1w13_022	Private	Tenmile Creek	12	CMP	43.599044	-116.402228
441	3n1w13_024	Private	Tenmile Creek	4	PVC	43.599941	-116.404056
442	3n1w13_025	Private	Tenmile Creek	8	CMP	43.601537	-116.409082
443	3n1w13_026	ACHD	Tenmile Creek	12	PVC	43.602967	-116.412977
444	3n1w13_027	Private	Tenmile Creek	2	PVC	43.602774	-116.412615
445	3n1w13_028	Private	Tenmile Creek	2	PVC	43.602812	-116.412671
446	3n1w13_029	ACHD	Tenmile Creek	8	CMP	43.603000	-116.412959
447	3n1w13_030	ACHD	Tenmile Creek	12	PVC	43.603248	-116.413428
448	3n1w13_031	ACHD	Tenmile Creek	10	PVC	43.601253	-116.407772
449	3n1w14_001	ACHD	Tenmile Creek	15	PVC	43.603331	-116.413746
450	3n1w14_002	Irrigation	Tenmile Creek	12	ADS	43.603289	-116.413867
451	3n1w14_008	ACHD	Tenmile Creek	12	PVC	43.602471	-116.418189
452	3n1w24_001	ACHD, Irrigation	Ridenbaugh Canal	15	RCP	43.577232	-116.403962
453	3n1w24_002	Private	Ridenbaugh Canal	6	PVC	43.577771	-116.404127
454	3n1w24_003	Private	Ridenbaugh Canal	6	SMP	43.578423	-116.404737
455	3n1w24_004	Private	Ridenbaugh Canal	8	PVC	43.578569	-116.405120
456	3n1w24_005	Private	Ridenbaugh Canal	6	SMP	43.578724	-116.405697
457	3n1w24_006	Private	Ridenbaugh Canal	8	PVC	43.579081	-116.406526
458	3n1w24_007	ACHD	Ridenbaugh Canal	11	PVC	43.578993	-116.408088
459	3n1w24_008	Private	Ridenbaugh Canal	0	open ditch	43.580274	-116.412785
460	3n1w24_009	ACHD	Ridenbaugh Canal	18	CMP	43.580268	-116.412929
461	3n1w24_012	ACHD	Hardin Drain	24	PVC	43.585350	-116.403498
462	3n1w24_013	ACHD, City of Meridian	Hardin Drain	12	PVC	43.582817	-116.403480
463	3n1w25_005	ACHD	Unnamed	12	CMP	43.569004	-116.394967
464	3n1w25_006	ACHD	Unnamed	12	CMP	43.569027	-116.394979
465	3n1w25_008	ACHD	Unnamed	12	PVC	43.568267	-116.394542
466	3n2e30_003	Private	New York Canal	12	ADS	43.561992	-116.266045
467	3n2e31_001	ACHD	Fivemile Creek	15	RCP	43.559693	-116.253727

468	3n2e31_002	ACHD	Fivemile Creek	12	RCP	43.559642	-116.253728
469	4n1e04_001	ACHD	Dry Creek	6	CMP	43.711881	-116.347756
470	4n1e04_002	ACHD	Dry Creek	12	PVC	43.709591	-116.353748
471	4n1e04_003	ACHD	Unnamed	12	PVC	43.708260	-116.345690
472	4n1e04_004	ACHD	Unnamed	12	PVC	43.708373	-116.345055
473	4n1e04_005	ACHD	Unnamed	17	PVC	43.708630	-116.343069
474	4n1e04_006	ACHD	Unnamed	12	RCP	43.709173	-116.342381
475	4n1e04_007	ACHD	Unnamed	12	RCP	43.709725	-116.341308
476	4n1e04_008	ACHD	Unnamed	12	RCP	43.710375	-116.340138
477	4n1e04_009	ACHD	Unnamed	12	PVC	43.710725	-116.339762
478	4n1e05_001	ACHD	Dry Creek	0	open ditch	43.706584	-116.357610
479	4n1e05_002	Private	Dry Creek	12	CMP	43.706549	-116.357735
480	4n1e07_001	Private	Dry Creek Canal	6	PVC	43.704544	-116.375855
481	4n1e07_002	ACHD	Bresheres Lateral	12	CMP	43.703037	-116.378874
482	4n1e07_003	ACHD	Lateral 10A	30	CMP	43.702621	-116.383469
483	4n1e07_004	Private	Dry Creek Canal	12	CMP	43.706307	-116.381897
484	4n1e07_005	Private	Dry Creek Canal	10	CMP	43.706280	-116.382388
485	4n1e07_006	ACHD	Bresheres Lateral	15	RCP	43.705133	-116.378558
486	4n1e07_007	ACHD	Dry Creek Canal	10	CMP	43.706300	-116.379102
487	4n1e07_008	ACHD	Dry Creek Canal	12	CMP	43.706367	-116.379107
488	4n1e07_009	Irrigation	Dry Creek Canal	12	CMP	43.706230	-116.379867
489	4n1e07_010	ACHD	Bresheres Lateral	12	PVC	43.706156	-116.377454
490	4n1e08_001	ACHD	Dry Creek	12	RCP	43.706032	-116.357848
491	4n1e08_002	Irrigation	Dry Creek Canal	15	CMP	43.702254	-116.369874
492	4n1e08_003	Irrigation	Dry Creek Canal	15	CMP	43.702023	-116.369480
493	4n1e08_004	Irrigation, Private	Dry Creek	12	ADS	43.700655	-116.360598
494	4n1e08_005	ACHD	Eagle Drain	24	RCP	43.693731	-116.354203
495	4n1e08_006	ACHD	Eagle Drain	19	RCP	43.693730	-116.354209
496	4n1e08_007	ACHD	Unnamed	0	Drop Inlet	43.695482	-116.361806
497	4n1e08_008	ACHD	Unnamed	0	Drop Inlet	43.695490	-116.361926
498	4n1e08_009	ACHD	Unnamed	12	PVC	43.704457	-116.357016
499	4n1e08_010	ACHD	Unnamed	12	RCP	43.704392	-116.356382
500	4n1e08_011	ACHD	Unnamed	12	RCP	43.703131	-116.356797
501	4n1e08_012	ACHD	Unnamed	12	RCP	43.702665	-116.356991
502	4n1e08_013	ACHD	Unnamed	0	Open Ditch	43.701253	-116.358573
503	4n1e08_014	ACHD	Unnamed	0	Open Ditch	43.700912	-116.357923
504	4n1e09_001	ACHD	Dry Creek Canal	12	CMP	43.698766	-116.349579
505	4n1e09_002	ACHD	Lateral 16	16	CMP	43.697030	-116.343435
506	4n1e09_005	ACHD	Lateral 16	15	RCP	43.696584	-116.349092
507	4n1e09_007	ACHD	Dry Creek Canal	12	CMP	43.697920	-116.341987
508	4n1e09_008	ACHD	Lateral 16	12	CMP	43.696605	-116.347587
509	4n1e09_009	ACHD	Lateral 16	12	PVC	43.696708	-116.344099
510	4n1e09_010	ACHD	Eagle Drain	24	CMP	43.693885	-116.351532
511	4n1e09_011	ACHD	Eagle Drain	0	Drop Inlet	43.693926	-116.351232
512	4n1e09_013	Private	Eagle Drain	15	CMP	43.693920	-116.352036
513	4n1e09_014	Private	Eagle Drain	15	CMP	43.693918	-116.352137
514	4n1e09_017	ACHD	Dry Creek Canal	8	RCP	43.697392	-116.339615
515	4n1e09_018	ACHD	Dry Creek Canal	12	RCP	43.697294	-116.338487
516	4n1e09_019	ACHD	Ballentine Canal	0	Drop Inlet	43.692435	-116.351198
517	4n1e09_020	Private	Ballentine Canal	0	Drop Inlet	43.692294	-116.350903
518	4n1e09_021	ACHD	Eagle Drain	12	PVC	43.695470	-116.337792
519	4n1e09_022	Private	Eagle Drain	15	CMP	43.695559	-116.337558
520	4n1e09_023	West Ada School District	Eagle Drain	10	CMP	43.695200	-116.337092
521	4n1e09_024	Private	Eagle Drain	10	CMP	43.695089	-116.336535
522	4n1e09_025	Private	Eagle Drain	10	CMP	43.694914	-116.336479
523	4n1e09_029	ACHD	Eagle Drain	12	CMP	43.694372	-116.335746
524	4n1e09_030	ACHD	Lateral 16	18	PVC	43.695239	-116.350116
525	4n1e09_031	Eagle City	Lateral 16	10	PVC	43.695417	-116.349757
526	4n1e09_032	ACHD	Lateral 16	12	PVC	43.696647	-116.344174

527	4n1e09_033	ACHD	Lateral 16	12	CMP	43.696592	-116.347578
528	4n1e09_034	ACHD	Eagle Drain	12	PVC	43.692809	-116.347621
529	4n1e09_035	ACHD	Eagle Drain	12	CMP	43.693945	-116.351474
530	4n1e09_036	ACHD	Lateral 16	12	PVC	43.695070	-116.350173
531	4n1e09_037	ACHD	Eagle Drain	24	RCP	43.695473	-116.337651
532	4n1e09_038	ACHD	Eagle Drain	12	PVC	43.694573	-116.335879
533	4n1e10_001	ACHD	Spoils Bank Canal	12	PVC	43.692827	-116.331869
534	4n1e10_002	ACHD	Spoils Bank Canal	18	RCP	43.692061	-116.330878
535	4n1e10_003	ACHD	Spoils Bank Canal	12	PVC	43.692862	-116.331941
536	4n1e10_004	ACHD	Eagle Drain	48	RCP	43.693239	-116.333863
537	4n1e10_005	Irrigation	Dry Creek Canal	18	PVC	43.696111	-116.330385
538	4n1e11_001	ACHD	Farmers Union Canal	12	PVC	43.694894	-116.313814
539	4n1e11_002	ACHD	Unnamed	15	HDPE	43.699580	-116.305213
540	4n1e13_014	ACHD	Farmers Union Canal	0	open ditch	43.687188	-116.288048
541	4n1e15_001	Private	Eagle Drain	12	ADS	43.687717	-116.318443
542	4n1e15_002	ITD	Eagle Drain	0	open ditch	43.687777	-116.318943
543	4n1e15_003	Private	Eagle Drain	17	PVC	43.687486	-116.316505
544	4n1e15_004	ACHD	Eagle Drain	12	ADS	43.687404	-116.314256
545	4n1e15_005	Irrigation	Eagle Drain	18	ADS	43.687492	-116.314277
546	4n1e15_006	ACHD	Eagle Drain	12	ADS	43.689263	-116.323498
547	4n1e15_007	ACHD	Eagle Drain	12	ADS	43.689276	-116.323451
548	4n1e15_008	ACHD	Eagle Drain	12	PVC	43.687787	-116.320166
549	4n1e15_010	Irrigation	Eagle Drain	12	PVC	43.689136	-116.323945
550	4n1e15_011	ACHD	Eagle Drain	12	RCP	43.687128	-116.314262
551	4n1e16_001	ACHD	Eagle Drain	15	ADS	43.691915	-116.344845
552	4n1e16_002	ACHD	Eagle Drain	12	ADS	43.691910	-116.342289
553	4n1e16_003	Irrigation	Eagle Drain	24	RCP	43.692096	-116.341643
554	4n1e16_004	ACHD	Eagle Drain	12	PVC	43.692031	-116.341765
555	4n1e16_005	Irrigation	Eagle Drain	18	RCP	43.691953	-116.341822
556	4n1e16_006	Irrigation	Eagle Drain	18	RCP	43.691913	-116.342848
557	4n1e16_007	ACHD	Ballentine Canal	12	RCP	43.688803	-116.345703
558	4n1e16_008	ACHD	Ballentine Canal	12	RCP	43.688936	-116.346036
559	4n1e17_001	ACHD	Mason-Catlin Canal	12	RCP	43.679217	-116.356927
560	4n1e17_002	ACHD	Mason-Catlin Canal	12	RCP	43.679237	-116.356926
561	4n1e17_003	ACHD	Mason-Catlin Canal	24	HDPE	43.682599	-116.357235
562	4n1e17_004	ACHD	Mason-Catlin Canal	21	RCP	43.682542	-116.356889
563	4n1e17_005	ACHD	Mason-Catlin Canal	12	PVC	43.683319	-116.364834
564	4n1e17_006	ACHD	Mason-Catlin Canal	24	RCP	43.685711	-116.363795
565	4n1e17_007	ACHD	Mason-Catlin Canal	12	RCP	43.685813	-116.362786
566	4n1e19_001	ACHD	Thurman Mill Canal	12	RCP	43.674780	-116.375128
567	4n1e19_002	ACHD	Thurman Mill Canal	12	PVC	43.674895	-116.375879
568	4n1e19_003	ACHD	Thurman Mill Canal	12	PVC	43.674965	-116.377714
569	4n1e19_004	Irrigation	Thurman Mill Canal	12	ADS	43.675208	-116.378547
570	4n1e19_005	ACHD	Thurman Mill Canal	12	PVC	43.674331	-116.377299
571	4n1e20_001	ACHD, Irrigation	Thurman Drain	12	ADS	43.668493	-116.363443
572	4n1e20_002	ACHD	Thurman Mill Canal	12	PVC	43.672187	-116.371529
573	4n1e20_003	ACHD	Thurman Mill Canal	12	PVC	43.671765	-116.369973
574	4n1e20_004	ACHD	Thurman Mill Canal	12	PVC	43.671189	-116.368011
575	4n1e20_005	ACHD	Thurman Mill Canal	12	PVC	43.670277	-116.364652
576	4n1e20_006	ACHD	Thurman Mill Canal	12	ADS	43.669610	-116.362365
577	4n1e20_007	ACHD	Thurman Mill Canal	12	ADS	43.669498	-116.360681
578	4n1e20_008	ACHD	Thurman Mill Canal	12	ADS	43.670130	-116.360690
579	4n1e20_009	ACHD	Thurman Mill Canal	12	HDPE	43.670003	-116.358881
580	4n1e20_010	ACHD	Thurman Mill Canal	12	HDPE	43.669786	-116.357530
581	4n1e20_011	ACHD	Graham Gilbert Canal	12	RCP	43.673103	-116.359167
582	4n1e20_012	ACHD	Graham Gilbert Canal	12	ADS	43.673555	-116.363885
583	4n1e20_013	ACHD	Graham Gilbert Canal	12	ADS	43.673799	-116.365690
584	4n1e20_014	ACHD	Thurman Mill Canal	12	PVC	43.674593	-116.373175
585	4n1e20_015	Irrigation	Thurman Mill Canal	8	PVC	43.674671	-116.373438

586	4n1e20_016	ACHD	Thurman Mill Canal	12	PVC	43.674665	-116.373553
587	4n1e20_017	ACHD	Thurman Mill Canal	12	HDPE	43.669613	-116.356760
588	4n1e20_018	ACHD	Graham Gilbert Canal	12	CMP	43.674892	-116.368208
589	4n1e20_019	Irrigation	Boise River	17	PVC	43.675557	-116.368624
590	4n1e20_020	ACHD	Unnamed	0	Open Ditch	43.672742	-116.356027
591	4n1e20_021	ACHD	Unnamed	12	PVC	43.673824	-116.360231
592	4n1e20_022	ACHD	Unnamed	12	PVC	43.674136	-116.362036
593	4n1e20_023	ACHD	Unnamed	18	PVC	43.674556	-116.363897
594	4n1e20_024	ACHD	Unnamed	12	PVC	43.675016	-116.366431
595	4n1e20_025	ACHD	Unnamed	12	PVC	43.675121	-116.366042
596	4n1e21_002	ITD, Private	Thurman Mill Canal	0	open ditch	43.666745	-116.353979
597	4n1e21_003	Private	Thurman Mill Drain	32	CMP	43.666811	-116.353989
598	4n1e23_011	Private	Thurman Mill Canal	15	CMP	43.663454	-116.305702
599	4n1e26_016	ACHD	Thurman Drain	12	CMP	43.656946	-116.305316
600	4n1e26_020	ACHD	Thurman Mill Canal	12	HDPE	43.658270	-116.308012
601	4n1e26_032	ACHD	Thurman Mill Canal	12	CMP	43.657073	-116.305635
602	4n1e27_010	ACHD	Thurman Mill Canal	12	RCP	43.661192	-116.317419
603	4n1e28_009	ACHD	Unnamed	12	HDPE	43.655716	-116.351414
604	4n1e32_001	ACHD	North Slough	8	CMP	43.647564	-116.364245
605	4n1w12_004	Private	Lateral 10A	10	CMP	43.704118	-116.406367
606	4n1w12_005	Private	Lateral 10A	12	CMP	43.703979	-116.406781
607	4n1w12_006	Private	Lateral 10A	15	PVC	43.704014	-116.406810
608	4n1w12_012	Private	Lateral 10A	12	CMP	43.704406	-116.410843
609	4n1w12_020	ACHD	Lateral 10A	12	CMP	43.704699	-116.413447
610	4n1w12_023	ACHD	Unnamed	12	PVC	43.700815	-116.412551
611	4n1w35_001	Irrigation	Fivemile Creek	2	PVC	43.634094	-116.415320
612	4n1w35_002	ACHD	Fivemile Creek	18	RCP	43.634076	-116.417670
613	4n1w35_003	Irrigation	Fivemile Creek	12	PVC	43.634615	-116.418081
614	4n1w35_006	ACHD, Irrigation	Fivemile Creek	18	RCP	43.634164	-116.423081
615	4n1w35_007	ACHD	Fivemile Creek	12	CMP	43.634437	-116.423600
616	4n1w35_008	ACHD	Fivemile Creek	12	PVC	43.634446	-116.423623
617	4n1w35_009	Private	Fivemile Creek	4	PVC	43.635109	-116.425387
618	4n1w35_011	Private	Fivemile Creek	4	PVC	43.636041	-116.428660
619	4n1w35_012	ACHD	Fivemile Creek	15	CMP	43.636045	-116.428664
620	4n1w35_013	ACHD	Fivemile Creek	12	PVC	43.636918	-116.433555
621	4n1w35_014	ACHD	Fivemile Creek	48	PVC	43.636960	-116.433440
622	4n1w35_015	Private	Fivemile Creek	12	CMP	43.636653	-116.433233
623	4n1w35_016	ACHD	Fivemile Creek	12	HDPE	43.636311	-116.432520
624	4n1w35_017	ACHD	Fivemile Creek	12	SMP	43.636271	-116.432293
625	4n1w35_018	ACHD	Fivemile Creek	12	HDPE	43.636152	-116.430871
626	4n1w35_019	ACHD	Fivemile Creek Lateral	18	PVC	43.633868	-116.423558
627	4n1w35_020	ACHD	Unnamed	12	PVC	43.634909	-116.426855
628	4n1w35_021	ACHD	Unnamed	12	CMP	43.634632	-116.418000
629	5n2e31_001	ACHD	Dry Creek Lateral	15	PVC	43.726946	-116.253415
630	5n2e31_002	ACHD	Dry Creek Lateral	15	PVC	43.726670	-116.253442
631	5n2e31_003	ACHD	Dry Creek Lateral	12	PVC	43.725961	-116.253633
632	5n2e31_004	ACHD	Dry Creek Lateral	15	PVC	43.724816	-116.255135
633	5n2e31_005	ACHD	Dry Creek Lateral	15	PVC	43.724409	-116.255445
634	5n2e31_006	ACHD	Dry Creek Lateral	12	PVC	43.724231	-116.255822
635	5n2e31_007	ACHD	Dry Creek Lateral	12	PVC	43.722010	-116.255655
636	5n2e31_008	ACHD	Dry Creek Lateral	12	PVC	43.720804	-116.255725
637	5n2e31_009	ACHD	Dry Creek Lateral	12	PVC	43.719151	-116.256906
638	5n2e32_002	ACHD	Dry Creek	12	CMP	43.727513	-116.252977

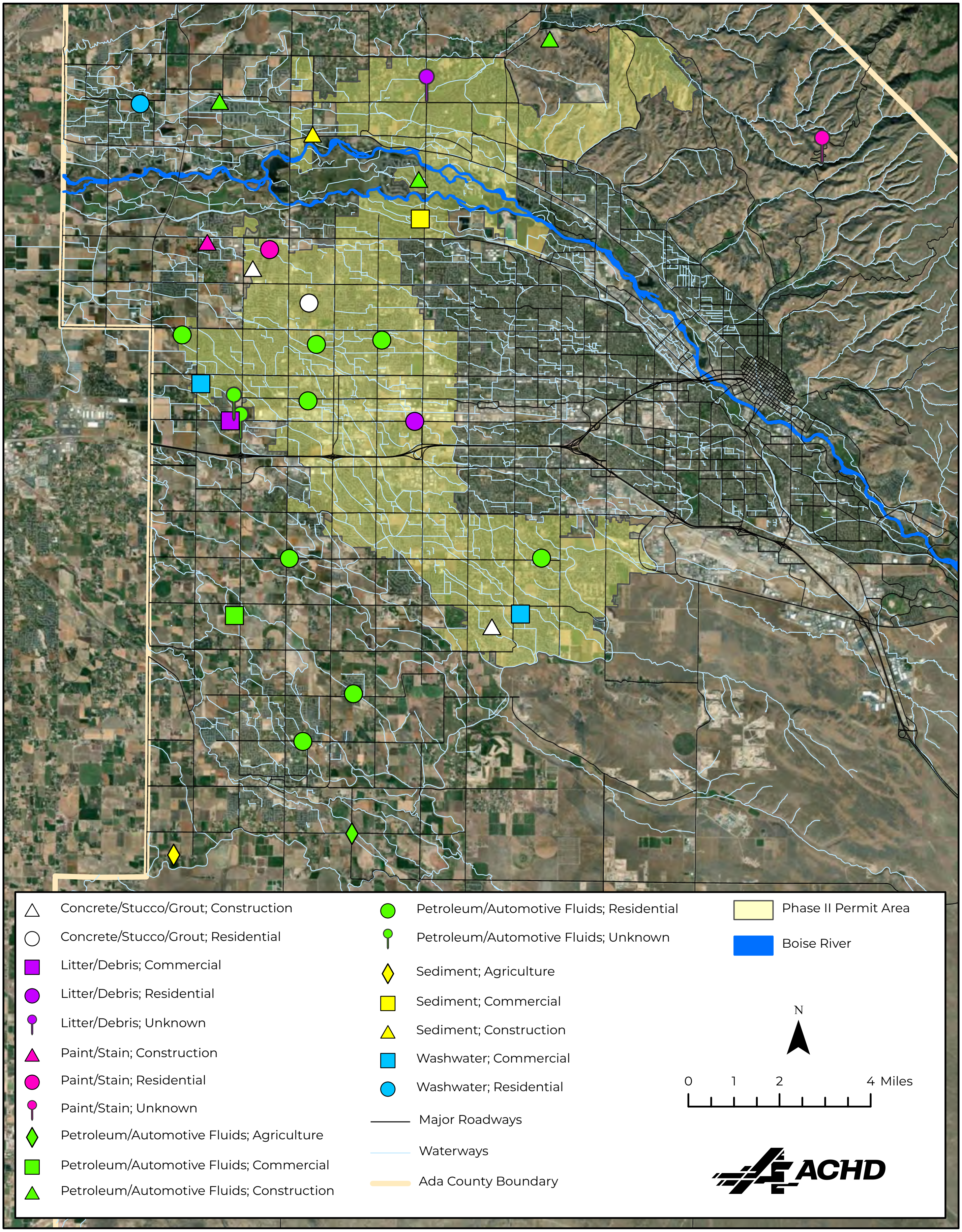
Phase II Dry Weather Irrigation and Groundwater Flows
February 1, 2023 – January 31, 2024

#	OUTFALL ID	OWNERSHIP	RECEIVING WATER	PIPE DIAMETER	PIPE TYPE	LATITUDE	LONGITUDE	SOURCE CONFIRMED
1	3n1e07_003	ACHD, Private, Irrigation	Fivemile Creek	15	CMP	43.612884	-116.383676	Irrigation, 2021
2	3n1e07_009	ACHD	Jackson Drain	18	RCP	43.617386	-116.37467	Irrigation, 2021
3	3n1e18_018	ACHD	Ninemile Creek	12	PVC	43.599647	-116.386734	Groundwater, 2020
4	3n1e19_019	ACHD	Tenmile Creek	18	HDPE	43.584756	-116.38942	Groundwater, 2020
5	3n1e19_028	ACHD	Ninemile Creek	18	PVC	43.58757	-116.376327	Groundwater, 2020
6	3n1e34_009	ACHD	Ninemile Creek	18	PVC	43.557105	-116.328397	Irrigation, 2021
7	3n1w01_006	ACHD	Fivemile Creek	12	CMP	43.62965	-116.413454	Groundwater, 2021
8	3n1w02_010	ACHD	Ninemile Creek	24	RCP	43.626488	-116.426744	Irrigation, 2021
9	3n1w11_016	ACHD	Ninemile Creek	18	PVC	43.619028	-116.423538	Groundwater, 2023
10	3n1w12_018	ACHD, Irrigation	Ninemile Creek	24	CMP	43.615454	-116.413447	Irrigation, 2021
11	3n1w13_031	ACHD	Tenmile Creek	10	PVC	43.601126	-116.407838	Groundwater, 2021
12	4n1e20_001	ACHD	Thurman Drain	12	HDPE	43.668415	-116.36359	Irrigation, 2021
13	4n1w35_002	ACHD	Fivemile Creek	18	RCP	43.634076	-116.41767	Groundwater, 2021
14	4n1w35_013	ACHD	Fivemile Creek	12	PVC	43.636918	-116.433555	Groundwater, 2023
15	4n1w35_014	ACHD	Fivemile Creek	48	PVC	43.381296	-116.260352	Irrigation, 2021

Appendix E: Phase II Complaint Response Map, Complaints Received and Follow-up

Phase II - Complaint Response
February 1, 2023 - January 31, 2024

Complaint Location:
Phase II Permit Area - 15 Total
Outside Permit Area - 15 Total



IDDE Complaints* Received and Summary of Follow-up Action
ACHD Phase II Permit Area, Idaho
February 1, 2023 – January 31, 2024

#	DATE	ADDRESS	CITY	LATITUDE	LONGITUGE	POLLUTANT TYPE	RESPONSIBLE PARTY TYPE	ILLICIT DISCHARGE	ACTION TAKEN
1	3/7/2023	E Franklin Rd & N Olsen Dr	Meridian	43.604971	-116.358026	Trash/Debris	Commercial	No	Ada County Sheriff's Office notified ACHD of abandoned bags of medical waste in the right-of-way. Cleanup and disposal of the abandoned material was completed by an environmental contactor.
2	3/20/2023	10365 W Lockwood St	Boise	43.543929	-116.311211	Washwater	Commercial	Yes	A citizen notified ACHD of a release of washwater from a mobile business to the right-of-way. ACHD educated the responsible party on stormwater regulations and best management practices. Cleanup was deemed infeasible.
3	4/4/2023	Islandwood Dr & Islandglenn Way	Eagle	43.682261	-116.357104	Automotive Fluids	Construction	No	ACHD observed the release of hydraulic fluid from equipment operating in the right-of-way. ACHD helped contain the spill. Cleanup and disposal of the spilled material was completed by the responsible party.
4	4/18/2023	9667 W Silver Spring St	Boise	43.561749	-116.302162	Automotive Fluids	Private/ Residential	No	IDEQ notified ACHD of a parked car leaking automotive fluids in the right-of-way. ACHD educated the responsible party on stormwater regulations and best management practices. Cleanup was deemed unnecessary.

IDDE Complaints* Received and Summary of Follow-up Action
ACHD Phase II Permit Area, Idaho
February 1, 2023 – January 31, 2024

#	DATE	ADDRESS	CITY	LATITUDE	LONGITUGE	POLLUTANT TYPE	RESPONSIBLE PARTY TYPE	ILLICIT DISCHARGE	ACTION TAKEN
5	4/27/2023	3017 N Chris. an Way	Meridian	43.632408	-116.760358	Automov e Fluids	Private/ Residenal	No	A cizen nofied ACHD of a parked car leaking automotive fluids in the right-of-way. ACHD educated the responsible party on stormwater regulao ns and best management prac ces. Cleanup and disposal of the spilled material was completed by the responsible party.
6	5/3/2023	2268 W Ralesnak e Dr	Meridian	43.659238	-116.42212	Paint/Stain	Private/ Residenal	No	A cizen nofied ACHD of a release of paint to the right-of-way. ACHD educated the responsible party on stormwater regulations and best management prac ces. Cleanup was deemed unnecessary.
7	5/16/2023	1725 E Cougar Creek Dr	Meridian	43.630742	-116.37269	Automov e Fluids	Private/ Residenal	No	A cizen nofied ACHD of a release of automotive fluids in the right-of-way. ACHD educated the responsible party on stormwater regulao ns and best management prac ces. ACHD helped contain the spill. Cleanup and disposal of the spilled material was completed by the responsible party.
8	5/16/2023	120 W Oakhampton Dr	Eagle	43.669359	-116.356251	Sediment	Commercial	No	A citizen nofi ed ACHD of sand from private property being tracked into the right-of-way. ACHD educated the responsible party on stormwater regulao ns. Cleanup of tracked material was completed by the responsible party.
9	6/13/2023	860 W Crescent St	Meridian	43.642339	-116.404692	Concrete/ Stucco/Grout	Private/ Residenal	Yes	A citizen called the Stormwater Pollution Hotline to report a discharge of rock polishing water to the right-of-way. ACHD educated the responsible party on stormwater regulations and best management prac ces. Cleanup was deemed unnecessary.

IDDE Complaints* Received and Summary of Follow-up Action
ACHD Phase II Permit Area, Idaho
February 1, 2023 – January 31, 2024

#	DATE	ADDRESS	CITY	LATITUDE	LONGITUGE	POLLUTANT TYPE	RESPONSIBLE PARTY TYPE	ILLICIT DISCHARGE	ACTION TAKEN
10	6/21/2023	816 NW 9th Pl	Meridian	43.611242	-116.404781	Automov e Fluids	Private/ Residenal	No	A cizen nofied ACHD of a parked car leaking automotive fluids in the right-of-way. ACHD educated the responsible party on stormwater regulao ns and best management prac ces. Cleanup and disposal of the spilled material was completed by the responsible party.
11	6/27/2023	5347 N Toscana Ave	Meridian	43.653506	-116.429441	Concrete/ Stucco/Grout	Construcon	Yes	IDEQ notified ACHD of a release of concrete slurry to the right-of-way. ACHD educated the responsible party on stormwater regulao ns and best management prac ces. Cleanup was deemed unnecessary.
12	8/4/2023	1289 N Wales Ave	Meridian	43.616407	-116.451729	Washwater	Commercial	Yes	IDEQ notified ACHD of a suspected release of washwater from a mobile business to the right-of-way. ACHD educated the suspected responsible party on stormwater regulations and best management prac ces. ACHD forwarded the information to City of Meridian Code Enforcement to further investigate the claim.
13	8/29/2023	N Eagle Rd & E Floating Feather Rd	Eagle	43.70642	-116.353844	Trash/Debris	Private/ Residenal	No	Ada County Sheriff's Office nofied ACHD of abandoned bags of game meat in the right-of-way. Cleanup and disposal of the abandoned material was completed by an environmental contactor.

IDDE Complaints* Received and Summary of Follow-up Action
ACHD Phase II Permit Area, Idaho
February 1, 2023 – January 31, 2024

#	DATE	ADDRESS	CITY	LATITUDE	LONGITUGE	POLLUTANT TYPE	RESPONSIBLE PARTY TYPE	ILLICIT DISCHARGE	ACTION TAKEN
14	9/27/2023	2686 N Vallin Ave	Meridian	43.629207	-116.401302	Automov e Fluids	Private/ Residenal	No	Meridian Code Enforcement notified ACHD of a parked car leaking automotive fluids in the right-of-way. ACHD educated the suspected responsible party on regulations and best management prac ces. Code Enforcement to follow up to ensure cleanup of spilled materials by the responsible party.
15	11/13/2023	11393 W Bakula DR	Boise	43.540157	-116.32369	Concrete/ Stucco/Grout	Construcon	No	A citizen called the Stormwater Pollution Hotline to report a discharge of concrete washout to the right-of-way. ACHD educated the responsible party on stormwater regulations and best management prac ces. Cleanup and disposal of the spilled material was completed by the responsible party.

** A complaint is any confirmed report of a potential pollutant discharge in the public right-of-way that requires an ACHD staff member to respond. Complaints do not include releases from ACHD equipment. Reports can originate from ACHD staff, members of the public, or outside agencies/departments.*

Appendix F: Dry Weather Outfall Screening Plan (v.1.2)

Dry Weather Outfall Screening Plan

Prepared for

Ada County Highway District Boise, Idaho

November 20, 2017

Version 1.2

950 West Bannock Street, Suite 250

Boise, Idaho 83702

Table of Contents

List of Figures

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List of Abbreviations

ACHD	Ada County Highway District
BOD	Biological Oxygen Demand – 5 day
CFR	Code of Federal Regulations
COC	Chain of Custody
DO	Dissolved Oxygen
DQI	Data Quality Indicator
DQO	Data Quality Objective
EPA	Environmental Protection Agency
MDL	Method Detection Limit
mL	Milliliter
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
PMEP	Project Monitoring and Evaluation Plan
PRDL	Project Required Detection Limit
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Program Plan
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
WQL	Boise City Water Quality Laboratory

Executive Summary

The National Pollutant Discharge Elimination System (NPDES) Phase I Permit No. IDS-027561 (Permit) was issued effective February 1, 2013, to Ada County Highway District (ACHD), Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3, referred to as the “Permittees.” Under this permit, the Permittees are required to implement and update as necessary, a dry weather analytical and field screening monitoring program consistent with the monitoring and evaluation program objectives as described in Permit Part IV.A.2 and the requirements outlined in Permit Part II.B.5.d “Dry Weather Outfall Screening Program”. This Dry Weather Outfall Screening Plan has been developed to fulfill these permit requirements for outfalls owned by ACHD and outfalls of unknown ownership. The outfall inventory statistics and information documented in this plan are limited to outfalls under ACHD and unknown Ownership and do not account for all permittee owned outfalls.

This plan follows the general guidance of the Project Monitoring and Evaluation Plan (PMEP) (ACHD, 2013) and the Quality Assurance Program Plan for NPDES Storm Water Permit Monitoring (QAPP) (ACHD, 2014). The previous NPDES phase I permit, issued in 2000, focused on outfall identification, inventory development, and information verification. The current permit expands on that information to focus on analytical and field screening to detect and eliminate illicit discharges. This plan describes the overall approach to dry weather outfall screening and provides comprehensive guidance for outfall investigation efforts, including prioritization of outfalls, data collection efforts, recordkeeping, and reporting activities.

Certain Quality Assurance/Quality Control (QA/QC) procedures that have been identified using United States Environmental Protection Agency (EPA) guidance for QAPPs are also included in this plan. The QA/QC procedures are designed to ensure data collected meet specific data quality objectives developed specifically for Permit-required monitoring activities. The plan documents QC sampling procedures, data acceptance criteria, and data management details specific to the Dry Weather Outfall Screening Plan.

Section 1

Introduction

1.1 Basis for Dry Weather Outfall Screening Plan

The Permit requires that the Permittees implement a dry weather analytical and field screening monitoring program that emphasizes frequent, geographically widespread monitoring to detect illicit discharges and illegal connections and to reinvestigate potentially problematic outfalls. The Dry Weather Outfall Screening Plan is designed to be consistent with the monitoring and evaluation program objectives described in the PMEP. Permit requirements specific to the dry weather outfall screening program include the following:

- **Outfall Identification (Part II.B.5.d.i).** Update the stormwater outfall identification and screening plan including reconnaissance activities, information used to prioritize outfalls for screening, ACHD's approach to conducting analyses on identified flows, and the trigger thresholds for follow-up action.
- **Monitoring Illicit Discharges (Part II.B.5.d.ii).** Conduct monitoring at least once annually following the criteria outlined in the Permit.
- **Maintain Records of Dry Weather Screening (Part II.B.5.d.iii).** Keep detailed records of dry weather outfall screening activities and results and document follow-up activities.

1.2 Plan Objectives

The Dry Weather Outfall Screening Plan addresses the minimum permit requirements for dry weather outfall screening and outfall identification as described in Permit Part II.B.5.d. In addition the plan has been developed considering the level of service goals and objectives identified in the PMEP. This plan provides guidance for field reconnaissance activities, monitoring, and recordkeeping efforts performed by ACHD. To standardize ACHD's approach to addressing quality assurance recommendations by the EPA for all monitoring programs under the Permit, each quality assurance element is addressed as either a program element or a screening plan element.

Dry Weather Outfall Screening Plan elements are described in full in this document, while elements applicable to all monitoring programs under the Permit are addressed in the QAPP. Plan organization, responsibilities, and objectives are derived from the PMEP, which serves as guidance to standardize stormwater management under this Permit as a whole, including the approach to quality assurance and screening plan implementation. Monitoring program elements consist of the standardized monitoring components that all individual monitoring or screening plans developed under the Permit reference. A list of program and screening plan elements is included in Table 1-1.

Table 1-1. QAPP Element Document Reference		
EPA-Recommended QAPP Elements	Monitoring Program Element (Addressed in the QAPP)	Dry Weather Outfall Screening Plan Element; Section
Group A: Project Management		
A1 – Title and Approval Sheet	X	
A2 – Table of Contents	X	
A3 – Distribution List	X	
A4a – Project Organization	X	
A4b – Task Organization		X; 1.3
A5 – Problem Definition/Background	X	
A6 – Project/Task Description		X; 1.2
A7a – Quality Objectives and Criteria for Measurement Data	X	
A7b – Method-Dependent Criteria for Measurement Data		X; 5.2
A8 – Special Training Needs/Certification	X	
A9 – Documents and Records	X	
Group B: Data Generation and Acquisition		
B1 – Sampling Process and Design		X; 2
B2 – Sampling Methods		X; 3, 4.3
B3 – Sample Handling and Custody		X; 4.3.2
B4 – Analytical Methods		X; 4.3.1
B5a – Quality Control	X	
B5b – QA/QC Sampling Schedule		X; 5.1
B6 – Instrument/Equipment Testing, Inspection, and Maintenance		X; 3
B7 – Instrument/Equipment Calibration and Frequency		X; 3
B8 – Inspection/Acceptance of Supplies and Consumables	X	
B9 – Non-direct Measurements	X	
B10 – Data Management	X	
Group C: Assessment and Oversight		
C1 – Assessments and Response Actions	X	
C2 – Reports to Management	X	
Group D: Data Validation and Usability		
D1 – Data Review, Verification, and Validation	X	
D2 – Verification and Validation Methods	X	
D3 – Reconciliation and User Requirements	X	

1.3 Task Organization

Key roles and job functions are described in the QAPP. The dry weather outfall screening program organization chart is presented in Figure 1-1.

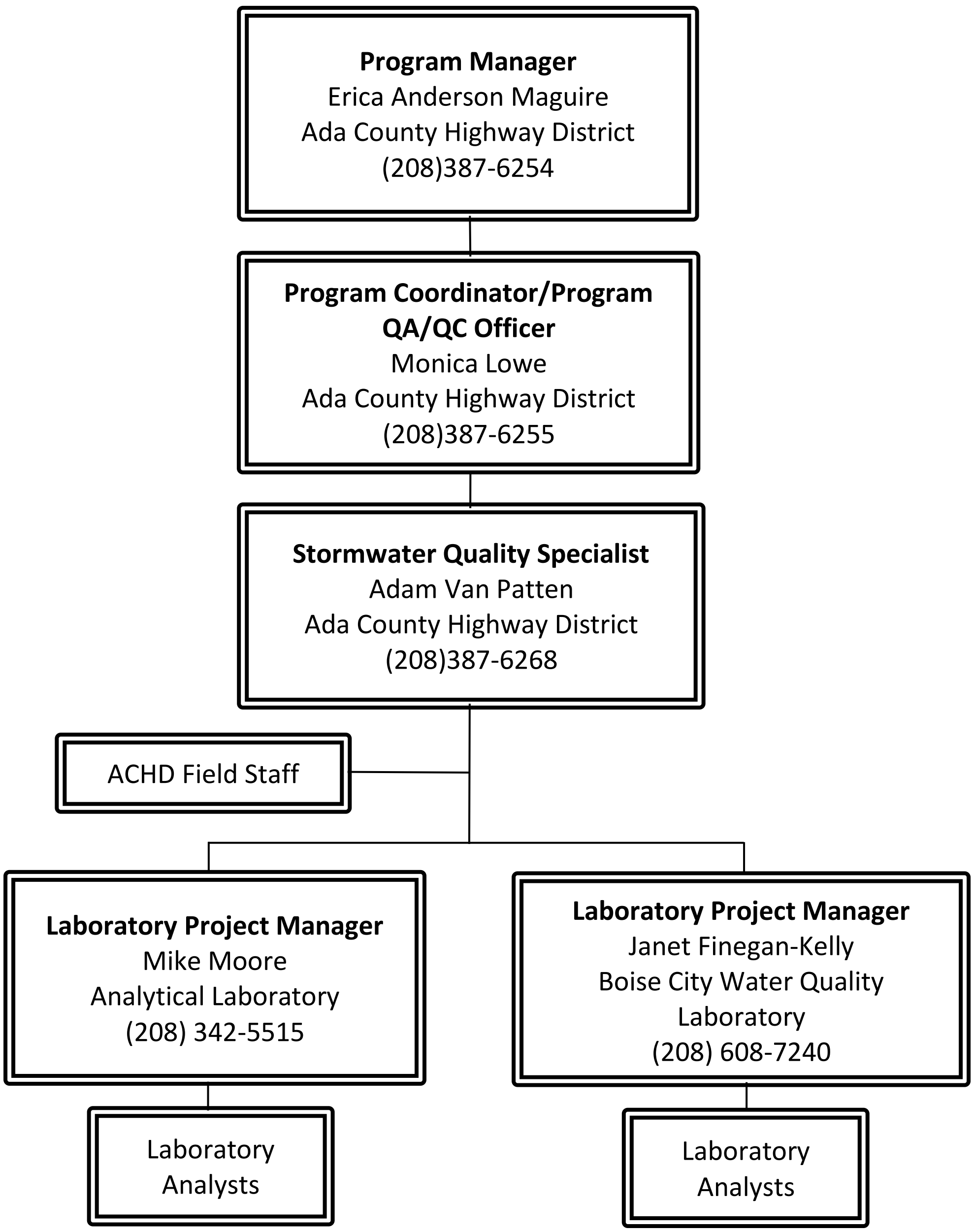


Figure 1-1. Dry weather outfall screening organization chart

Section 2

Screening Process Design

The screening process design consists of the planned and consistent approach to screening the outfalls of the Municipal Separate Storm Sewer System (MS4) to detect illicit discharges and illegal connections. The screening process has been developed to enable ACHD to inspect all outfalls owned by ACHD over the course of a five year period. The screening process includes provisions for prioritizing and sorting the outfalls to be screened such that investigations conducted each year are distributed across the Permit area and that all major land uses are represented.

Data collection includes qualitative characteristics of the outfalls, flow measurements, water quality data, and information useful in tracing flow to the source and eliminating illicit discharges and illegal connections. Section 2.1 provides a description of the information currently available for outfalls owned by ACHD. Section 2.2 describes ACHD's approach to prioritizing outfall screening in each year and across the five year period during which all outfalls owned by ACHD will be screened. This allows ACHD to meet the permit requirement of screening 20 percent or more of the total outfalls each year. Project details addressing data collection efforts including monitoring equipment used, outfall assessment procedures, and flow monitoring methods are included in sections 3 and 4.

2.1 Outfall Screening Locations

Ada County Highway District owns a total of 742 documented outfalls across the NPDES Phase I Permit area. Outfalls drain all major land uses within the Permit area and have the potential to convey illicit discharges to receiving waters. Figure 2-1 shows all Permittee-owned outfalls within the Permit area (Figures Section).

ACHD outfalls discharge to a total of 68 different Waters of the U.S. within the Permit area. Table 2-1 (Tables Section) includes a list of receiving waters in the Permit area and the number of outfalls discharging to each. Specific reaches of a number of the receiving waters are listed as impaired waters on the Idaho Department of Environmental Quality 303d list. These waters and the pollutants of concern associated with impairment are included in Table 2-2 (Tables Section).

2.2 Outfall Prioritization and Screening Schedule

Planned prioritization of outfalls selected for screening helps to ensure that Permit requirements are met in the outfalls screened each year. The prioritization levels described below have been established for use in selecting outfalls for screening each year. The requirements described in Permit Part II.B.5.d.ii for monitoring illicit discharges have been compared with the information summarized in Section 2.1 to prioritize the targeted outfalls and develop a schedule to screen 20 percent of the outfalls annually.

Figure 2-2 represents a summary of the approach ACHD has developed to conduct screening in accordance with the requirements of Permit part II.B.5.d.ii. The outfall screening schedule includes 20 percent of the total ACHD-owned outfalls each year, of which, at least 20 percent the outfalls discharge to impaired waters. At least one third of the outfalls will be screened during the June 1 to September 30 time frame of each year.

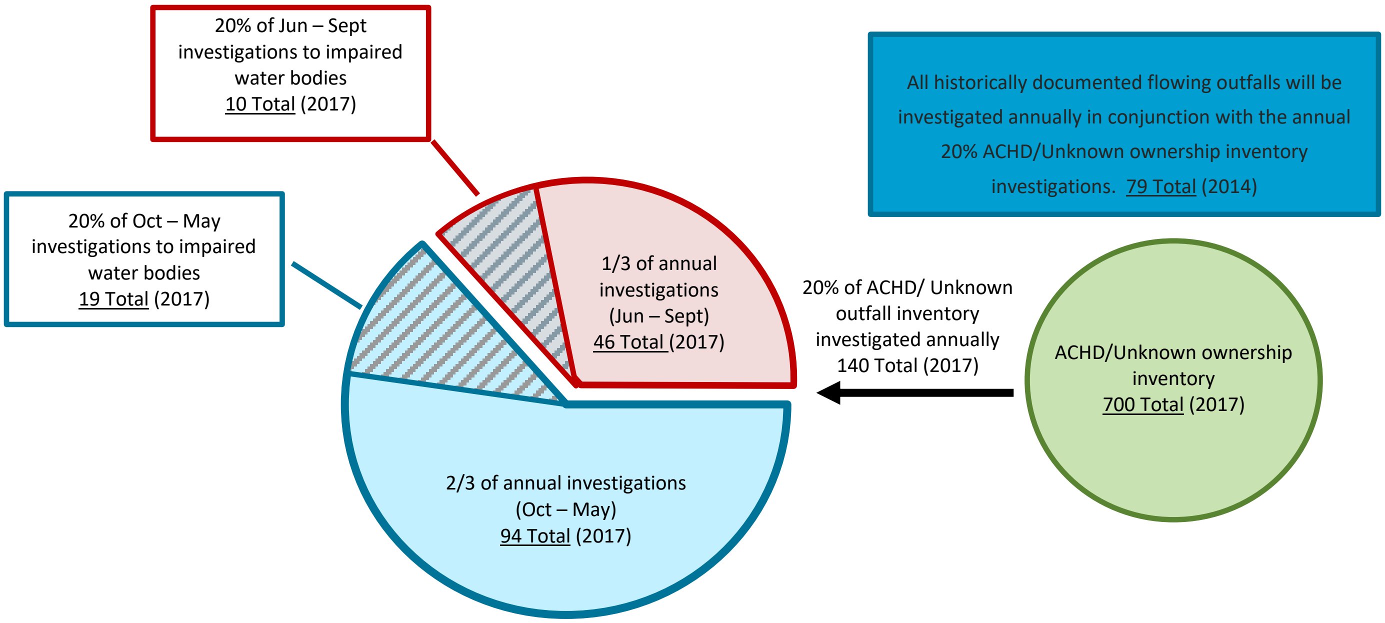


Figure 2-2 Outfall screening schedule organization

Prioritization

Outfalls given the highest priority include documented flowing outfalls and outfalls to impaired water bodies. Each year priority will be given to outfalls that are the subject of public complaints or that the ACHD personnel believe may have an increased illicit discharge potential whether or not they were originally scheduled for that given year. Examples of increased risk include identification of cross connections, problems with aging infrastructure, or activities and conditions in the drainage area likely to result in an illicit discharge. In these instances the outfalls originally scheduled for investigation will be rescheduled for a later date to maintain the goal of 20 percent of total outfalls screened each year.

Previously Documented Flows

Flowing outfalls discharging irrigation or groundwater seepage flows that have already been identified will be sampled annually to assess compliance with Permit Part I.D. ACHD has documented 79 outfalls discharging irrigation or groundwater flows within the Permit area. If analytical and field investigation results indicate that the flow is in compliance with Permit Part I.D, the outfall will be removed from the annual historical flow sampling list.

Investigations of previously documented flows are to be completed annually and are not limited to specific times of the year. However, ACHD has observed seasonal variation in these flows typically attributable to irrigation and high groundwater. The intent of ACHD's sampling approach is to address such flows by first assessing flow origin and date of observance.

Substantial flows that are believed to be continuous will be reinvestigated up to two times during the first year to collect additional flow measurements and to document the approximate duration of the year that the flows are present. Investigations will be scheduled in an attempt to determine the duration of the year the flows are present. Outfalls with lower flows or intermittent flows may be reinvestigated as time allows at a lower priority level. Previously documented flowing outfalls will only be counted as part of the 20 percent of total outfalls screened annually if there is an overlap between the flowing outfalls and the 20 percent selected for that year.

Each year, following preparation of the annual report, the schedule for investigation of flowing outfalls will be revised based on the previous year's results. This approach is described in greater detail in Section 6.3.2 Annual Reporting.

Screening Schedule

Appendix A is the screening schedule for all documented outfalls, which includes all ACHD-owned and unknown outfalls within the phase I Permit area. The screening schedule is based on geographic distribution and the prioritization methods described above. This schedule has been developed to ensure that Permit requirements for outfall screening are met for each year. The schedule will be updated at least once each year to reflect any changes in total number of outfalls and outfalls rescheduled due to prioritization needs during each year.

Section 3

Monitoring Equipment

This section provides an overview of the types of monitoring equipment planned for use in the dry weather outfall screening program. Standard Operating Procedures (SOPs) and procedure guidance documents are included in Appendix B and provide greater detail describing how equipment is used to accomplish the goals of the Dry Weather Outfall Screening Program. Manufacturers' recommendations for proper use and maintenance are either included in the SOPs or the equipment manuals referenced in the SOPs.

3.1 Stormwater Test Kit

ACHD utilizes the Hach Stormwater Test Kit for in-field chemical analysis of total chlorine, total copper, and total phenols. Chemical analyses are conducted according to the manufacturer's instructions (Appendix B) using colorimetric comparison of samples treated with reagents to estimate concentration of the constituents of concern. The test kit includes dissolvable, premeasured reagent packets specific to each chemical analysis, viewing tubes, and a color comparator, which holds the viewing tubes in line with a rotating color wheel. The kit also includes a long path viewing adaptor to accommodate the full range of targeted chemical analyses with an incremental accuracy of 0.1 mg/L.

Calibration and Maintenance

A check of reagent accuracy can be completed using a reagent specific standard solution. Accuracy will be tested for each packet of reagents used following the test procedures outlined in Appendix B. ACHD is responsible for calibration and maintenance and will keep a log in the monitoring shed for reference.

Color viewing tubes and containers and utensils used for mixing samples will be rinsed with deionized water immediately after sample results are recorded for each analysis. The stormwater test kit will be kept dry and reagent packets will be kept in water-resistant containers between uses.

3.2 Flow Probe

ACHD utilizes a Global Water FP111 Flow Probe for collecting velocity measurements used in estimating discharge volume of flowing outfalls. The velocity meter uses a propeller attached to a telescoping handle. The propeller is protected by a plastic shield that extends around the outer diameter of the propeller to avoid bumping the propeller against the bottom of the pipe/channel or other obstacles.

A small computer with an LCD screen is attached to the handle opposite the propeller. The computer displays velocity as an instantaneous measurement as well as the minimum, maximum, and average velocity readings. The flow probe computer is zeroed out immediately prior to collect new readings.

Discharge flow measurement using the Global Water Flow Probe is discussed in detail in Section 4.3.3. If another flow probe is substituted for the Global Water Flow Probe, the substitute will be verified to have the same or higher degree of sensitivity and accuracy.

Calibration and Maintenance

Per the manufacturer's recommendations the flow probe will be allowed to dry between uses and washed with soap as needed to maintain proper operation. The flow probe does not require routine maintenance or calibration other than being kept clean.

3.3 Handheld Field Parameter Instruments

During discharge sample collection, specific parameters will be measured directly in the field using a variety of handheld instruments to collect readings including: pH, conductivity, dissolved oxygen content, and temperature. Measurements of field parameters will be collected immediately after sample collection. If parameters are measured more than 15 minutes after sample collection the data will be qualified. Field parameter instruments will be rinsed with distilled water between measurements.

Handheld field parameter instruments may include the following specific instruments. If any other instrument is substituted for an instrument listed below, the substitute will be verified to have the same or higher degree of sensitivity to maintain data quality and program safety objectives. The following is a list of program approved instruments.

- Horiba D-51 pH/temperature meter
- YSI-85 DO/salinity/conductivity/temperature meter
- Hach 2100Q turbidity meter

Safety Monitoring Instruments:

- Hazardous vapor monitors including: Biosystems PhD Lite, Biosystems PHD6, and Sperian

Calibration and Maintenance

Maintenance will be conducted per manufacturers' recommendations and the procedures outlined in Appendix B, or more frequently as warranted by equipment performance. Instruments will be inspected and calibrated before each planned sampling event. ACHD is responsible for calibration and maintenance and will keep a log in the monitoring shed for reference.

Section 4

Screening and Sampling Procedures

4.1 Weather Information and Field Preparation

Permit requirements for dry weather outfall screening require an antecedent dry period of 72 hours or more of 0.10 inch or less of precipitation. In order to meet this criteria, staff will verify the antecedent dry period by accessing continuous weather observations published by the National Weather Service (NWS) for the weather monitoring station located at the Boise Airport. Observations may be obtained by visiting the NWS webpage for the local area or by calling the NWS Boise office. While confirming the antecedent dry period, staff will also check the forecast for the area where work is planned to ensure acceptable and safe weather conditions are present during screening.

Field equipment and supplies may vary based on the location and type of terrain expected to access outfall(s) planned for investigation. Prior to initiating investigation activities field staff will perform a cursory check of all equipment to be used to verify proper function and safe operation. Necessary supplies including field investigation forms and sampling and testing supplies will be restocked as necessary and kept in a clean and secure location between investigations.

4.2 Outfall Investigation

The dry weather outfall screening program is built around the information obtained during outfall investigation activities. Outfall screening and spill reporting are the main methods for discovery of illicit discharges to the MS4. A dry weather investigation consists of verification of the information ACHD has for the outfall and its conveyance as well as qualitative descriptions of the conditions present at the time of the investigation. Investigations also include a review of records from past visits to identify persistent or new conditions.

Upon arrival at the outfall, ACHD personnel will conduct physical observations in the order listed on the Dry Weather Outfall Investigation Form (Form DW1) included in Appendix C. Information to be collected for each outfall includes:

- Location in terms of a description of the nearby streets, receiving water, and other landmarks useful in identifying and locating the outfall.
- Description of major land uses in the outfall drainage area
- The configuration, construction, dimensions, material, and condition of the outfall
- Observations of the outfall and surrounding area including the staining, sedimentation, scour, and condition of vegetation
- Clarity, odor, color, floatables, and intensity of flow, where present
- Presence of trash in or from outfall (reference Form DW2 in Appendix C for trash assessment)
- Photographs of the outfall, surrounding area, flows, if present, and any other features or conditions useful or pertinent to the outfall inventory, screening activities, or reporting

If a discharge is present at the time of investigation, the flow volume will be measured as described in Section 4.3.3. Qualitative characteristics of the flow such as color, odor, and clarity will also be recorded. Sample collection will be scheduled for a later date due to advance notice requirements for the Boise City

Water Quality Laboratory (WQL). Sample collection and flow measurement methods are described in the discharge monitoring section below.

4.3 Discharge Monitoring

To accommodate holding time requirements for E. coli, advance notice is typically required before delivering samples to WQL. As such, discharges are not typically sampled at the time of first discovery. Following Permit requirements monitoring will be performed as described below at the earliest possible date, not to exceed 15 days from the time the new discharge was discovered.

4.3.1 Discharge Parameter Analysis

The analytical methods planned for use in discharge monitoring when flows are present are included in Table 4-1 below. The Permit requires that “sample collection, preservation, and analysis must be conducted according to sufficiently sensitive methods/test procedures approved under 40 Code of Federal Regulations [CFR] Part 136, unless otherwise approved by EPA. Where an approved 40 CFR Part 136 method does not exist, and other test procedures have not been specified, any available method may be used after approval from EPA.” As such, the methods identified below are the selected and preferred options. However, sample, laboratory, or instrument conditions may require the substitution of an alternate Part 136 method.

The analytical requirements for dry weather discharge samples are listed in the Permit. Water quality data will be collected using a combination of field parameter measurements using handheld meters, field analysis conducted by field screening staff, and laboratory analysis. Table 4-1 identifies the constituents to be identified, analytical method, and type of analysis.

Table 4-1. Analytical Methods for Dry Weather Discharge Constituents

Constituent	Sample Container	Analytical Method	Holding Time	Sample Analysis Type
pH	500 mL amber glass	EPA 150.1	15 minutes	Field Parameter
Temperature		EPA 170.1		
Turbidity		EPA 180.1		
Dissolved oxygen (DO)		SM 4500 G		
Conductivity		EPA 120.1		
Total chlorine	1 L sterilized plastic	DPD[1]	15 minutes	Field Analytical Test
Total copper		bicinchoninate hydrosulfide reduction	60 minutes	
Total phenols		4-aminoantipyrine	60 minutes	
E. coli	250 mL sterilized plastic	IDEXX Colilert	8 hours	Laboratory Analytical Test
Total suspended solids	4.3 L plastic	SM 2540 D	7 days	
Total phosphorus	500 mL plastic	EPA 200.7	28 days	
Dissolved orthophosphate	250 mL plastic	EPA 200.7	48 hours	
Surfactants (detergents)	1 L plastic	SM 5540 C	48 hours	

[1]DPD = N,N Diethyl-1,4 Phenylenediamine Sulfate

4.3.2 Discharge Sample Collection

Samples of discharges documented during investigations will be collected using grab sampling methodologies. Sample collection at each outfall will be accomplished by filling the sample container for each analysis from a point near the center of the flow at the outfall. Depending on outfall configuration, access constraints, and flow volume, the grab samples will be collected using a swing sampler or by hand

and safely positioning the sample bottle in the discharge stream. SOPs for grab sample collection are included in Appendix B. Immediately following sample collection; the field personnel will record the collection date and time for each sample on Form DW1.

Field Analytical Samples

Field analyses including total chlorine, total copper, and total phenols will be conducted using the Hach Stormwater Test Kit. Analysis will be completed within 30 minutes of sample collection. Each analysis will be conducted following the procedures outlined in the Hach Stormwater Test Kit manual. The specific test procedures from the manual have been incorporated into Appendix B. Results of field analyses will be recorded on Form DW1.

Field Parameters

Field parameters including temperature, pH, conductivity, DO, and turbidity will be measured in the field using handheld instruments to avoid changes that may occur between the time when the sample is collected and the time of analysis at the laboratory. Measurements from these field tests will be recorded on Form DW1.

Laboratory Analytical Samples

Samples will be collected for each constituent or suite of constituents in the containers listed in Table 4-1. Preservation techniques in the field are limited to cooling samples to a target sample temperature of less than 6°C, but above freezing. After the samples are collected, sufficient ice will be placed in coolers with the samples to maintain the samples at a maximum temperature of 6°C during transport to WQL.

Chemical preservation measures required for EPA standard methods are accomplished by laboratory personnel after samples are submitted. The EPA standard method for measurement of dissolved orthophosphate requires samples to be filtered within 15 minutes of sample collection. Samples for dissolved orthophosphate will be filtered in the field using a peristaltic pump and laboratory-prepared filters and tubing. Sample filtration will be performed following the procedures outlined in the field filtering SOP in Appendix B.

Chain of Custody Procedures

Standard chain of custody (COC) procedures will be followed for all analytical laboratory samples. COC forms, shown in Appendix C, will be completed prior to submittal of samples to the laboratory. Information recorded on the COC includes the following:

- Name of sampler
- Sample identification (outfall identification number from which the sample was collected)
- Analyses requested
- Sample time
- Sample date

A sample is considered to be “in custody” if it is either in actual physical possession of authorized personnel or in a secured area that is restricted to authorized personnel. Such areas include laboratory refrigerators, the monitoring shed at ACHD, ACHD office space, and ACHD vehicles. All transfers of custody will be recorded by signature, date, and time by both the individual relinquishing custody and the one receiving custody. This information is placed in the designated area on the bottom of standard COC forms.

Samples may be stored for short periods of time in coolers with ice at the ACHD monitoring shed or offices while awaiting submittal to WQL. In these instances, the COC forms will be reviewed and signed by the custody holder listed on the COC form. The COC forms will be kept with the samples at all times.

In most cases, laboratory personnel will be notified with at least one day of notice when samples will be submitted. If samples are submitted to the laboratory during business hours, samples are relinquished to laboratory personnel in person for immediate receipt with signature, date, and time. ACHD has after-hour access to the laboratory to accommodate sample submittal. When sample delivery occurs after hours, samples are placed in a locked refrigerator and the signed COC form is left in the locked laboratory for morning receipt by laboratory personnel.

Sample collection times for QC samples will be recorded as 12:00 on the COC form to maintain duplicates as laboratory blind samples. The actual collection time will be recorded on the field form. The QAPP includes details on the approach to data validation as it pertains to holding times and laboratory qualifiers for QC samples.

4.3.3 Discharge Flow Measurement

Flow measurements will be collected when discharges are present to properly document flows and to aid in pollutant loading estimates. Anticipated flow measurement methodologies include use of a velocity probe in conjunction with pipe dimensions, bucket testing, and visual qualitative assessment. A full description of each flow measurement method is included in the flow measurement section of Appendix B.

For relatively small discharges, a bucket flow test may be used in which a five gallon bucket is placed under the outfall to capture all flow from the outfall for an appropriate duration. This information is then used to calculate flow in cubic feet per second.

For higher flows, the velocity probe is used to obtain an average velocity measurement for the flow. The average velocity is combined with measurements of the area of the flow profile to calculate discharge in cubic feet per second. The SOP includes the measurement and calculation approach for circular pipes, elliptical pipes, and natural or irregular channels.

In situations where flow is present and the outfall is not physically accessible, a qualitative assessment of flow will be recorded and accompanied by a comment stating that the outfall was inaccessible for flow measurement. Qualitative flow assessment will be described using three descriptive categories: trickle, moderate, or substantial. Guidance in the flow measurement section of Appendix B defines each of the qualitative flow measurement terms that will be used and provides guidance for selecting the most appropriate descriptive term.

4.4 Flow Source Tracing

After completing the outfall investigation, discharges from flowing outfalls will be traced to the source of the flow. Finding the source of the discharge often provides important information to help determine whether the discharge is allowable under Permit Part 1.D. Allowable non-stormwater discharges include the following:

- Discharges covered under a separate NPDES permit
- Discharges resulting from a spill or from unusual and severe weather or an emergency
- Discharges consisting of uncontaminated water and not sources of pollution to waters of the U.S.

All documentation collected as part of the evaluation of discharges is required to be included in the Stormwater Management Plan. This includes the documentation and support for the discontinuation of discharge monitoring for outfalls that have allowable discharges.

4.4.1 Flow Source Tracing

Sources will be traced by following drop inlets and manholes upstream of the outfall using field maps showing the drainage system. Smoke testing, dye testing, and closed circuit TV will be used as appropriate to determine the source of the discharge.

Discharge sampling results can often be used to assist in identifying potential sources of pollution. The source tracing flow chart in Appendix D will be used in conjunction with analytical results, field observations, and drainage area analysis to identify likely source(s) of illicit discharges or illegal connections.

4.4.2 Discharge Thresholds

Previously documented flowing outfalls as described in Section 2.2 may be removed from the annual historical flows sampling list if the flow can be characterized as an allowable discharge. Thresholds based on analytical results and receiving waters have been developed to help make this determination. Appendix E includes a description of the thresholds for each monitored constituent of concern and the decision points to be used in evaluating compliance with Permit Part 1.D.

4.5 Escalation and Elimination

If a discharge is found to be illicit based on source tracing and/or chemical analysis, ACHD is required to take appropriate action to address the source of the ongoing discharge within 45 days of detection. To meet this requirement ACHD has established interagency agreements with the City of Boise and Garden City for enforcement of stormwater ordinances in City codes Title 8, Chapter 15 and Title 4, Chapter 14, respectively. Copies of these agreements can be found in the Stormwater Management Plan.

The agreements address enforcement of these ordinances to eliminate illicit discharges and illegal connections and contain escalation measures for application as necessary. ACHD may at any time provide the appropriate jurisdictional authority with evidence of the discharge and the source of flow. Public or private discharges may require action by the city; other discharges may require involvement from the Ada County Sheriff's Office. If the source of the discharge cannot be determined, ACHD will provide available information to assist the jurisdictional authority in eliminating the discharge.

Section 5

Quality Assurance/Quality Control

5.1 QC Sampling Schedule

The QC sampling schedule developed for the dry weather outfall screening program consists of a combination of field QC samples and laboratory QC samples. QC sampling for this program is designed to assess field and laboratory analytical test procedures. QC sample types are fully described in the QAPP. QC sampling intervals will follow the schedule detailed in Table 5-1. Laboratory QC sample results are included in each analytical report.

Table 5-1. Field QC Sample Collection Schedule

QC Sample Method	Sampling Frequency2	Percent of Total Data Represented
Field Duplicate	1 suite per 20 samples	5%
Field Blank	1 suite per 20 samples	5%

[1]QC sample analysis will be performed on laboratory analytical samples only. Analyses conducted by ACHD in the field rely on calibration and accuracy check methods described in Section 3.

[2]Frequency is determined by number of screening program samples collected, regardless of result.

ACHD may choose to conduct additional QA/QC to address data discrepancies, potential sample contamination, or other QA/QC issues. These events will be handled on an as-needed basis, depending on the particular issue(s) involved.

5.2 Data Quality Objectives (DQO)

Field screening efforts will provide data of sufficient quality and quantity in accordance with Permit requirements to detect and eliminate illicit discharges and illegal connections, estimate pollutant concentrations and loading associated with dry weather flows including flows associated with groundwater infiltration and irrigation drainage in the MS4, and support mapping and outfall inventory efforts to maintain accurate records.

Data Quality Indicators (DQIs)

DQIs have been established to set measurable qualitative and quantitative goals for data acceptance that meet the program DQOs described above. Each DQI is described below. DQIs are the basis for addressing field and laboratory analytical instrument performance, as well as sample collection and handling procedures. QA/QC samples provide input for several of the DQIs. QA/QC sample collection procedures are included in Section 2.1 of the QAPP.

DQIs are fully described in Section 1.8.1 of the QAPP. A brief description of each DQI is included in the list below.

- **Project Required Detection Limits (PRDL).** Achieving appropriate reported constituent concentration results at values that allow for comparison to baseline data and water quality standards.

- **Accuracy.** The accuracy of the data is a measure of the extent to which a measured value represents the true value.
- **Precision.** Precision is a measurement of the reproducibility of the analytical data.
- **Bias.** Bias is minimized by using standard data collection and analytical methods and protocols, as well as standard sample preservation, transport, and storage procedures.
- **Representativeness.** Representativeness is a measure of the degree to which data accurately and precisely indicate environmental conditions.
- **Comparability.** The comparability of a data set is the extent to which data accurately and precisely indicate environmental conditions.
- **Completeness.** Completeness is a comparison between the amount of usable data collected versus the total amount of data collected.
- **Sufficiency.** Data set sufficiency is the amount of data required to perform the level or type of analysis necessary for each monitoring element.

Analysis-specific data quality indicators include PRDLs and precision evaluated as relative percent difference (RPD). The target values for these indicators are listed in Table 5-2 below.

Table 5-2. Data Quality Indicator Targets

Constituent	Analytical Method	PRDL[1,2]	Units	Precision[3,4] (RPD)
Temperature	EPA 170.1	0.01	ºC	NA
pH	EPA 150.1	0.01	S.U.	NA
Dissolved oxygen	SM 4500 G	0.01	mg/L	NA
Conductivity	EPA 120.1	0.1	µS/cm	NA
Turbidity	EPA 180.1	0.1	NTU	20%
Total chlorine	DPD[5]	0.1	mg/L	NA
Total copper	bicinchninate hydrosulfide reduction	0.1	mg/L	NA
Total phenols	4-aminoantipyrine	0.1	mg/L	NA
Total phosphorus	EPA 200.7	0.04	mg/L	20%
Dissolved orthophosphate	EPA 365.1 or SM 4500-P E	0.084	mg/L	20%
E. coli[6]	IDEXX Colilert	1.8	MPN/100 mL	20%
Total suspended solids	SM 2540 D	1.0	mg/L	20%
Surfactants (detergents)	SM 5540C	0.014	mg/L	20%

[1]Field instrument resolution values are listed in lieu of a PRDL for field parameter measurements.

[2]PRDL is defined as the effective method detection limit (MDL) as reported by the analytical laboratory.

[3]Precision calculations based on field duplicate samples.

[4]In cases where one value is reported at the MDL and the other value is less than five times the MDL, the samples will be considered within acceptable precision limits.

[5]N,N Diethyl-1,4 Phenylenediamine Sulfate

[6]Assessment of precision for E. coli is evaluated using the RPD of logarithmic parent and duplicate values.

Section 6

Data Management and Reporting

6.1 Data Acquisition Requirements (Non-Direct Measurements)

Weather forecasts and hourly precipitation totals will typically be obtained from the NWS Boise airport station website and used for confirmation of antecedent dry periods. Additional forecasts or weather reports may be obtained from local media, community, or commercial weather services, ACHD and Permittee-owned rain gauges.

6.2 Data Management System

Data associated with the dry weather outfall screening program will be stored in the Microsoft Access Outfall Database on the secure ACHD network at V:\9DrainageDivision\VanPattenAdam\Outfalls.adp. Data stored in the Outfall Database includes the following elements:

- Time since most recent precipitation event greater than 0.1 inches of rain
- Quantity of most recent rain event greater than 0.1 inches of rain
- Site description (conveyance type, dominant watershed land uses)
- Flow estimation (width of water surface, depth of water, approximate flow velocity, approximate flow rate)
- Visual qualitative observations (odor, color, clarity, floatables, deposits/staining, biology, condition of vegetation, structural condition of outfall, qualitative flow)
- Sample analytical results
- QA/QC results
- Narrative description of flow tracing, determination of discharge authorization (allowable or illicit), and documentation of any corrective measures including stopping the discharge, disconnecting illegal connections or other enforcement and escalation activities

6.3 Data Organization and Reporting

6.3.1 Investigation Results Organization

Upon returning to the office, data that has been collected in the field will be filed according to data type.

- Photographs taken will be downloaded and stored in a word document photo log for the event. The photo log will include the date and outfall number and will be filed under the outfall file on the secure ACHD server at V:\92OutfallPictures\OutfallPhotos. A link to the photo log will be included in the Access database for each investigation. Each picture will include a caption with a description of the subject and location of the picture as well as the vantage point.
- GPS data will be checked against existing data for outfall locations and corrected in GIS as necessary.
  - Coordinates of new outfalls encountered will be entered into the outfalls layer in GIS and subsequently researched to determine drainage area and incorporated into the outfall inventory.
  - In the event that the outfall to be investigated no longer exists, the outfall as an attribute will be reassigned to a separate shapefile and removed from the outfall inventory. Records of the outfall

will be retained for at least five years or the duration of the Permit. Records may be retained longer at the discretion of ACHD.

- Newly identified outfalls will be numbered according to the township, range, and section in which the outfall occurs. Outfalls located in the same section are numbered sequentially beginning with 001. Additionally, an individual file will be created in the Access database and on the server.
- Field data sheets and photographs will be scanned and filed under the corresponding reporting year on the server, and the hardcopies will be stored in the corresponding hardcopy file. Data from the field sheets will be entered in to Access intermittently throughout the year. ACHD is currently in the process of researching electronic field form options to replace the use of hardcopy field data sheets.

6.3.2 Annual Reporting

The annual report will include an updated map of ACHD-owned outfalls as well as any changes in water body designations. The map will include all reported and documented illicit discharges and illegal connections. The map will be made available as an electronic map file and a pdf.

The annual report will also contain an evaluation of compliance for the illicit discharge detection and elimination program. That evaluation will include a summary of the activities and progress of the dry weather outfall screening program. The total number of outfalls screened, including a count of outfalls discharging to impaired waters (at least 20 percent required), the number of flowing outfalls screened, and the number of outfalls screened between June 1 and September 30 (at least one third required).

Discharge Monitoring Results

Results of samples collected from monitored discharges will be summarized with each annual report. Discharge monitoring results will be used to evaluate flows associated with irrigation and groundwater seepage to determine whether the flows comply with Permit Part 1.D. Flows that are found to be in compliance with Permit Part 1.D (flows that are not sources of pollution to waters of the US) will be identified in the annual report and removed from the annual flow screening schedule for subsequent years. The rationale for removing these flows from annual screening schedules will also be recorded in the stormwater management plan.

Pollutant Loading Estimates

Discharge monitoring results will be used in conjunction with flow measurements to calculate pollutant loading estimates associated with the observed flows. Estimates of the duration of the year that flows were present at each outfall will be provided with the pollutant loading estimates when available. The duration of each flow during the year will be refined as more data is collected each year. Pollutant loading estimates will also be used to prioritize flows for evaluation of feasible actions necessary to eliminate flows that are not in compliance with Permit Part 1.D.

6.3.3 Evaluation and Assessment

Evaluation and assessment of the dry weather outfall screening data and the overall effectiveness of the Dry Weather Outfall Screening Program will be conducted in compliance with the general guidance identified in the PMEP. For the Dry Weather Outfall Screening Program, data will be compiled with the objective to eliminate illicit discharges and illegal connections to the MS4 and to evaluate the effectiveness of stormwater management efforts at reducing pollutant loads from the MS4.

Advancing illicit discharge detection and elimination is an iterative process. The dry weather outfall screening program will be annually evaluated for compliance with Permit requirements. Evaluation efforts will also assess how well the dry weather outfall screening program aligns with the Level of Service goals outlined in the ACHD Phase I Stormwater management plan. Changes and revisions to the program including updated methods or revised approaches will be integrated into the program as updates to this Dry Weather Outfall Screening Plan and/or the SOPs referenced herein.

Section 7

References

Ada County Highway District (ACHD), Project Monitoring and Evaluation Plan, 2013.

———, Quality Assurance Program Plan for NPDES Storm Water Permit Monitoring Boise and Garden City, Idaho, 2014.

Brown, Edward, Deb Caraco, and Robert Pitt. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. Center of Watershed Protection. Ellicot City, MD.

U.S. Environmental Protection Agency (EPA). *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, March 1983. Cincinnati, Ohio: U.S. Environmental Protection Agency Environmental Monitoring and Support Laboratory, 1983.

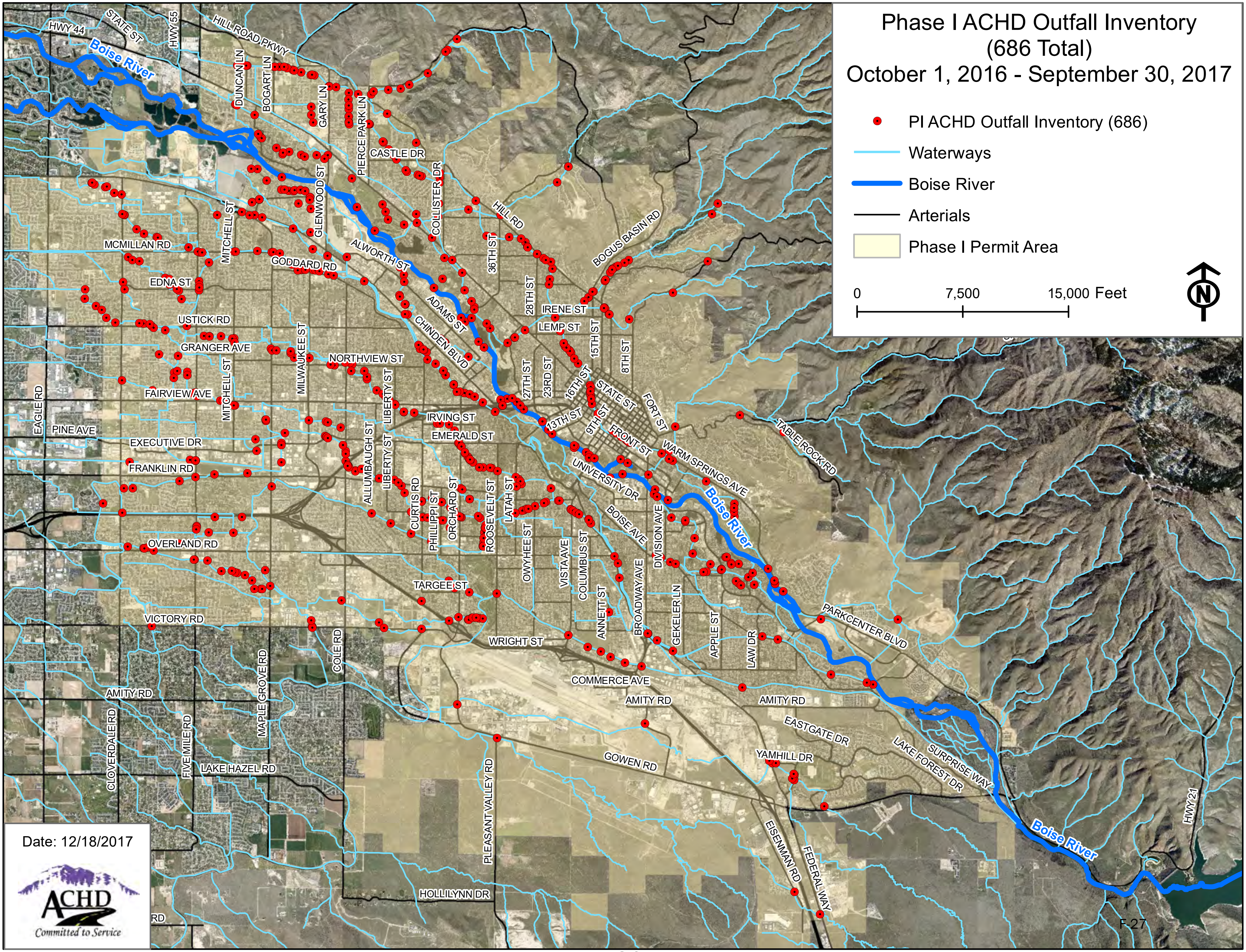
———, Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8), EPA 240-R-02-004, Office of Environmental Information, 2002.

———, Guidance on Systematic Planning Using the Data Quality Objective Process, EPA Bulletin # EPA 240-B-06-001, 2006.

———, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, Analysis and Sampling Procedures; Final Rule, Federal Register Vol. 77 No. 97. 40 CFR Parts 136, 260, et al., 2012.

Figures

FIG-1



Phase I ACHD Outfall Inventory
(686 Total)
October 1, 2016 - September 30, 2017
PI ACHD Outfall Inventory (686)
Waterways
Boise River
Arterials
Phase I Permit Area
0
7,500
15,000 Feet
N
Date: 12/18/2017
ACHD
Committed to Service
HWY 44
STATE ST
HWY 55
HILL ROAD PKWY
Boise River
DUNCAN LN
BOGART LN
GARY LN
PIERCE PARK LN
CASTLE DR
COLLISTER DR
GLENWOOD ST
MITCHELL ST
MCMILLAN RD
GODDARD RD
ALWORTH ST
HILL RD
36TH ST
BOGUS BASIN RD
EDNA ST
USTICK RD
ADAMS ST
28TH ST
IRENE ST
LEMP ST
15TH ST
8TH ST
GRANGER AVE
MILWAUKEE ST
CHINDEN BLVD
NORTHVIEW ST
27TH ST
23RD ST
16TH ST
STATE ST
FORT ST
TABLE ROCK RD
EAGLE RD
FAIRVIEW AVE
LIBERTY ST
PINE AVE
IRVING ST
13TH ST
9TH ST
FRONT ST
EXECUTIVE DR
EMERALD ST
WARM SPRINGS AVE
FRANKLIN RD
ALLUMBAUGH ST
UNIVERSITY DR
CURTIS RD
PHILLIPPI ST
ORCHARD ST
ROOSEVELT ST
LATAH ST
OWYHEE ST
VISTA AVE
COLUMBUS ST
BOISE AVE
DIVISION AVE
OVERLAND RD
TARGEE ST
ANNETT ST
BROADWAY AVE
GEKELER LN
APPLE ST
LAW DR
PARKCENTER BLVD
VICTORY RD
WRIGHT ST
COLE RD
COMMERCE AVE
AMITY RD
AMITY RD
AMITY RD
EASTGATE DR
MAPLE GROVE RD
CLOVERDALE RD
FIVE MILE RD
LAKE HAZEL RD
GOWEN RD
YAMHILL DR
SURPRISE WAY
LAKE FOREST DR
PLEASANT VALLEY RD
EISENMAN RD
FEDERAL WAY
HWY 21
HOLLILYNN DR
RD
F-27

FIG-2

Tables

Table 2-1	
Receiving Water Body	Number of Outfalls
Ash Lateral	2
Bennett Lateral	1
Boise City Canal	58
Boise City Canal-drain of	0
Boise River	36
Boise River-Trib to	1
Boise Valley Canal	3
Bubb Canal	6
Chaffin Drain	1
Cloverdale Lateral	1
Collis Lateral	3
Cottonwood Creek	3
Cottonwood Creek-Trib of	2
Crane Creek	24
Davis Drain	26
Drain A	0
Drain B	0
Drain E	0
Dry Creek	2
Dry Creek Canal	6
Eagle Drain	46
Eagle Drain-lateral of	3
Eggers Lateral	1
Eightmile Creek	1
Elmore Drain	12
Eureka Canal	0
Farmer's Lateral	15
Farmer's Union Canal	12
Fitz Lateral	1
Fivemile Creek	30
Fivemile Creek-Trib. to	8
Gruber Lateral	1
Helm Lateral	1
Hulls Gulch	7
Hulls Gulch-Lateral of	1
Huntington Lateral	5
Julia Davis Pond	2
Karnes Lateral	11
Lake Elmore	1
Lake Heron	1
Lake Heron Creek-north fork	0
Lake Heron Creek-south fork	1
Lake Heron-lateral of	1
Logger Creek	13
Logger Creek-Lateral	1

Table 2-1 cont.	
Receiving Water Body	**Number of Outfalls**
Lowell Drain	1
McMillan Lateral	7
Milk Lateral	5
New York Canal	8
North Slough	74
Penitentiary Canal	1
Penninger Lateral	2
Penninger Secondary	1
Pierce Creek	7
Pierce Gulch	1
Powell Lateral	4
Ridenbaugh Canal	75
Ridenbaugh Ditch	7
Rust Lateral	4
Settler's Canal	33
Settler's Canal Lateral	6
Shavrer Lateral	2
South Slough	16
Stewart Gulch	6
Synder Lateral	2
Threemile Creek	7
Threemile Lateral	9
Thurman Mill Canal	17
Thurman Mill Canal-Lateral	4
Tuttle Lateral	1
Warm Springs Canal	18
Watson Drain	2
Watson Drain-Lateral	1
Wilson Fruit Lateral	2
Zinger Lateral	13
Total	**686**

Table 2-2 Clean Water Act §303 (d) listed Water Bodies and Pollutants of Concern		
Receiving Water Body	Assessment Unit Code	Pollutants of Concern Causing Impairments
Boise River – Diversion Dam to River Mile 50	ID17050114SW011a_06	Temperature
Boise River – River Mile 50 to Star Bridge	ID1705011SW005_06	Temperature, Sediment, E. coli
Boise River – Star to Middleton	ID17050114SW005_06a	Temperature, Total Phosphorus, Sediment
Boise River – Middleton to Indian Creek	ID17050114SW005_06b	Temperature, Total Phosphorus, Sediment (TSS), E. coli
Boise River – Indian Creek to the mouth	ID17050114SW001_06	Temperature, Total Phosphorus, Sediment
Tenmile Creek – 3rd order below Blacks Creek Reservoir	ID17050114SW008_03	Sediment (TSS), E. coli
Fivemile Creek – 1st & 2nd order tributaries	ID17050114SW010_02	E. coli
Fivemile Creek – 3rd order tributaries	ID1705114SW010_03	Sediment (TSS), E.Coli

Appendix A: Five-Year Outfall Screening Schedule

Outfall Screening Schedule 2017-2018

#	Outfall ID	Ownership	Receiving Water
1	2n3e06_001	ACHD	Fivemile Creek
2	3n1e01_001	ACHD	North Slough
3	3n1e01_003	ACHD	North Slough
4	3n1e01_013	ACHD	North Slough
5	3n1e02_001	ACHD	North Slough
6	3n1e03_001	ACHD	North Slough
7	3n1e03_007	ACHD	Milk Lateral
8	3n1e03_008	ACHD	Milk Lateral
9	3n1e03_009	ACHD	Milk Lateral
10	3n1e03_016	ACHD	Milk Lateral
11	3n1e12_005	ACHD	South Slough
12	3n1e12_009	ACHD, Railroad	South Slough
13	3n1e12_021	ACHD	Ridenbaugh Canal
14	3n1e12_028	ACHD	Ridenbaugh Canal
15	3n1e13_002	ACHD	Farmer's Lateral
16	3n1e14_006	ACHD	Wilson Fruit Lateral
17	3n1e14_007	ACHD	Unnamed Ditch
18	3n1e15_008	ACHD	Ridenbaugh Canal
19	3n1e23_004	ACHD	Fivemile Creek
20	3n2e03_006	ACHD	Boise City Canal
21	3n2e04_018	ACHD	Boise City Canal
22	3n2e04_022	ACHD	Boise City Canal
23	3n2e05_017	ACHD, Private	Davis Drain
24	3n2e05_018	ACHD, Private	Davis Drain
25	3n2e05_025	ACHD	Thurman Mill Canal
26	3n2e06_001	ACHD	North Slough
27	3n2e06_011	ACHD	Davis Drain
28	3n2e06_015	ACHD	North Slough
29	3n2e07_006	ACHD	Ridenbaugh Canal
30	3n2e07_013	ACHD	Ridenbaugh Canal
31	3n2e07_014	ACHD	Ridenbaugh Canal
32	3n2e07_016	ACHD	North Slough
33	3n2e07_021	ACHD	Ridenbaugh Canal
34	3n2e08_007	ACHD, Private	North Slough
35	3n2e08_011	ACHD	North Slough
36	3n2e08_014	ACHD	North Slough
37	3n2e08_015	ACHD	North Slough
38	3n2e08_019	ACHD, Private	Settler's Canal
39	3n2e08_020	ACHD	North Slough
40	3n2e08_026	ACHD, Private	North Slough
41	3n2e08_033	ACHD	North Slough
42	3n2e09_014	ACHD	North Slough
43	3n2e09_015	ACHD	North Slough
44	3n2e09_022	ACHD, ITD	Boise River
45	3n2e10_005	ACHD	Boise City Canal
46	3n2e10_006	ACHD	Boise City Canal
47	3n2e10_018	ACHD	Boise River
48	3n2e10_019	ACHD, Private	Boise River
49	3n2e10_020	ACHD	Boise River
50	3n2e10_022	ACHD	Boise River
51	3n2e10_031	ACHD, BSU	Boise River
52	3n2e10_043	ACHD	Boise City Canal
53	3n2e11_007	ACHD	Cottonwood Creek
54	3n2e11_008	ACHD	Cottonwood Creek
55	3n2e12_001	ACHD	Cottonwood Creek-Trib of
56	3n2e13_003	ACHD	Boise City Canal
57	3n2e14_003	ACHD	Logger Creek
58	3n2e14_016	ACHD	Boise River
59	3n2e14_017	ACHD, ITD	Boise River
60	3n2e14_027	ACHD, Boise City	Logger Creek
61	3n2e15_007	ACHD	Ridenbaugh Canal
62	3n2e16_002	ACHD	North Slough

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2017-2018 cont.

#	Outfall ID	Ownership	Receiving Water
63	3n2e16_003	ACHD	Powell Lateral
64	3n2e16_016	ACHD	Ridenbaugh Canal
65	3n2e16_018	ACHD, Irrigation	Ridenbaugh Canal
66	3n2e16_019	ACHD	Ridenbaugh Canal
67	3n2e17_004	ACHD	Ridenbaugh Canal
68	3n2e17_013	ACHD	Rust Lateral
69	3n2e17_014	ACHD	Powell Lateral
70	3n2e17_016	ACHD, Irrigation	Ridenbaugh Canal
71	3n2e17_017	ACHD	Farmer's Lateral
72	3n2e17_019	ACHD	Farmer's Lateral
73	3n2e17_022	ACHD	Farmer's Lateral
74	3n2e17_040	ACHD	Ridenbaugh Ditch
75	3n2e18_017	ACHD	Ridenbaugh Canal
76	3n2e19_002	ACHD	Threemile Lateral
77	3n2e19_003	ACHD	Threemile Creek
78	3n2e20_004	ACHD	Penninger Lateral
79	3n2e20_008	ACHD	Threemile Lateral
80	3n2e20_012	ACHD	Threemile Lateral
81	3n2e20_019	ACHD	Threemile Creek
82	3n2e22_002	ACHD	Ridenbaugh Canal
83	3n2e24_005	ACHD	Boise River
84	3n2e24_019	ACHD	Logger Creek-Lateral
85	3n2e36_001	ACHD	Fivemile Creek-Trib. to
86	4n1e13_006	ACHD	Eagle Drain
87	4n1e13_007	ACHD	Eagle Drain
88	4n1e13_012	ACHD	Eagle Drain
89	4n1e13_015	ACHD	Eagle Drain
90	4n1e14_005	ACHD	Eagle Drain
91	4n1e14_006	ACHD	Eagle Drain
92	4n1e14_010	ACHD	Eagle Drain
93	4n1e23_007	ACHD	Warm Springs Canal

#	Outfall ID	Ownership	Receiving Water
94	4n1e23_014	ACHD	Dry Creek Canal
95	4n1e24_003	ACHD	Eagle Drain-lateral of
96	4n1e24_022	ACHD, ITD	Dry Creek Canal
97	4n1e25_021	ACHD, ITD	Thurman Mill Canal
98	4n1e25_029	ACHD	Warm Springs Canal
99	4n1e25_032	ACHD	Settler's Canal
100	4n1e26_007	ACHD	Settler's Canal
101	4n1e26_012	ACHD	Thurman Mill Canal-Lateral
102	4n1e27_002	ACHD	Zinger Lateral
103	4n1e27_008	ACHD	Zinger Lateral
104	4n1e27_009	ACHD	Zinger Lateral
105	4n1e28_004	ACHD	McMillan Lateral
106	4n1e28_006	ACHD	McMillan Lateral
107	4n1e32_001	ACHD	North Slough
108	4n1e34_002	ACHD	Karnes Lateral
109	4n1e34_004	ACHD, Irrigation	Karnes Lateral
110	4n1e34_008	ACHD	Karnes Lateral
111	4n1e34_010	ACHD	Karnes Lateral
112	4n1e35_001	ACHD	Zinger Lateral
113	4n1e35_006	ACHD	Settler's Canal
114	4n1e36_003	ACHD	Settler's Canal
115	4n1e36_011	ACHD	Settler's Canal
116	4n2e17_003	ACHD	Pierce Gulch
117	4n2e18_001	ACHD	Farmer's Union Canal
118	4n2e18_002	ACHD	Pierce Creek
119	4n2e18_004	ACHD	Pierce Creek
120	4n2e18_008	ACHD	Eagle Drain
121	4n2e19_001	ACHD	Eagle Drain
122	4n2e19_010	ACHD	Eagle Drain
123	4n2e19_011	ACHD	Eagle Drain
124	4n2e19_016	ACHD	Eagle Drain

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2017-2018 cont.

#	Outfall ID	Ownership	Receiving Water
125	4n2e19_029	ACHD	Eagle Drain
126	4n2e21_002	ACHD	Stewart Gulch
127	4n2e28_001	ACHD	Boise City Canal
128	4n2e28_002	ACHD	Boise City Canal
129	4n2e28_008	ACHD	Boise City Canal
130	4n2e30_004	ACHD	Dry Creek Canal
131	4n2e30_012	ACHD	Boise River
132	4n2e32_002	ACHD, Private	Boise River
133	4n2e32_012	ACHD	Farmer's Union Canal
134	4n2e32_014	ACHD	Farmer's Union Canal
135	4n2e32_016	ACHD	Farmer's Union Canal
136	4n2e33_001	ACHD	Boise City Canal
137	4n2e33_006	ACHD	Crane Creek
138	4n2e33_007	ACHD	Boise City Canal
139	4n2e34_007	ACHD	Crane Creek
140	4n2e35_004	ACHD	Hulls Gulch-Lateral of

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2018-2019

#	Outfall ID	Ownership	Receiving Water
1	3n1e01_004	ACHD	North Slough
2	3n1e01_007	ACHD	North Slough
3	3n1e01_008	ACHD	North Slough
4	3n1e02_009	ACHD	North Slough
5	3n1e02_010	ACHD	Milk Lateral
6	3n1e10_006	ACHD	Settler's Canal Lateral
7	3n1e11_012	ACHD	South Slough
8	3n1e12_029	ACHD	Ridenbaugh Canal
9	3n1e14_008	ACHD	Huntington Lateral
10	3n1e14_011	ACHD	Huntington Lateral
11	3n1e15_002	ACHD	Fivemile Creek
12	3n1e15_003	ACHD	Fivemile Creek
13	3n1e15_011	ACHD	Synder Lateral
14	3n1e15_012	ACHD	Ridenbaugh Canal
15	3n1e23_003	ACHD	Fivemile Creek
16	3n1e23_006	ACHD	Fivemile Creek
17	3n1e23_009	ACHD	Fivemile Creek
18	3n1e24_001	ACHD	Threemile Creek
19	3n1e24_002	ACHD	Fivemile Creek
20	3n1e24_004	ACHD	Fivemile Creek
21	3n2e03_009	ACHD	Boise City Canal
22	3n2e03_010	ACHD	Boise City Canal
23	3n2e04_009	ACHD	Boise River
24	3n2e04_011	ACHD, ITD	Boise River
25	3n2e04_013	ACHD	Boise City Canal
26	3n2e04_019	ACHD	Boise City Canal
27	3n2e04_027	ACHD	Crane Creek
28	3n2e05_006	ACHD	Thurman Mill Canal
29	3n2e05_008	ACHD	Settler's Canal
30	3n2e05_014	ACHD, ITD	Davis Drain
31	3n2e05_023	ACHD	Davis Drain

#	Outfall ID	Ownership	Receiving Water
32	3n2e05_024	ACHD	Boise River
33	3n2e06_009	ACHD	Davis Drain
34	3n2e06_012	ACHD	North Slough
35	3n2e06_016	ACHD	North Slough
36	3n2e06_017	ACHD	North Slough
37	3n2e08_001	ACHD, Private	North Slough
38	3n2e08_004	ACHD	North Slough
39	3n2e08_013	ACHD	North Slough
40	3n2e08_031	ACHD	North Slough
41	3n2e10_004	ACHD	Boise City Canal
42	3n2e10_007	ACHD	Boise City Canal
43	3n2e10_011	ACHD	Julia Davis Pond
44	3n2e10_037	ACHD	Boise City Canal
45	3n2e10_045	ACHD	Boise City Canal
46	3n2e10_046	ACHD, Private	Boise River
47	3n2e11_005	ACHD	Boise City Canal
48	3n2e12_005	ACHD	Cottonwood Creek-Trib of
49	3n2e13_002	ACHD	Lake Heron
50	3n2e13_004	ACHD	Boise City Canal
51	3n2e13_008	ACHD	Logger Creek
52	3n2e15_006	ACHD	Ridenbaugh Canal
53	3n2e15_008	ACHD	Ridenbaugh Canal
54	3n2e16_011	ACHD	Ridenbaugh Canal
55	3n2e16_014	ACHD	Powell Lateral
56	3n2e16_021	ACHD	Ridenbaugh Canal
57	3n2e17_005	ACHD	Ridenbaugh Canal
58	3n2e17_008	ACHD	Farmer's Lateral
59	3n2e17_012	ACHD, Irrigation	Rust Lateral
60	3n2e17_020	ACHD	Farmer's Lateral
61	3n2e17_023	ACHD	Farmer's Lateral
62	3n2e17_038	ACHD	Ridenbaugh Ditch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2018-2019 cont.

#	Outfall ID	Ownership	Receiving Water
63	3n2e17_041	ACHD	Ridenbaugh Ditch
64	3n2e18_001	ACHD, Railroad	Ridenbaugh Canal
65	3n2e18_003	ACHD	Ridenbaugh Canal
66	3n2e18_005	ACHD	Ridenbaugh Canal
67	3n2e18_010	ACHD	Ridenbaugh Canal
68	3n2e18_013	ACHD	Farmer's Lateral
69	3n2e18_014	ACHD	Farmer's Lateral
70	3n2e18_018	ACHD	Ridenbaugh Ditch
71	3n2e20_002	ACHD	Penninger Lateral
72	3n2e20_013	ACHD	Threemile Lateral
73	3n2e20_014	ACHD	Threemile Lateral
74	3n2e20_015	ACHD	Threemile Lateral
75	3n2e20_016	ACHD	Penninger Secondary
76	3n2e20_018	ACHD	New York Canal
77	3n2e24_023	ACHD	Lake Heron Creek-south fork
78	3n2e24_024	ACHD	Logger Creek
79	3n2e26_003	ACHD	Ridenbaugh Canal
80	3n2e26_006	ACHD	Ridenbaugh Canal
81	3n2e28_002	ACHD	New York Canal
82	3n3e19_001	ACHD	Boise River-Trib to
83	3n3e30_005	ACHD	Ridenbaugh Canal
84	3n3e30_006	ACHD	Ridenbaugh Canal
85	4n1e13_002	ACHD	Eagle Drain
86	4n1e13_010	ACHD	Eagle Drain
87	4n1e13_017	ACHD	Eagle Drain
88	4n1e14_011	ACHD	Eagle Drain
89	4n1e23_004	ACHD	Elmore Drain
90	4n1e23_008	ACHD	Warm Springs Canal
91	4n1e23_009	ACHD	Dry Creek
92	4n1e24_021	ACHD	Elmore Drain
93	4n1e24_024	ACHD	Elmore Drain

#	Outfall ID	Ownership	Receiving Water
94	4n1e25_004	ACHD	Warm Springs Canal
95	4n1e25_005	ACHD	Warm Springs Canal
96	4n1e25_008	ACHD	Warm Springs Canal
97	4n1e25_013	ACHD	Warm Springs Canal
98	4n1e25_015	ACHD, ITD	Warm Springs Canal
99	4n1e25_019	ACHD	Thurman Mill Canal
100	4n1e25_022	ACHD, ITD	Thurman Mill Canal
101	4n1e26_001	ACHD	Thurman Mill Canal
102	4n1e26_011	ACHD	Thurman Mill Canal-Lateral
103	4n1e26_015	ACHD	Thurman Mill Canal
104	4n1e26_021	ACHD	Settler's Canal
105	4n1e26_030	ACHD	Settler's Canal
106	4n1e27_003	ACHD	Zinger Lateral
107	4n1e27_005	ACHD	Zinger Lateral
108	4n1e27_007	ACHD	Zinger Lateral
109	4n1e28_003	ACHD	McMillan Lateral
110	4n1e34_015	ACHD	North Slough
111	4n1e34_016	ACHD	North Slough
112	4n1e34_017	ACHD	North Slough
113	4n1e34_020	ACHD	Settler's Canal
114	4n1e34_024	ACHD	Karnes Lateral
115	4n1e35_008	ACHD	Zinger Lateral
116	4n1e36_014	ACHD	Settler's Canal
117	4n1e36_031	ACHD	Thurman Mill Canal
118	4n2e17_002	ACHD	Pierce Creek
119	4n2e18_009	ACHD	Eagle Drain
120	4n2e19_002	ACHD	Eagle Drain
121	4n2e19_008	ACHD	Lake Elmore
122	4n2e19_022	ACHD	Farmer's Union Canal
123	4n2e20_002	ACHD	Boise City Canal
124	4n2e26_004	ACHD	Crane Creek

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2018-2019 cont.

#	Outfall ID	Ownership	Receiving Water
125	4n2e26_007	ACHD	Crane Creek
126	4n2e28_007	ACHD	Boise City Canal
127	4n2e29_003	ACHD	Stewart Gulch
128	4n2e30_013	ACHD	Dry Creek Canal
129	4n2e31_004	ACHD	Davis Drain
130	4n2e31_007	ACHD	Davis Drain
131	4n2e31_016	ACHD	Davis Drain
132	4n2e32_006	ACHD	Boise River
133	4n2e32_015	ACHD	Boise River
134	4n2e33_004	ACHD	Boise City Canal
135	4n2e33_009	ACHD	Boise City Canal
136	4n2e34_012	ACHD	Crane Creek
137	4n2e34_015	ACHD	Crane Creek
138	4n2e34_017	ACHD	Crane Creek
139	4n2e34_022	ACHD	Hulls Gulch
140	4n2e34_026	ACHD	Hulls Gulch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2019-2020

#	Outfall ID	Ownership	Receiving Water
1	3n1e01_010	ACHD	North Slough
2	3n1e01_012	ACHD	North Slough
3	3n1e01_014	ACHD	North Slough
4	3n1e01_015	ACHD	Eggers Lateral
5	3n1e02_003	ACHD	North Slough
6	3n1e02_004	ACHD	North Slough
7	3n1e02_008	ACHD	South Slough
8	3n1e02_013	ACHD	North Slough
9	3n1e03_010	ACHD	Settler's Canal
10	3n1e03_012	ACHD	South Slough
11	3n1e03_015	ACHD	Settler's Canal
12	3n1e10_003	ACHD	Settler's Canal Lateral
13	3n1e11_002	ACHD	Chaffin Drain
14	3n1e11_011	ACHD	Collis Lateral
15	3n1e12_013	ACHD	South Slough
16	3n1e15_004	ACHD	Fivemile Creek
17	3n1e16_003	ACHD	Synder Lateral
18	3n1e22_001	ACHD	Fivemile Creek
19	3n1e22_002	ACHD	Fivemile Creek
20	3n1e23_005	ACHD	Farmer's Lateral
21	3n1e23_012	ACHD	Fivemile Creek
22	3n1e23_014	ACHD	Fivemile Creek
23	3n1e24_003	ACHD	Fivemile Creek
24	3n2e03_008	ACHD	Boise City Canal
25	3n2e03_013	ACHD	Boise City Canal
26	3n2e04_001	ACHD	Settler's Canal Lateral
27	3n2e04_014	ACHD, ITD	Settler's Canal Lateral
28	3n2e05_002	ACHD, Irrigation	Settler's Canal
29	3n2e05_009	ACHD, Private	Davis Drain
30	3n2e05_010	ACHD, Private	Davis Drain
31	3n2e05_019	ACHD	Davis Drain

#	Outfall ID	Ownership	Receiving Water
32	3n2e05_041	ACHD	Thurman Mill Canal
33	3n2e06_002	ACHD	North Slough
34	3n2e06_003	ACHD	Ash Lateral
35	3n2e06_014	ACHD	North Slough
36	3n2e06_019	ACHD	Davis Drain
37	3n2e06_020	ACHD	Davis Drain
38	3n2e07_005	ACHD	North Slough
39	3n2e07_009	ACHD, Railroad	Ridenbaugh Canal
40	3n2e07_020	ACHD	North Slough
41	3n2e08_008	ACHD, Private	North Slough
42	3n2e08_010	ACHD, Private	North Slough
43	3n2e08_012	ACHD	North Slough
44	3n2e08_028	ACHD	North Slough
45	3n2e08_029	ACHD, Private	Tuttle Lateral
46	3n2e09_024	ACHD	Boise River
47	3n2e10_008	ACHD	Boise City Canal
48	3n2e10_023	ACHD, Boise City	Boise River
49	3n2e10_024	ACHD	Boise River
50	3n2e10_042	ACHD	Boise City Canal
51	3n2e11_001	ACHD	Boise City Canal
52	3n2e11_004	ACHD	Boise City Canal
53	3n2e11_009	ACHD, Boise City	Cottonwood Creek
54	3n2e12_004	ACHD	Cottonwood Creek-Trib of
55	3n2e13_006	ACHD	Boise City Canal
56	3n2e14_028	ACHD	Bubb Canal
57	3n2e15_009	ACHD	Ridenbaugh Canal
58	3n2e15_023	ACHD	Ridenbaugh Canal
59	3n2e15_024	ACHD	Ridenbaugh Canal
60	3n2e16_005	ACHD	Ridenbaugh Canal
61	3n2e16_007	ACHD, Irrigation	Ridenbaugh Canal
62	3n2e16_008	ACHD	Ridenbaugh Canal

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2019-2020 cont.

#	Outfall ID	Ownership	Receiving Water
63	3n2e16_009	ACHD	Ridenbaugh Canal
64	3n2e16_022	ACHD	Ridenbaugh Canal
65	3n2e16_023	ACHD	Ridenbaugh Canal
66	3n2e17_018	ACHD	Farmer's Lateral
67	3n2e17_021	ACHD, Private	Farmer's Lateral
68	3n2e17_025	ACHD	Farmer's Lateral
69	3n2e17_034	ACHD, Private	Ridenbaugh Canal
70	3n2e18_009	ACHD, Irrigation	Ridenbaugh Canal
71	3n2e20_006	ACHD	Threemile Creek
72	3n2e22_014	ACHD	Bennett Lateral
73	3n2e23_013	ACHD	Bubb Canal
74	3n2e23_016	ACHD, Private	Unnamed Ditch
75	3n2e24_004	ACHD	Boise City Canal
76	3n2e24_030	ACHD	Watson Drain
77	3n2e24_041	ACHD	Boise River
78	3n2e25_001	ACHD	Ridenbaugh Canal
79	3n2e26_004	ACHD, ITD	Ridenbaugh Canal
80	3n2e27_003	ACHD	New York Canal
81	3n2e36_003	ACHD	Fivemile Creek-Trib. to
82	3n2e36_006	ACHD	Fivemile Creek-Trib. to
83	3n2e36_007	ACHD	Fivemile Creek-Trib. to
84	4n1e13_008	ACHD	Eagle Drain
85	4n1e13_016	ACHD	Eagle Drain
86	4n1e14_013	ACHD	Eagle Drain
87	4n1e23_005	ACHD	Elmore Drain
88	4n1e24_004	ACHD	Elmore Drain
89	4n1e25_010	ACHD	Warm Springs Canal
90	4n1e25_011	ACHD, Private	Warm Springs Canal
91	4n1e25_030	ACHD	Warm Springs Canal
92	4n1e25_034	ACHD	Warm Springs Canal
93	4n1e25_037	ACHD	Warm Spring Canal

#	Outfall ID	Ownership	Receiving Water
94	4n1e26_005	ACHD	Settler's Canal
95	4n1e26_014	ACHD	Thurman Mill Canal-Lateral
96	4n1e26_017	ACHD	Helm Lateral
97	4n1e27_001	ACHD	Zinger Lateral
98	4n1e28_007	ACHD	McMillan Lateral
99	4n1e28_008	ACHD	McMillan Lateral
100	4n1e33_003	ACHD	North Slough
101	4n1e33_004	ACHD	North Slough
102	4n1e33_006	ACHD	North Slough
103	4n1e34_007	ACHD	Shavrer Lateral
104	4n1e34_019	ACHD	Karnes Lateral
105	4n1e34_021	ACHD	Shavrer Lateral
106	4n1e35_007	ACHD	Zinger Lateral
107	4n1e36_002	ACHD	Settler's Canal
108	4n1e36_007	ACHD	Settler's Canal
109	4n1e36_010	ACHD	Settler's Canal
110	4n2e18_006	ACHD	Pierce Creek
111	4n2e19_004	ACHD	Eagle Drain
112	4n2e19_005	ACHD	Eagle Drain
113	4n2e19_014	ACHD	Eagle Drain
114	4n2e19_017	ACHD	Eagle Drain
115	4n2e19_025	ACHD	Eagle Drain
116	4n2e19_026	ACHD	Eagle Drain
117	4n2e26_005	ACHD	Crane Creek
118	4n2e26_008	ACHD	Crane Creek
119	4n2e28_005	ACHD	Stewart Gulch
120	4n2e28_009	ACHD	Boise City Canal
121	4n2e29_002	ACHD	Boise City Canal
122	4n2e29_007	ACHD	Farmer's Union Canal
123	4n2e30_008	ACHD	Dry Creek Canal
124	4n2e30_011	ACHD	Dry Creek Canal

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2019-2020 cont.

#	Outfall ID	Ownership	Receiving Water
125	4n2e30_014	ACHD	Boise River
126	4n2e31_003	ACHD	Settler's Canal
127	4n2e31_012	ACHD, Private	Thurman Mill Canal
128	4n2e31_015	ACHD	Boise River
129	4n2e31_022	ACHD	Davis Drain
130	4n2e32_008	ACHD	Boise River
131	4n2e32_009	ACHD	Farmer's Union Canal
132	4n2e34_001	ACHD	Crane Creek
133	4n2e34_004	ACHD	Crane Creek
134	4n2e34_011	ACHD	Crane Creek
135	4n2e34_018	ACHD	Crane Creek
136	4n2e34_019	ACHD	Crane Creek
137	4n2e34_020	ACHD	Crane Creek
138	4n2e34_021	ACHD	Hulls Gulch
139	4n2e34_025	ACHD	Hulls Gulch
140	4n2e35_001	ACHD	Hulls Gulch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2020-2021

#	Outfall ID	Ownership	Receiving Water
1	2n3e07_003	ACHD	Fivemile Creek
2	3n1e01_006	ACHD	North Slough
3	3n1e02_002	ACHD	North Slough
4	3n1e02_011	ACHD	South Slough
5	3n1e02_014	ACHD	North Slough
6	3n1e03_004	ACHD	North Slough
7	3n1e03_011	ACHD	South Slough
8	3n1e03_014	ACHD	Settler's Canal
9	3n1e03_017	ACHD	South Slough
10	3n1e10_007	ACHD	Settler's Canal Lateral
11	3n1e10_009	ACHD	Settler's Canal
12	3n1e11_001	ACHD	Ridenbaugh Canal
13	3n1e11_003	ACHD	South Slough
14	3n1e11_010	ACHD	Collis Lateral
15	3n1e12_001	ACHD	South Slough
16	3n1e12_003	ACHD	South Slough
17	3n1e12_004	ACHD	South Slough
18	3n1e12_008	ACHD	Ridenbaugh Canal
19	3n1e12_025	ACHD	Ridenbaugh Canal
20	3n1e12_030	ACHD	Ridenbaugh Canal
21	3n1e15_001	ACHD, Irrigation	Ridenbaugh Canal
22	3n1e15_014	ACHD	Fivemile Creek
23	3n1e23_001	ACHD	Fivemile Creek
24	3n1e23_013	ACHD	Fivemile Creek
25	3n2e03_005	ACHD	Boise City Canal
26	3n2e03_015	ACHD	Boise City Canal
27	3n2e04_015	ACHD	Lowell Drain
28	3n2e04_016	ACHD	Crane Creek
29	3n2e04_020	ACHD	Boise City Canal
30	3n2e04_024	ACHD	Crane Creek
31	3n2e05_015	ACHD	Davis Drain

#	Outfall ID	Ownership	Receiving Water
32	3n2e06_010	ACHD, ITD	Davis Drain
33	3n2e06_022	ACHD	Ash Lateral
34	3n2e06_023	ACHD	North Slough
35	3n2e07_010	ACHD	Ridenbaugh Canal
36	3n2e07_015	ACHD	Ridenbaugh Canal
37	3n2e07_019	ACHD	Ridenbaugh Canal
38	3n2e08_005	ACHD, Private	North Slough
39	3n2e08_016	ACHD	North Slough
40	3n2e08_024	ACHD	North Slough
41	3n2e08_025	ACHD	North Slough
42	3n2e08_030	ACHD	North Slough
43	3n2e09_025	ACHD	Boise River
44	3n2e10_001	ACHD, Private	Boise City Canal
45	3n2e10_012	ACHD	Boise River
46	3n2e10_039	ACHD	Boise City Canal
47	3n2e14_001	ACHD	Logger Creek
48	3n2e14_012	ACHD	Boise River
49	3n2e14_013	ACHD	Boise River
50	3n2e14_019	ACHD	Logger Creek
51	3n2e15_001	ACHD	Ridenbaugh Canal
52	3n2e15_010	ACHD	Ridenbaugh Canal
53	3n2e15_011	ACHD	Ridenbaugh Canal
54	3n2e16_001	ACHD	Powell Lateral
55	3n2e17_007	ACHD	Ridenbaugh Canal
56	3n2e17_010	ACHD	Rust Lateral
57	3n2e17_015	ACHD	Ridenbaugh Canal
58	3n2e17_024	ACHD	Farmer's Lateral
59	3n2e17_031	ACHD	Rust Lateral
60	3n2e17_032	ACHD	Ridenbaugh Canal
61	3n2e17_033	ACHD	Ridenbaugh Canal
62	3n2e17_042	ACHD	Ridenbaugh Ditch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2020-2021 cont.

#	Outfall ID	Ownership	Receiving Water
63	3n2e18_016	ACHD	Ridenbaugh Canal
64	3n2e18_019	ACHD	Ridenbaugh Ditch
65	3n2e19_004	ACHD	Threemile Creek
66	3n2e20_009	ACHD	Threemile Lateral
67	3n2e20_011	ACHD	Threemile Lateral
68	3n2e20_020	ACHD	Threemile Creek
69	3n2e20_021	ACHD	Threemile Creek
70	3n2e22_004	ACHD	Ridenbaugh Canal
71	3n2e23_002	ACHD	Logger Creek
72	3n2e23_005	ACHD	Logger Creek
73	3n2e23_007	ACHD	Bubb Canal
74	3n2e24_006	ACHD	Boise River
75	3n2e24_007	ACHD	Boise City Canal
76	3n2e24_015	ACHD, Private	Lake Heron-lateral of
77	3n2e24_031	ACHD	Watson Drain
78	3n2e27_001	ACHD	New York Canal
79	3n2e27_004	ACHD, ITD	New York Canal
80	3n2e32_001	ACHD	Fivemile Creek
81	3n2e33_001	ACHD	Fivemile Creek
82	3n3e20_001	ACHD	Penitentiary Canal
83	4n1e13_009	ACHD	Eagle Drain
84	4n1e13_011	ACHD	Eagle Drain
85	4n1e21_001	ACHD, Private	Thurman Mill Canal
86	4n1e23_001	ACHD	Dry Creek
87	4n1e23_002	ACHD	Elmore Drain
88	4n1e23_003	ACHD	Elmore Drain
89	4n1e24_008	ACHD	Elmore Drain
90	4n1e24_012	ACHD	Elmore Drain
91	4n1e24_026	ACHD	Boise River
92	4n1e25_006	ACHD	Warm Springs Canal
93	4n1e25_007	ACHD	Warm Springs Canal

#	ID_OFPT	OWNERSHIP	REC_WATER
94	4n1e25_009	ACHD	Warm Springs Canal
95	4n1e25_027	ACHD	Thurman Mill Canal
96	4n1e26_002	ACHD	Thurman Mill Canal
97	4n1e26_013	ACHD	Thurman Mill Canal-Lateral
98	4n1e26_016	ACHD	Thurman Mill Canal
99	4n1e26_020	ACHD	Thurman Mill Canal
100	4n1e27_006	ACHD	Zinger Lateral
101	4n1e28_001	ACHD	Zinger Lateral
102	4n1e28_002	ACHD	McMillan Lateral
103	4n1e33_005	ACHD	North Slough
104	4n1e34_003	ACHD	Karnes Lateral
105	4n1e34_009	ACHD	Karnes Lateral
106	4n1e34_011	ACHD, Irrigation	Shavrer Lateral
107	4n1e34_018	ACHD	Karnes Lateral
108	4n1e35_002	ACHD	Settler's Canal
109	4n1e35_004	ACHD	Settler's Canal
110	4n1e36_004	ACHD	Settler's Canal
111	4n1e36_006	ACHD	Settler's Canal
112	4n1e36_012	ACHD	Settler's Canal
113	4n1e36_026	ACHD	Settler's Canal
114	4n1e36_029	ACHD	Settler's Canal
115	4n2e17_001	ACHD, Private	Pierce Creek
116	4n2e19_006	ACHD	Eagle Drain
117	4n2e19_015	ACHD	Eagle Drain
118	4n2e19_019	ACHD	Eagle Drain
119	4n2e19_030	ACHD, Irrigation	Eagle Drain
120	4n2e20_001	ACHD	Boise City Canal
121	4n2e21_001	ACHD	Stewart Gulch
122	4n2e26_003	ACHD	Crane Creek
123	4n2e26_009	ACHD	Crane Creek
124	4n2e28_003	ACHD	Boise City Canal

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2020-2021 cont.

#	Outfall ID	Ownership	Receiving Water
125	4n2e28_006	ACHD	Boise City Canal
126	4n2e29_001	ACHD	Boise City Canal
127	4n2e29_008	ACHD	Boise Valley Canal
128	4n2e30_009	ACHD	Boise Valley Canal
129	4n2e31_001	ACHD	Thurman Mill Canal
130	4n2e31_008	ACHD	Davis Drain
131	4n2e31_011	ACHD	Davis Drain
132	4n2e32_007	ACHD	Boise River
133	4n2e32_013	ACHD, Private	Crane Creek
134	4n2e32_026	ACHD	Boise Valley Canal
135	4n2e33_002	ACHD	Boise City Canal
136	4n2e34_003	ACHD	Crane Creek
137	4n2e34_008	ACHD	Crane Creek
138	4n2e34_016	ACHD	Crane Creek
139	4n2e34_024	ACHD	Hulls Gulch
140	4n2e35_003	ACHD	Hulls Gulch-Lateral of

Outfall Screening Schedule 2021-2022

#	Outfall ID	Ownership	Receiving Water
1	2n3e07_006	ACHD, Private	Fivemile Creek
2	3n1e01_005	ACHD	Fitz Lateral
3	3n1e01_011	ACHD	North Slough
4	3n1e02_005	ACHD	North Slough
5	3n1e02_012	ACHD	North Slough
6	3n1e03_013	ACHD	South Slough
7	3n1e10_004	ACHD	Gruber Lateral
8	3n1e11_004	ACHD	South Slough
9	3n1e11_005	ACHD	Cloverdale Lateral
10	3n1e11_007	ACHD	Ridenbaugh Canal
11	3n1e11_009	ACHD	Collis Lateral
12	3n1e12_022	ACHD	Ridenbaugh Canal
13	3n1e12_023	ACHD	Ridenbaugh Canal
14	3n1e12_024	ACHD	Ridenbaugh Canal
15	3n1e12_050	ACHD	South Slough
16	3n1e14_001	ACHD	Wilson Fruit Lateral
17	3n1e14_005	ACHD	Huntington Lateral
18	3n1e14_012	ACHD	Huntington Lateral
19	3n1e14_013	ACHD	Huntington Lateral
20	3n1e15_005	ACHD	Fivemile Creek
21	3n1e15_009	ACHD	Ridenbaugh Canal
22	3n1e15_013	ACHD	Fivemile Creek
23	3n1e23_007	ACHD	Fivemile Creek
24	3n1e23_010	ACHD	Fivemile Creek
25	3n1e23_011	ACHD	Fivemile Creek
26	3n1e24_006	ACHD	Fivemile Creek
27	3n2e03_001	ACHD	Boise City Canal
28	3n2e03_002	ACHD	Boise City Canal
29	3n2e03_007	ACHD	Boise City Canal
30	3n2e04_005	ACHD, Private	Settler's Canal Lateral
31	3n2e04_008	ACHD	Boise River

#	Outfall ID	Ownership	Receiving Water
32	3n2e04_010	ACHD	Boise River
33	3n2e04_017	ACHD	Boise City Canal
34	3n2e04_021	ACHD	Boise City Canal
35	3n2e05_001	ACHD	Davis Drain
36	3n2e05_011	ACHD	Boise River
37	3n2e05_012	ACHD	Thurman Mill Canal
38	3n2e05_013	ACHD	Settler's Canal
39	3n2e05_027	ACHD	Davis Drain
40	3n2e05_028	ACHD	Thurman Mill Canal
41	3n2e05_030	ACHD, Private	Davis Drain
42	3n2e05_039	ACHD	Davis Drain
43	3n2e05_040	ACHD	Thurman Mill Canal
44	3n2e06_006	ACHD	North Slough
45	3n2e06_008	ACHD	North Slough
46	3n2e06_013	ACHD	North Slough
47	3n2e06_021	ACHD	Davis Drain
48	3n2e07_001	ACHD	North Slough
49	3n2e08_009	ACHD	North Slough
50	3n2e08_017	ACHD	North Slough
51	3n2e08_018	ACHD	North Slough
52	3n2e08_023	ACHD, Private	North Slough
53	3n2e09_027	ACHD	Boise River
54	3n2e09_028	ACHD	Boise River
55	3n2e10_002	ACHD	Boise City Canal
56	3n2e10_003	ACHD	Boise City Canal
57	3n2e10_010	ACHD	Julia Davis Pond
58	3n2e10_038	ACHD	Boise City Canal
59	3n2e11_002	ACHD	Boise City Canal
60	3n2e13_005	ACHD	Boise City Canal
61	3n2e14_002	ACHD	Logger Creek
62	3n2e15_004	ACHD	Ridenbaugh Canal

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2021-2022 cont.

#	Outfall ID	Ownership	Receiving Water
63	3n2e16_010	ACHD	Ridenbaugh Canal
64	3n2e17_002	ACHD	Ridenbaugh Canal
65	3n2e17_006	ACHD	Ridenbaugh Canal
66	3n2e17_037	ACHD	Ridenbaugh Ditch
67	3n2e18_002	ACHD	Ridenbaugh Canal
68	3n2e18_015	ACHD	Farmer's Lateral
69	3n2e20_010	ACHD	Threemile Lateral
70	3n2e22_016	ACHD	Ridenbaugh Canal
71	3n2e23_001	ACHD	Logger Creek
72	3n2e23_003	ACHD	Logger Creek
73	3n2e23_006	ACHD	Bubb Canal
74	3n2e23_014	ACHD	Bubb Canal
75	3n2e23_015	ACHD	Bubb Canal
76	3n2e24_025	ACHD	Logger Creek
77	3n2e24_028	ACHD	Watson Drain-Lateral
78	3n2e24_040	ACHD	Logger Creek
79	3n2e25_002	ACHD	Ridenbaugh Canal
80	3n2e25_003	ACHD	New York Canal
81	3n2e26_002	ACHD	Ridenbaugh Canal
82	3n2e27_002	ACHD	New York Canal
83	3n2e27_005	ACHD	New York Canal
84	3n2e34_001	ACHD	Fivemile Creek
85	3n2e36_004	ACHD	Fivemile Creek-Trib. to
86	3n2e36_005	ACHD	Fivemile Creek-Trib. to
87	3n2e36_009	ACHD	Fivemile Creek-Trib. to
88	3n2e36_010	ACHD	Fivemile Creek-Trib. to
89	3n2e36_014	ACHD	Fivemile Creek
90	3n3e29_002	ACHD	Ridenbaugh Canal
91	4n1e13_001	ACHD	Eagle Drain
92	4n1e13_004	ACHD	Eagle Drain
93	4n1e13_019	ACHD	Eagle Drain

#	Outfall ID	Ownership	Receiving Water
94	4n1e13_020	ACHD	Eagle Drain
95	4n1e14_004	ACHD	Eagle Drain
96	4n1e14_012	ACHD	Eagle Drain
97	4n1e24_001	ACHD	Eagle Drain-lateral of
98	4n1e24_002	ACHD	Eagle Drain-lateral of
99	4n1e24_007	ACHD	Elmore Drain
100	4n1e24_023	ACHD	Elmore Drain
101	4n1e24_025	ACHD	Elmore Drain
102	4n1e25_036	ACHD	Warm Springs Canal
103	4n1e26_004	ACHD	Thurman Mill Canal
104	4n1e26_009	ACHD	Warm Springs Canal
105	4n1e27_004	ACHD	Zinger Lateral
106	4n1e28_005	ACHD	McMillan Lateral
107	4n1e33_007	ACHD	North Slough
108	4n1e33_008	ACHD	North Slough
109	4n1e34_014	ACHD	North Slough
110	4n1e34_023	ACHD	Karnes Lateral
111	4n1e34_025	ACHD	Karnes Lateral
112	4n1e35_003	ACHD	Settler's Canal
113	4n1e36_001	ACHD	Settler's Canal
114	4n1e36_005	ACHD	Settler's Canal
115	4n1e36_008	ACHD	Settler's Canal
116	4n2e18_003	ACHD	Pierce Creek
117	4n2e18_005	ACHD	Pierce Creek
118	4n2e18_007	ACHD	Eagle Drain
119	4n2e19_003	ACHD	Eagle Drain
120	4n2e19_013	ACHD	Eagle Drain
121	4n2e19_021	ACHD	Eagle Drain
122	4n2e19_028	ACHD	Eagle Drain
123	4n2e26_002	ACHD	Crane Creek
124	4n2e28_010	ACHD	Stewart Gulch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Outfall Screening Schedule 2021-2022 cont.

#	Outfall ID	Ownership	Receiving Water
125	4n2e29_004	ACHD	Eagle Drain
126	4n2e29_006	ACHD	Farmer's Union Canal
127	4n2e29_011	ACHD	Boise City Canal
128	4n2e30_007	ACHD	Stewart Gulch
129	4n2e31_006	ACHD	Davis Drain
130	4n2e31_023	ACHD	Davis Drain
131	4n2e32_010	ACHD	Farmer's Union Canal
132	4n2e32_011	ACHD	Farmer's Union Canal
133	4n2e32_017	ACHD	Farmer's Union Canal
134	4n2e33_005	ACHD	Boise City Canal
135	4n2e33_010	ACHD	Boise City Canal
136	4n2e34_002	ACHD	Crane Creek
137	4n2e34_005	ACHD	Crane Creek
138	4n2e34_006	ACHD	Crane Creek
139	4n2e34_014	ACHD	Crane Creek
140	4n2e34_023	ACHD	Hulls Gulch

This five-year outfall screening schedule has been developed to meet the Permit requirements according to the scheduling and prioritization approaches described in Section 2.2 of the Dry Weather Outfall Screening Plan.

Appendix B: Standard Operating Procedures and Procedure Guidance for Dry Weather Outfall Screening

SOP110 – Discrete Grab Sample Collection

SOP111 – Low Flow Grab Sample Collection

SOP112 – Large Volume Grab Sample Collection

SOP114 – Field Filtering Procedures

SOP116 – Outfall Discharge Estimation – Bucket Method

SOP312 – YSI Model 85 Multi-parameter Meter – Operation, Calibration and Maintenance

SOP313 – pH Meter – Operation, Calibration and Maintenance

SOP318 – Flow Probe Operation

PG116 – Visual Flow Qualification

Hach Stormwater Test Kit User Manual

PHD6 Gas Monitor User Manual

Hach 2100q Turbidity Meter User Manual

SOP110 - Discrete Grab Sample Collection

A discrete grab sample is defined as an aliquot representative of a specific location at a given point in time. The sample is collected all at once at one particular point in the sample medium.

Application:

This standard operating procedures (SOP) is intended to assist sampling personnel in the collection of a single discrete grab sample of water. This SOP is to describe procedures for collecting a discrete grab sample from flowing water in a conveyance. The sample collection should be taken through a manhole, at an outfall or point of discharge. This SOP is not appropriate for low flow conditions or large volume containers where multiple grabs are needed to fill a sample bottle. See SOP111 and SOP112 for these specific applications.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

- Discrete grab sample collection may be performed during all weather conditions, day or night.
- Dress appropriately for weather and traffic conditions.
- Keep work areas lit to reduce accidents and prevent contamination.
- Visit the sampling location prior to sampling to determine the best sampling approach.
- Most often the sampling location will be established and documented in a sampling plan. If this is not the case, assess sampling location and conditions to determine the best approach for sample collection.
    - Is a swing sampler needed or can the sample be safely collected by hand?
    - Is traffic control needed to access the sample location? If so, a two-person crew is required.
- What supplies will be needed?
- Pre-label sample containers, when possible.
- Prepare extra sampling containers in case a cap is dropped or container breakage.
- Extensive documentation is required if deviations from the standard operating procedures are required.
- Ensure that all required sample equipment is present.
- Be careful to minimize influence on ambient water quality conditions.

Procedures:

If sample collection will be performed using a swing sampler, follow swing sampler grab steps 1-13. If sample will be collected directly by hand, proceed to hand grab steps 1-9. Procedure should be followed in the order presented here, to prevent contamination of samples.

Discrete Grab with Swing Sampler

1. Put on one pair of sanitary disposable nitrile gloves.
2. Extend the sampling pole to the length appropriate to reach the sample location.

3. Attach sample container to the swing sampler securely, depending on flow conditions.
   - Slow to moderate flow, use 2-3 heavy duty rubber bands;
   - Fast flow, use zip ties;
   - When in doubt, use more supplies to keep from losing sampling jars.
4. Remove the sample bottle lid to a safe and clean area.
   - If single sampler, place cap face down on cooler lid or other stable surface.
   - If two-member sampling team, assistant should hold cap face down.
5. Lower the sample container attached to the swing sampler towards the flow making sure not to touch the surroundings with the sampling bottle.
   - Take extra care not to disturb sides of manhole with swing sampler. Debris can easily be dislodged and fall into the sample container.
6. Maneuver the sampling pole so flow contacts the sample container opening directly, and opening is oriented upstream [figure 1].
7. Plunge the sample bottle to the middle of the flow depth, if possible. If water is too deep, sample should be collected just below the surface of water. Slowly raise the swing sampler.
8. If cascading flow, collect sample in middle of flow as it cascades, discharging into the water body.
9. If sampling inside a manhole, collect the sample from the inlet pipe if the configuration allows.
10. If sampling for *E.coli* fill the sample container to the specified fill line.
11. For all other samples completely fill the sample container to minimize air in the sample container.
12. Raise the pole and carefully cap sample container.
    - If single sampler, slide hands up the swing sample, keeping the sample container level, until capping container is within reach.
    - If two-member sampling team, assistant can easily cap sample bottle.
13. Label sample container with sample name and collection date and time with black sharpie or *"Rite in the Rain"®* pen.
14. Record sample information on field form.
15. Place sample container in cooler on ice.
16. Repeat steps 2-12 for collection of additional samples.
17. Deliver samples to laboratory with completed chain of custody.

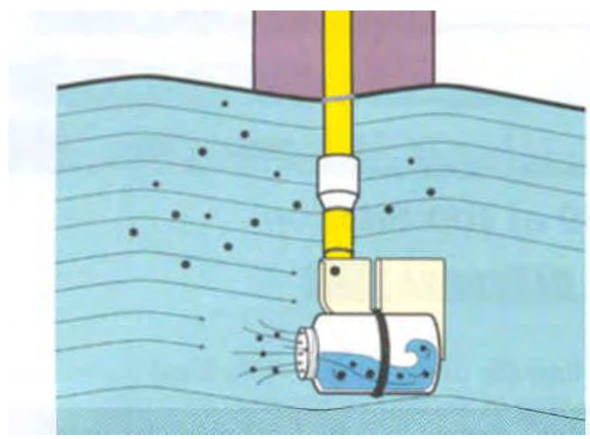


Figure 1 Swing Sampler Positioning

Discrete Grab by Hand

1. Put on one pair of sanitary disposable nitrile gloves.
2. Remove the sample bottle lid to a safe and clean area.
   - If single sampler, place cap face down on cooler lid or other stable surface.
   - If two-member sampling team, assistant should hold cap face down.
3. Orient bottle with opening opposite direction of flow and gloved hand behind bottle.
   - Water should flow directly into sample bottle opening, without flowing over bottle or hand. [Figure 2]
4. If cascading flow, collect sample in middle of flow as it cascades, discharging to water body.
5. Plunge the sample bottle to the middle of the flow depth, if possible. If water is too deep, sample should be collected just below the surface of water.
6. If sampling for *E.coli* fill the sample container to the specified fill line.

7. For all other samples completely fill the sample container to minimize air in the sample container.
8. Carefully cap sample container.
9. Label sample container with sample name and collection date and time with black sharpie or *"Rite in the Rain"*® pen.
10. Record sample information on field form.
11. Place sample container in cooler on ice.
12. Repeat steps 1-9 for collection of additional samples.
13. Deliver samples to the laboratory with completed chain of custody.

Figure 2: Container orientation by hand. Water flows into container directly. Gloved hand behind container.

Prepared by Monica Lowe, ACHD, Stormwater Quality Specialist Monica O. Lowe ____________________

Revised by Monica Lowe, ACHD, Stormwater Quality Specialist Monica O. Lowe ____________________

Reviewed by Ted Douglass, Brown and Caldwell, Project Manager____________________

SOP111- Low Flow Grab Sample Collection

A Low flow grab sample is operationally defined as multiple aliquots collected consecutively, with minimal lag time between aliquots, when flow conditions prevent a single aliquot sample.

Application:

This SOP is intended as a reference for sampling personnel in the collection of grab samples when a discrete grab sample (single aliquot of sample in a single point of time) is not possible due to low flow conditions. Low flow situations occur when the volume of flow is such that collecting an entire sample volume with one discrete grab sample aliquot is not possible. During these situations, ACHD and the Boise WQL will identify designated bottles to be used to transfer small aliquots of sample into a second container, until sufficient volume is achieved for laboratory analyses.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

- Low flow grab sample collection may be performed during all weather conditions, day or night;
- Dress appropriately for weather and traffic conditions;
- Keep work areas lit to reduce accidents and prevent contamination;
- Visit the sampling location prior to sampling to determine the best sampling approach for sample collection;
    - Is a swing sampler needed or can the sample be safely collected by hand?
    - Is traffic control needed to access the sample location? If so, a two-person crew is required.
- Prepare extra sampling containers in case a cap is dropped or container breakage.
- Be prepared for low flow grab sample collection. Know which designated bottles will be used as transfer containers.
- Extensive documentation is required if deviations from the standard operating procedures are required.
- Ensure that all required sample equipment is present.
- Be careful to minimize influence on ambient water quality conditions.

Procedures:

If sample collection will be performed using a swing sampler, follow swing sampler grab steps 1-19. If sample will be collected directly by hand, proceed to hand grab steps 1 - 27. Procedure should be followed in the order presented here, to prevent contamination of samples.

Low Flow Grab with Swing Sampler

1. Put on one pair of sanitary disposable nitrile gloves.
2. Extend the sampling pole to the length appropriate to reach the sample location.
3. Position receiving container on a flat surface, within reach of the sample location.
    - Setting the receiving container in an open cooler works well to stabilize the sample container during sample transfers.
4. Select designated sample container for transfer.

- The transfer container should be appropriate for the analysis performed according to 40 CFR 136. The transfer container should be identified by ACHD or WQL and should be labeled accordingly;
- As a general rule, use the same type of transfer bottle as the one you will be submitting for analyses;
- The transfer container should be prepared by the laboratory in the same manner as the sample container being filled. If in doubt, contact the laboratory where the sample will be submitted.

5. Attach sample container to the swing sampler securely, with 2-3 heavy duty rubber bands.
6. If single sampler, loosen cap of receiving bottle and set lid loosely on top to cover opening.
7. Maneuver the sampling pole so flow contacts the sample container opening directly and opening is oriented upstream [Figure 1].
8. Plunge the sample bottle to the middle of the flow depth, if possible. If water is too deep, sample should be collected just below the surface of water. Slowly raise the swing sampler.
9. If cascading flow, collect sample in middle of flow as it cascades, discharging into the water body.
10. If two-member sampling team, have assistant remove the lid on the receiving container.
11. Slowly pour transfer bottle contents into the receiving container while still attached to swing sampler.
    - If single sampler, slide hands down pole to transfer container and stabilize pole to pour into receiving container.
    - If two-member sample team, sampler should gently swing sampler over to assistant who will stabilize the swing sampler and transfer bottle and pour sample into receiving container.
12. Loosely cap receiving container.
13. Label receiving container with sample name and collection start time.
14. Repeat collecting aliquots of sample until bottle is full or adequate sample volume for analysis. This should be done as quickly as possible to minimize lag time between sample aliquots.
15. Tightly cap receiving container.
16. Label receiving container with sample end time.
17. Record sample information on field form.
18. Place sample container in cooler on ice.
19. Deliver samples to laboratory with completed chain of custody.

<u>Low Flow Grab by Hand</u>

1. Put on one pair of sanitary disposable nitrile gloves.
2. Position receiving container on a flat surface, within reach of the sample location.
    a. Setting the receiving container in an open cooler works well to stabilize the sample container during sample transfers.
3. Select designated sample container for transfer.
    a. The transfer container should be appropriate for the analysis performed according to 40 CFR 136. The transfer container should be identified by ACHD or WQL and should be labeled accordingly;
    b. As a general rule, use the same type of transfer bottle as the one you will be submitting for analyses;
    c. The transfer container should be prepared by the laboratory in the same manner as the sample container being filled. If in doubt, contact the laboratory where the sample will be submitted.
4. If single sampler, loosen cap of receiving bottle and set lid loosely on top to cover opening.
5. Maneuver the sampling pole so flow contacts the sample container opening directly and opening is oriented upstream [Figure 1].

6. Plunge the sample bottle to the middle of the flow depth, if possible. If water is too deep, sample should be collected just below the surface of water. Slowly raise the swing sampler.
7. If cascading flow, collect sample in middle of flow as it cascades, discharging into the water body.
8. If two-member sampling team, have assistant remove the lid on the receiving container.
9. Carefully pour sample aliquot into receiving container.
20. Loosely cap receiving container.
21. Label receiving container with sample name and collection start time.
22. Repeat collecting aliquots of sample until bottle is full or adequate sample volume for analysis.
23. Tightly cap receiving container.
24. Label receiving container with sample end time.
25. Record sample information on field form.
26. Place sample container in cooler on ice.
27. Deliver samples to laboratory with completed chain of custody.

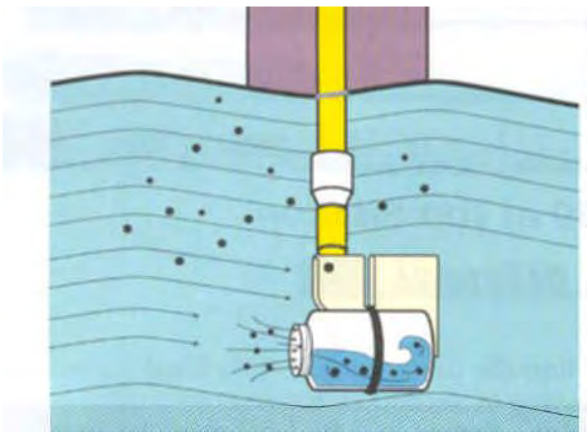


Figure 1: Swing sampler container orientation. Water flows directly into the sample container.

Prepared by Monica Lowe, ACHD, Stormwater Quality Specialist Monica Lowe

Revised by Monica Lowe, ACHD, Stormwater Quality Specialist Monica Lowe

Reviewed by Ted Douglass, Brown and Caldwell, Program Manager

SOP112- Large Volume Grab Sample Collection

A large volume grab sample is operationally defined as multiple aliquots of sample collected consecutively, with minimal lag time between aliquots, when laboratories request a larger volume for analysis than can be collected in a single container.

Application:

This standard operating procedure (SOP) is intended for sampling personnel in the collection of large volume grab samples when a discrete grab sample (single aliquot of sample in a single point of time) is not possible due to large sample volumes required by the laboratory. A discrete grab sample is preferred, but for certain analysis, a large volume of sample is needed by the laboratory to achieve desired detection limits. The large container, (Volumes > 1L) is often too cumbersome for a discrete grab sample, and too large to attach to a swing sampler. Therefore, a large container is filled by transferring small aliquots collected consecutively, with minimal lag time between aliquots, to achieve a large volume grab sample. ACHD and the Boise WQL will identify designated bottles to be used to transfer aliquots of sample into the large volume container.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

* Large volume flow grab sample collection may be performed during all weather conditions, day or night;
* Dress appropriately for weather and traffic conditions;
* Keep work areas lit to reduce accidents and prevent contamination;
* Visit the sampling location prior to sampling to determine the best sampling approach for sample collection;
    - Is a swing sampler needed or can the sample be safely collected by hand?
    - Is traffic control needed to access the sample location? If so, a two-person crew is required.
* Prepare extra sampling containers in case a cap is dropped or container breakage.
* Be prepared for large volume grab sample collection. Know which designated bottles will be used as transfer containers.
* Extensive documentation is required if deviations from the standard operating procedures are required.
* Ensure that all required sample equipment is present.
* Be careful to minimize influence on ambient water quality conditions.

Procedures:

If sample collection will be performed using a swing sampler, follow swing sampler grab steps 1-19. If sample will be collected directly by hand, proceed to hand grab steps 1 - 27. Procedure should be followed in the order presented here, to prevent contamination of samples.

<u>Large Volume Grab Sample with Swing Sampler</u>

1. Put on one pair of sanitary disposable nitrile gloves.

2. Extend the sampling pole to the length appropriate to reach the sample location.
3. Position receiving container on a flat surface, within reach of the sample location.
    - Setting the receiving container in an open cooler works well to stabilize the sample container during sample transfers;
    - 10 L carboys are often double bagged with polyethylene bags at the laboratory. Untie bags and push bags down around the outside of the container, so not to interfere with opening of the container.
4. Select designated sample container for transfer.
    - The transfer container should be appropriate for the analysis performed according to 40 CFR 136. The transfer container should be identified by ACHD or WQL and should be labeled accordingly;
    - As a general rule, use the same type of transfer bottle as the one you will be submitting for analyses;
    - The transfer container should be prepared by the laboratory in the same manner as the sample container being filled. If in doubt, contact the laboratory where the sample will be submitted.
5. Attach sample container to the swing sampler securely, depending on flow conditions.
    - Slow to moderate flow, use 2-3 heavy duty rubber bands;
    - Fast flow, use zip ties;
    - When in doubt, use more supplies to keep from losing sampling jars.
6. If single sampler, loosen cap of receiving bottle and set lid loosely on top to cover opening.
7. Maneuver the sampling pole so flow contacts the sample container opening directly, and opening is oriented upstream [Figure 1].
8. Plunge the sample bottle to the middle of the flow depth. If water is too deep, sample should be collected just below the surface of water. Slowly raise the swing sampler.
9. If cascading flow, collect sample in middle of flow as it cascades, discharging into the water body.
10. If two-member sampling team, have assistant remove the lid on the receiving container.
11. Slowly pour transfer bottle contents into the receiving container while still attached to swing sampler.
    - If single sampler, slide hands down pole to transfer container and stabilize pole to pour into receiving container.
    - If two-member sample team, sampler should gently swing sampler over to assistant who will stabilize the swing sampler and transfer bottle and pour sample into receiving container.
12. Loosely cap receiving container.
13. Label receiving container with sample name and collection start time.
14. Repeat collecting aliquots of sample until bottle is full or adequate sample volume for analysis. This should be done as quickly as possible to minimize lag time between sample aliquots.
15. Tightly cap receiving container.
16. Label receiving container with sample end time.
17. Record sample information on field form.
18. Place sample container in cooler on ice.
19. Deliver samples to laboratory with completed chain of custody.

Large Volume Grab by Hand

1. Put on one pair of sanitary disposable nitrile gloves.
2. Position receiving container on a flat surface, within reach of the sample location.
    a. Setting the receiving container in an open cooler works well to stabilize the sample container during sample transfers.
3. Select designated sample container for transfer.

a. The transfer container should be appropriate for the analysis performed according to 40 CFR 136. The transfer container should be identified by ACHD or WQL and should be labeled accordingly;
b. As a general rule, use the same type of transfer bottle as the one you will be submitting for analyses;
c. The transfer container should be prepared by the laboratory in the same manner as the sample container being filled. If in doubt, contact the laboratory where the sample will be submitted.

4. If single sampler, loosen cap of receiving bottle and set lid loosely on top to cover opening.
5. Maneuver the sampling pole so flow contacts the sample container opening directly [Figure 1].
6. Plunge the sample bottle to the middle of the flow depth. If water is too deep, sample should be collected just below the surface of water. Slowly raise the swing sampler.
7. If cascading flow, collect sample in middle of flow as it cascades, discharging into the water body.
8. If two-member sampling team, have assistant remove the lid on the receiving container.
9. Carefully pour sample aliquot into receiving container.
20. Loosely cap receiving container.
21. Label receiving container with sample name and collection start time.
22. Repeat collecting aliquots of sample until bottle is full or adequate sample volume for analysis.
23. Tightly cap receiving container.
24. Label receiving container with sample end time.
25. Record sample information on field form.
26. Place sample container in cooler on ice.
27. Deliver samples to laboratory with completed chain of custody.

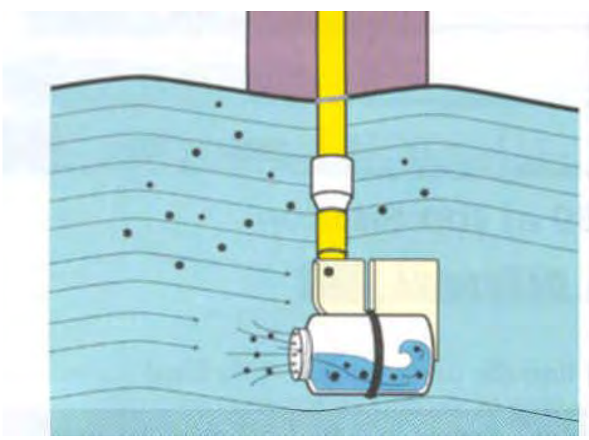


Figure 1: Swing sampler container orientation. Water flows directly into the sample container.

Prepared by Monica Lowe, ACHD, Stormwater Quality Specialist Monica O. Lowe

Revised by Monica Lowe, ACHD, Stormwater Quality Specialist Monica O. Lowe

Reviewed by Ted Douglass, Brown and Caldwell, Program Manager ______________

SOP116 - Outfall Discharge Estimation – Bucket Method

The Bucket Method is a simple approach to estimating discharge in gallons per minute (GPM) from an outfall with low flow using a container of known volume and a stopwatch. GPM can then be converted to cubic feet per second (cfs) to match the standard flow measurement rate of the program.

Application:

This standard operating procedures (SOP) is a step by step protocol designed to assist sampling personnel in estimating discharge from an outfall with low flow. An outfall is the point where a stormwater conveyance discharges to a surface water body. The Bucket Method is simply the measurement of time needed to fill a container of known volume as it flows from an outfall. The Bucket Method is best utilized when site conditions are appropriate to allow for collection of the entire discharge without the container filling too quickly to obtain an accurate reading.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

* Dress appropriately for weather, traffic, and outfall access.
* Visit the sampling location and review available mapping prior to sampling to determine the best sampling approach and outfall access.
* Ideally a two-person sampling team is needed; One person to hold the bucket securely, and one person to operate the stopwatch.
* What supplies will be needed?

Procedures:

Note: This procedure specifies the use of a five-gallon bucket which is most commonly used. However, any container with a known volume can be used if it is of sufficient size to capture the entire flow.

1. Ensure the five-gallon bucket is marked clearly with the five-gallon volume indicated.
2. Put on one pair of sanitary disposable nitrile gloves.
3. Depending on the outfall access, position yourself just above the outfall discharge (preferred) or in the receiving water in front of the outfall discharge.
4. Communicate with a sampling partner (Timer) to start and stop the stopwatch as necessary.
5. Insert the bucket into the discharge such that the entire flow is being captured.
6. Once the level in bucket reaches the five-gallon volume mark, alert the timer to stop the stop watch.
7. The Timer will record the time in seconds it takes to fill the bucket on the appropriate field form.
8. Empty the bucket.
9. Repeat steps five through eight to attain three successful readings.
10. Calculate the average time to fill the bucket by adding the three times together and dividing the sum by three. Record the average time in seconds on the field form. See example calculations below for steps 10-12.

11. Convert average time in seconds to minutes by dividing the average time in seconds by 60 seconds per minute.
12. Calculate the GPM by dividing 5 gallons by the averaged time calculation in minutes from step 11. Record the value in GPM on the field form.

Calculating the Discharge – Example

A clean 5 gallon bucket was placed under the flow of a discharge pipe. The bucket was filled three consecutive times resulting the in following times: 15 seconds, 18 seconds and 14 seconds.

Calculate average time:
Add the three recorded times together and divide by three to obtain the average fill time.

$$\text{Average time} = \frac{15 + 18 + 14}{3} = 15.7 \text{ sec}$$

Convert average time in seconds to minutes:
Divide average time by 60 to convert time to minutes.

$$\text{Average time} = \frac{15.7 \text{ sec}}{60} = 0.26 \text{ min}$$

Calculate the site discharge in GPM:
Divide the volume of the container (gallons) by the average time needed to fill the container (minutes).

$$\text{Discharge} = \frac{5 \text{ gal}}{0.26 \text{ min}} = 19.2 \text{ gpm}$$

Convert the site discharge to cfs:
Multiply discharge in GPM by 0.00223 to obtain discharge in cfs.
Discharge = 19.2 gpm x 0.00223 = 0.043

Report discharge in cfs.

References:

Estimation Discharge and Stream Flows: A Guide for Sand and Gravel Operators, July 2005 Department of Ecology.

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Revised by Monica Lowe, ACHD, Stormwater Quality Coordinator Monica O. Lowe

Reviewed by Ted Douglass, Brown and Caldwell, Stormwater Quality Project Manager_________________

SOP318 - Flow Probe Operation

The Flow Probe by Global Water Instrumentation is designed to measure the average velocity (V) in a flow stream. The cross-sectional area (A) can be measured by manually measuring the depth of flow at several points across the flow. With these two values, flow (Q) = VA, can be estimated.

Application:

This standard operating procedure (SOP) is intended for sampling personnel for measurement of flow in a stream channel using a Flow Probe (probe) by Global Water. The probe measures velocity of stream flow. Due to the variability in velocity measurements discussed below, an average velocity reading will be calculated by the probe during a set interval of time. To obtain the most accurate velocity reading, three procedures are outlined below depending on the size of the stream.

The following procedure outlines how to record an average velocity (V). To calculate flow (Q=VA) the cross-sectional area must also be determined. The cross-sectional area is measured by manually measuring the width and depth of the stream at several points across the flow [Figure 1] and constructing a diagram of the cross section.

The volumetric flow rate of water, which is commonly called discharge (Q), is the product of multiplying the average velocity (V) by the total cross-sectional area (A). The **velocity-area method** measurement is made by subdividing a stream cross-section into segments (sometimes referred to as sections, verticals, profiles, panels, or ensembles) and by measuring the depth and average velocity in a vertical profile within each segment.

By dividing the stream width into subsections (streams less than 10 feet in width have 10 subsections, and streams greater than 10 feet in width have 20 subsections), total discharge is equal to the sum of the individual discharge measurements in each subsection. Individual point velocity (V) is measured at each subsection, and the subsection discharge is equal to the product of the point velocity and cross-sectional area (a) within the subsection. The cross-section is defined by depths at verticals 1,2,3,4,....*n*.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

* Dress appropriately for weather and traffic conditions;
    - Is traffic control needed to access the sample location? If so, a two-person crew is required.
    - Should waders and/or personal floatation device (PFD) be used? If risk of drowning, a PDF is required. Use caution when wading in streams due to hazards of wet, unstable footing of stream bed and flowing water. A two-person crew is required.
* Visit the sampling location prior to sampling to determine the best approach for flow measurements.
    - Will an extension pole be needed if collecting measurements from a bridge?
    - Is there a relatively straight section of flow with little turbulence?
    - Is the stream shallow enough to wade?
    - Is there access within the public right-of-way or private property issued to address?
    - What is the best way to determine subsections if the stream is wide?

Flowing water varies in velocity for two main reasons:

* Velocities vary across the cross-section. In general, the velocities are greater in the center of the flow and lesser near the bottom and sides of the channel.

* The water surges in velocity with time. In a smooth running stream the velocity at a specific point can easily vary 1-2 feet per second over the period of a minute. The pulsating or surging of the flow should be averaged to get a good average flow reading.

Procedures: The following procedures are based on manufacturer recommendations. The user's manual is available in Appendix B or at www.**global**w.com/downloads/**flow**probe/**flow**probe_**manual**_past.pdf.

Obtaining an Average Velocity Reading

1. Remove the probe from the protective case by unscrewing the top cap. Case can also be opened by releasing the side latch if the top cap is difficult to unscrew.
2. Blow air strongly through the flow propeller [Figure 2] in the direction of the arrow to ensure the propeller can spin freely.
3. Lower the flow propeller into the water column oriented so the flow of water is the same direction as the black arrow on the flow propeller.
4. Press and hold button located on top of the display [Figure 3] labeled "Reset" for six seconds to zero the instrument.

A. Small Streams and Pipes (probe can be moved slowly and smoothly throughout the flow)

5. Press the bottom button "MODE" on the flow probe computer. Average velocity is displayed as "AVGSPEED" and maximum velocity is displayed as "MAXSPEED".
6. Move the probe smoothly and evenly back and forth across the flow and from top to bottom of the water column so that the probe stays on each point in the flow for the same amount of time. (The motion is like applying an even coat of spray paint over the entire surface.)
7. Measure the depth of flow using a measuring stick or measuring tape in the center of the area where the average velocity reading was recorded.

B. Large Streams and Rivers (divide width of flow into 2-3 foot subsections)

5. Press the bottom button "MODE" on the flow probe computer. Average velocity is displayed as "AVGSPEED" and maximum velocity is displayed as "MAXSPEED".
6. Move the probe vertically from the surface of the water to the bottom slowly and smoothly.
7. Move the probe up and down for 40 seconds to obtain a good average. Repeat step 7 every subsection across the stream.
8. The average velocity multiplied by the area of the subsection is the flow for the subsection. Add all the subsection flows to obtain the total stream flow [Figure 4].

C. Alternate Method

The probe can also be used for the "6 tenths method". Procedure B is the recommended procedure for large streams that is recommended by the manufacturer.

5. The probe is held at the center of the subsection at a depth (from the surface) of 0.6 of the total depth. The 0.6 of the total depth is assumed to be the average velocity point for the vertical profile. It is therefore the average velocity for the subsection as in procedure B above.
6. Press the bottom button "MODE" on the flow probe computer. Average velocity is displayed as "AVGSPEED" and maximum velocity is displayed as "MAXSPEED".
7. Average the velocity over a 40 second period.
8. Repeat step 7 every 2-3 foot subsections across the stream. Add all the subsection flows to obtain the total stream flow [Figure 4].

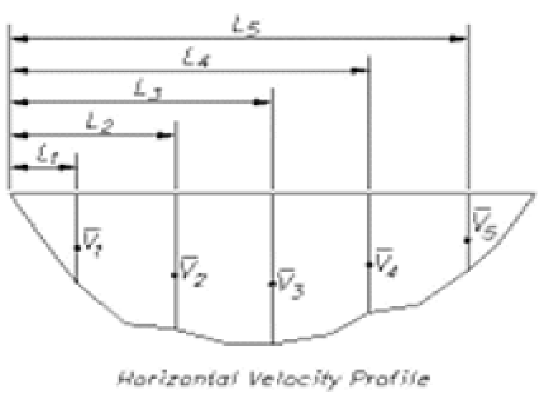
Deviations

The nature of instream flow monitoring may require deviations from the aforementioned standard operating procedures. In the event that deviations from these standard operating procedures is required, the field team will document and describe in detail the specific deviations conducted during the event.

Figure 1: Sampling Multiple points across a transect

Figure 2: Flow Probe Propeller

Figure 3: Flow Probe Computer



q = the discharge in cubic feet per second (ft^3/s) for a partial area
Q = total discharge
∇ = the mean velocity associated with the partial area
a = partial area of total cross section
$L_1, L_2, \ldots L_n$ = distance to vertical measurement locations in feet from an initial point to vertical station
ΔL = the distance in feet between consecutive vertical measurement stations
$\nabla_1, \nabla_1, \ldots \nabla_n$ = the respective mean velocities in feet per second at vertical measurement stations
$D_1, D_2, \ldots D_n$ = the water depths in feet at verticals
n = the number of verticals related to the partial area

$$q_{3\text{-}4} = [\frac{\nabla_3 + \nabla_4}{2}]\,[\frac{D_3 + D_4}{2}]\,(L_4 - L_3)$$

Figure 4: Velocity Profile Segments and Discharge Calculation
Source: US Department of Interior Bureau of Reclamation, Water Management Manual, Revised reprinted 2001.

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Reviewed by Adam Van Patten, ACHD, Stormwater Quality Specialist______________________________

Reviewed by Ted Douglass, Brown and Caldwell, Project Manager_________________________

Appendix A

Calculations for Partially Filled Round Pipes

XI. Appendix B: Calculations for Flow in Partially Filled Pipes

B	C	B	C
0.01	0.0013	0.51	0.4027
0.02	0.0037	0.52	0.4127
0.03	0.0069	0.53	0.4227
0.04	0.0105	0.54	0.4327
0.05	0.0147	0.55	0.4426
0.06	0.0192	0.56	0.4526
0.07	0.0242	0.57	0.4625
0.08	0.0294	0.58	0.4723
0.09	0.0350	0.59	0.4822
0.10	0.0409	0.60	0.4920
0.11	0.0470	0.61	0.5018
0.12	0.0534	0.62	0.5115
0.13	0.0600	0.63	0.5212
0.14	0.0668	0.64	0.5308
0.15	0.0739	0.65	0.5404
0.16	0.0811	0.66	0.5499
0.17	0.0885	0.67	0.5594
0.18	0.0961	0.68	0.5687
0.19	0.1039	0.69	0.5780
0.20	0.1118	0.70	0.5872
0.21	0.1199	0.71	0.5964
0.22	0.1281	0.72	0.6054
0.23	0.1365	0.73	0.6143
0.24	0.1449	0.74	0.6231
0.25	0.1535	0.75	0.6318
0.26	0.1623	0.76	0.6404
0.27	0.1711	0.77	0.6489
0.28	0.1800	0.78	0.6573
0.29	0.1890	0.79	0.6655
0.30	0.1982	0.80	0.6736
0.31	0.2074	0.81	0.6815
0.32	0.2167	0.82	0.6893
0.33	0.2266	0.83	0.6969
0.34	0.2355	0.84	0.7043
0.35	0.2450	0.85	0.7115
0.36	0.2546	0.86	0.7186
0.37	0.2644	0.87	0.7254
0.38	0.2743	0.88	0.7320
0.39	0.2836	0.89	0.7384
0.40	0.2934	0.90	0.7445
0.41	0.3032	0.91	0.7504
0.42	0.3130	0.92	0.7560
0.43	0.3229	0.93	0.7612
0.44	0.3328	0.94	0.7662
0.45	0.3428	0.95	0.7707
0.46	0.3527	0.96	0.7749
0.47	0.3627	0.97	0.7785
0.48	0.3727	0.98	0.7816
0.49	0.3827	0.99	0.7841
0.50	0.3927	1.00	0.7854

H= Height of water; D= Diameter of pipe (in feet)

H/D = Column B

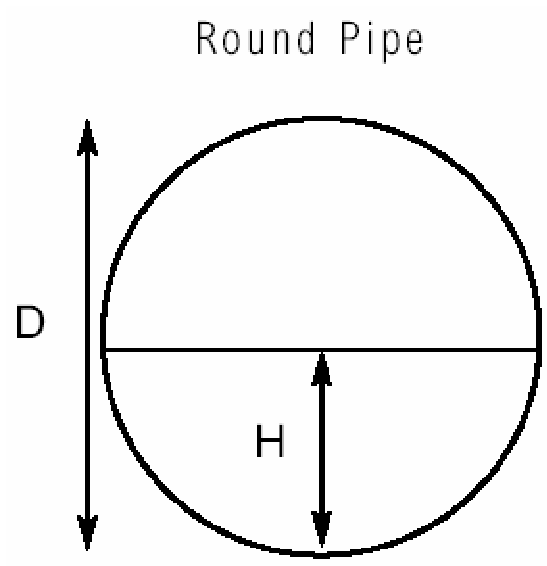
Read Column C adjacent to your pipe's B

C x D2 = Filled area, A (sq.ft.)

A x Average Velocity = Volumetric flow (CFS)

CFS x 448.83 = Gallons/minute (GPM)

GPM x 1440 = Gallons/day (GPD)



Appendix B

FP101-FP201 Global Flow Probe
User's Manual

Global Water

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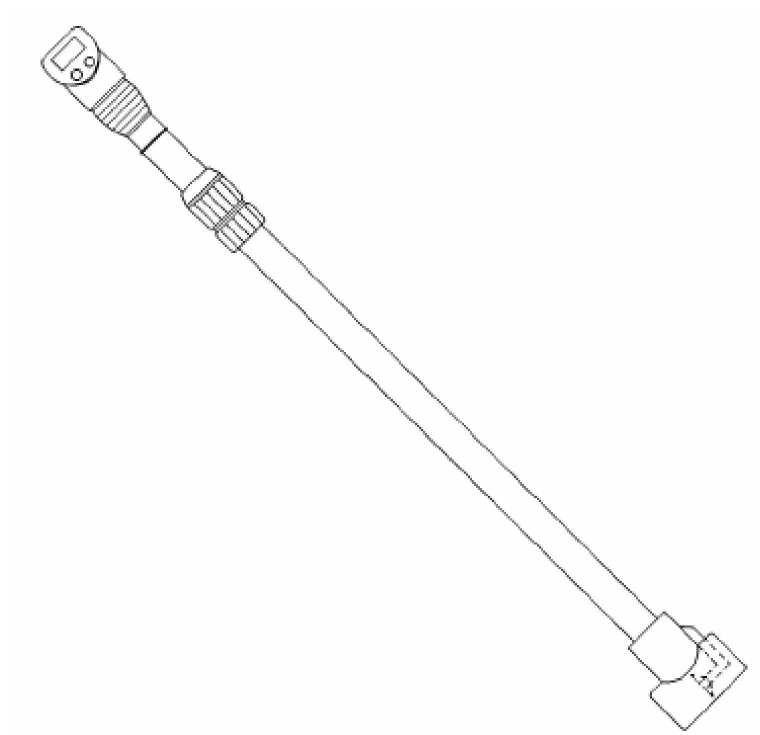
FP101-FP201 Global Flow Probe

User's Manual



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Congratulations on your purchase of the Global Water Flow Probe. This instrument has been quality tested and approved for providing accurate and reliable measurements. We are confident that you will find the sensor to be a valuable asset for your application. Should you require assistance, our technical staff will be happy to help.

Table of Contents

I. Flow Probe Checklist

a. Flow Probe

b. Flow Probe Manual

II. Inspection

a. Your Flow Probe was carefully inspected and certified by our Quality Assurance Team before shipping. If any damage has occurred during shipping, please notify Global Water Instrumentation, Inc. and file a claim with the carrier involved.

   Use the checklist to ensure that you have received everything needed to operate the Flow Probe.

III. General Instructions

a. Make sure the Flow Probe's propeller turns freely by blowing strongly on the prop.
b. Point the propeller directly into the flow you wish to measure. Face the arrow inside the prop housing downstream. The FP101 probe handle is a two piece rod expandable from 3' to 6', and the FP201 is a three section rod expandable from 5' to 15'. To expand the rod for correct placement in flow, loosen the locking nut on the handle, pulling out the top piece and retightening the nut.
c. Use the bottom button to scroll through the functions until "AVGSPEED" appears. The top number is the instantaneous velocity to the nearest .5 ft/second. The lower display is the average velocity. Pressing the top button for 3 seconds will clear the average and start a new reading. While taking an average reading the maximum velocity will also be recorded. Pushing the bottom button until "MAXSPEED" is displayed causes the lower display to indicate this value. While on this screen, pressing the top button for 3 seconds will clear this value. While on the average or maximum screens pressing the top button for 5 seconds will clear both of these functions.
d. To make a measurement, place the propeller at the desired measuring point and hold the top button for 3 seconds to clear the value or 5 seconds to clear both average and maximum values. Hold the probe in place until the reading becomes steady and remove the probe from the water. The average and maximum velocities remain in their respective screens. These values are only updated while the propeller is turning. See the Average Velocity section for more information.
e. Measure/calculate the cross-sectional area of your flow stream in square feet. If you are measuring flow in round pipes, measure the depth of water and use the enclosed tables to determine cross-sectional area (see Appendix B: Calculations for Flow in Partially Filled Pipes). If you are measuring flow in another channel type, manually measure water depth at several points across the flow. These measurements are most easily recorded by drawing a diagram on graph paper with a scale of 1 square foot per graph paper square. Cross-sectional area (in square feet) can then be found by counting the number of squares in the stream.

f. The average velocity (calculated with the Flow Probe in feet/second) times the cross-sectional area (square feet) equals flow in cubic feet per second (cfs), or Q = V x A.
g. If the propeller gets fouled while measuring flow, clean it until the prop turns freely and start over.

IV. Average Velocity

The Flow Probe is used to measure the average water velocity. Streamflow velocity varies for two reasons:

a. The velocities vary throughout the flow's cross-section. In general, the velocities are greater in the center of the flow and less near the bottom and sides of the channel.

b. The water surges in velocity with time. In a smooth running stream, the velocity at a specific point can easily vary 1-2 feet per second over the period of a minute. This pulsating or surging of flow should be averaged to obtain an accurate average flow reading (leave the probe in the flow through a series of flow surges).

The Flow Probe can be used in three ways to determine average velocity in a stream.

a. For small streams and pipes, the probe can be moved slowly and smoothly throughout the flow during average velocity measurement. Move the probe smoothly and evenly back and forth from top to bottom of the flow so that the probe stays at each point in the flow for approximately the same amount of time. Keep moving the probe for 20-40 seconds to obtain an accurate average value that accounts for surging. (Move the probe as if you were spray painting and attempting to get an even coat of paint over the entire surface.)

The Flow Probe uses true velocity averaging. When the average and maximum velocities are zeroed by pushing the top button, a running average is started. As long as the probe remains in the flow, the averaging continues. One reading is taken per second, and a continuous average is displayed. For example, after 10 seconds, 10 readings are totaled and then divided by 10 and this average is displayed. Once the average reading becomes steady, the true average velocity of the stream is obtained. When you pull the probe from the water, this average value is frozen on the display until it is reset.

b. For larger streams and rivers where the Flow Probe can't easily be moved throughout the flow, divide the stream into subsections 2-3 feet wide. We recommend dividing subsections on your graph paper diagram of the flow profile. Run a measuring tape across the stream for reference. Obtain a vertical flow profile at the center of each subsection: zero the averaging function and move the Flow Probe vertically from the surface to the bottom, up and down, slowly and smoothly for 20-40 seconds to obtain a good average. The average velocity (obtained with the Flow Probe) times the area of the subsection (use your graph paper diagram) equals the flow for the subsection (Q=VxA).Once the flow of each subsection is obtained, add all of the subsection flows to obtain the Total Streamflow.

c. For the USGS "6 tens method", the Flow Probe is placed at the center of the subsection at a depth from the surface of 0.6 of the total depth. The Flow Probe is held in place and the average velocity is obtained over a period of 40 seconds. The 0.6 depth is assumed to be the average velocity point for the vertical profile. Therefore, this average is similar to that obtained in technique 2 (above) however; we feel that technique 2 is more accurate.

V. Computer Operation

a. The Flow Probe is calibrated at the factory. When you receive the product, you may wish to set the computer's clock (see Computer Set-up), otherwise you should not have to alter any of your computer settings. You will have to recalibrate the computer when you change the unit's battery (See Appendix A: Computer Setup). Normal battery life for the Flow Probe is 3 years or more.

b. The Flow Probe computer has a simple 2-button operation. The bottom button scrolls between functions and the top button resets the function's value. Pressing the top button for 3 seconds zeros the average and maximum velocities. With a little practice, the buttons can be pushed with the hand holding the top of the probe.

c. The computer functions are as follows:
   - Velocity: The upper display number is the instantaneous velocity to the nearest .5 foot (or meter, depending on units being used) per second.
   - The lower display number is used for the following functions: average velocity(AVGSPEED), maximum velocity(MAXSPEED), stop watch(STPWATCH) and CLOCK.
   - The bottom button scrolls between these functions, and also DIST/DAY, RIDETIME, TRIP UP, and TOTALODO which are not used for this application.
   - Push the top button for 3 seconds to reset the displayed function. Push for 5 seconds to reset all velocity functions.
   - Stop watch: While STPWATCH is displayed, pressing the top button once will start the stop watch. Pressing a second time stops the watch. Holding the button for 3 seconds clears it.
   - Clock: The computer returns to the clock function after a period of inactivity for the probe.

VI. Specifications

Range:	0.3-15 FPS (0.1-4.5 MPS)
Accuracy:	0.1 FPS
Averaging:	True digital running average. Readings taken once per second.
Display:	LCD
Sensor Type:	Protected Turbo-Prop propeller with electro-magnetic pickup.
Weight:	2 Lbs (10 lbs. U.S., 14 lbs. international shipping weight)
Size:	Length: FP101 3' to 6'; FP201 5' to 15'
Materials:	PVC, anodized aluminum, stainless steel bearing
Power:	Internal watch type batteries/1 year life
Operating Temperature:	0° to 120° F
Carrying Case:	The Flow Probe is shipped in a padded carrying case.

VII. Maintenance

a. Probe Handle:
When the Flow Probe expansion joint becomes submerged, water will enter the Probe handle. After use, dry the Probe by separating the two handle sections, draining the water inside the Probe handle, and letting the handle dry out in a warm place before reassembling. The Flow Probe handle can be cleaned with mild soap and water. DO NOT submerge the top of the pole and the computer. If the computer gets submerged, remove it from the Flow Probe, DRY IMMEDIATELY with a soft cloth; remove the battery and place in a warm place overnight to dry.

b. Battery Replacement:
The Computer is held onto the head of the Probe by a twist lock connection. To remove, turn Computer ¼ turn to the left and pull off. To remove the battery use a small coin to twist the battery cover on

the back of the computer, ¼ turn to the left. Replace battery, + side toward battery cover, using a CR2032, 3 volt lithium cell. After replacing battery the calibration numbers will require resetting. (See Appendix A: Computer Setup)

c. Cleaning:
   Make sure the Turbo Prop turns freely before and after your measurements. Blow on the prop in the direction of flow. The prop should turn freely. If not, rinse the probe in clean water and remove any visible strings or hair materials from the prop bearing. This should correct the problem. If the prop still does not turn freely, remove the prop screw and the prop, and wash them in clean water or soap and water. Replace prop and screw. Tighten screw firmly but make sure prop still spins freely.

VIII. Trouble Shooting

Issue: Computer reading incorrectly

a. Blow on the propeller. The prop should spin freely and make a noise (chatter) when you blow on it. The prop should be loose on the shaft when you push it with your finger. If prop does not spin freely, rinse it with clean water or soak it in mild soapy water.
b. A small metal magnet covered with clear adhesive is installed on the back side of the prop on one blade. Be sure the magnet is in place and has not been removed. This magnet is necessary to make the signal for the computer.
c. Remove the computer holder from the pole handle by pulling the holder up away from the pole. The holder should come off with a popping sound. Make sure there is no moisture around the plug or socket. If the plug and socket are wet, dry the parts off and place both in a warm place overnight. Push the computer holder back on to handle HARD until you hear a "pop" or "snap" sound. If you don't hear this sound, the holder is not on all the way or you have a defective socket connector. Zero the "av" mode and blow on the prop for 5 to 7 seconds. You should see a number in "av" if the unit is working.
d. The computer can be removed from the holder by turning it ¼ turn to the left and lifting. Check the two electrical contacts on computer holder and the mating spring contacts on the computer. Make sure they are clean and dry.
e. Reinstall the computer on the computer head in the opposite manner that it was removed. Spin the propeller, by blowing on it, and check for an average reading. If there is still no reading contact Global Water.
f. If the display becomes weak or does not light up at all, replace the battery.

Other issues

a. Call Global Water for tech support: 800-876-1172 or 916-638-3429 (many problems can be solved over the phone). Fax: 916-638-3270 or Email: globalw@globalw.com.

   When calling for tech support, please have the following information ready;

1. Model #.
2. Unit serial number.
3. P.O.# the equipment was purchased on.
4. Our sales number or the invoice number.
5. Repair instructions and/or specific problems relating to the product.

Be prepared to describe the problem you are experiencing including specific details of the application, installation, and any additional pertinent information.

b. In the event that the equipment needs to be returned to the factory for any reason, please call to obtain a RMA# (Return Material Authorization). Do not return items without a RMA# displayed on the outside of the package.

   Clean and decontaminate the FP101/201 if necessary.

   Include a written statement describing the problems.

   Send the package with shipping prepaid to our factory address. Insure your shipment; Global Water's warranty does not cover damage incurred during transit.

IX. Warranty

c. Global Water Instrumentation, Inc. warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment from factory. Global Water's obligations under this warranty are limited to, at Global Water's option: (I) replacing or (II) repairing; any products determined to be defective. In no case shall Global Water's liability exceed the products original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by Global Water Instrumentation, Inc., or which has been subject to misuse, negligence or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

d. The warranty begins on the date of your invoice.

X. Appendix A: Computer Setup

The BC1200 has the capability to switch between 2 different calibration factors. To change between the calibrations remove the computer from the flow probe head by twisting 45 degrees counter clockwise and lifting. The indented gray button in the upper left corner on the back is to switch between CAL I and CAL II. In the upper left corner of the display, I is displayed for CAL I and II is displayed for CAL II.

Note:
I = ft/sec, calibration # = 0053
II = m/sec, calibration # = 0016
The indented gray button on the upper right is used to enter the calibration mode. Press and hold it for 5 seconds to enter calibration mode.

TO RESET THE CALIBRATION:
(Calibration #'s are factory set. Resetting is only required after changing the battery.)

- Press bottom button until CLOCK or TOTALODO is not displayed on screen.
- Press the left indented gray button to select CAL I.
- Turn computer over and press and hold the right indented gray button for 5 seconds and "set language" flashes on display.
- Press top button to select language.
- Press bottom button to accept.
- Press top button until "SET M" is displayed.
- Press bottom button to accept. The calibration factor is now displayed.
- Pressing the top button will change the value of the flashing digit.
- Pressing the bottom button will accept this value and move to the next digit.
- Set the calibration factors as follows:
  - Feet/second: 0053 (CAL I)
  - Meters/second: 0016 (CAL II)
- Press indented right button on back for one second to store.

Repeat above procedure for Cal II. (Only the cal number will be required)

(NOTE: after battery replacement and additional screen displaying SET ODO will follow the forth digit of the cal number. Ignore this and press the indented gray button to store settings)

TO SET CLOCK

- Press bottom button until clock appears at the bottom of the screen.
- Turn computer over and press and hold the right indented gray set button (S) for 5 seconds or until clock flashes.
- Press top button until hour is reached.
- Press bottom button to move to minutes.
- Press top button until desired number is reached.
- Press bottom button to move to single minutes.
- Press top button until desired single minute is reached.
- Turn computer over and press right indented gray set button for 1 second to save.

PG 116– Visual Flow Qualification

A visual flow qualification is a description of the amount of flow observed from an outfall. The varying amount of flow observed is grouped into three categories: Trickle, Moderate, or Substantial.

Application:

This guidance contains examples of varying flow amounts to assist sampling personnel with visually qualifying outfall discharges into three categories: Trickle, Moderate, or Substantial. Visual qualification of flow will be observed during all outfall investigations. Flow observations are best made from the outfall point where it discharges into the receiving water but if access does not allow, observations can be taken from the nearest accessible drainage pipe.

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

- Dress appropriately for weather, traffic, and outfall access.
- Review available mapping prior to the investigation to determine the safest approach for outfall access.
- What supplies will be needed?

Procedures:

1. Gain access to the outfall following one of the three following options. Safety takes precedence over access and efficiency – do not put yourself at risk of injury.
    a. Preferably, observations would be made from the bank opposite the outfall, allowing for full visual of the flow exiting the outfall.
    b. Observations can be made from the bank adjacent the outfall as well, but this approach may limit the observer's ability to see the flow as it exits the outfall.
    c. If outfall access is not possible, flow can be observed from the nearest connecting drainage feature such as a drop inlet, manhole, open ditch, pond, or irrigation box. Accessing flow from connecting drainage features may require special tools such as a manhole puller, hammer, pry bar, gas meter, and flashlight.
2. Visually categorize the outfall discharge based on the following criteria:
    a. Trickle: very narrow stream of water
    b. Moderate: steady stream of flow, but very shallow depth
    c. Substantial: steady stream of flow with depth.

Trickle: narrow stream

Moderate: steady stream, but shallow

Substantial: steady stream with depth

3. Record the flow category on the appropriate field form.

Resources:

Brown, E., D. Caraco, and R. Pitt. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. Center of Watershed Protection. Ellicot City, MD.

SOP 312 – YSI Model 85 Multi-parameter Meter – Operation, Calibration and Maintenance

Dissolved Oxygen (DO), conductivity, and temperature measurements are collected from water samples using YSI Model 85 Multi-parameter Meters. These parameters are often measured in conjunction with other field parameters (pH and temperature) when manually collecting "grab" water samples. Meters need to be properly maintained and calibrated to ensure accurate measurements while in the field.

Application:

This standard operating procedure (SOP) is intended for stormwater personnel who are responsible for taking field measurements of DO and conductivity, typically in conjunction with collecting manual grab samples. SOP 110 will be followed to obtain a field parameter grab sample.

Ada County Highway District currently has YSI Model 85 meters to measure DO and conductivity. The YSI Model 85 Operations Manual is available at

S:\STORMWATER\SW Monitoring Manuals\YSI-Model-85-Operations-Manual-RevE.pdf

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

- DO, conductivity and temperature measurements may be performed during all weather conditions, day or night.
- Dress appropriately for weather and traffic conditions.
- Keep work areas lit to reduce accidents and ensure accurate measurements.
- Follow SOP 110 to collect the field parameter sample to be measured.
- Ensure that the correct sampling container is used. Generally, field parameters are taken using a clean, 500 mL amber glass container supplied by the water quality lab.
- Bring an extra sampling container in case of container breakage.
- Ensure that the meter has been properly maintained and calibrated prior to going out to the field.
- Ensure that nitrile gloves are worn during calibration and maintenance procedures.
- Bring extra batteries (6 AAs).

Procedures:

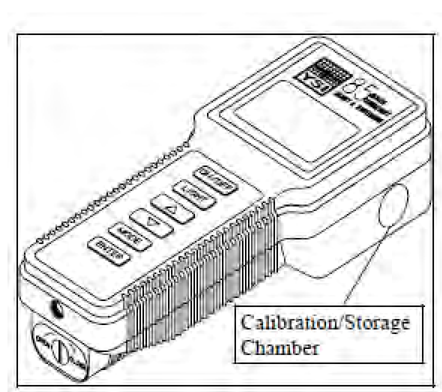

Figure 1. YSI 85

<u>Prior to Sampling Event</u>

1. Check sponge in Calibration/Storage Chamber to make sure it is moist (Figure 1).
2. Turn unit on by pressing down on the On/Off button.
3. Press LIGHT button, to ensure batteries and backlight are functioning.

   Note: The LCD will display a "LO BAT" message when the *batteries need to be replaced.*

4. Inspect membrane cap for damage. Change if necessary.
   Note: For correct probe operation the gold cathode should always be bright. If tarnished it can be cleaned at the factory or a cleaning kit ordered. See manual for details.

Field Sampling

1. Upon arriving on site, open instrument case and turn on instrument by pressing the **ON/OFF** button on the front panel.
2. Press the **MODE** button slowly (allowing the instrument to respond) until dissolved oxygen in mg/L is displayed.
3. Allow the temperature reading to stabilize prior to calibration of DO.
4. Follow steps provided on laminated sheet adhered to inside cover of the instrument case to calibrate the DO probe.
   NOTE: Conductivity calibration is rarely required because of the factory calibration performed. Conductivity calibration will be verified annually.
5. Proceed with grab sample collection according to **SOP 110**.
6. Remove probe from storage on side of meter by pulling the probe in an outward direction away from the meter.
7. Lower the probe into the sample taking care to submerge the probe deep enough to cover the two ports on top of the probe.
   NOTE: The top of the cord where the probe attaches will be partially submerged. Ideally the probe is suspended in the sample and is not touching the sides or bottom of the container.
8. With gentle, slow movements, slightly agitate the probe in a circular direction.
   NOTE: Create enough movement so the sample at the tip of the probe is representative of ambient conditions, but not too much movement that oxygen is added to the sample.
9. The numbers on the display will slowly decrease until a point is reached where the number appears to stabilize before slightly increasing. The display presents measurements to the nearest hundredth. The reading has stabilized when the variability in the hundredths does not change the reading in the tenths.
   NOTE: Stabilization typically takes several minutes.
10. Record the value in mg/L on the data log form with the corresponding temperature.
11. Press the **MODE** button to display conductivity in μS/cm.
12. Record the value in μS/cm and the corresponding temperature on the data log form.
13. Spray and rinse the probe thoroughly with distilled water.
14. Push probe back into the storage chamber on the side of the meter.
15. Push the **ON/OFF** button on the front panel to turn off the meter.
16. Return meter to the instrument case.
17. Secure latches.

Following a Sampling Event

1. Wipe the unit clean using a damp cloth or paper towel.
2. Ensure unit is off, prior to storage

Annually

1. Once a year a calibration should be performed for conductivity. See Section 5.2 of the Instruction Manual.

Prepared by: Monica Lowe, ACHD Stormwater Quality Coordinator______________________________

Reviewed by: Ted Douglass, Brown and Caldwell, Project Manager ______________________________

SOP 313 - pH Meter – Operation, Calibration and Maintenance

pH Meters are used to record the pH level and temperature during the manual collection of grab samples. pH levels and temperature will generally be recorded in conjunction with other field parameters (dissolved oxygen and conductivity) when manually collecting water samples. pH meters need to be properly maintained and calibrated to ensure accurate measurements while in the field.

Application:

This standard operating procedure (SOP) is intended for stormwater personnel who are responsible for obtaining field parameter measurements in conjunction with collecting manual grab samples. SOP 110 will be followed to obtain a field parameter grab which will be used to measure pH.

Ada County Highway District currently has Horiba D series handheld pH meters. The Horiba Instruction Manual is available at http://www.coleparmer.com/Assets/manual_pdfs/58702-20.pdf or at S:\STORMWATER\SW Monitoring Manuals\HoribaDSeries_pHMeter.pdf

Considerations:

Due to the variable nature of field work, advance planning and preparation is necessary. Consider the following:

- Field pH measurements may be performed during all weather conditions, day or night.
- Dress appropriately for weather and traffic conditions.
- Keep work areas lit to reduce accidents and ensure accurate measurements.
- Follow SOP 110 to collect the field parameter sample to be measured.
- Ensure that the correct sampling container is used. Generally, field parameters are taken using a clean, 500 mL amber glass container supplied by the water quality lab.
- Bring an extra sampling container in case of container breakage.
- Ensure that the meter has been maintained and calibrated prior to going out to the field.
- Ensure that nitrile gloves are worn during calibration and maintenance procedures.
- Bring extra batteries (2AAs).

Procedures:

Prior to Sampling Event

1. Connect electrode and temperature connection to the unit.
2. Thoroughly rinse the electrode with distilled water or reagent water and blot dry with tissue paper.
3. Check to ensure the internal reference solution of the electrode is full. Fill if needed.

   NOTE: This solution is concentrated KCl. Be sure to wear gloves and safety glasses when using this solution.
4. Ensure that the internal solution filler port is open when taking measurements. This port is also where the internal reference solution is filled or removed.

5. Calibrate with standard solutions (pH 4.00, pH 7.00 and pH 10.00) according to the steps outlined in the Instruction Manual.
6. Fill protective cap with fresh distilled water and place electrode in the cap for storage.

<u>Field Sampling</u>

NOTE: If field parameter measurements include dissolved oxygen (DO), as well as pH using the same grab sample, take the DO measurement first to ensure oxygen is not added to the sample by the stirring action called for in Step 7.

1. Open instrument case and turn on instrument by pressing the **ON/OFF** button on the front panel.

   NOTE: A "Y" connector connects the electrode probe and temperature probe to the meter. The electrode probe has a plastic covering that threads onto the meter where the cord and meter connect. The temperature probe has an o-ring that must be securely pressed into the meter to take an accurate temperature reading. Check to make sure the electrodes are securely attached to the meter.
2. Remove probe from plastic storage container by pulling in an outward direction.
3. Set plastic storage container upright in instrument case so the distilled water/storage solution does not spill.
4. Slide open the port on side of the probe.
5. Lower probe into the field parameter grab sample collected according to SOP 110, taking care NOT to submerge the probe too deep. **Do not allow any of the grab sample to enter the open port on the side of the probe.**
6. Gently stir probe in a circular direction taking care NOT to touch the sides or bottom of the sample container.
7. Press the **MEAS** key.
8. **HOLD** will flash in the display.
9. The **HOLD** will stop flashing and remain lit in the display when the value has stabilized.
10. Once **HOLD** remains lit and does not flash, record the pH value and temperature on the data form.

    NOTE: If 25° C is displayed for temperature, double check to ensure the temperature probe and o-ring are securely engaged. 25°C is a default temperature reading generally indicating the temperature probe is not engaged.
11. Slide cover to close port on side of probe.
12. Rinse the probe thoroughly using distilled water.
13. Return probe into plastic storage container.
14. Place probe and meter in instrument case.
15. Secure latches.

<u>Following a Sampling Event</u>

1. Wipe the unit clean using a damp cloth or paper towel.
2. Thoroughly rinse the electrode and protective cap with distilled or deionized water.
3. Disconnect electrode and temperature connection from the unit for storage.

<u>Semi-Annually</u>

1. Replace the internal solution in electrode with fresh 3.33 M KCL solution. Change the internal solution more frequently if calibration is slow.

Soak sponge in the bottom of the protective cap in a dilute chlorox solution, if mold growth occurs.

Prepared by Monica Lowe, ACHD, Stormwater Quality Coordinator______________________________

Reviewed by Ted Douglass, Brown and Caldwell, Program Manager____________________________

DOC326.97.00024

Storm Water Test Kit

11/2013, Edition 1

User Manual

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General information

In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages resulting from any defect or omission in this manual. The manufacturer reserves the right to make changes in this manual and the products it describes at any time, without notice or obligation. Revised editions are found on the manufacturer's website.

Safety information

NOTICE

The manufacturer is not responsible for any damages due to misapplication or misuse of this product including, without limitation, direct, incidental and consequential damages, and disclaims such damages to the full extent permitted under applicable law. The user is solely responsible to identify critical application risks and install appropriate mechanisms to protect processes during a possible equipment malfunction.

Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in this manual.

Use of hazard information

⚠ DANGER

Indicates a potentially or imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation that may result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, may cause damage to the instrument. Information that requires special emphasis.

Precautionary labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol on the instrument is referenced in the manual with a precautionary statement.

	Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of-life equipment to the Producer for disposal at no charge to the user. **Note:** *For return for recycling, please contact the equipment producer or supplier for instructions on how to return end-of-life equipment, producer-supplied electrical accessories, and all auxiliary items for proper disposal.*

Product overview

⚠ WARNING

Chemical exposure hazard. Obey laboratory safety procedures and wear all of the personal protective equipment appropriate to the chemicals that are handled. Refer to the current safety data sheets (MSDS/SDS) for safety protocols.

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Environmental Protection Agency (EPA) studies show that storm water runoff carries pollutants to nearby lakes, rivers and streams. To protect receiving waters, the EPA issued regulations* in November 1990 which apply to both municipalities and industrial storm water discharges.

Part 1 of the NPDES (National Pollutant Discharge Elimination System) application requires municipalities to do field screening with grab samples collected from dry weather flows. These samples will be analyzed for pH, total chlorine, total phenols, total copper and detergents.

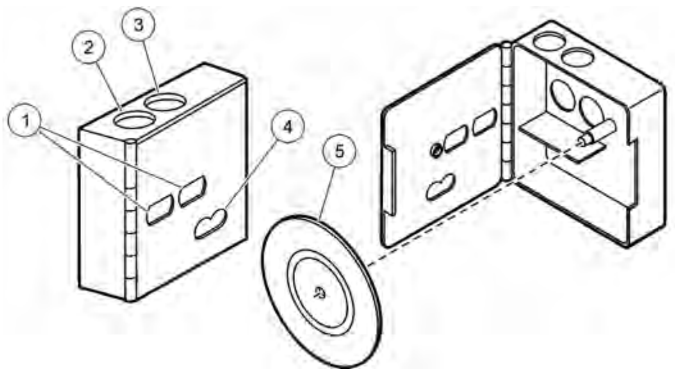
Use this test kit on-site or in a laboratory to identify the pH level and the concentrations of total chlorine, total phenols, total copper and detergents in storm sewer outflow and industrial discharge. Refer to Table 1 for the test kit parameters.

A color comparator box and color discs are used to identify the concentration of total chlorine, total phenols, total copper and detergents. Refer to Figure 1. The Pocket Pro pH tester is used to identify the pH level.

Table 1 Test kit parameters

Parameter	Range	Number of tests	Type of test	Sensitivity
pH	0–14	Refer to packaging	Ion selective electrode	Refer to packaging
Chlorine, total	0–3.4 mg/L	100	DPD	0.1 mg/L
Copper, free and total	0–4 mg/L	100	Bicinchoninate Hydrosulfite reduction	0.1 mg/L
Phenol	0–4	100	4-aminoantipyrine	0.1 mg/L
Detergents	0–1.2 mg/L	32	Toluidine Blue-O	0.05 mg/L

Figure 1 Color comparator box



1	Color matching windows	**4**	Scale window
2	Opening for tube with untreated sample	**5**	Color disc
3	Opening for tube with prepared sample		

* Federal Register, November 16, 1990.

Product components

Make sure that all components have been received. Refer to the list that follows. If any items are missing or damaged, contact the manufacturer or a sales representative immediately.

- Pocket Pro™ pH tester
- Color discs (4x)
- Color viewing tubes with caps (4x)
- Color comparator box
- Carrying case
- Chloroform, ACS grade
- Detergents Test Solution
- Wash Water Buffer (2x)
- Hardness 1 Buffer Solution
- Filtering thimble
- Test tube, 10-mL (2x)
- Draw-off pipet
- Stopper for color viewing tubes
- Phenol Reagent Powder Pillows
- Hydrosulfite Reagent Powder Pillows
- Free Copper Reagent Powder Pillows
- EDTA Reagent Powder Pillows
- DPD Total Chlorine Reagent Powder Pillows
- Potassium Persulfate Powder Pillows
- pH 7.0 SINGLET™ buffer solution packs
- Dropper
- Beaker, 100-mL
- Demineralizer bottle
- Glass wool for detergents test

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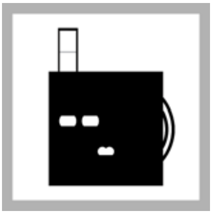
Total Chlorine

Test preparation

- Assemble the color comparator. Put the DPD Chlorine color disc on the center pin with the lettering facing out.
- Use sunlight or a fluorescent light source to compare colors.
- Rinse all viewing tubes with the sample water before testing and between tests.
- Accuracy is not affected by undissolved powder.
- If the disc becomes wet, carefully open the plastic case. Dry the case and the color insert with a soft cloth. Assemble the case when the parts are completely dry.

Total Chlorine (0–3.4 mg/L) test procedure

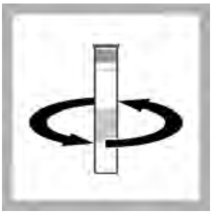
1. Fill one color viewing tube to the lower edge of the frosted area (5-mL mark) with clear water.



2. Put the tube into the left opening on the top of the comparator.

3. Fill a second color viewing tube to the lower edge of the frosted area (5-mL mark) with the water sample.

4. Add the contents of one DPD Total Chlorine Reagent Powder Pillow.



5. Swirl to mix.

6. A color will develop if chlorine is present in the sample. Wait 3–6 minutes for full color development.

7. Put the tube into the right opening on the top of the comparator. Hold the comparator in front of a light source. Turn the disc to find a color match.

8. Read the mg/L total chlorine (Cl_2) from the scale window. If the result is between two values, use the value halfway between the two printed numbers.

Replacement items

Note: *Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.*

Description	Unit	Item no.
Color comparator box	1	173200
Color viewing tubes with caps	4/pkg	4660004
DPD Chlorine disc, 0–3.4 mg/L	1	990200

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Description	Unit	Item no.
DPD Total Chlorine Reagent Powder Pillows	100/pkg	1407699
Caps for color viewing tubes	4/pkg	4660014

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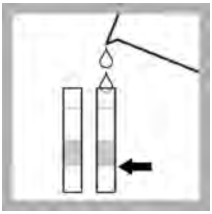
Total Copper

Test preparation

This test procedure identifies the concentration of free or complexed copper. Free copper refers to any free or weakly chelated copper ion in solution. Complexed (chelated) copper is tightly bound, as in Cu (EDTA). Free copper plus complexed copper gives the total dissolved copper.

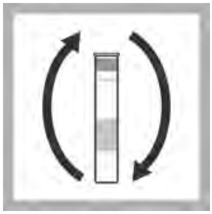
- Assemble the color comparator. Put the copper color disc on the center pin with the lettering facing out.
- Use sunlight or a fluorescent light source to compare colors.
- Rinse all viewing tubes with the sample water before testing and between tests.
- Accuracy is not affected by undissolved powder.
- Refer to Table 2 on page 9 for interfering substances.
- If the disc becomes wet, carefully open the plastic case. Dry the case and the color insert with a soft cloth. Assemble the case when the parts are completely dry.

Free and Total Copper (0-4 mg/L) test procedure



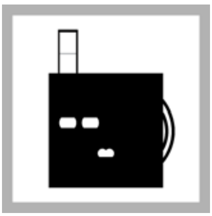
1. Fill two color viewing tubes to the lower edge of the frosted area (5-mL mark) with the water sample.

2. Add the contents of one Free Copper Reagent Powder Pillow to one of the tubes.



3. Put a stopper in the tube with the powder. Invert the tube several times to mix.

4. A purple color will develop if free copper is present in the sample. Wait 2 minutes for full color development.



5. Put the untreated sample tube into the left opening on the top of the comparator.

6. Put the prepared sample tube into the right opening on the top of the comparator. Hold the comparator in front of a light source. Turn the disc to find a color match.

7. Read the mg/L free copper (Cu) from the scale window. If the result is between two values, use the value halfway between the two printed numbers.

8. To identify the concentration of total dissolved copper present, add the contents of one Hydrosulfite Reagent Powder Pillow (clear pillow) to the tube.

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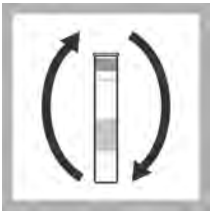

9. Put a stopper in the tube. Remove the tube from the comparator. Invert the tube several times to mix.

10. Wait 2 minutes for full color development.

11. Put the prepared sample tube back into the right opening on the top of the comparator. Hold the comparator in front of a light source. Turn the disc to find a color match.

12. Read the mg/L total dissolved copper (free copper and complexed copper) from the scale window. If the result is between two values, use the value halfway between the two printed numbers.

13. To identify the concentration of complexed copper present in the sample, subtract the amount of free copper from the amount of total dissolved copper.

Interferences

Table 2 Interfering substances

Interfering substance	Interference level
Cyanide	More than 2 mg/L inhibits color development Add three drops of Formaldehyde Solution before the viewing tube is put into the comparator box. Wait 3 minutes and then read the mg/L free copper.

Accuracy check

Periodically identify the reagent accuracy with a reliable standard such as Copper Standard Solution 10-mg/L.

1. Prepare a 2 mg/L free copper solution.
   a. Carefully measure 1 mL of Copper Standard Solution 10-mg/L into a sample tube.
   b. Add deionized water to the sample tube to the 5 mL mark.
2. Identify the concentration of copper that is present in the standard. Refer to Free and Total Copper (0-4 mg/L) test procedure on page 8.

Replacement items

***Note:** Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.*

Description	Unit	Item no.
Color comparator box	1	173200
Color viewing tubes with caps	6/pkg	173006
Copper color disc	1	9263300
Free Copper Reagent Powder Pillow	100/pkg	2182369
Hydrosulfite Reagent Powder Pillow	100/pkg	2118869
Stoppers for viewing tubes	6/pkg	173106

Optional items

Description	Unit	Item no.
Copper Standard Solution 10 mg/L	100 mL MDB	12932
Formaldehyde Solution	100 mL SCBD	205932

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Detergents

Test preparation

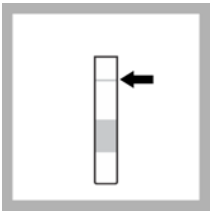
- Assemble the color comparator. Put the Detergents color disc on the center pin with the lettering facing out.
- Use sunlight or a fluorescent light source to compare colors.
- Rinse all viewing tubes with the sample water before testing and between tests.
- If the disc becomes wet, carefully open the plastic case. Dry the case and the color insert with a soft cloth. Assemble the case when the parts are completely dry.

Filter the chloroform layer

If the water sample is turbid, filter the chloroform layer at step 13.

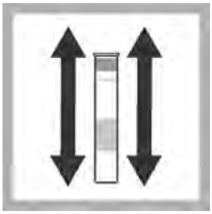
1. Put a small ball (about the size of a large pea) of glass wool in the filter thimble.
2. Use the draw-off pipet to remove the chloroform. Filter the chloroform through the glass wool and into an unused, glass test tube.

Detergents (0–1.2 mg/L) test procedure



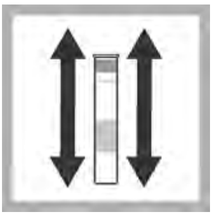
1. Fill one test tube to the upper mark (20 mL) with the water sample.

2. Add 12 drops of Detergent Test Solution.



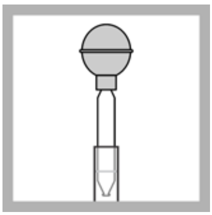
3. Put the stopper in the tube. Shake to mix.

4. Add chloroform to the lowest mark (5 mL). Chloroform is heavier than water and will go to the bottom of the tube.

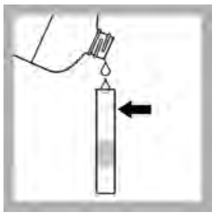


5. Put the stopper in the tube. Shake vigorously for 30 seconds.

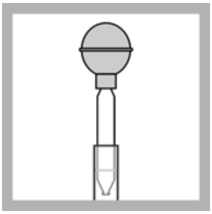
6. Do not touch the tube for 1 minute to let the chloroform separate.



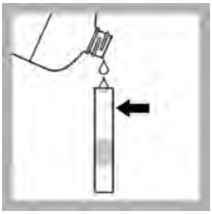
7. Use the draw-off pipet to remove the water from the tube. Discard the water.



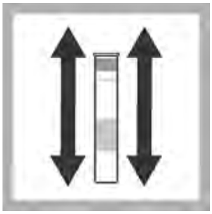
8. Add Wash Water Buffer to the upper mark (20 mL).



9. Use the draw-off pipet to remove the Wash Water Buffer. Discard the buffer.
Note: *This step washes away the remaining water sample.*



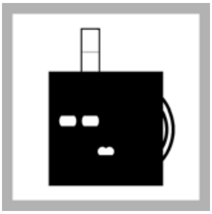
10. Add Wash Water Buffer to the upper mark (20 mL).



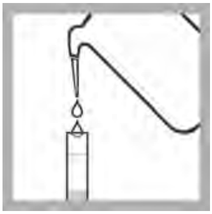
11. Put the stopper in the tube. Shake vigorously for 30 seconds.

12. Do not touch the tube for 1 minute to let the chloroform separate.

13. If the water sample is turbid, filter the chloroform layer.



14. Put the prepared sample tube into the right opening on the top of the comparator.

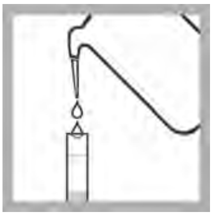


15. Fill a second test tube with deionized water.

16. Put the deionized water tube into the left opening on the top of the comparator. Hold the comparator in front of a light source. Turn the disc to find a color match.

17. Read the ppm Detergents (LAS and/or ABS) from the scale window. If the result is between two values, use the value halfway between the two printed numbers. If the color is darker than the highest reading on the color disc, do steps 18–20 to make a 20-to-1 dilution.

18. Discard the contents of the prepared sample tube (in the right opening). Rinse the tube with deionized water. Use the dropper to add 1 mL of the water sample to the tube.



19. Add deionized water to the upper mark (20 mL).

20. Do steps 2–17 and multiply the results by 20.

Replacement items

Note: *Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.*

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Description	Quantity	Item no.
Bulb for draw-off pipette	1	178600
Color comparator box	1	173200
Color viewing tubes with caps, 5 mL and 20 mL marks	6/pkg	173606
Chloroform, ACS grade (approximately 100 tests)	500 mL	1445849
Detergents color disc, 0–1.2 mg/L	1	9265700
Detergents reagent	100 mL MDB	105932
Dropper, 0.5 mL and 1.0 mL marks	5/pkg	1419700
Filtering thimble	1	51200
Glass tube for draw-off pipette	1	221800
Glass wool	5 g	252074
Test tube	10/pkg	56510
Wash Water Buffer (approximately 32 tests)	500 mL	99949

pH

Refer to the documentation supplied with the Pocket Pro™ pH tester to do a pH measurement.

Phenols

Test preparation

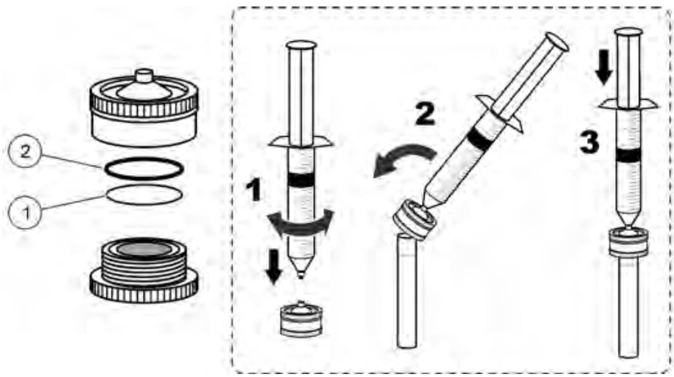
- Assemble the color comparator. Put the Phenols color disc on the center pin with the lettering facing out.
- Use sunlight or a fluorescent light source to compare colors.
- Rinse all viewing tubes with the sample water before testing and between tests.
- If the disc becomes wet, carefully open the plastic case. Dry the case and the color insert with a soft cloth. Assemble the case when the parts are completely dry.

Filter the sample

If the sample is turbid, it may be necessary to filter the sample.

1. Install a 0.45 micron filter disc in the filter holder. Refer to Figure 2. Make sure that the holder is closed tight after the disc is installed.
2. Fill the 30-cc syringe with the turbid sample.
3. Attach the filter holder to the syringe with a twisting motion.
4. Filter the sample directly into the viewing tubes from the syringe. Use the filtered sample in the test procedure.

Figure 2 Assemble the filter assembly



1 Filter disc	**2** O-ring

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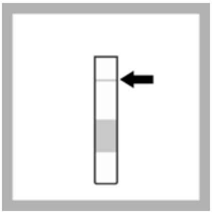
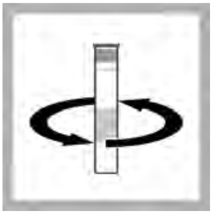
Phenols (0–4 mg/L) test procedure



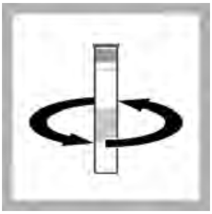
1. Fill two color viewing tubes to the upper mark (20 mL) with water sample.

2. Add the contents of one EDTA Reagent Powder Pillow to each tube.

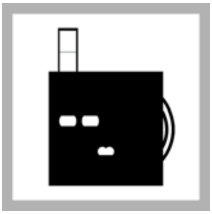


3. Put the cap on each tube and swirl until the powder is dissolved.

4. Add 15 drops of Hardness 1 Buffer Solution to each tube.

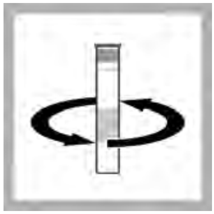


5. Put the cap on each tube and swirl.



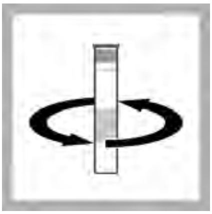
6. Put one of the tubes into the left opening on the top of the comparator.

7. Add the contents of one Phenol Reagent Powder Pillow for non-extraction method to the second tube.



8. Put the cap on the tube and swirl until the powder is dissolved.

9. Add the contents of one Potassium Persulfate Powder Pillow for Phosphonate to the second tube.



10. Put the cap on the tube and swirl until the powder is dissolved.

11. Put the second tube into the right opening on the top of the comparator. Hold the comparator in front of a light source. Turn the disc to find a color match.

12. Read the result in mg/L from the scale window. If the result is between two values, use the value halfway between the two printed numbers.

Replacement items

Note: *Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.*

Description	Quantity	Item no.
Color comparator box	1	173200
Color viewing tubes	4/pkg	4660004

Description	Quantity	Item no.
Clippers for powder pillows	1	93600
EDTA Reagent Powder Pillows	50/pkg	700599
Hardness 1 Buffer Solution	50 mL	42426
Phenol Reagent Powder Pillows (nonextraction)	100/pkg	2481569
Potassium Persulfate Powder Pillows for Phosphonate	100/pkg	2084769

Optional items

Description	Quantity	Item no.
Filter discs, 25 mm, 45 micron	25/pkg	2209525
Filter holder for Luer-Lok	1	246800
Syringe, 30 cc, Luer-Lok tip	1	2225800

Reference Manual

Honeywell

PHD6™ Gas Detector

F-101

⚠WARNING

PHD6 PERSONAL PORTABLE GAS DETECTORS HAVE BEEN DESIGNED FOR THE DETECTION AND MEASUREMENT OF POTENTIALLY HAZARDOUS ATMOSPHERIC CONDITIONS

IN ORDER TO ASSURE THAT THE USER IS PROPERLY WARNED OF POTENTIALLY DANGEROUS ATMOSPHERIC CONDITIONS, IT IS ESSENTIAL THAT THE INSTRUCTIONS IN THIS REFERENCE MANUAL BE READ, FULLY UNDERSTOOD, AND FOLLOWED.

PHD6™
Reference Manual
Part Number 13-322
Version 3

Table of Contents

Certification Information

The PHD6 carries the following certifications:

QPS Class I Division 1 Groups A,B,C,D Temp Code T3C (Approved to UL 913)
QPS USTC Class II Division 1 Groups E,F,G (Approved to UL 913)
QPS USTC Class III (Approved to UL 913)

CSA Class I, Division 1 Groups A,B,C,D Temp Code T3C
ONLY THE COMBUSTIBLE GAS DETECTION PORTION OF THIS INSTRUMENT HAS BEEN ASSESSED FOR PERFORMANCE.

ATEX: Ex d ia IIC 170 °C (T3)
IECEx: Ex d ia IIC 170 °C (T3)
CE Mark

Operating Temperature and Humidity Limits

⚠WARNING **The PHD6's operating temperature range is printed on the label on the back of the instrument. Use of Honeywell Gas Detectors outside of the instrument's specified operating temperature range may result in inaccurate and potentially dangerous readings.**

Signal Words

The following signal words, as defined by ANSI Z535.4-1998, are used in the PHD6 Reference Manual.

⚠DANGER **indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

⚠WARNING **indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠CAUTION **indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury.**

CAUTION **used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.**

Warnings and Cautions

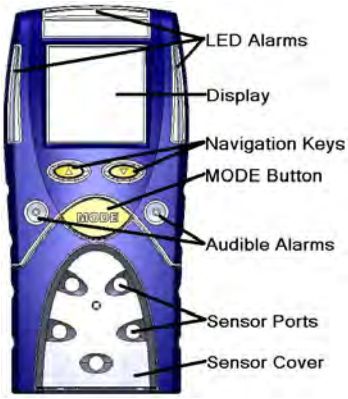
1. ⚠WARNING **The PHD6 personal, portable gas detector has been designed for the detection of dangerous atmospheric conditions. An alarm condition indicates the presence of a potentially life-threatening hazard and should be taken very seriously. Failure to immediately leave the area may result in serious injury or death.**
2. ⚠WARNING **In the event of an alarm condition it is important to follow established procedures. The safest course of action is to immediately leave the affected area, and to return only after further testing determines that the area is once again safe for entry. Failure to immediately leave the area may result in serious injury or death.**
3. ⚠WARNING **The PHD6 must be located in a non-hazardous location whenever alkaline batteries are removed from the alkaline battery pack. Removal of the alkaline batteries from the battery pack in a hazardous area may impair intrinsic safety.**
4. ⚠WARNING **Use only Duracell MN1500 or Ultra MX1500, Eveready Energizer E91-LR6, Eveready EN91 batteries in the alkaline battery pack. Substitution of batteries may impair intrinsic safety.**
5. ⚠WARNING **To reduce the risk of explosion, do not mix old or used batteries with new batteries and do not mix batteries from different manufacturers.**
6. ⚠WARNING **Do not charge the PHD6 with any charger other than the appropriate PHD6 charger. Standard versions of the PHD6 must be charged with the UL/CSA-approved charger, which is part number 54-49-103-1. European versions of the PHD6 must be charged with the ATEX-approved charger, which is part number 54-49-103-5.**
7. ⚠WARNING **The PHD6 must be located in a non-hazardous location during the charging cycle. Charging the PHD6 in a hazardous location may impair intrinsic safety.**
8. ⚠WARNING **PHD6 rechargeable battery packs are supplied with Panasonic CGR18650D Lithium-Ion batteries. The Li-Ion batteries in the battery packs may not be replaced by the user. The rechargeable pack must be obtained from Honeywell and replaced as a complete assembly to maintain intrinsic safety.**
9. ⚠WARNING **The accuracy of the PHD6 should be checked periodically with known concentration calibration gas. Failure to check accuracy can lead to inaccurate and potentially dangerous readings.**

(The Canadian Standards Association (CSA) requires an accuracy check using known concentration calibration gas prior to each day's use.)

10. **⚠WARNING Fresh air/zero calibrations may only be performed in an atmosphere that is known to contain 20.9% oxygen, 0.0% LEL and 0 PPM toxic gas.**
11. **⚠WARNING The accuracy of the PHD6 should be checked immediately following any known exposure to contaminants by testing with known concentration test gas before further use. Failure to check accuracy can lead to inaccurate and potentially dangerous readings.**
12. **⚠WARNING A sensor that cannot be calibrated or is found to be out of tolerance should be replaced immediately. An instrument that fails calibration may not be used until testing with known concentration test gas determines that accuracy has been restored, and the instrument is once again fit for use.**
13. **⚠WARNING Do not reset the calibration gas concentration unless you are using a calibration gas concentration that differs from the one that is normally supplied by Honeywell for use in calibrating the PHD6.**
    Customers are strongly urged to use only Honeywell calibration materials when calibrating the PHD6. Use of non-standard calibration gas and/or calibration kit components can lead to dangerously inaccurate readings and may void the standard Honeywell warranty.
14. **⚠WARNING Use of non-standard calibration gas and/or calibration kit components when calibrating the PHD6 can lead to inaccurate and potentially dangerous readings and may void the standard Honeywell warranty.**
    Honeywell offers calibration kits and long-lasting cylinders of test gas specifically developed for easy PHD6 calibration. Customers are strongly urged to use only Honeywell calibration materials when calibrating the PHD6.
15. **⚠WARNING Substitution of components may impair intrinsic safety.**
16. **⚠WARNING For safety reasons this equipment must be operated and serviced by qualified personnel only. Read and understand this reference manual before operating or servicing the PHD6.**
17. **⚠WARNING A rapid up-scale reading followed by a declining or erratic reading may indicate a hazardous combustible gas concentration that exceeds the PHD6's zero to 100 percent LEL detection range.**
18. **⚠WARNING The PHD6 is not designed for use in oxygen enriched atmospheres.**
19. **⚠WARNING Do not use the PHD6 pump for prolonged periods in an atmosphere containing a concentration of solvent or fuel that may be greater than 50% LEL.**
20. **⚠WARNING Do not unplug the NDIR-CH^4 or NDIR-CO^2 sensors in an explosive atmosphere. Unplugging IR sensors in an explosive atmosphere may impair intrinsic safety.**

1. Description

The PHD6 is a multi-sensor gas detector that can be configured to meet a wide variety of user requirements. This chapter provides an overview of many of the features of the PHD6. More detailed descriptions of the specific features of the PHD6 are contained in the subsequent chapters of this manual.



1.1 Methods of sampling

The PHD6 may be used in either diffusion or sample-draw mode. In either mode, the gas sample must reach the sensors for the instrument to register a gas reading. The sensors are located at the lower front of the instrument.

⚠WARNING **The sensor ports must be kept free of obstruction. Blocked sensor ports can lead to inaccurate and potentially dangerous readings.**

In diffusion mode, the atmosphere being measured reaches the sensors by diffusing through the sensor ports at the front of the instrument. Normal air movements are enough to carry the sample to the sensors. The sensors react quickly to changes in the concentrations of the gases being measured. Diffusion-style operation monitors only the atmosphere that immediately surrounds the detector.

The PHD6 can also be used to sample remote locations with its hand-aspirated sample-draw kit or with its motorized, continuous sample draw pump. During remote sampling, the gas sample is drawn into the sensor compartment through the probe assembly and a length of tubing. Remote sampling operations only monitor the atmosphere at the end of the sample draw probe.

Use of the hand-aspirated sample draw kits is covered in section 3.1.

Use of the motorized sample draw pump is covered in section 3.2.

A detailed description of the PHD6 probe assembly is given in section 6.5

1.2 Multi-sensor capability

The PHD6 can be configured to simultaneously monitor oxygen, combustible gases and vapors, volatile organic compounds (VOCs), and a wide variety of toxic gases. All sensors are replaceable in the field.

Note: The accuracy of the PHD6 must be verified by calibration with known concentration test gas whenever a change is made to the sensors installed in the instrument.

Calibration procedures are discussed in detail in Chapter 4.

The PHD6 can utilize a variety of sensor types to detect atmospheric contaminants including electrochemical sensors, PID (Photo Ionization Detector) sensors, NDIR (Non-Dispersive Infra-Red Absorbance) sensors and catalytic hot-bead LEL sensors.

Different measurement units are used depending on the gas being measured.

Type of Hazard	Measurement unit
Oxygen (O_2)	Percentage by volume
Combustible gas (LEL Sensor)	Percentage of lower explosive limit (%LEL) or %/Vol CH_4
Hydrocarbon-specific combustible gas sensor (NDIR – CH_4)	Percentage of lower explosive limit (%LEL) or %/Vol CH_4
Volatile Organic Compounds (VOCs) (PID Sensor)	Parts-per-million (PPM) or tenths of a part-per-million (0.1PPM)
Toxic Gases (by electrochemical sensor	Parts-per-million (PPM) – some sensors capable of tenths of a part-per-million (0.1PPM)
Toxic Gas by NDIR – CO_2 sensor	%/Vol CO_2

Table 1.2. PHD6 Units of Measurement.

1.3 Calibration

The PHD6 detector features fully automatic fresh air and gas calibration.

⚠WARNING **The accuracy of the PHD6 should be checked periodically with known concentration calibration gas. Failure to check accuracy can lead to inaccurate and potentially dangerous readings. (The Canadian Standards Association (CSA) requires an accuracy check using known concentration calibration gas prior to each day's use.)**

Calibration procedures are discussed in detail in Chapter 4.

Recommended calibration frequency is discussed in Appendix B.

1.4 Alarm logic

PHD6 gas alarms can be adjusted manually using the PHD6's built in menu functions, with BioTrak II software via IrDA interface, or with the IQ Database Manager Program through the IQ6 Dock. (See Chapter 6 for direct menu programming instructions). Alarms may be set anywhere within the nominal range of the specific sensor. When an alarm set point is exceeded a loud audible alarm sounds, and the bright red LED alarm lights flash.

1.4.1 Atmospheric hazard alarms

⚠WARNING **PHD6 portable gas detectors have been designed for the detection of deficiencies of oxygen, accumulations of flammable gases and vapors, and accumulations of specific toxic gases. An alarm condition indicating the presence of one or more of these potentially life-threatening hazards should be taken very seriously. Failure to immediately leave the area may result in serious injury or death.**

⚠WARNING **In the event of an alarm condition it is important to follow established procedures. The safest course of action is to immediately leave the affected area, and to return only after further testing determines that the area is once again safe for entry. Failure to immediately leave the area may result in serious injury or death.**

⚠WARNING **A rapid up-scale reading followed by a declining or erratic reading may indicate a hazardous combustible gas concentration that exceeds the PHD6's zero to 100 percent LEL detection range. Failure to immediately leave the area may result in serious injury or death.**

The combustible gas alarms are activated when the reading for combustible gases exceeds one of the alarm setpoints. Combustible gas readings are typically given in terms of percent of LEL (Lower Explosive Limit), but may also be shown in terms of percent-by-volume methane (CH_4). The PHD6 includes Warning and Danger alarms for the both the LEL sensor and the NDIR-CH_4 sensor.

Two oxygen alarm set points have been provided; a low alarm for oxygen deficiency and a high alarm for oxygen enrichment.

Up to four alarm set points are provided for the PID sensor and for each toxic gas sensor: Warning, Danger, STEL (Short Term Exposure Limit) and TWA (Time Weighted Average).

Appendix A discusses Warning, Danger, STEL and TWA alarms.

1.4.2 Low battery alarms

The PHD6 includes multi-staged alarms for both the Li-Ion and alkaline battery packs to let the user know that the battery is running low.

For detailed information concerning the low battery alarms, see section 2.5.5.

⚠WARNING **Use only Duracell MN1500 or Ultra MX1500, Eveready Energizer E91-LR6, Eveready EN91 batteries. Substitution of batteries may impair intrinsic safety.**

1.4.3 Sensor over range alarms

The PHD6 will go into alarm if a sensor is exposed to a concentration of gas that exceeds its established range. In the case of an LEL or NDIR-CH_4 sensor reading that exceeds 100% LEL, the sensor channel will be automatically disabled by the instrument and the instrument will remain in constant alarm until it is turned off, brought to an area that is known to be safe, and then turned back on. The display will show a vertical arrow with two heads in place of the sensor reading for any channel that has gone into over range alarm.

See section 2.5.2 for further details.

⚠WARNING **In the event of an LEL overrange alarm the PHD6 must be turned off, brought to an area that is known to be safe and then turned on again to reset the alarm.**

1.4.4 PID lamp out alarm

The PHD6 monitors the status of the PID lamp to ensure that it is functioning properly. Alarms are generated if the PHD6 determines that the lamp is out. See section 2.5.3 for further details

1.4.5 LEL response failure due to lack of O_2 alarm

The PHD6 features automatic warning against LEL sensor response failure due to lack of oxygen. See section 2.5.4 for details.

1.4.6 Security beep/flash

The PHD6 includes a security beep function that is designed to notify the user that the instrument is powered up and running. Once enabled the PHD6 will emit a short audible beep and give a short flash on the LED at a user-defined interval.

The security beep/flash can be enabled manually through the Main Menu (see chapter 5), with BioTrak II software or through the IQ6 Dock.

1.4.7 Latching alarms

The PHD6's alarms are self-resetting unless the alarm latch is enabled. With the PHD6's alarm latch enabled, the audible and visible alarms will continue to sound after the atmospheric hazard has cleared. To reset the alarms, simply press the MODE button. If the alarm latch is disabled and the alarm condition is no longer present, the instrument will automatically return to normal operation, and the visible and audible alarms cease without further input from the user.

Latching alarms can be enabled manually through the Main Menu (see chapter 5), with BioTrak II software or through the IQ6 Dock.

1.4.8 Fault detection

PHD6 software includes a number of additional alarms designed to ensure the proper operation of the instrument. When the PHD6 detects that an electronic fault or failure condition has occurred, the proper audible and visible alarms are activated and an explanatory message is displayed.

Faults and other electronic safeguards are discussed in detail in section 2.5.

⚠WARNING The PHD6 is designed to detect potentially life threatening atmospheric conditions. Any alarm condition should be taken seriously. The safest course of action is to immediately leave the affected area, and return only after further testing determines that the area is once again safe for entry.

1.5 Other electronic safeguards

Several automatic programs prevent tampering and misuse of the PHD6 by unauthorized persons. Each time the detector is turned on, the PHD6 automatically tests the LED alarm lights, audible alarm, internal memory and pump status (if so equipped). The battery is monitored continuously for proper voltage. The PHD6 also monitors the connection of sensors that are currently installed. The detection of any electronic faults causes the activation of the audible and visible alarms and causes the display of the appropriate explanatory message.

1.6 Sensors

The PHD6 can be configured to simultaneously monitor oxygen, combustible gases and vapors, volatile organic compounds (VOCs) and a number of toxic gases. The sensor configuration of the PHD6 may be specified at the time of purchase, or changed in the field by appropriately trained personnel.

The PHD6 must be calibrated following any sensor replacement.

Replacement sensor part numbers and sensor ranges are given in Appendix C.

⚠**WARNING** A sensor that cannot be calibrated or is found to be out of tolerance must be replaced immediately. An instrument that fails calibration may not be used until testing with known concentration test gas determines that accuracy has been restored, and the instrument is once again fit for use.

Calibration procedures are discussed in detail in Chapter 4.

1.6.1 Cross Sensitivity

Sensor cross-sensitivity figures are given in Appendix D.

The CO channel in the Duo-Tox sensor in the PHD6 may exhibit high levels of cross sensitivity to organic vapors (VOCs). For best performance in an atmosphere known to contain VOCs, use a dedicated CO sensor.

1.7 Optional sample draw pump

A motorized sample-draw pump is available for the PHD6 for situations requiring continuous "hands free" remote monitoring.

⚠**WARNING** **The PHD6 continuous sample draw pump (part number 54-54-102) is the only pump that can be used with the PHD6.**

The pump contains a pressure sensor that detects restrictions in airflow caused by water or other obstructions being drawn into the unit and immediately acts to turn the pump off in order to protect the sensors, pump, and other PHD6 components from damage.

Pump status is continuously monitored by the PHD6 microcontroller. When the pump is active and functioning properly, the spinning pump icon is displayed in the status bar at the bottom of the display. Low flow or other pump fault conditions activate audible and visible alarms and cause the display of the appropriate explanatory message.

1.7.1 Special precautions when using the PHD6 pump

The rubber material used in the PHD6 diaphragm pump is susceptible to temporary compromise by exposure to high levels of flammable fuel and solvent vapors. If the PHD6 is being used to sample atmospheres that exceed 50% LEL, test the pump frequently to ensure that pump function has not been compromised.

To test the pump, block the end of the sampling line (probe) inlet with a finger. The pump should quickly go into alarm, which indicates proper function. If the pump fails to go into alarm while the inlet is blocked, it is not working properly; and the PHD6 may not be providing an accurate reading. If the pump test fails, the safest course of action is to immediately leave the affected area and to return only after further testing with known, functional detection equipment confirms that the area is once again safe for entry.

⚠**WARNING** **Do not use the pump to sample for prolonged periods in conditions where the concentration of solvent or fuel vapors may be greater than 50% LEL.**

1.8 Data storage

The PHD6 includes a black box data recorder and an event logger as standard features. A full datalogger is available as an upgrade at any time.

1.8.1 Black box data recorder

A black box data recorder is a standard feature in the PHD6. The “black box” is continually in operation whether the user is aware of it or not. The black box stores important information such as gas readings, turn-on times, turn-off times, temperatures, battery conditions, the most recent calibration date and settings, types of sensors currently installed, sensor serial numbers, warranty expiration and service due dates, and current alarm settings.

There is a finite amount of memory storage available in the black box data recorder. Once the memory is “full”, the PHD6 will begin to write the new data over the oldest data. The black box data recorder will store a minimum of 63 hours of data in one-minute increments before it begins to write new data over the oldest data. In this way, the newest data is always conserved.

To extract the information from the black box data recorder, the PHD6 must be returned to Honeywell. Once the data is downloaded from the instrument, a report will be generated. The unit and the report will then be returned to the user. Simply call Honeywells’ Instrument Service Department to obtain a return authorization number. There is no charge for the downloading service, but the user is responsible for any freight charges incurred.

The “black box” data recorder in the PHD6 can be upgraded to a fully enabled datalogger at any time. All that is required is the activation code that corresponds to the serial number of the PHD6 and the PHD6 Upgrade Utility Program.

1.8.2 Event logger

The event logger in the PHD6 stores data associated with alarm conditions. Each (alarm) event includes the following data for each of the installed sensors:

- Sensor type
- Max reading
- Average reading
- Start time
- End time
- Duration of the event.

The PHD6 stores the data from the 20 most recent alarm events. Once 20 events have been stored, the PHD6 will begin to systematically overwrite the data from the oldest event in memory with data from new events. One event may be a combination of different alarms occurring simultaneously or in immediate succession. The event logger may be downloaded using BioTrak II software. The PC must be equipped with IrDA to provide a connection.

1.9 PHD6 design components

1. **Case:** The instrument is enclosed in a solid PC (polycarbonate) case with TPE (rubber) overmold.

2. **Front face:** The front face of the instrument houses the MODE button, navigation keys, LCD (liquid crystal display), LED alarm lights, and audible alarm ports.
3. **Display:** A liquid crystal display (LCD) shows readings, messages, and other information.
4. **Alarm LEDs:** Top, front and side-mounted LED (light emitting diode) alarm lights provide a visual indication of alarm state.
5. **Infrared Port:** The infrared port is located at the bottom of the instrument and is used for communication between the PHD6 and a PC.
6. **On / Off "MODE" button:** The large black push-button on the front of the instrument is the "MODE" button. The MODE button is used to turn the PHD6 on and off as well as to control most other operations, including the initiation of the automatic calibration adjustment.
7. **Navigation Keys:** The up and down navigation keys are located between the MODE button and the display.
8. **Sensor compartment cover:** The sensors are located in a vented compartment at the bottom of the instrument.
9. **Audible alarm ports:** Two cylindrical ports extending through the front of the instrument on opposing sides of the MODE button house the loud audible alarms. The waterproof audible alarms seat directly to the rubber inner-liner to protect the instrument against leakage or exposure to liquids.
10. **Battery pack:** Two types of interchangeable battery packs (rechargeable Lithium Ion (Li-Ion) and disposable alkaline) are available for use. Li-Ion battery packs are recharged with the pack installed on the PHD6.
11. **Battery charger connector:** A water-resistant connector at the bottom of the case assembly is used to connect the PHD6 to the “drop in” style charger.
12. **Battery Compartment / Clip:** The battery inserts from the back of the instrument. A sturdy clip attached to the battery allows the user to wear the PHD6 on a belt or other article of clothing.

1.10 PHD6 standard accessories

Standard accessories included with every PHD6 include calibration adapter, additional tubing for use during calibration, manual sample draw kit, reference manual and quick reference card. The manual sample draw kit consists of a sample draw / calibration adapter, squeeze bulb, replacement sample probe filters, ten feet/three meters of tubing and a sample probe.

Standard configurations of the PHD6 are delivered in a cardboard box with cardboard inserts.

1.10.1 Alkaline PHD6 detectors

If the PHD6 has been purchased as an alkaline instrument, the standard accessories include an alkaline battery pack and a set of 3 disposable AA alkaline batteries.

1.10.2 Li-Ion PHD6 detectors

If the PHD6 has been purchased as a Li-Ion rechargeable instrument, the standard accessories include Li-Ion battery pack and a slip-in PHD6 charger.

1.11 PHD6 kits

PHD6 detectors may also be purchased as part of a complete kit that includes calibration gas, fixed-flow regulator and a hard-shell carrying case.

1.11.1 PHD6 Confined Space Kits

In addition to the standard accessories listed above, Confined Space Kits also include calibration fittings, fixed-flow regulator with pressure gauge, and appropriate large cylinder(s) of calibration gas in a foam-lined, waterproof hard-shell carrying case.

1.11.2 PHD6 Value Packs

PHD6 Value Packs include an alkaline PHD6, all standard accessories, calibration fittings, small cylinder of calibration gas, and fixed flow regulator in a foam-lined non-waterproof hard-shell carrying case.

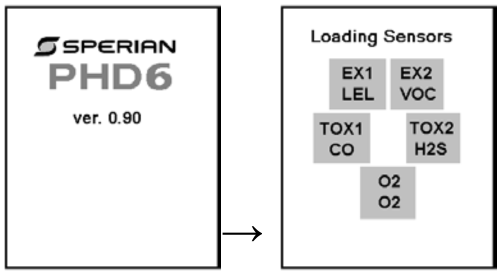
2. Basic Operations

The PHD6 is a three-button gas detector. Most day-to-day functions are initiated solely with the MODE button. The MODE button controls:

- Turning the PHD6 on and off
- Turning on the backlight
- Viewing the MAX, STEL and TWA reading screens
- Initiating the calibration sequence

2.1 Turning the PHD6 On

To turn the PHD6 on, press and hold the MODE button for one second. The introduction screen is followed by a screen showing a list of installed sensors and the sensor ports they occupy. The PHD6 has 5 sensor ports, but can display readings for as many as 6 distinct gases.



The serial number will then be shown. If the detector has a fully enabled datalogger, the interval and memory capacity will be shown.

The sampling interval is given in minutes and seconds. The datalogger samples continuously, so the data stream must be broken into intervals to be recorded. The datalogging interval defines the frequency of the breaks in the data stream. The capacity is the number of hours and minutes it will take to completely fill the datalogger’s memory. Once the memory is filled, the PHD6 will start to write new data over the oldest data in order to conserve that most recent data.

The sampling interval in the fully enabled datalogger may be modified using BioTrak II Software, the IQ Systems or manually through the Main Menu.

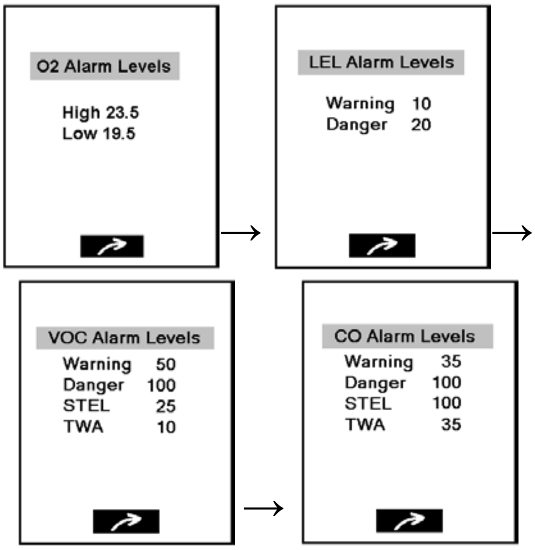
If the PHD6 is equipped with the standard black box datalogger, it will show Black Box.

In the PHD6, a one-minute sampling interval will result in the ability to store a minimum of 63 hours of readings before the oldest data is overwritten by new data.

If fewer than 5 sensors are used, the capacity will increase.

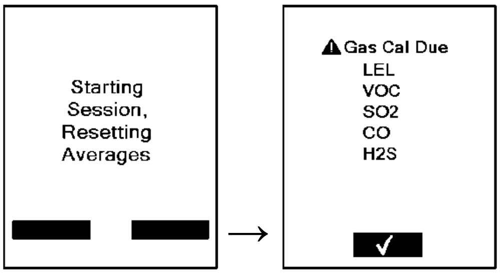
As the instrument performs a basic electronic self test, the date, time, temperature and battery type will be displayed. During the self-test, the PHD6 performs a system memory check and tests to see if a motorized pump is attached to the instrument. If a pump is detected, it will be briefly activated during the self-test. For details on start up procedures for pump-equipped PHD6 instruments see section 2.1.1 below.

The PHD6 will then display each installed sensor along with any associated alarms levels.



For more information concerning atmospheric hazard alarms, see section 2.4.

After the alarm screens, the PHD6 will show that "Starting Session, Resetting Averages" followed by the calibrations status screen. Whenever the PHD6 is turned on, it automatically starts a new operating session and resets STEL and TWA calculations. The MAX reading is also reset for the new session.



If calibration is due and the calibration due warning is enabled, the user will need to acknowledge the calibration due status by pressing the MODE button. Once the MODE button is pressed, the PHD6 will continue to the current gas readings screen and the appropriate calibration due icons will flash to remind the user that the instrument is past due for calibration. If calibration is not due, the number of days until the next calibration will be shown before the instrument proceeds to the current gas readings screen.

2.1.1 Start up with pump

PHD6 instruments that are equipped with a built-in motorized sample draw pump will have a slightly longer start up sequence. After the calibration status screens, the PHD6 will prompt you to leak test the pump.

See section 3.2 for further instructions on using the PHD6 pump.

2.1.2 Start up with PID or IR sensor

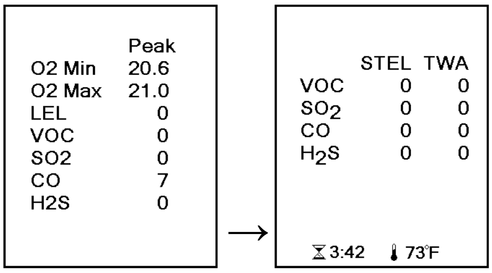
When a PID or IR sensor is installed in the PHD6, there will be a warm-up period during which the hourglass icon and either "PID" or "IR" will be shown. The VOC gas type and reading are shown in reverse text.

⚠WARNING PID and IR readings that are displayed during the sensor warm up period should not be considered accurate. The use of the PHD6 to monitor for compounds detected by the PID or IR sensor during the warm up period may lead to inaccurate and potentially dangerous readings.

2.2 Operating Logic

Once the PHD6 has completed the start up sequence, the current gas readings screen will be shown. The status bar at the bottom of the display shows time plus calibration, pump and battery status.

To turn on the backlight press the MODE button once. To view the peak readings screen, press the MODE button a second time. Press the MODE button a third time to view the Short Term Exposure Limit (STEL) and Time Weighted Averages (TWA) for the operating session.



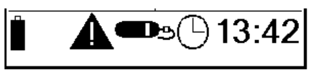
Screens that are accessible with the MODE button (including the Peak and STEL/TWA screens) are selectable by the user. See section 5.2.6 for details.

Note: The PHD6 must be in continuous operation for at least 15 minutes before it will be able to calculate STEL or TWA values. For the first 15 minutes of any operating session, the screen will show the length of time that the instrument has been operating instead of the STEL and TWA values.

2.2.1 Status Bar

The status bar at the bottom of the current gas readings shows general information including:

- Battery Status
- Heartbeat (instrument status)
- Pump Status
- PID Hourglass (PID warmup period)
- PID Lamp Status (shows "Check Sen.")
- Bump Due Warning
- Calibration Due Warning
- Time



Battery Status Icon

The battery status icon is located at the far lower left of the screen. The battery icon gives an indication of how much power is left in the battery.

When the battery icon is empty, it is considered a low battery condition and the user should take the appropriate steps to either recharge the Li-Ion battery or replace the alkaline batteries.

For more information on the low battery alarms, see section 2.5.5.

IR Hourglass Symbol

The hourglass symbol along with IR are shown in the status bar during the IR sensor's 1-minute warm-up period. Once the warm-up period is over, the hourglass will no longer be shown.

PID Hourglass Symbol

The hourglass symbol along with PID are shown in the status bar during the PID sensor's 5-minute warm-up period. Once the warm-up period is over, the hourglass will no longer be shown.

When a PHD6 is equipped with both an IR and a PID sensor, the PID hourglass is shown since the PID sensor takes longer to warm up than the IR sensor.

Heartbeat Symbol

When the instrument is properly charged, calibrated and functioning normally, the heartbeat symbol will flash in the status bar.

Pump Status Icon

If the pump is attached and functioning, the moving fan icon will appear in the status bar.

Calibration and Bump Due Warnings

If the PHD6 is due for calibration the calibration bottle icon and triangular warning symbol will be flash in the status bar.

Time

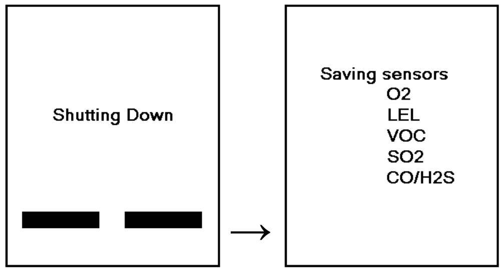
The time is shown on the current gas readings screen at the lower right.

2.2.2 Screen Flip

The screen orientation of the PHD6 may be flipped (so that it can be read looking down from above instead of up from below) by pressing the up and down arrows simultaneously at the Current Gas Readings screen.

2.3 Turning the PHD6 Off

To turn the PHD6 off, press and hold the MODE button until the display reads "Release MODE to shut down". Then release the MODE button. The display will briefly show "Shutting Down" and "Saving Sensors" before the display goes blank.



2.4 Atmospheric Hazard Alarms

The PHD6 is configured with a series of alarms that are designed to warn the user of hazardous atmospheric conditions.

⚠WARNING The PHD6 is designed to detect potentially life threatening atmospheric conditions. Any alarm condition should be taken seriously. The safest course of action is to immediately leave the affected area, and return only after further testing determines that the area is once again safe for entry.

2.4.1 O2 Alarms

The PHD6 is equipped with both high and low alarms for oxygen. Fresh air contains 20.9% oxygen.

The low oxygen alarm indicates oxygen deficiency and is normally set at 19.5% at the factory.

The high alarm indicates oxygen enrichment and is normally set at 23.5% at the factory.

2.4.2 Combustible Gas Alarms

The PHD6 is equipped with a 2-stage alarm for concentrations of combustible gas.

The default LEL warning alarm setting is 10% LEL. The default LEL danger alarm setting is 20% LEL.

The default warning alarm for NDIR-CH_4 sensors is 10% LEL or 0.5%/vol CH_4. The default danger alarm is 20% LEL or 1.0%/vol CH_4.

2.4.3 Toxic and VOC sensor alarms

The PHD6 is equipped with up to four different alarms for toxic gases and volatile organic compounds (VOCs). The combination of alarms is designed to protect the user from both chronic and acute toxic hazards.

Current alarm settings are shown during the startup sequence, and can also be accessed through the Alarms Menu.

2.4.4 Alarm Descriptions

Warning Alarms

Warning alarms indicate a hazardous atmospheric condition that has not yet risen to the level necessary to initiate the danger alarms.

Warning alarms can be temporarily silenced by pressing the MODE button.

Danger Alarms

Danger alarms indicate a significantly hazardous condition. The danger alarms cannot be silenced by the user.

STEL Alarms

STEL (Short Term Exposure Limit) alarm values represent the average concentration of instrument readings for the target gas for the most recently completed 15 minutes of operation.

TWA Alarms

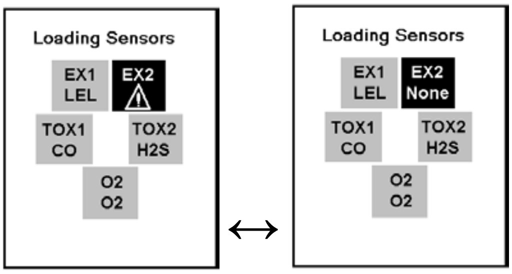
TWA (Time Weighted Average) values are calculated by taking the sum of exposure to a particular toxic gas in the current operating session in terms of parts-per-million-hours and dividing by an eight-hour period.

2.5 Other Alarms

The PHD6 will display warnings or error messages when it detects problems during operation.

2.5.1 Missing Sensor Alarms

During startup, if the PHD6 fails to detect a sensor that was present when the instrument was last turned off, it will show the sensor channel with “None” and the triangular warning symbol at the Loading Sensors screen.



Press MODE to acknowledge the missing sensor

If the PHD6 loses connection with a sensor during an operating session, it will immediately go into alarm and show an “X” in the space on the display allotted for the sensor reading. The PHD6 must be turned off to reset the missing sensor alarm.

2.5.2 Sensor Overrange alarm

The PHD6 will show a vertical double-headed arrow and go into alarm if a sensor is exposed to a concentration of gas that exceeds its established range. In the case of an LEL reading that exceeds 100% LEL, the LEL channel will be automatically disabled by the instrument and the alarm will latch (remain on) until the instrument is turned off. The PHD6 must be turned off, brought to an area that is known to be safe (containing 20.9% oxygen, 0% LEL and 0 PPM toxic gases), and then turned back on. The display will show a vertical arrow with two heads in place of the sensor reading for any channel that has gone into over range alarm.

⚠WARNING **A combustible sensor overrange alarm indicates a potentially explosive atmosphere. Failure to leave the area immediately may result in serious injury or death!**

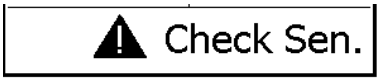
⚠WARNING **In the event of an LEL overrange alarm the PHD6 must be turned off, brought to an area that is known to be safe (containing 20.9% oxygen, 0% combustible gases and 0 PPM toxic gases), and then turned on again to reset the alarm.**

2.5.3 PID Lamp Out Alarm

The PID sensor in the PHD6 uses a lamp to ionize the gas sample and generate a reading.

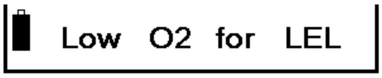
If the lamp fails to light during instrument startup, the PHD6 will attempt to start it for the duration of the warm-up cycle. If the lamp lights, the PHD6 will complete the warm-up cycle and then enter standard operating mode. If the lamp fails to light by the end of the 5-minute warm-up cycle, the instrument will display an X in the PID channel and the instrument will go into alarm. The status bar at the bottom of the screen will also show “Check Sen.” to let the user know that the PID sensor is not functioning.

The PHD6 also tests the lamp in the PID sensor at regular intervals during normal operation. If the PHD6 determines that the lamp has gone out, the X will appear on the display in the PID channel, the instrument will go into alarm and the status bar will show “Check Sen.”



2.5.4 O_2 Too Low for LEL Alarms

The LEL sensor in the PHD6 requires a certain amount of oxygen to function properly. When oxygen levels fall below 11% by volume, the PHD6 will show “X“ in place of the LEL reading and will indicate the oxygen levels are too low.



2.5.5 Low Battery Alarms

When the battery icon in the LCD appears empty, it means that a low battery condition exists. Leave the area immediately.

If the PHD6 is equipped with an alkaline battery pack, proceed to an area that is known to be safe area (containing 20.9% oxygen, 0% combustible gases and 0 PPM toxic gases) and change the batteries.

⚠WARNING **The PHD6 must be located in a non-hazardous location whenever alkaline batteries are removed from the alkaline battery pack. Removal of the alkaline batteries from the battery pack in a hazardous area may impair intrinsic safety.**

CAUTION Always turn the PHD6 off prior to removing the battery pack. Removal of the battery pack with the instrument turned on may cause corruption of stored data in the PHD6.

If the PHD6 is equipped with a Li-Ion battery pack, proceed to an area that is known to be safe and recharge the battery pack.

If the PHD6 continues to be used during a low battery condition, it will eventually go into a low battery alarm, and the warning alarm will sound and the screen will display the low battery warning. To silence the alarms, the user will need to acknowledge the low battery condition by pressing the MODE button before the instrument will resume monitoring. Once the MODE button is pressed, the empty battery cell and the caution icon will flash. After 5 minutes the warning will sound again. This cycle will continue until the battery reaches a “very low battery” condition, when the instrument will go into alarm for the last time, notify the user that it is shutting itself and proceed to turn itself off.

Alkaline battery replacement and Li-Ion battery charging instructions are contained in sections 6.2 and 6.3.

⚠WARNING **The PHD6 must be located in a non-hazardous location during the charging cycle. Charging the PHD6 in a hazardous location may impair intrinsic safety.**

2.5.6 Calibration Due Warning

If the PHD6 is due for calibration, the triangular warning symbol and span bottle icons will flash in the status bar at the bottom of the LCD once per second as a reminder.

2.5.7 Out of Temperature Range

If the operating temperature falls outside of the normal operating range of a sensor in the PHD6, the instrument will go into alarm and the thermometer icon will be shown on the display at the sensor.

2.6 PC Connection via Infrared Port

PHD6 instruments that are equipped with a fully enabled datalogger can be downloaded to a PC using BioTrak II or IQ software through the PHD6's infrared port. The IrDA port is located on the bottom of the instrument towards the back.

1. If the PHD6 is turned off, hold the MODE button down for about 5 seconds until "Communication Mode" is shown. If the PHD6 is on already, proceed to step 2.
2. Align the infrared port on the PHD6 with the PC's infrared port to complete the connection.

Note: For further instructions concerning the download procedure for the PHD6, see the BioTrak II or IQ System manual as appropriate.

2.7 PID Sensor Correction Factors

The PHD6 may be equipped with a PID (Photo Ionization Detector) sensor designed to detect Volatile Organic Compounds. The PID sensor employs an ultraviolet lamp to ionize the VOCs in the sample. The detector is then able to measure the level of the VOCs and generate a reading.

.

PID sensors are broadband in nature. This means that they are inherently non-specific. Any gas or vapor that is ionized at the UV lamp energy will give a response.

⚠**WARNING** It must be understood that the selection of a particular VOC or gas from the onboard PID library in the PHD6 does **not** imply that the detector will only respond to that material. It only means that the sensitivity scale (and default alarms) has been set to approximate the target material.

Regardless of the library material selected, the PID sensor always remains broadband in nature and therefore will respond to any gases/vapors in the ambient environment that are present and are ionized at the UV lamp energy. This consideration is particularly important when trace or hard to detect materials (higher correction factor (CF) are present in highly contaminated backgrounds. In this case the PID would be a poor choice for detection of the target gas/vapor.

⚠**WARNING** Correction factors in the PHD6 onboard PID library for various, common VOCs and gases should be considered as approximate. The PHD6 with PID has been fully tested and validated only for performance with isobutylene.

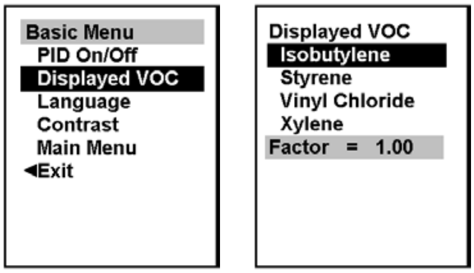
For other materials requiring verified accuracy it is necessary to calibrate the detector to the gas/vapor to be monitored directly. Further if using remote sample draw and/or physical conditions in the field that differ from ambient, to perform calibrations as close to the physical and actual setup conditions as possible.

The convention in the gas detection industry is to calibrate the PID sensor to a known concentration of isobutylene and (as required) to use response factors or to select the scale of target gas from a pre-programmed menu. Sensitivity scale is displayed on the channel with 7 character designation whether it is isobutylene or another material.

2.7.1 Displayed VOC

To change the displayed VOC, first enter the Basic Menu by holding the MODE button to turn the PHD6 off. When "Release MODE to Shut Down" is shown, continue to hold the MODE Button until the Basic Menu is shown.

At the Basic Menu press the down arrow once to select "Displayed VOC". A list of Volatile Organic Compounds will be shown. Use the navigation arrows to highlight the appropriate VOC and press MODE to select it. The new VOC will be shown when the PHD6 is restarted.



2.7.2 Specified VOC Calibration Gas

To change the calibration gas for PID sensor, follow the instruction in section 5.2.1 to reach the Main Menu. Then access the Calibration Menu followed by the Gas Values submenu. Once in the Gas Values submenu, select the VOC sensor. Then select Cal Gas Type and specify the appropriate compound and amount for calibration.

2.8 Special Instructions for NDIR sensors

Two NDIR sensors are available for the PHD6: One for the detection of carbon dioxide (CO_2), and one for the detection of methane (CH_4).

2.8.1 Special Calibration Requirement for NDIR CO_2 (Carbon Dioxide) Sensor

Unlike most sensors the Infrared CO_2 sensor requires two different gas sources to fully calibrate the instrument. The reason for this is that it is effectively impossible to zero calibrate a CO_2 detector in ambient air because there is an unknown and varying amount of background CO_2 present in the atmosphere.

See section 4.4 for more details.

2.8.2 Special Consideration for IR CH_4 Methane sensor gas calibration

The NDIR-CH_4 sensor is designed specifically for the detection of methane. Gas calibration should always be done with methane calibration gas at the actual amount of methane shown on the cylinder. See section 4.5 for details.

2.8.3 Hydrogen Warning for IR CH_4 Methane Sensor

Unlike other types of sensors used to measure combustible gases and vapors, the IR CH_4 sensor used in the PHD6 does not respond to hydrogen.

⚠WARNING **Do not use the NDIR CH_4 sensor for the detection of hydrogen. Unlike catalytic hot-bead LEL sensors, the NDIR CH_4 sensor in the PHD6 does not respond to hydrogen. Use the of the NDIR CH_4 for the detection hydrogen may lead to property damage, personal injury or death.**

3. Sampling

The PHD6 may be used in either diffusion or sample-draw mode. In either mode, the gas sample must reach the sensors for the instrument to register a gas reading. The sensors are located on the front of the instrument near the bottom in a vented compartment.

⚠WARNING **The sensor ports must be kept free of obstruction. Blocked sensor ports can lead to inaccurate and potentially dangerous readings.**

In diffusion mode, the atmosphere being measured reaches the sensors by diffusing through vents in the instrument. Normal air movements are enough to carry the sample to the sensors. The sensors react quickly to changes in the concentrations of the gases being measured. Diffusion-style operation monitors only the atmosphere that immediately surrounds the detector.

The PHD6 can also be used to sample remote locations with either the hand-aspirated sample-draw kit, or with the motorized sample draw pump. During remote sampling, the gas sample is drawn into the sensor compartment through the probe assembly and a length of tubing.

⚠WARNING **The PHD6 is delivered with a sample draw kit that contains 10 feet/3 meters of polyester urethane (fuel-resistant) tubing part number 53-001. This material is completely compatible with common combustible gases/vapors, and the toxic gases CO and H_2S. When using the PHD6 with a sample draw pump or kit to sample with any of the gas types and tubing lengths listed in the chart below, FEP-Lined Tubing (part number 53-036) should be used.**

Gas Type	Tubing Length
CL_2, CLO_2	**Up to 10 ft/3m Max.**
HCN	**Up to 100 ft/30m Max.**
PID, SO_2, NO, NO_2, PH_3, NH_3	**> than 10 ft/3m up to 100 ft/30m Max.**

Standard polyester urethane (fuel-resistant) tubing (part number 53-001) can be used otherwise. Use of other types of tubing may cause inaccurate and potentially dangerous readings that could result in serious injury or death.

For sampling using a PID sensor please refer to the Application Note titled "Usage and Applications of PID sensors version B1" included with your PhD documentation or contact customer service at 800-711-6776 to request a copy.

⚠WARNING **Do not use the NDIR CH_4 sensor for the detection of hydrogen. Unlike catalytic hot-bead LEL sensors, the NDIR CH_4 sensor in the PHD6 does not respond to hydrogen. Use of the NDIR CH_4 for the detection of hydrogen may lead to property damage, personal injury or even death.**

3.1 Manual sample draw kit

The manual sample draw kit is comprised of a sample draw probe, 2 sections of tubing, a squeeze bulb and an adapter that is used to connect the sample draw accessories system to the PHD6.

Note: The maximum amount of tubing that can be used with the manual sample draw kit is 50 feet/15 meters.

3.1.1 Manual sample draw kit usage

⚠WARNING The PHD6's manual sample draw kit may not be used for the detection of chlorine (Cl_2) or chlorine dioxide (ClO_2) due to the reactive properties of these gases.

To use the manual sample draw kit:

1. Connect the short section of hose that comes off the squeeze bulb to the sample draw adapter.
2. To test the seals in the sample draw system, cover the end of the sample draw probe with a finger, and squeeze the aspirator bulb. If there are no leaks in the sample draw kit components, the bulb should stay deflated for a few seconds.
3. Secure the calibration adapter (with the sample draw assembly attached) to the PHD6 by inserting the tab and tightening the knurled screw into the brass nut at the bottom of the adapter.
4. Insert the end of the sample probe into the location to be sampled.
5. Squeeze the aspirator bulb to draw the sample from the remote location to the sensor compartment.

   To ensure accurate readings while using the manual sample draw kit, it is necessary to squeeze the bulb once for every one foot of sampling hose for the sample to first reach the sensors, and then to continue squeezing the bulb once per second for an additional 45 seconds or until readings stabilize. As an example, if 10 feet/3 meters of tubing is used, it will be necessary to draw the sample in by squeezing the bulb continuously for a minimum of 55 seconds or until readings stabilize.
6. Note the gas measurement readings.

CAUTION: Hand-aspirated remote sampling only provides continuous gas readings for the area in which the probe is located while the bulb is being continuously squeezed. Each time a reading is desired, it is necessary to squeeze the bulb a sufficient number of times to bring a fresh sample to the sensor compartment.

3.2 Motorized sample draw pump

⚠WARNING The PHD6 continuous sample draw pump (part number 54-54-102) is the only pump that can be used with the PHD6.

A motorized sample-draw pump is available for the PHD6 for situations requiring continuous "hands free" remote monitoring. The pump is powered by the PHD6 battery. When the pump is attached to the instrument, the spinning fan icon will be shown on the display in the current gas readings screen.

Note: The maximum amount of tubing that can be used with the motorized sample draw pump is 100 feet/30 meters.

To ensure accurate readings while using the continuous sample pump, it is necessary to allow the pump to draw the sample for one second for every one foot of sampling hose plus an additional 45 seconds or until readings stabilize. For example, with 10 ft/3m of tubing, it will be necessary to allow a minimum of 55 seconds for the sample to be drawn into the sensor chamber and for the readings to stabilize.

PHD6 instruments are designed to automatically recognize the pump whenever it is attached to the instrument. If the pump is attached when the PHD6 is turned off, the instrument will automatically initiate the pump start up sequence when the instrument is turned on. If the pump is attached while the instrument is running, the PHD6 will automatically initiate the pump test sequence before returning to the current gas readings screen.

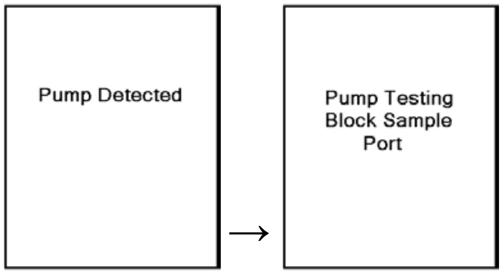
⚠WARNING Do not use the PHD6 pump for prolonged periods in an atmosphere containing a concentration of solvent or fuel that may be greater than 50% LEL.

3.2.1 Starting the motorized sample pump

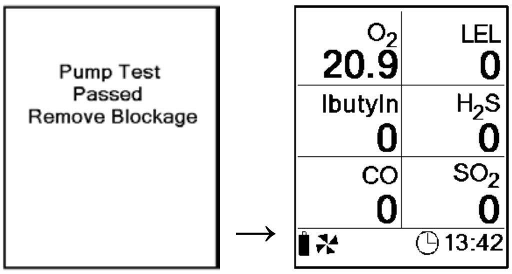
First attach the probe and tubing to the pump, then secure the pump (with the sample draw assembly attached) to the PHD6 by hooking the tabs on the pump into the corresponding slots on the back of the PHD6. Once the pump is in position over the sensors, tighten the knurled screw on the adapter into receptor at the center of the sensor cover.

Note: The sample probe assembly must be attached to the pump when the pump is attached to the instrument.

Once the pump is recognized, the pump test sequence will be initiated automatically. The instrument will instruct you to block the sample inlet.



Block the sampling inlet by placing a finger over the end of the sample probe assembly. Once the blockage is detected, the PHD6 will indicate that the test has been passed and instruct you to remove the blockage. Once the blockage is removed, it will proceed to the current gas readings screen and the pump icon will be shown in the status bar.

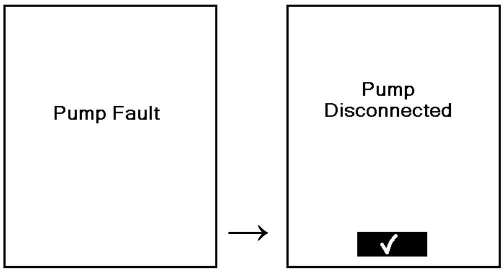


If the instrument is unable to detect the vacuum resulting from the pump blockage within 30 seconds, the test will fail, the instrument will go into alarm and you will be directed to remove the pump.

Remove the pump and press the MODE button to resume diffusion operation.

3.2.2 Turning off the pump

To turn off the pump, simply remove the pump from the bottom of the instrument. The screen will show “Pump Fault” followed by “Pump Disconnected”. Press MODE to continue without the pump.

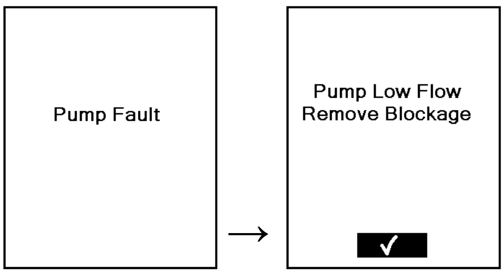


3.2.3 Pump low flow alarm

The PHD6 Pump contains a pressure sensor that continuously monitors for restrictions in airflow caused by water or other fluids being drawn into the unit and immediately acts to turn the pump off in order to protect the sensors, pump, and other PHD6 components from damage.

CAUTION: Never perform remote sampling with the PHD6 without the sample probe assembly. The sample probe handle contains replaceable filters designed to block moisture and remove particulate contaminants. If the pump is operated without the probe assembly in place, contaminants may cause damage to the pump, sensors and internal components of the PHD6

When the pump is active and functioning properly, the moving pump icon is shown on the lower status bar on the display. Low flow or other pump fault conditions activate audible and visible alarms and cause the display of the appropriate explanatory message.



Press MODE once the blockage has been cleared to restart the pump.

The pressure sensor in the sample draw pump is designed to detect pressure changes while the sample-draw probe is being held in a vertical position. If the probe is held horizontally or at a low angle while inserted into a fluid, a pressure drop sufficient to cause the pump to shut down may not be generated, and water could be drawn into the pump assembly causing damage to the pump, sensors and internal components of the PHD6.

CAUTION: Insertion of the sample draw tube into a fluid horizontally or at a low angle may lead to water ingress and may cause damage to the sensors and internal components of the PHD6.

If the PHD6 determines that a significant increase in pressure has occurred, it will go into alarm and notify the user that there is a blockage of the pump. The display will alternate between the following two screens.

Remove the blockage and press the MODE button to acknowledge the alarm and resume sampling.

3.3 Sample draw probe

The PHD6’s sample draw probe is the standard probe assembly from Honeywell. The sample probe handle contains moisture barrier and particulate filters designed to remove contaminants that might otherwise harm the instrument.

Particulate contaminants are removed by means of a cellulose filter. The hydrophobic filter includes a Teflon™ barrier which blocks the flow of moisture as well as any remaining particulate contaminants.

Sample probe filters should be replaced whenever visibly discolored due to contamination.

See section 6.5 for a probe diagram and a list of available sample probe filter replacement kits.

4. Calibration

The accuracy of the PHD6 should be verified on a regular basis. Verification can be as simple as performing a bump test, which is described below in section 4.1. If the instrument fails the fresh air test, then it must be fresh air calibrated before use. If the instrument fails the bump test with calibration gas, it must be successfully span calibrated before use.

Note: The NDIR-CO_2 sensor used in the PHD6 cannot be zero calibrated in fresh air. For specific instructions on calibrating the CO_2 sensor, proceed to section 4.4.

Note: The NDIR-CH_4 sensor used in the PHD6 must be calibrated with methane calibration scale to the actual amount of methane in the cylinder in terms of percent volume methane. See section 4.5 for details.

* ⚠**WARNING** **The Canadian Standards Association (CSA) requires combustible gas sensors to be bump tested prior to each day’s use with calibration gas containing between 25% and 50% LEL. The functional (bump) test procedure is covered in section 4.1.**

** ⚠**WARNING** **The Canadian Standards Association (CSA) requires combustible gas sensors to undergo calibration when the displayed value during a bump test fails to fall between 100% and 120% of the expected value for the gas.**

For Honeywells’ official recommendations concerning calibration frequency, see Appendix B.

4.1 Functional (Bump) testing

The accuracy of the PHD6 may be verified at any time by a simple functional (bump) test.

To perform a functional (bump) test, do the following:

1. Turn the PHD6 on and wait at least three minutes to allow the readings to fully stabilize. If an IR or PID sensor is in use, wait until the stabilization period ends before proceeding. If any of the sensors have just been replaced, the new sensor(s) must be allowed to stabilize prior to use. See section 6.4 for further details on sensor stabilization requirements.
2. Make sure the instrument is located in fresh air.

Figure 4.1 Bump Test / Gas calibration set up

3. Verify that the current gas readings match the concentrations present in fresh air. The oxygen (O_2) sensor should read 20.9%/vol. (+/-0.2%/vol.). The readings for the LEL sensor should be 0% LEL. The PID, NDIR-CH_4 and toxic sensors should read 0 parts-per-million (PPM) in fresh air. For the NDIR-CO_2 sensor, a carbon dioxide level between 0.03% and 0.10% is considered normal in fresh air. If the readings deviate from the expected levels in a fresh air environment, proceed to section 4.2 and perform the fresh air calibration adjustment then proceed to step 4.
4. Attach the calibration adapter and connect the calibration cylinder to the PHD6 as shown in figure 4.1. Flow gas to the sensors.
5. Wait for the readings to stabilize. (Forty-five seconds to one minute is usually sufficient.)
6. Note the readings. Toxic, VOC and combustible gas sensor readings are considered accurate in a bump test if they are between 90%* and 120% of the expected reading as given on the calibration cylinder. If the readings are considered accurate, then the instrument may be used without further adjustment. If the readings do not fall within 90%* and 120% of the expected reading as given on the calibration cylinder, then readings are considered inaccurate. If readings are considered inaccurate, proceed to section 4.3 and perform the gas calibration.

***Note: The Canadian Standards Association (CSA) requires combustible gas sensors to undergo calibration when the displayed value during a bump test fails to fall between 100% and 120% of the expected value for the gas.**

Honeywell multi-calibration gas mixtures contain approximately 18% oxygen. During the bump test the oxygen sensor should read within +/-0.5% of the level given on the calibration cylinder.

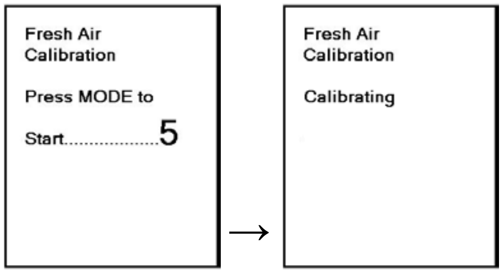
4.2 Fresh Air/Zero Calibration

Note: The NDIR-CO_2 sensor in the PHD6 may not be zero calibrated in fresh air. See section 4.4 for further instructions.

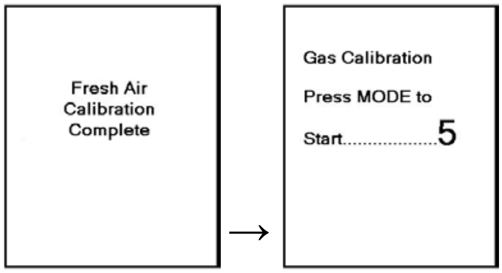
⚠WARNING Fresh air/zero calibrations may only be performed in an atmosphere that is known to contain 20.9% oxygen, 0.0% LEL and 0 PPM toxic gas.

To initiate the fresh air/zero calibration:

1. Press the MODE button three times within two seconds to begin the fresh air/zero calibration sequence. The PHD6 will briefly display AUTO CAL and then begin a 5-second countdown.
2. Press the MODE button before the end of the 5-second countdown to begin the fresh air/zero calibration. The fresh air/zero calibration is initiated when the PHD6 shows "Calibrating" on the screen.



3. The PHD6 will indicate when the fresh air/zero calibration is complete. It will then proceed to a second 5-second countdown for the gas calibration. If gas calibration is not required, allow the countdown to reach 0 without pressing the MODE button.



For instructions on the Gas Calibration, proceed to section 4.3.

4.2.1 Fresh air calibration failure

In the event of a fresh air calibration failure, the alarms will be activated and the instrument will display the following screen. Note that the sensor(s) that fail the zero calibration are shown (in this case, CO)

After 3 seconds, the PHD6 will return to the current gas readings screen and the visual and audible alarms will cease.

When calibration is due, the triangular warning symbol along with the span bottle icon the PHD6's status bar will show

If a successful fresh air calibration is not performed prior to instrument shut down, the PHD6 will note that Fresh Air Calibration is due during instrument start up.

Possible causes and solutions

1. The atmosphere in which the instrument is located is contaminated (or was contaminated at the time the instrument was last fresh air calibrated.
2. A new sensor has just been installed.
3. Instrument has been dropped or banged since last turned on.
4. There has been a significant change in temperature since the instrument was last used.

Recommended action:

Take the instrument to fresh air and allow readings to stabilize. Perform the fresh air/zero adjustment again. If the manual fresh air/zero procedure fails to correct the problem, perform the manual fresh air / zero calibration procedure as described in section 4.2.2 below.

4.2.2 Forced fresh air calibration

The PHD6 includes safeguards to prevent fresh air calibration in contaminated environments. If the standard fresh air calibration fails a second time, the instrument may be “forced” to accept the fresh air calibration by performing the manual fresh air calibration.

⚠WARNING Fresh air calibrations may only be performed in an atmosphere that is known to contain 20.9% oxygen, 0.0% LEL and 0 PPM toxic gas. Performing a fresh air calibration in a contaminated atmosphere may lead to inaccurate and potentially dangerous readings.

1. Initiate the standard fresh air / zero calibration sequence by pressing the MODE button three times in rapid succession. The 5-second countdown will begin.
2. Press and hold the down arrow key and then press the MODE button before the end of the 5-second countdown. Continue to hold the down arrow.
3. The fresh air/zero calibration is complete when the instrument begins another 5-second countdown for the gas calibration. If gas calibration is not required, allow the countdown to reach 0 without pressing the MODE button.

If the PHD6 still fails to calibrate after this procedure is attempted, contact Honeywell.

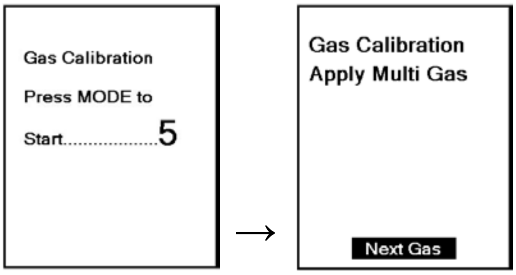
4.2.3 Fresh air calibration in a contaminated atmosphere

To fresh air calibrate the PHD6 in a contaminated atmosphere, connect a cylinder of “zero air” containing 20.9% oxygen and no contaminants to the PHD6 and flow gas to the instrument. Then perform the fresh air calibration. See figure 4.1 above for setup.

4.3 Gas Calibration

Once the fresh air / zero calibration has been successfully completed, the PHD6 will automatically proceed to the automatic gas calibration countdown screen.

Press the MODE button before the countdown is complete to initiate the gas calibration. The screen will immediately show “APPLY GAS” and then list the sensors for calibration and the expected levels of calibration gas.



Note: Honeywell recommends the use of multi-component calibration gas for calibrating the PHD6.

Apply calibration gas. The readout will change to a numerical display almost immediately and show the current readings along with the expected calibration gas value.

If multiple cylinders are required to complete the calibration, the PHD6 will prompt the user to apply the next cylinder as needed.

As sensors are calibrated, the PHD6 will briefly show the reserve values for each sensor. The reserve values give an indication of the remaining sensitivity of the sensors. When the reserve value for a specific sensor reaches 0%, it is time to replace the sensor.

The oxygen sensor is tested for response to diminished oxygen levels during gas calibration. Honeywell multi-gas calibration cylinders contain approximately 18.0% oxygen. In order to pass the gas calibration, the PHD6 must register an oxygen reading below 19.5% during gas calibration. If the detector fails to register the reduced oxygen levels during the gas calibration, it will show “Check O2 Sensor Response”. Press MODE to acknowledge.

See section 4.3.2 below if the oxygen sensor does not detect the drop in oxygen level and fails the gas calibration.

Note: Disconnect the calibration assembly as soon as the calibration is complete.

4.3.1 Gas calibration failure: All sensors except oxygen

When there is a gas calibration failure, the display will show CAL Error and display the sensor whose calibration has failed.

If the instrument fails to recognize the correct type or concentration of calibration gas, it will show “no GAS”.

When gas calibration is due, the PHD6’s display will show the warning symbol while intermittently displaying the calibration bottle in the gas readings screen.

The PHD6 will also display a “Needs Cal” message for any sensors that are currently due for calibration during instrument start-up.

Possible causes of gas calibration failure and remedies:

1. Empty calibration gas cylinder. Verify that there is calibration gas in the cylinder.
2. Expired calibration gas cylinder. Verify that the expiration date on the cylinder has not passed.
3. Calibration gas setting does not correspond to calibration gas concentration. If the values on the calibration cylinder differ from the calibration gas settings in the PHD6, the PHD6’s calibration gas settings must be changed to match the new values. Changing the calibration gas settings can be done manually through the MODE button or through BioTrak II using an IrDA link to the instrument.
4. LEL only: Type of calibration gas (standard) has changed significantly. LEL calibration gas may be based on several different response standards. Methane, propane and pentane are the most common. If using a new cylinder of calibration gas, make sure that the type and amount of combustible gas is identical to that of the previous bottle. Honeywell offers calibration gases in Methane, Propane Equivalent and Pentane Equivalent.
5. Dead sensor. Replace sensor.
6. Instrument problem. Return the instrument to Honeywell. Call the phone number on the front of this manual.

4.3.2 Gas calibration failure: Oxygen sensors

Honeywell multi calibration gas cylinders contains approximately 18.0% oxygen. The reduced oxygen level in the calibration gas cylinder allows the oxygen sensor's response to be tested in the same manner as the toxic and LEL sensors.

If the O2 sensor fails to register a reading below 19.5% during the gas calibration, the display will show "Check O2 Sensor Response". Press MODE to continue.

If the oxygen sensor fails to register the drop in oxygen during the gas calibration while being challenged with calibration gas containing less than 19.0% oxygen, it should be considered out of tolerance and retired from service immediately.

See section 5.2.4 under Gas Values for more information on the O2 sensor check.

⚠**WARNING A sensor that cannot be calibrated or is found to be out of tolerance should be replaced immediately. An instrument that fails calibration may not be used until testing with known concentration test gas determines that accuracy has been restored, and the instrument is once again fit for use.**

Possible causes and remedies for oxygen sensor failure:

1. Calibration gas cylinder does not contain a reduced level of oxygen. Verify that the cylinder contains less than 19.0% oxygen.

   To challenge the oxygen sensor without calibration gas, hold your breath for about 10 seconds and then **slowly** exhale directly onto the face of the sensor (in the same way you would attempt to fog up a piece of glass). If the descending oxygen alarm is set to 19.5%, the instrument should go into alarm after a few seconds. If the oxygen sensor fails to go into alarm during the exhalation test, the oxygen sensor must be replaced.
2. Oxygen sensor has just been replaced and has not had time to stabilize.
3. Oxygen sensor failure.

4.4 Special Calibration Instruction for NDIR CO_2 sensor

The Infrared CO_2 sensor requires two different gas sources for full calibration. The reason for this is that it is effectively impossible to zero calibrate a CO_2 sensor in ambient air because there is an unknown and varying amount of background CO_2 present in the atmosphere.

4.4.1 CO_2 Sensor True Zero

To determine if the CO_2 sensor requires zero calibration, connect the PHD6 to a cylinder of calibration gas that contains 0.00% CO_2 while the instrument is in normal operation.

If the reading shows 0.00% CO_2, then the CO_2 sensor does not require zero calibration. Disconnect the cylinder from the PHD6.

If the reading shows anything other than 0.00% CO_2, leave the calibration gas on and press the MODE button three times within two seconds to initiate the zero calibration sequence. Press MODE again when prompted to begin the zero calibration. Instruments equipped with a CO_2 sensor will automatically show the message "Press MODE if applying Zero Air" with another 5-second countdown. Press MODE again to begin the true zero calibration and follow the instructions given on the screen. Once the zero calibration is complete, remove the zero air cylinder from the instrument and proceed to the gas calibration (if necessary).

The gas calibration of the CO_2 sensor is performed during the standard gas calibration that is described above in section 4.3. The PHD6 will automatically prompt the user to apply the CO_2 calibration gas during the standard gas calibration sequence.

4.5 Special Calibration Instructions for NDIR-CH_4 Sensor

In many ways, the NDIR-CH_4 sensor used in the PHD6 is similar to a hot bead LEL sensor. For the purpose of calibration, they are very different. While LEL sensors can be calibrated with a number of other gases when properly configured, The NDIR-CH_4 sensor must be calibrated with methane to the exact amount shown on the calibration gas cylinder. (This is different from LEL sensors, where methane may be used for calibration, but is often done at a scale that makes the readings mimic those given by a specific amount of propane or pentane).

⚠**WARNING The NDIR CH_4 sensor in the PHD6 must be calibrated using methane (CH_4) calibration gas at the actual amount shown on the cylinder. The default calibration gas value for the NDIR-CH_4 sensor is 50% LEL. The appropriate calibration gas level for the 50% LEL default calibration gas setting is 2.50%/vol. CH_4. Use of inappropriate calibration gas may lead to inaccurate and potentially dangerous readings.**

5. Menu Options

The PHD6 operating firmware includes two menu options: the Basic Menu and the Main Menu.

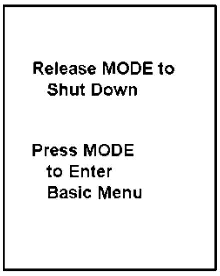
5.1 Basic Menu

The Basic Menu is a shortened version of the Main Menu that offers immediate access to a few key functions including:

- PID On/Off (enable or disable the PID sensor)
- Displayed VOC (select the target compound for the VOC sensor)
- Contrast (display's light vs. dark setting)
- Main Menu access

5.1.1 Entering the Basic Menu

To access the Basic Menu, with the PHD6 on and the current gas readings screen shown, hold the MODE button down until the PHD6 beeps four times and the "Release MODE to Shut Down" is shown. Then continue to hold the MODE Button until the Basic Menu is shown.



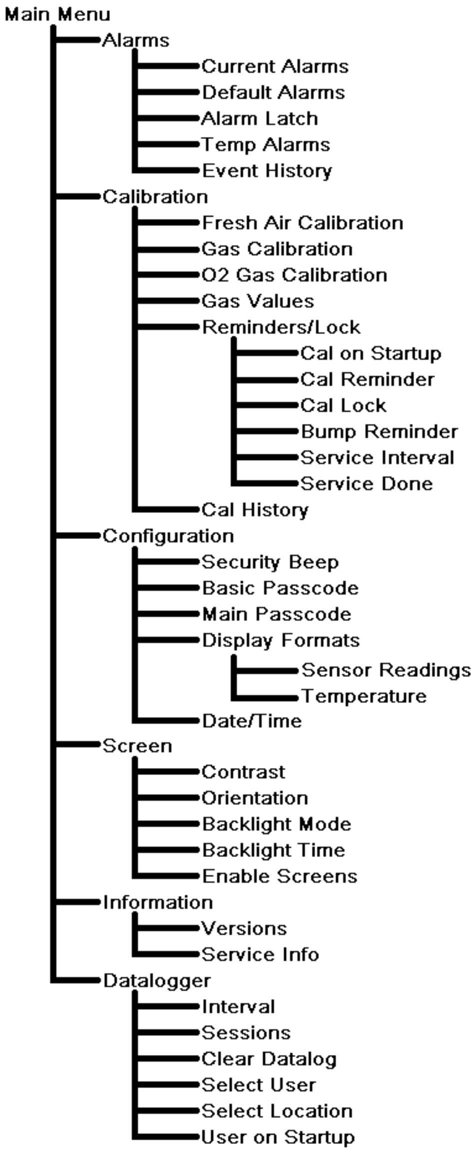
To navigate through the menu options, use the up and down navigation arrows to highlight the desired submenu and press MODE to enter the submenu.

5.2 Main Menu

The PHD6 is fully configurable through the Main Menu. The Main Menu contains 6 sub menus that lead to controls for the individual instrument functions.

To navigate through the menu options, use the up and down navigation arrows to highlight the desired submenu and press MODE to enter the submenu.

To navigate through the menu options, use the up and down navigation arrows to highlight the desired submenu and press MODE to enter the submenu.



Main Menu Options Diagram

5.2.1 Entering the Main Menu

There are two paths into the main menu.

If the instrument is **on**, press and hold the MODE button down for three seconds until "Shutting Down" is shown, then release the MODE button. The next screen will show "shutting down…" along with two black blocks at the bottom of the screen. Press and hold the two arrow keys while the two blocks are shown to enter the main menu.

If the instrument is **off**, press the MODE button to start the instrument. When "Starting Session, Resetting Averages" is shown along with two black blocks, press and hold the two arrow keys while the two blocks are shown to enter the main menu.

The Main Menu is the access point to 6 submenus that control virtually every aspect of the PHD6's functionality.

NOTE: Changes made in the Main Menu can have a direct affect on the PHD6's functionality and should only be made by those who are trained in proper gas detection and monitoring techniques.

5.2.2 Using the submenus.

In the Main Menu and the sub-menus, use the up and down arrows to navigate between the options and press MODE to enter. Three buttons will appear on the display to show the

functions of the MODE button and the two navigation keys on any screen that allows instrument setup changes.

5.2.3 Alarms Menu

The Alarms Menu contains the following 6 submenus (options in parenthesis). Description follows (as needed).

- **Current Alarms** (select any sensor to view current sensor alarm settings, then select any current sensor alarm to make changes)
- **Default Alarms** (scroll to view default sensor alarms for each recognized sensor plus option to Set Default Alarms for all sensors
- **Alarm Latch** (set on or off)

  The PHD6's alarms are self-resetting unless the alarm latch is enabled. With the PHD6's alarm latch enabled, the audible and visible alarms will continue to sound after the atmospheric hazard has cleared. Press the MODE button to reset the alarms. If the alarm latch is disabled and the alarm condition is no longer present, the instrument will automatically return to normal operation, and the visible and audible alarms cease without further input from the user.
- **Temp Alarms** (enable or disable high and low temperature alarms)

  If the operating temperature falls outside of the operating range of the PHD6, the instrument will go into alarm and the thermometer icon will be shown on the display.
- **Event History** (use up and down arrows to scroll through saved alarm events – includes time, duration and peak and average sensor readings during the event)

- **Vibrator** (if equipped) (enable or disable the vibrating alarm)

5.2.4 Calibration Menu

- **Fresh Air Cal** (initiates Fresh Air Calibration sequence)

⚠WARNING Fresh air/zero calibrations may only be performed in an atmosphere that is known to contain 20.9% oxygen, 0.0% LEL and 0 PPM toxic gas.

- **Gas Calibration** (initiates Gas Calibration sequence (calibration gas required)
- **O_2 Gas Cal** (initiates true O_2 Zero Calibration sequence)

  Note that this procedure requires a cylinder of calibration gas that contains 0.0% oxygen.

- **Gas Values** (select any sensor to view or change current calibration gas values).

  Note: The selection of the calibration gas for the PID sensor is NOT linked to the displayed substance. A ratio is used to calculate readings for various VOCs against the calibration standard. See section 2.7 for more details on the PID gas values.

  Note: In the case of the oxygen sensor, the O_2 gas setting can be used to enable or disable the oxygen sensor check that takes place during gas calibration with multi calibration gas. To disable the oxygen sensor check, select "No".

⚠WARNING Disabling the oxygen sensor check may result in the failure to recognize an oxygen-deficient atmosphere.

Always use a multi cal gas cylinder containing 18% oxygen to calibrate the PHD6.

- **Reminders/Lock** (access to submenus below)

  Cal on Startup (enable or disable)

  When enabled, calibration is automatically initiated whenever the instrument is turned on. The calibration can be bypassed (unless Cal Due Lock is enabled) by letting the clock run out and proceeding to the current gas readings screen. Cal on Startup is usually disabled on new instruments and must be enabled by the user.

  Cal Reminder: (adjust between every day and every 180 days). The default setting for standard instruments leaving the factory is 30 days.

  To disable the cal reminder, set the value to 0.

  Cal Lock: (enable or disable)

  Enable to require calibration when the Cal Reminder is on. PHD6 automatically shuts down if Cal Lock is enabled, and calibration is due but not performed. Cal Lock is usually disabled on new instruments and must be enabled by the user.

  Bump Reminder: (enable, disable and adjust between every day and every 30 days)

  Used exclusively with the IQ6 Dock. Reminds the user to process the instrument in the dock. To disable set the value to 0. The Bump Reminder is usually disabled on new instruments and must be enabled by the user.

  Service Interval (enable, disable and adjust between every day and every 730 days (2 years)

  The service interval is a reminder that tells the user when the instrument is due for service. The Service Interval is usually disabled on new instruments and must be enabled by the user.

  Service Done (reset service date)

  Used to reset the service interval following instrument service.

- **Cal History** (scroll through recent calibrations, includes span reserve listing – which allows for predictive maintenance)

5.2.5 Configuration Menu

- **Security Beep** (enable or disable)

  Once enabled the PHD6 will emit a short audible beep and give a short flash on the LEDs at a user-defined interval to notify the user that the instrument is powered up and running. The Security Beep is usually disabled on new instruments and must be enabled by the owner.

- **Basic Passcode** (enable, disable and change passcode)

  Enable to require the entry of a passcode to access the Basic Menu. The Basic Passcode is usually disabled on new instruments and must be enabled by the owner. To permit access to the Basic Menu, and restrict it from the Main Menu, the Basic Passcode must differ from the Main Passcode.

- **Main Passcode** (enable, disable and change passcode)

  Enable to require the entry of a passcode to enter the Main Menu. The Main Passcode is usually disabled on new instruments and must be enabled by the owner. The Main Passcode can be used to enter both the Main Menu and the Basic Menu.

- **Display Formats** (contains submenus for sensor readings, sensor clamping and temperature)
  - **Sensor readings** (for toxic gases select PPM (XX) or tenths-of-a-PPM (X.X) for sensors with this capability (such as H_2S). For NDIR-CH_4 choose between LEL and CH_4 (the CH_4 reading will display in

    %/Vol.) Sensors that cannot be adjusted will show "Fixed".
  - **Temperature** (select display in Celsius or Fahrenheit) Most PHDs leave the factory configured to read temperature in Fahrenheit unless the customer requests otherwise.
- **Language** (select English, French or Spanish). Most PHDs leave the factory configured in English unless the customer requests otherwise.
- **Date/Time** (set time and date)

5.2.6 Screen Menu

- **Contrast** (screen contrast setting)
- **Orientation** (shifts display to be viewable from top or bottom of the instrument)

- **Backlight Mode** (select continuous, Timed Off or Time Auto)

  Select **Continuous** to have the backlight on at all times,

  Select **Timed Off** to require a MODE press or an alarm condition to activate the backlight. The default setting for most new PHD6 instruments when leaving the factory is to turn the backlight off after 20 seconds.

  Select **Time Auto** to enable the automatic backlight for low light conditions.
- **Backlight Time** (set the time before the backlight turns off in Time Off Mode)
- **Enable Screens** (select the screens that are accessible by sequentially pressing the MODE button including: Peak, Average, STEL and TWA screens.

5.2.7 Information Menu

- **Versions** (view instrument serial number, software version, and time and date of instrument manufacture)
- **Service Info** (view Honeywells' phone contact numbers).

5.2.8 Datalogger Menu

- **Interval** (set datalogger interval between 1 second and 1 hour) (menu option only not available in Black Box Datalogger versions)

  The datalogger samples continuously, so the data stream must be broken into intervals to be recorded. The datalogging interval defines the frequency of the breaks in the data stream. The interval may be set anywhere between one second and one hour by using the navigation arrows as detailed below. The default datalogging interval is 1 minute. At a one-minute interval, the PHD6 will log a minimum of 63 hours of data before the oldest data is overwritten by newer data.
- **Sessions** (view datalogger session data including date, time, interval, temperature and sensor minimum and maximum readings)
- **Clear Datalog** (clears all information from the datalogger)
- **Select User** (User name will be saved in the session data)

  Users' names must be entered in BioTrak II to appear in the user list.
- **Select Location** (Location name will be saved in the session data)

  Location names must be entered in BioTrak II to appear in the location list.
- **User on Startup** (enable or disable a prompt to select user and location at startup)

  User and location names must be entered into the instrument via BioTrak II before this option can be enabled.

6. Maintenance

⚠WARNING **To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing any parts in the PHD6.**

6.1 Batteries

The PHD6 is powered by interchangeable alkaline and Li-Ion rechargeable battery packs.

To remove the battery pack first loosen the top center screw on the back of the instrument, then gently pull the top of the battery away from the instrument. The battery is hinged from below. Remove the battery once the top clears the upper housing by pulling up and away.

CAUTION Always turn the PHD6 off prior to removing the battery pack. Removal of the battery pack with the instrument turned on may cause corruption of stored data in the PHD6.

Note: Center screw on ATEX / European version may be slightly different.

6.2 Replacing alkaline batteries

The alkaline battery pack contains three AA alkaline batteries.

⚠WARNING **The PHD6** must be located in a non-hazardous location whenever alkaline batteries are removed from the alkaline battery pack. Removal of the alkaline batteries from the battery pack in a hazardous area may impair intrinsic safety.

⚠WARNING **Use only Duracell MN1500 or Ultra MX1500, Eveready Energizer E91-LR6, Eveready EN91 batteries. Substitution of batteries may impair intrinsic safety.**

To replace the alkaline batteries:

1. Remove the battery pack from the PHD6 as discussed in above in section 6.1.
2. Loosen the two screws at the top of the battery pack by turning each ¼ turn counterclockwise.
3. Remove the three alkaline batteries and replace them. Be sure to align the positive and negative ends in accordance with the diagram under each battery.
4. Reinstall the back cover plate that was removed in step 2.
5. Return the battery pack to the PHD6 and re-tighten the top center screw. The PHD6 will automatically turn itself on once the battery pack is reinstalled.

6.3 Maintaining Li-Ion battery packs

The PHD6 may be equipped with a rechargeable Li-Ion (Lithium Ion) battery pack.

6.3.1 Storage guidelines for the Li-Ion battery

Never store Li-Ion -version PHD6 instruments at temperatures above 30 degrees Celsius (86 degrees Fahrenheit). Li-Ion batteries may suffer deterioration resulting in damage to the internal components when stored at high temperatures. The battery may be irretrievably damaged resulting in reduced battery capacity and voltage.

Honeywell recommends leaving PHD6 instruments with Li-Ion rechargeable batteries on the charger when not in use.

6.3.2 Charging guidelines for Li-Ion battery

The Li-Ion battery in the PHD6 should never be charged at temperatures lower than 5 degrees Celsius (40 degrees Fahrenheit) or higher than 30 degrees Celsius (86 degrees Fahrenheit. Charging at temperature extremes can permanently damage the PHD6 Li-Ion battery.

⚠**WARNING** The PHD6 must be located in a non-hazardous location during the charging cycle. Charging the PHD6 in a hazardous location may impair intrinsic safety.

6.3.3 Charging procedure for Li-Ion battery

⚠**WARNING** **Do not charge the PHD6 with any charger other than the appropriate PHD6 charger manufactured by Honeywell. Standard versions of the PHD6 must be charged with the UL/CSA-approved charger, which is part number 54-54-001. European versions of the PHD6 must be charged with the ATEX-approved PHD6 charger.**

1. Verify that the instrument is turned off. (If it is not, press the MODE button for three seconds until the message "Release Button" appears.)
2. Plug the power supply in. The red LED is labeled “Power” and will be lit whenever the charger is plugged into a power source.
3. Insert the PHD6 into the charging cradle bottom side down with the display facing forward. The green LED on the charger is labeled “Charge” and will blink while the battery is charging.
4. When the battery is fully charged, the green “Charge” LED will be lit and not blinking.

See section 5.3.4 for battery troubleshooting guidelines.

6.3.4 Charging with the pump attached

The PHD6 with pump attached may be charged according to the instruction given in section 6.3.3 above.

6.3.5 Battery troubleshooting

If the green “Charge” LED on the charger fails to light when the PHD6 with Li-Ion battery pack is placed in the charger, remove the instrument from the charger and press the MODE button to attempt to start the instrument.

If the battery has been inserted into the charger without the instrument, return it to the instrument prior to attempting the restart.

1. If the PHD6 starts and the battery icon if full, then the battery is fully charged and may be used as is. In this case, the charger has recognized that the battery is charged and will not charge it any further.
2. If the PHD6 fails to turn on, then the battery may be severely discharged and should be returned to the charger. The charger will then begin a very slow recharge in order to protect the battery. The green “Charge” LED may not be lit during the first four hours of the slow recharge. If the “Charge” LED has still not been lit after four hours, the battery pack or charger is probably damaged.
3. If the PHD6 starts and any battery level other than full is indicated, then either the battery is damaged or the charger is damaged. Call Honeywell for further instructions.

6.4 Sensors

6.4.1 Sensor replacement

The sensors in the PHD6 are located in a vented compartment at the bottom of the instrument.

To install a sensor:

1. Turn the PHD6 off.
2. Remove the battery pack as described in section 6.1. This will automatically disconnect power from the instrument.
3. Remove the four screws that are located below the battery pack insertion from the back face of the PHD6.
4. Turn the instrument over to reveal the front face and gently remove the sensor cover.
5. Remove the sensor that is to be replaced.
6. Insert the new sensor into the appropriate location on the sensor board.
7. Reinstall the sensor cover by aligning it properly over the sensors and securing it with the four screws that were removed in step 3.
8. Reattach the battery pack and re-tighten the top center screw.
9. New sensors must be allowed to stabilize prior to use according to the following schedule. The detector must be powered off and a functional battery pack must be installed for the sensor to stabilize.

Sensor	Stabilization Period
Oxygen (O_2)	1 hour
LEL	none
PID	5 minutes
NDIR-CH_4 or NDIR-CO_2	1 minute
All Toxic Sensors except NO	15 minutes
NO (nitric oxide)	24 hours

Note: Steps 9 and 10 assume that the sensor stabilization period has passed.

10. Perform the Fresh Air/Zero calibration and the Gas calibration as discussed in sections 4.2 and 4.3.

6.4.2 Care and maintenance of PID sensors

The two critical components of a PID sensor are the electrode stack and the lamp. The electrode stack can be replaced in the field. The lamp can be cleaned or replaced in the field. The frequency of maintenance to both items will vary with the type of usage and the nature of the contaminants to which the sensor is exposed.

As a general rule, baseline shifts tend to be caused by the electrode stack and losses of sensitivity tend to be caused by the lamp.

6.4.2.1 Troubleshooting the PID

When to replace the electrode stack:

1. Baseline reading climbs following fresh air zeroing of the sensor.
2. PID sensor becomes sensitive to humidity.
3. Baseline becomes generally unstable.
4. Baseline shifts when the instrument is in motion.

When to clean the PID lamp

Loss of sensitivity in the sensors as shown during bump-testing (reading will be low).

When to replace the PID lamp

If the cleaning of the lamp fails to correct a loss of sensitivity, the lamp should be replaced.

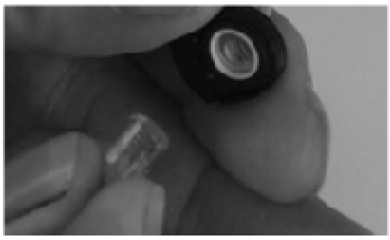
6.4.2.2 Cleaning and replacing PID components

To remove the lamp and stack

1. Wash your hands thoroughly.
2. On a clean surface, remove the PID sensor from the PHD6 as described above (section 6.4.1 steps 1-5).
3. Place one finger on top of the sensor and insert the stack removal tool into the two slots at the top side of the sensor body. Squeeze gently until the spring releases and the stack can be removed from the top of the sensor. The lamp is spring-loaded against the stack, so keeping a finger on top of the stack prevents their ejection from the sensor body.
4. Gently remove the stack and pull the lamp and spring out of the sensor body. Do not touch the top of the lamp window with bare fingers.
5. Set the spring aside.

To replace the stack or lamp

1. Discard the used lamp, stack or both as needed and rebuild with replacement part(s).
2. Drop the spring into the center of the sensor body.
3. When reinserting the lamp and electrode stack, it is essential to make sure that the lamp is fit snugly into the o-ring slot on the electrode stack – NOTE PICTURE BELOW. When inserting the lamp into the o-ring slot, it is recommended that a twisting motion is used. When properly assembled, the lamp should then be flush against the stack, and should be fully supported.



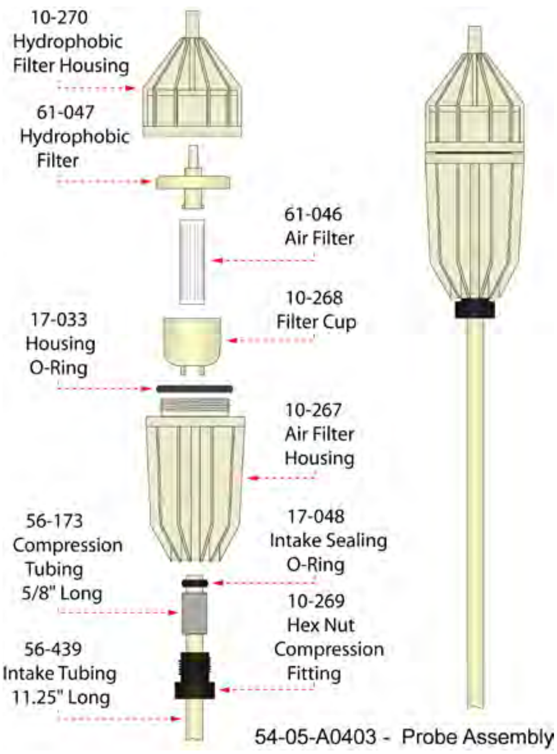
4. Snap the stack with lamp attached on to the sensor body so that the sensor is whole again and the stack cannot be removed without the removal tool.
5. The sensor should have a gasket and a filter on it. If necessary, install a sensor filter and gasket on top of the sensor.
6. Reinstall the sensor into the PHD6.
7. Reassemble the PHD6.
8. Calibrate the PID prior to use after the 5 minute warm up periods ends.

To clean the lamp

1. Follow the directions above to remove the lamp from the instrument.
2. Make sure your hands are clean.
3. Coat the cotton swab in a thin layer of lamp cleaning powder of 0.1 to 0.25 μm α-alumina.
4. Pick up the lamp with the other hand. Do not touch the top of the lamp window with bare fingers.
5. Using the cotton swab dipped in the cleaning powder, polish the top of the lamp with a swirling motion. Cleaning typically takes about 30 seconds and is finished when the swab starts to squeak.
6. Reassemble the sensor and the PHD6. See steps 2-8 above in the directions to replace the stack or lamp.

6.5 Sample probe assembly

The PHD6's sample draw probe is the standard probe assembly from Honeywell. The illustration below gives a breakdown of all parts in the sample draw probe with part numbers. The sample probe handle contains moisture barrier and particulate filters designed to remove contaminants that might otherwise harm the instrument.



54-05-A0403 - Probe Assembly

Sample probe filters should be replaced whenever visibly discolored due to contamination.

CAUTION: Never perform remote sampling without the sample probe and hose assembly. The sample probe handle contains replaceable filters designed to block moisture and remove particulate contaminants. If the pump is operated without the probe assembly in place, contaminants may cause damage to the pump, sensors and internal components of the PHD6.

Particulate contaminants are removed by means of a cellulose filter. The hydrophobic filter includes a Teflon™ barrier which blocks the flow of moisture as well as any remaining particulate contaminants.

6.5.1 Changing sample probe filters

The threaded sample probe handle is accesses the filters. The particulate filter is held in place by means of a clear filter cup. To replace the particulate filter, remove the old filter and cup, insert a new filter into the cup, and slide the cup back into place in the probe handle. The hydrophobic barrier filter fits into a socket in the rear section of the probe handle. (The narrow end of the hydrophobic barrier filter is inserted towards the rear of the handle.)

To avoid accidentally introducing particulate contaminants into the system, turn the sample probe upside-down prior to removing either the hydrophobic filter or the particulate filter.

The following replacement filter kits are currently available from Honeywell:

Part No.	Kit	#Parti-culate	#Hydro-phobic
54-05-K0401	Standard	10	3
54-05-K0402	Economy	10	0
54-05-K0403	Economy	30	10
54-05-K0404	Bulk	0	25
54-05-K0405	Bulk	100	0

6.5.2 Changing sample probe tubes (wands)

The standard 11.5" long butyrate probe tube is held in place with a hex-nut compression fitting and compression sleeve. The standard probe tube can be interchanged with other custom length sections of 1/4" OD tubing, or probe tubes made of other materials (such as stainless steel).

Probe tubes are exchanged by loosening the hex-nut compression fitting, removing the old tube, sliding the compression sleeve into place around the new tube, inserting the new tube into the probe handle, then replacing and tightening the hex-nut.

Note: The sample probe must be checked for leakage (as discussed in Section 3.1.1) whenever filters or probe tubes are exchanged or replaced before being returned to service.

6.6 PHD6 Pump Maintenance

PHD6 pumps are fairly maintenance free with the exception of the replacement of the pump filters on a regular basis.

6.6.1 Replacing pump filters

1. Remove the two screws that hold the inlet port to the pump.
2. Gently pull the dust filter holder free of the pump.
3. Remove and replace the dust filter that is located in the holder.
4. The hydrophobic filter is located beneath the inlet port in the pump housing. Use a small screwdriver or other object to punch through the filter and remove it. The gasket that sits between the inlet port and the filter should come out with the filter.
5. Place the new hydrophobic filter with the filter side down in place of the one removed in step 4. The gasket should be located on top of the filter and should sit against the dust filter holder, which will be reinstalled in step 6.
6. Replace the dust filter holder (which now has a new filter in it) and secure it with the two screws removed in step 1.

Appendices

Appendix A Toxic gas measurement – Warning, Danger, STEL and TWA alarms

Many toxic substances are commonly encountered in industry. The presence of toxic substances may be due to materials being stored or used, the work being performed, or may be generated by natural processes. Exposure to toxic substances can produce disease, bodily injury, or death in unprotected workers.

It is important to determine the amounts of any toxic materials potentially present in the workplace. The amounts of toxic materials potentially present will affect the procedures and personal protective equipment that must be used. The safest course of action is to eliminate or permanently control hazards through engineering, workplace controls, ventilation, or other safety procedures. Unprotected workers may not be exposed to levels of toxic contaminants that exceed Permissible Exposure Limit (PEL) concentrations. Ongoing monitoring is necessary to insure that exposure levels have not changed in a way that requires the use of different or more rigorous procedures or equipment.

Airborne toxic substances are typically classified on the basis of their ability to produce physiological effects on exposed workers. Toxic substances tend to produce symptoms in two time frames.

Higher levels of exposure tend to produce immediate (acute) effects, while lower levels of long-term (chronic) exposure may not produce physiological symptoms for years.

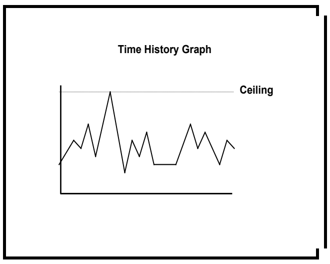
Hydrogen sulfide (H_2S) is a good example of an acutely toxic substance which is immediately lethal at relatively low concentrations. Exposure to a 1,000 ppm (parts per million) concentration of H_2S in air produces rapid paralysis of the respiratory system, cardiac arrest, and death within minutes.

Carbon monoxide (CO) is a good example of a chronically toxic gas. Carbon monoxide bonds to the hemoglobin molecules in red blood cells. Red blood cells contaminated with CO are unable to transport oxygen. Although very high concentrations of carbon monoxide may be acutely toxic, and lead to immediate respiratory arrest or death, it is the long term physiological effects due to chronic exposure at lower levels that take the greatest toll of affected workers. This is the situation with regards to smokers, parking garage attendants, or others chronically exposed to carbon monoxide in the workplace. Exposure levels are too low to produce immediate symptoms, but small repeated doses reduce the oxygen carrying capacity of the blood over time to dangerously low levels. This partial impairment of the blood supply may lead over time to serious physiological consequences.

Because prudent monitoring programs must take both time frames into account, there are two independent exposure measurements and alarm types built into the PHD6 design.

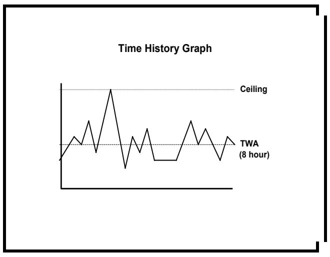
1. Warning and Danger Alarms

OSHA has assigned some, but not all, toxic substances with a ceiling level which represents the highest concentration of a toxic substance to which an unprotected worker should ever be exposed, even for a very short time. The default Warning and Danger alarm levels in the PHD6 are less than or equal to the OSHA-assigned ceiling levels for both CO and H_2S. **Never enter an environment even momentarily when concentrations of toxic substances exceed the level of either the Warning or the Danger Alarm**.



2. Time Weighted Average (TWA)

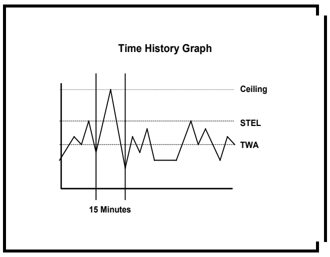
The maximum average concentration to which an unprotected worker may be exposed over an eight hour working day is called the Time Weighted Average or TWA value. TWA values are calculated by taking the sum of exposure to a particular toxic gas in the current operating session in terms of parts-per-million-hours and dividing by an eight-hour period.



3. Short Term Exposure Limits (STEL)

Toxic substances may have short term exposure limits which are higher than the eight hour TWA. The STEL is the maximum average concentration to which an unprotected worker may be exposed in any fifteen minute interval during the day. During this time, neither the eight hour TWA or the ceiling concentration may be exceeded.

Any fifteen minute periods in which the average STEL concentration exceeds the permissible eight hour TWA must be separated from each other by at least one hour. A maximum of four of these periods are allowed per eight hour shift.



Appendix B Calibration Frequency Recommendation

One of the most common questions that we are asked at Honeywell is: ***"How often should I calibrate my gas detector?"***

Sensor Reliability and Accuracy

Today's sensors are designed to provide years of reliable service. In fact, many sensors are designed so that with normal use they will only lose 5% of their sensitivity per year or 10% over a two-year period. Given this, it should be possible to use a sensor for up to two full years without significant loss of sensitivity.

Verification of Accuracy

With so many reasons why a sensor can lose sensitivity and given the fact that dependable sensors can be key to survival in a hazardous environment, frequent verification of sensor performance is paramount.

There is only one sure way to verify that a sensor can respond to the gas for which it is designed. That is to expose it to a known concentration of target gas and compare the reading with the concentration of the gas. This is referred to as a "bump" test. This test is very simple and takes only a few seconds to accomplish. **The safest course of action is to do a "bump" test prior to each day's use**. It is not necessary to make a calibration adjustment if the readings fall between 90%* and 120% of the expected value. As an example, if a CO sensor is checked using a gas concentration of 50 PPM it is not necessary to perform a calibration unless the readings are either below 45 PPM or above 60 PPM.

***The Canadian Standards Association (CSA) requires the instrument to undergo calibration when the displayed value during a bump test fails to fall between 100% and 120% of the expected value for the gas.**

Lengthening the Intervals between Verification of Accuracy

We are often asked whether there are any circumstances in which the period between accuracy checks may be lengthened.

Honeywell is not the only manufacturer to be asked this question! One of the professional organizations to which Honeywell belongs is the Industrial Safety Equipment Association (ISEA). The "Instrument Products" group of this organization has been very active in developing a protocol to clarify the minimum conditions under which the interval between accuracy checks may be lengthened.

A number of leading gas detection equipment manufacturers have participated in the development of the ISEA guidelines concerning calibration frequency. Honeywell procedures closely follow these guidelines.

If your operating procedures do not permit daily checking of the sensors, Honeywell recommends the following procedure to establish a safe and prudent accuracy check schedule for your Honeywell instruments:

1. During a period of initial use of at least 10 days in the intended atmosphere, check the sensor response daily to be sure there is nothing in the atmosphere that is poisoning the sensor(s). The period of initial use must be of sufficient duration to ensure that the sensors are exposed to all conditions that might have an adverse effect on the sensors.
2. If these tests demonstrate that it is not necessary to make adjustments, the time between checks may be lengthened. The interval between accuracy checking should not exceed 30 days.
3. When the interval has been extended the toxic and combustible gas sensors should be replaced immediately upon warranty expiration. This will minimize the risk of failure during the interval between sensor checks.
4. The history of the instrument response between verifications should be kept. Any conditions, incidents, experiences, or exposure to contaminants that might have an adverse effect on the calibration state of the sensors should trigger immediate re-verification of accuracy before further use.
5. Any changes in the environment in which the instrument is being used, or changes in the work that is being performed, should trigger a resumption of daily checking.
6. If there is any doubt at any time as to the accuracy of the sensors, verify the accuracy of the sensors by exposing them to known concentration test gas before further use.

Gas detectors used for the detection of oxygen deficiencies, flammable gases and vapors, or toxic contaminants must be maintained and operated properly to do the job they were designed to do. Always follow the guidelines provided by the manufacturer for any gas detection equipment you use!

If there is any doubt regarding your gas detector's accuracy, do an accuracy check! All it takes is a few moments to verify whether or not your instruments are safe to use.

One Button Auto Calibration

While it is only necessary to do a "bump" test to ensure that the sensors are working properly, all current gas detectors offer a one-button auto calibration feature. This feature allows you to calibrate a Honeywell gas detector in about the same time as it takes to complete a "bump" test. The use of automatic bump test and calibration stations can further simplify the tasks, while automatically maintaining records.

Don't take a chance with your life. Verify accuracy frequently!

Appendix C PHD6 Sensor Information

Part No.	Description	Range	Resolution
54-54-80	LEL Combustible Gas	0 – 100% LEL	1% LEL
54-54-90	O_2 Oxygen	0 – 30% by Volume	0.1%
54-54-01	CO Carbon Monoxide	0 – 1000 PPM	1 PPM
54-54-19	CO-H CO Minus, reduced sensitivity to H_2	0 – 1000 PPM	1 PPM
54-54-05	CO+ CO Plus dual purpose CO / H_2S (Provides a non-specific readout for CO and H_2S)	CO: 0 – 1000 PPM H_2S: 0 – 200 PPM	1 PPM
54-54-02	H_2S Hydrogen Sulfide	0 – 200 PPM	1 PPM
54-54-14	Duo-Tox Dual Channel CO/H_2S Provides substance specific readouts for CO & H_2S	CO: 0 – 1000 PPM H_2S: 0 – 200 PPM	1 PPM 1 PPM
54-54-03	SO_2 Sulfur dioxide	0 – 25 PPM	0.1 PPM
54-54-21	NH_3 Ammonia	0 – 100 PPM	1 PPM
54-54-18	Cl_2 Chlorine (specific)	0 – 50 PPM	0.1 PPM
54-54-20	ClO_2 Chlorine dioxide (specific)	0 – 5 PPM	0.01 PPM
54-54-06	NO Nitric oxide	0 – 350 PPM	1 PPM
54-54-09	NO_2 Nitrogen dioxide	0 – 50 PPM	0.1 PPM
54-54-23	HCN Hydrogen cyanide	0 – 100 PPM	0.2 PPM
54-54-13	PH_3 Phosphine	0 – 20 PPM	0.1 PPM
54-54-50	NDIR CO_2 Carbon dioxide	0 – 5.00%/vol.	0.025%*
54-54-51	NDIR CH_4 Methane	0 – 5.00%/vol.	0.05%
54-54-52	PID Volatile Organic Compound (VOCs)	0 – 3000 PPM	.1PPM

*The CO_2 sensor has an internal resolution of 0.025% but displays readings rounded to the nearest 0.01%. It will, therefore, display steps of 0.03%, 0.05%, 0.08%, 0.10%, etc.

Appendix D Electrochemical Toxic Sensor Cross-Sensitivity

The table below provides the cross-sensitivity response of the PHD6 electrochemical toxic gas sensors to common interference gases. The values are expressed as a percentage of the primary sensitivity, or the reading of the sensor when exposed to 100ppm of the interfering gas at 20ºC. These values are approximate. The actual values depend on the age and condition of the sensor. Sensors should always be calibrated to the primary gas type. Cross-sensitive gases should not be used as sensor calibration surrogates without the express written consent of Honeywell.

SENSOR	CO	H2S	SO2	NO	NO2	Cl2	ClO2	H2	HCN	HCl	NH3	C2H4	C2H2
Carbon Monoxide (CO)	100	10	5	10	-15	-5	-15	50	15	3	0	75	250
Carbon Monoxide (CO+)	100	350	50	30	-60	-60	-120	50	n/d	n/d	0	75	250
Carbon Monoxide (CO-H)	100	2	0.5	3	-0.5	-0.5	-1.5	5	n/d	n/d	0.1	35	(+)
Hydrogen Sulfide (H2S)	0.5	100	20	2	-20	-20	-60	0.2	0	0	0	n/d	n/d
Sulfur Dioxide (SO2)	1	0	100	<8	-100	-70	-150	0.2	n/d	n/d	<0.1	15	100
Nitrogen Dioxide (NO2)	<0.1	-40	-2.5	<0.5	100	100	270	<0.1	n/d	n/d	<0.1	n/d	0.1
Nitric Oxide (NO)	0.1	**≤15**	**≤10**	100	**≤30**	15	n/d	0.1	n/d	n/d	n/d	n/d	n/d
Chlorine (Cl2) (specific)	0	-3	<1	n/d	12	100	20	0	0	0	0	0	0
Chlorine (Cl2) (non-specific)	0	-20	<5	0	120	100	300	0	n/d	n/d	0	n/d	n/d
Chlorine Dioxide (ClO2) (specific)	0	-25	-5	n/d	n/d	60	100	0	0	0	n/d	0	0
Chlorine Dioxide (ClO2) (non-specific)	0	-7	<2	0	40	<35	100	0	n/d	n/d	0	n/d	n/d
Ammonia (NH3)	<1	<10	2	n/d	0	0	n/d	0	0	0	100	0	0
Phosphine (PH3)	0.5	25	20	n/d	(-)	(-)	(-)	0.1	n/d	n/d	n/d	1	0.5
Hydrogen Cyanide (HCN) (old style 54-54-10)	0.5	200	100	-5	-70	-50	-150	0	100	65	-5	0	n/d
Hydrogen Cyanide (HCN) (new style 54-54-23)	0	0**	n/d	n/d	-70	n/d	n/d	0	100	n/d	n/d	n/d	n/d

** Sensor manufacturer rates Cross Sensitivity for (54-54-23) HCN sensor to H2S as follows for 20 PPM exposure at 20°C: "Short gas exposure in minute range; after filter saturation: ca. 40 PPM reading".

n/d = no data

Honeywell Warranty Gas Detection Products

General

Honeywell warrants gas detectors, sensors and accessories manufactured and sold by Honeywell, to be free from defects in materials and workmanship for the periods listed in the tables below.

Damages to any Honeywell products that result from abuse, alteration, power fluctuations including surges and lightning strikes, incorrect voltage settings, incorrect batteries, or repair procedures not made in accordance with the Instrument's Reference Manual are not covered by the Honeywell warranty.

The obligation of Honeywell under this warranty is limited to the repair or replacement of components deemed by the Honeywell Instrument Service Department to have been defective under the scope of this standard warranty. To receive consideration for warranty repair or replacement procedures, products must be returned with transportation and shipping charges prepaid to Honeywell, or to a Honeywell Authorized Warranty Service Center. It is necessary to obtain a return authorization number from Honeywell prior to shipment.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. HONEYWELL WILL NOT BE LIABLE FOR LOSS OR DAMAGE OF ANY KIND CONNECTED TO THE USE OF ITS PRODUCTS OR FAILURE OF ITS PRODUCTS TO FUNCTION OR OPERATE PROPERLY.

Instrument & Accessory Warranty Periods

PHD6™	2 years from date of purchase
ToxiPro®, MultiPro™	2 years from date of purchase
Battery packs and chargers, sampling pumps and other components, which by their design are consumed or depleted during normal operation, or which may require periodic replacement	One year from the date of purchase

Sensor Warranty Periods

PHD6™, Cannonball3™, Multi Vision™, MultiPro™, Toxi Vision™, ToxiPro®	O_2, LEL**, CO, CO+, H_2S & Duo-Tox	2 Years
	All Other Sensors	1 Year
All Others	All Sensors	1 Year

**** Damage to combustible gas sensors by acute or chronic exposure to known sensor poisons such as volatile lead (aviation gasoline additive), hydride gases such as phosphine, and volatile silicone gases emitted from silicone caulks/sealants, silicone rubber molded products, laboratory glassware greases, spray lubricants, heat transfer fluids, waxes & polishing compounds (neat or spray aerosols), mold release agents for plastics injection molding operations, waterproofing formulations, vinyl & leather preservatives, and hand lotions which may contain ingredients listed as cyclomethicone, dimethicone and polymethicone (at the discretion of Honeywells' Instrument Service department) void Honeywells' Standard Warranty as it applies to the replacement of combustible gas sensors.**

DOC022.97.80041

HACH®

2100Q and 2100Q*is*

04/2013, Edition 2

Basic User Manual
Manuel d'utilisation de base
Manual básico del usuario
Manual Básico do Usuário
基本用户手册
基本取扱説明書
기본 사용 설명서

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Specifications

Specifications are subject to change without notice.

Specification	Details
Measurement method	Ratio turbidimetric determination using a primary nephelometric light scatter signal (90°) to the transmitted light scatter signal.
Regulatory	**2100Q:** Meets EPA Method 180.1 **2100Q*is*:** Meets ISO 7027
Lamp source	**2100Q:** Tungsten filament lamp **2100Q*is*:** Light-emitting diode (LED) at 860 nm
Range	0–1000 NTU (FNU)
Accuracy	±2% of reading plus stray light from 0–1000 NTU (FNU)
Repeatability	±1% of reading or 0.01 NTU (FNU), whichever is greater
Resolution	0.01 NTU on lowest range
Stray light	≤ 0.02 NTU (FNU)
Signal averaging	Selectable on or off
Detector	Silicon Photodiode
Reading modes	Normal (Push to Read), Signal Averaging or Rapidly Settling Turbidity™
Calibration options	Single step RapidCal™ for Low-Level Regulatory Reporting from 0–40 NTU (FNU) Full range calibration from 0–1000 NTU (FNU) Calibration to degrees of turbidity
Calibration logger	Records the last 25 successful calibrations
Verification logger	Logs the last 250 successful verifications
Data logger	500 records

Specification	Details
Power requirement	AC 100–240 V , 50/60 Hz (with power or USB/power module) 4 AA alkaline batteries Rechargeable NiMH (for use with USB/power module)
Operating conditions	Temperature: 0 to 50 °C (32 to 122 °F) Relative Humidity: 0–90% at 30 °C, 0–80% at 40 °C, 0–70% at 50 °C, noncondensing
Storage conditions	–40 to 60 °C (–40 to 140 °F), instrument only
Interface	Optional USB
Sample required	15 mL (0.5 oz.)
Sample cells	Round cells 60 x 25 mm (2.36 x 1 in.) borosilicate glass with screw caps
Dimensions	22.9 x 10.7 x 7.7 cm (9.0 x 4.2 x 3.0 in.)
Weight	530 g (1.17 lb) without batteries 620 g (1.37 lb) with four AA alkaline batteries
Meter enclosure rating	IP67 (closed lid, battery and module compartment excluded)
Protection class	Power supply: Class II
Certification	CE certified
Warranty	1 year (EU: 2 years)

General information

In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages resulting from any defect or omission in this manual. The manufacturer reserves the right to make changes in this manual and the products it describes at any time, without notice or obligation. Revised editions are found on the manufacturer’s website.

Safety information

NOTICE

The manufacturer is not responsible for any damages due to misapplication or misuse of this product including, without limitation, direct, incidental and consequential damages, and disclaims such damages to the full extent permitted under applicable law. The user is solely responsible to identify critical application risks and install appropriate mechanisms to protect processes during a possible equipment malfunction.

Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in this manual.

Use of hazard information

⚠ DANGER

Indicates a potentially or imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

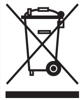
Indicates a potentially hazardous situation that may result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, may cause damage to the instrument. Information that requires special emphasis.

Precautionary labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol on the instrument is referenced in the manual with a precautionary statement.

	This is the safety alert symbol. Obey all safety messages that follow this symbol to avoid potential injury. If on the instrument, refer to the instruction manual for operation or safety information.
	This symbol indicates that a risk of electrical shock and/or electrocution exists.
	Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of-life equipment to the Producer for disposal at no charge to the user. ***Note:*** *For return for recycling, please contact the equipment producer or supplier for instructions on how to return end-of-life equipment, producer-supplied electrical accessories, and all auxiliary items for proper disposal.*

Certification

Canadian Radio Interference-Causing Equipment Regulation, IECS-003, Class A:

Supporting test records reside with the manufacturer.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de classe A répond à toutes les exigences de la réglementation canadienne sur les équipements provoquant des interférences.

FCC Part 15, Class "A" Limits

Supporting test records reside with the manufacturer. The device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. The equipment may not cause harmful interference.

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2. The equipment must accept any interference received, including interference that may cause undesired operation.

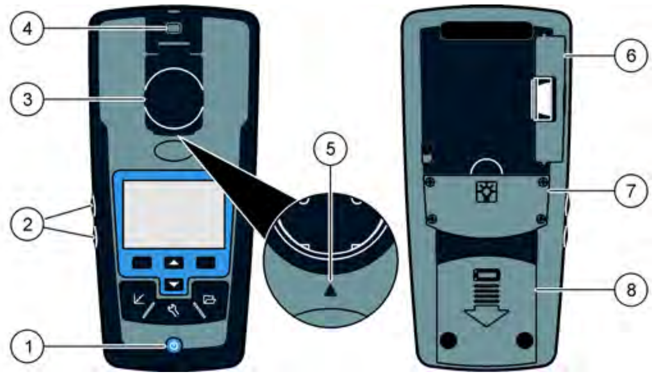
Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their expense. The following techniques can be used to reduce interference problems:

1. Disconnect the equipment from its power source to verify that it is or is not the source of the interference.
2. If the equipment is connected to the same outlet as the device experiencing interference, connect the equipment to a different outlet.
3. Move the equipment away from the device receiving the interference.
4. Reposition the receiving antenna for the device receiving the interference.
5. Try combinations of the above.

Product overview

The 2100Q and 2100Q*is* portable turbidimeters measure turbidity from 0 to 1000 NTU (FNU). Primarily for field use, the portable meter operates on four AA batteries. Data can be stored and transferred to a printer, computer or USB storage device.

Figure 1 Product overview



1	Power on or off	**5**	Alignment arrow
2	Backlight keys (+ and -)	**6**	Module
3	Sample cell holder with lid	**7**	Lamp compartment
4	Attachment for lanyard	**8**	Battery compartment

Product components

Refer to Figure 2 to make sure that all components have been received. If any of these items are missing or damaged, contact the manufacturer or a sales representative immediately.

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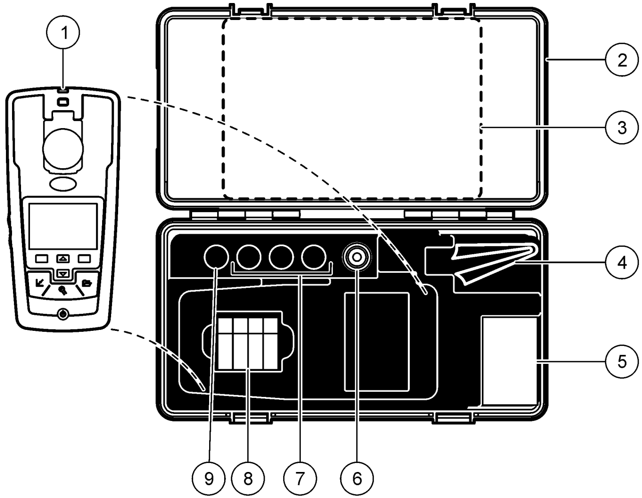
Figure 2 2100Q and 2100Q*is* components



1	2100Q or 2100Q*is* turbidimeter	**6**	Silicone oil
2	Carrying case	**7**	20, 100 and 800 NTU StablCal calibration standards
3	User manual and Quick reference guide	**8**	AA alkaline batteries (pk/4)
4	Oiling cloth	**9**	StablCal 10 NTU verification standard
5	1" sample cell (10 mL) with cap (pk/6)		

Installation

⚠ CAUTION

Multiple hazards. Only qualified personnel must conduct the tasks described in this section of the document.

Install the battery

⚠ WARNING

Explosion hazard. An expired battery can cause hydrogen gas buildup inside the instrument. Replace the battery before it expires. Do not store the instrument for long periods with a battery installed.

⚠ WARNING

Potential fire hazard. Use only alkaline or nickel metal hydride batteries (NiMH) in the meter. Other battery types or incorrect installation can cause a fire. Never mix battery types in the meter.

NOTICE

The battery compartment is not waterproof. If the battery compartment becomes wet, remove and dry the batteries and dry the interior of the compartment. Check the battery contacts for corrosion and clean them if necessary.

NOTICE

When using nickel metal hydride (NiMH) batteries, the battery icon will not indicate a full charge after freshly charged batteries have been inserted (NiMH batteries are 1.2 V versus 1.5 V for alkaline batteries). Even though the icon does not indicate complete charge, 2300 mAH NiMH batteries will achieve 90% of instrument operation lifetime (before recharge) versus new alkaline batteries.

NOTICE

To avoid potential damage to the meter from battery leakage, remove the meter batteries prior to extended periods of non-use.

The meter can be powered with AA alkaline or rechargeable NiMH batteries. To conserve battery life, the meter will power off after 10 minutes of inactivity, the backlight powers off after 30 seconds. This time can be changed in the Power Management menu.

***Note:** Rechargeable batteries will only be recharged with the USB/power module. Refer to the module documentation for further information.*

For battery installation refer to Figure 3.

1. Remove the battery cover.
2. Install 4 AA alkaline or 4 AA nickel metal hydride (NiMH) batteries. Make sure that the batteries are installed in the correct orientation.
3. Replace the battery cover.

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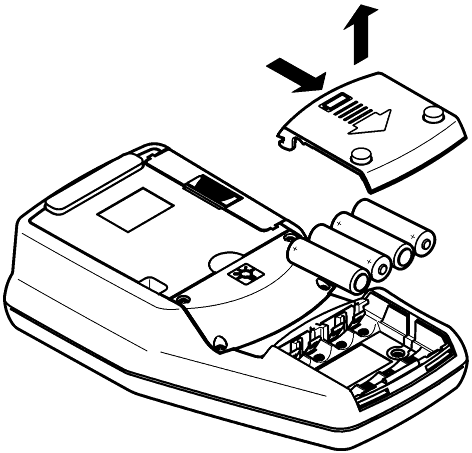
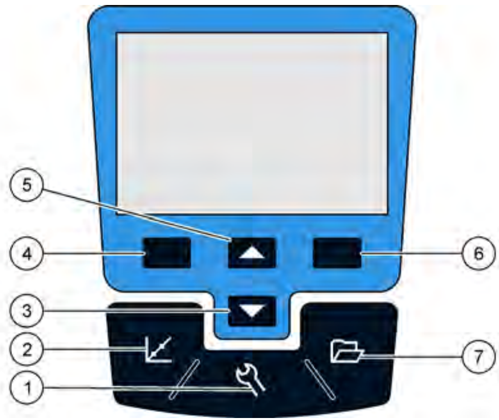
Figure 3 Battery installation



User interface and navigation

User interface

Figure 4 Keypad description



1 SETTINGS key: select menu options for setting up the meter	**5 UP** key: scroll through menus, enter numbers and letters
2 CALIBRATION key: shows calibration screen, start calibration, select cal options	**6 RIGHT** key (contextual): read turbidity sample, selects or confirms options, opens/jumps to sub-menus
3 DOWN key: scroll through menus, enter numbers and letters	**7 DATA MANAGEMENT** key: view, delete or transfer stored data
4 LEFT key (contextual): access for calibration verification, cancels or exits the current menu screen to the previous menu screen	

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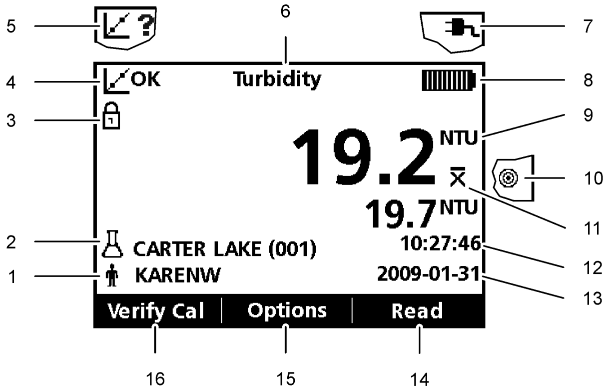
Display description

The measurement screen shows the turbidity, unit, calibration status, date and time, operator ID (if setup) and sample ID (if setup). Refer to Figure 5.

Figure 5 Single screen display



1	Operator identification	**9**	NTU (Nephelometric Turbidity Unit) or FNU (Formazin Turbidity Unit)
2	Sample identification	**10**	Reading mode: Rapidly Settling Turbidity (Target icon)
3	Stability or display lock indicator	**11**	Reading mode: Signal Average (X-bar icon)
4	Calibration status indicator (Calibration OK=pass)	**12**	Time
5	Calibration status indicator (Calibration ?=fail)	**13**	Date
6	Parameter title	**14**	Read (contextual: OK, Select)
7	AC power icon	**15**	Options (contextual)
8	Battery icon	**16**	Verification calibration

Navigation

The meter contains a Settings menu, Reading Options menu, Calibration Options menu and Calibration Verification Options menu to change various options. Use the **UP** and **DOWN** keys to highlight different options. Push the **RIGHT** key to select an option. There are two ways to change options:

1. Select an option from a list: Use the **UP** and **DOWN** keys to select an option. If check boxes are shown, more than one option can be selected. Push the **LEFT** key under Select.

   ***Note:** To deselect check boxes, push the **LEFT** key under Deselect.*
2. Enter an option value using the arrow keys:
   Push the **UP** and **DOWN** keys to enter or change a value.
3. Push the **RIGHT** key to advance to the next space.
4. Push the **RIGHT** key under **OK** to accept the value.

Startup

Turn the meter on and off

Push the **ON/OFF** key to turn on or turn off the meter. If the meter does not turn on, make sure that the batteries, or the module, are properly installed or that the AC power supply is properly connected to an electrical outlet.

***Note:** The Auto-Shutoff option can also be used to turn off the meter. Additional information is available on the manufacturer's website.*

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Change the language

There are three options to set the language:

- The display language is selected when the meter is powered on for the first time.
- The display language is selected when the power key is pushed and held.
- The language can be changed from the Settings menu.

1. Select a language from the list. Confirm with **OK**.
2. Push **Done** when the update is complete.

Change the date and time

The date and time can be changed from the Date & Time menu.

1. Push the **SETTINGS** key and select Date & Time.
2. Update the time and date information:

Option	Description
Format	Select one of the formats for the date and time: yyyy-mm-dd 24h yyyy-mm-dd 12h dd-mm-yyyy 24h dd-mm-yyyy 12h mm/dd/yyyy 24h mm/dd/yyyy 12h
Date	Enter the current date
Time	Enter the current time

The current date and time will be shown on the display.

After the date and time setup, the meter is ready to take a reading.

Standard operation

Use a sample ID

The sample ID tag is used to associate readings with a particular sample location. If assigned, stored data will include this ID.

1. Select **Sample ID** in the Settings menu.
2. Select, create or delete a sample ID:

Option	Description
Current ID	Select an ID from a list. The current ID will be associated with sample data until a different ID is selected.
Create a New Sample ID	Enter a name for a new sample ID.
Delete Sample ID	Delete an existing sample ID.

Use an operator ID

The operator ID tag associates readings with an individual operator. All stored data will include this ID.

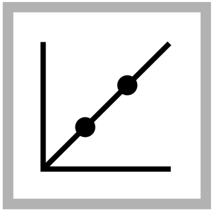
1. Select **Operator ID** in the Settings menu.
2. Select, create or delete an operator ID:

Option	Description
Current ID	Select an ID from a list. The current ID will be associated with sample data until a different ID is selected.
Create a New Operator ID	Enter a name for a new operator ID (maximum 10 names can be entered).
Delete Operator ID	Delete an existing operator ID.

Advanced operation

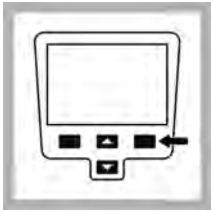
Calibrate the turbidimeter with StablCal® Standards

***Note:** For best accuracy use the same sample cell or four matched sample cells for all readings during calibration. Insert the sample cell in the instrument cell compartment so the diamond or orientation mark aligns with the raised orientation mark in front of the cell compartment.*



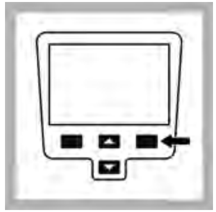
1. Push the **CALIBRATION** key to enter the Calibration mode. Follow the instructions on the display.
***Note:** Gently invert each standard before inserting the standard.*

2. Insert the 20 NTU StablCal Standard and close the lid.
***Note:** The standard to be inserted is bordered.*

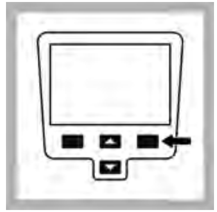


3. Push **Read**. The display shows Stabilizing and then shows the result.

4. Repeat Step 2 and 3 with the 100 NTU and 800 NTU StablCal Standard.
***Note:** Push **Done** to complete a 2 point calibration.*



5. Push **Done** to review the calibration details.



6. Push **Store** to save the results.
After a calibration is complete, the meter automatically goes into the Verify Cal mode. Additional information is available on the manufacturer's website.

Reading modes

1. Push the **UP** or **DOWN** key to enter the Reading Options menu.
2. Select Reading Mode to select one of the following options:

Option	Description
Normal (Default setting)	The normal mode reads and averages three readings. The result is shown after the reading.

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Option	Description
Signal Average 	The Signal Average mode compensates for reading fluctuations caused by drifting of sample particles through the light path. The X-bar icon is shown on the display when signal averaging is on. The Signal Average mode measures 12 times and starts to show the average after three readings. The final result is the average of all 12 readings.
Rapidly Settling Turbidity™ (RST) 	The Rapidly Settling Turbidity (RST) mode calculates and continuously updates the turbidity reading of the sample to a confidence of 95%, based on the accumulated trend of the real time measured values. The RST mode is best used on samples that settle rapidly and continuously change in value. The reading is based on a correctly prepared sample that is homogeneous at the beginning of the reading. It is best applied to samples that are greater than 20 NTU. The sample must be mixed thoroughly by inversion immediately before inserting it into the meter. The target icon is shown on the display when the Rapidly Settling Turbidity is on. The Rapidly Settling Turbidity reads and calculates five readings while showing intermediate results.

Maintenance

⚠ CAUTION

Multiple hazards. Only qualified personnel must conduct the tasks described in this section of the document.

Clean the meter

The meter is designed to be maintenance-free and does not require regular cleaning for normal operation. Exterior surfaces of the meter may be cleaned as necessary.

Note: *Do not clean the meter with solvents to avoid damaging the material.*

1. Clean the meter with a dust- and lint-free dry or slightly damp cloth. A mild soap solution can also be used for liposoluble contamination.

Apply silicone oil to a sample cell

Sample cells and caps must be extremely clean and free from significant scratches. Apply a thin coating of silicone oil on the outside of the sample cells to mask minor imperfections and scratches that may contribute to light scattering.

Note: *Use only the provided silicone oil. This silicone oil has the same refractive index as the sample cell glass.*

1. Clean the inside and outside of the cells and caps by washing with a laboratory glass cleaning detergent. Follow with multiple rinses with distilled or demineralized water.

2. Apply a small bead of silicone oil from the top to the bottom of the cell.

3. Use the provided oiling cloth to spread the oil uniformly. Wipe off the excess so that only a thin coat of oil is left. Make sure that the sample cell is almost dry with little or no visible oil.

Note: *Store the oiling cloth in a plastic storage bag to keep the cloth clean.*

Store the sample cells

NOTICE

Do not air dry the sample cells.

***Note:** Always store the sample cells with caps on to prevent the cells from drying.*

1. Fill the sample cells with distilled or demineralized water.
2. Cap and store the sample cells.
3. Wipe the outside of the sample cells dry with the a soft cloth.

Replace the battery

⚠ WARNING

Explosion hazard. An expired battery can cause hydrogen gas buildup inside the instrument. Replace the battery before it expires. Do not store the instrument for long periods with a battery installed.

⚠ WARNING

Potential fire hazard. Use only alkaline or nickel metal hydride batteries (NiMH) in the meter. Other battery types or incorrect installation can cause a fire. Never mix battery types in the meter.

For battery replacement refer to Install the battery on page 6.

1. Remove the battery cover.
2. Remove the batteries.
3. Install 4 AA alkaline or 4 AA nickel metal hydride (NiMH) batteries. Make sure that the batteries are installed in the correct orientation.
4. Replace the battery cover.

Replace the lamp

⚠ CAUTION

Burn Hazard. Wait until lamp cools down. Contact with the hot lamp can cause burns.

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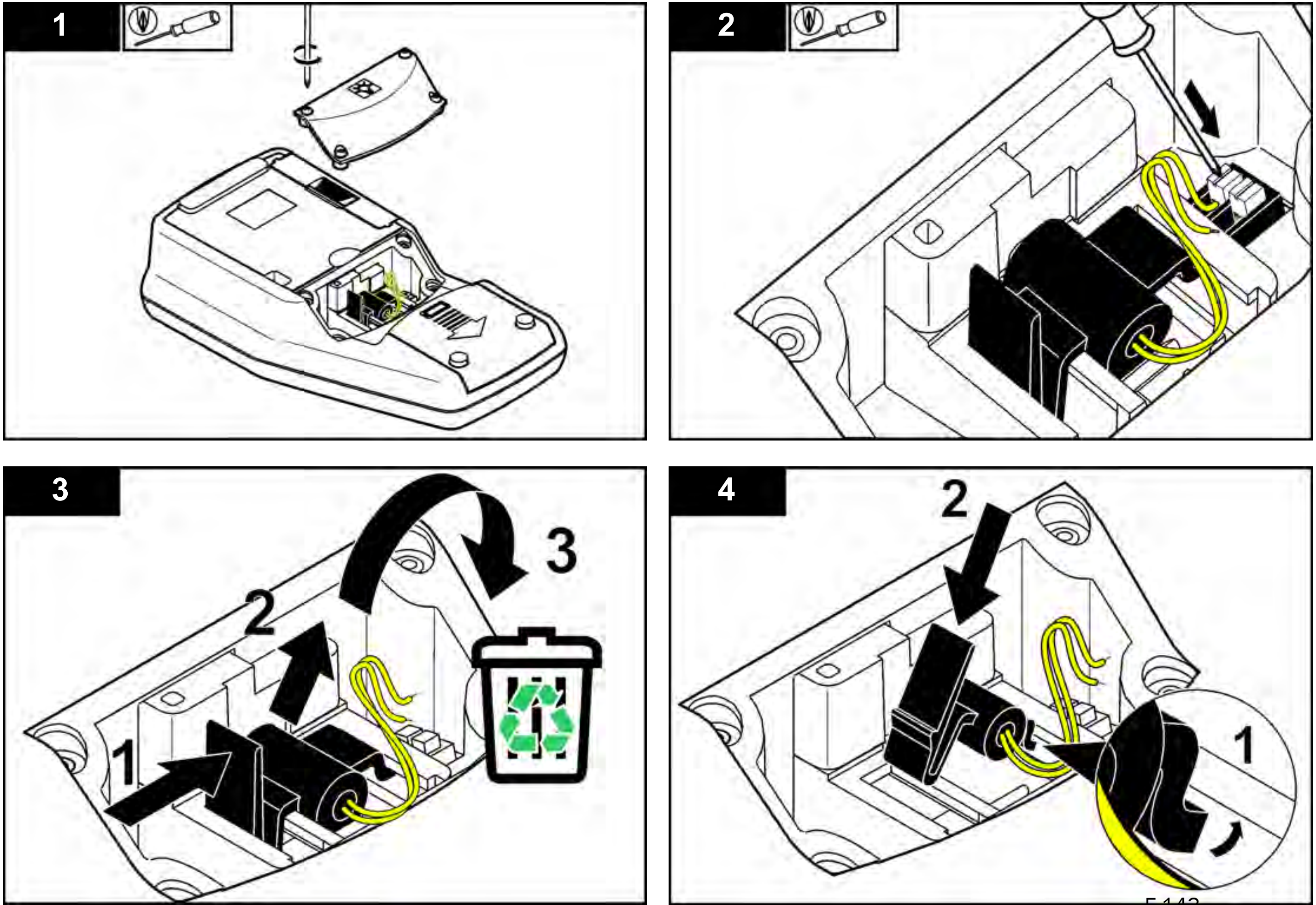

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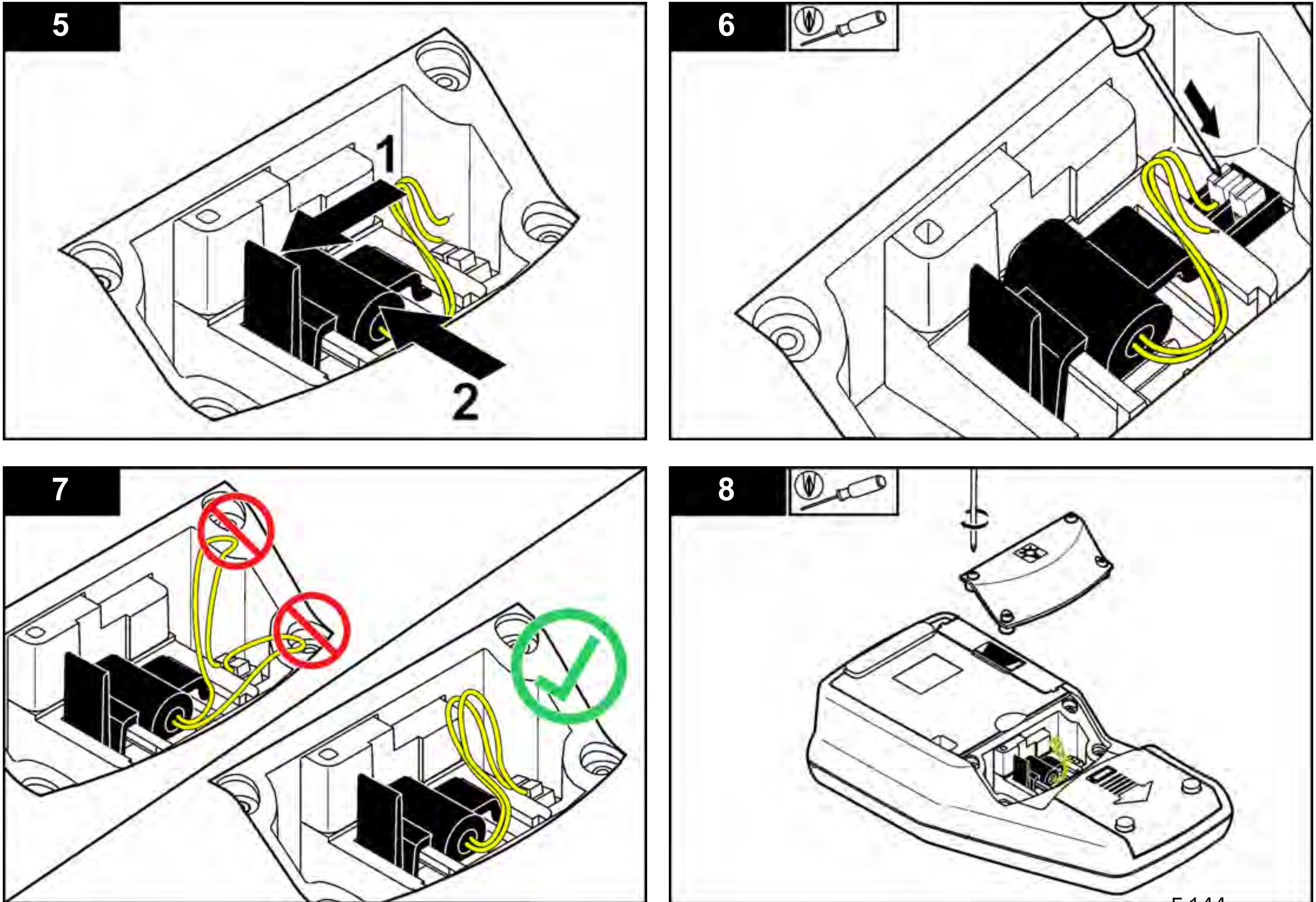

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Troubleshooting

Refer to the following table for common problem messages or symptoms, possible causes and corrective actions.

Error/Warning	Description	Solution
Close lid and push Read.	The lid is open or lid detection failed.	Make sure that the lid is closed during reading and re-read.
Low Battery!	Battery is low.	• Insert new batteries • Connect USB/power module if rechargeable batteries are used
ADC Failure!	Hardware error causing reading to fail.	Repeat the reading.
Detector signal too low!	Insufficient light on the 180° detector.	• Check for obstructed light path. • Check the lamp.
Overrange!	Turbidity too high-caused probably by calibrating with RapidCal™ only.	• Calibrate the upper range. • Dilute the sample.
Underrange!	The measured absorbance is below the calibration range.	Repeat calibration
Please check the lamp!	Signals are too low on the 90° and 180° detector.	**2100Q:** The lamp is defective. Change the lamp (refer to Replace the lamp on page 12). **2100Q*is*:** Contact technical support.

Error/Warning	Description	Solution
Temperature too high! Switch off instrument.	Temperature has exceeded the meter limits (>60 °C or >140 °F).	Turn off the meter and let it cool down.
RST: Average value!	Solids are settling too slowly. The reading mode is not suitable for this sample.	Select Normal or Signal Average reading mode.
Confidence level is < 95%	The reading mode Rapidly Settling Turbidity did not meet the range of ≥ 95% confidence.	• Invert the sample several times so that the solids allocate. Repeat the reading again. • Switch to the Normal reading mode if the sample is stable and does not have settable solids.
Standard value out of range. Insert standard and push Read	Used incorrect standard value for the reading.	Insert the appropriate standard and read again.
ID already in use. Enter new ID	The Operator or Sample ID is unavailable as it is already assigned.	Create a new ID.
Error - Security Please set password before activating security	No password is created.	Create a new password.
Please enter at least one character.	Password must contain minimum of one character.	Create a password of at least one character.
Password incorrect. Please retry.	Incorrect password was entered.	Enter the appropriate password.

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Error/Warning	Description	Solution
Please disconnect the USB cable from your computer.	Data storage does not respond while connected to the meter and the computer.	Disconnect the USB cable from the meter and try sending data again.
USB module memory full. Delete data and try again.	Data storage is full.	**1.** Connect USB/power module to the computer. **2.** Download the stored data to the computer. **3.** Delete Data Log on the module.
Delete Last Reading Failed!	Error in the data storage.	Turn the meter off and on. If the error message still occurs, contact technical support.
Delete Data Log failed!		
Can't read data set!		
Can't store data!		
Can't store to the Reading Log!		
Can't store to the Verify Cal Log!		
Error storing data!		
Error reading data!		

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Appendix C: Field Data Sheets and Chain of Custody Forms

Form DW1 – Dry Weather Outfall Investigation Form

Form DW2 – Trash Assessment Form

Chain-of-Custody Form – Boise City Water Quality Laboratory

Chain-of-Custody Form – Analytical Labs, Inc.

Form DW-1
DRY WEATHER OUTFALL INVESTIGATION FORM

Outfall Information

Outfall ID: ________________________

Station Type: _Outfall_ **Location:** ____________________________________

Lat: ____________ **Lon:** ______________ **Receiving Water:** ____________________________________

Station Config.: (circle one) Box culvert Circular DI structure Elliptical Manhole Open ditch, lined Open ditch, unlined

Material: (circle one) ADS CMP Concrete Earthen PVC Rip rap RCP SMP **Size:** ______ (Inches)

Comments: ____

Drainage Area (acres): ________________ **Land Use:** ____________________________________

Site Condition Information

Personnel: ______________________ **Date/Time On-site:** ______________________________ MDT / MST

Comments: ____

Field Quantitative Results

Component

Antecedent Dry Conditions Met: **Y / N** (see notes for clarification)

Previous Storm Date: _____________ Storm Total: __________ inches

Flow Depth: ____________ inches Flow Width: ___________ inches

Velocity (Flow Probe): ____________ fps Flow: ________________ cfs

Velocity (Bucket Method) volume used: (circle one) 500ml 1L 5 gallon

Bucket Method Trial: 1: __________, 2: __________, 3: __________ sec.

Flow: __________ cfs (see notes for flow calculation resource)

Component

Temperature – DO Meter: _____________ C

Dissolved Oxygen: __________________ mg/L

Conductivity: _______________________ uS

pH: _________S.U. pH temp:_________ C

Total Chlorine: _____________________ mg/L

Total Copper: _____________________ mg/L

Phenols: _________________________ mg/L

Turbidity: _________________________ NTU

Notes: Antecedent dry conditions require >72 hours of < 0.10 inches of precipitation.
Flow Calculator - \\APPWSUS\ACHDFiles\Groups\ROWDS\STORMWATER\OUTFALL INSPECTION\DWOS\Dry WX Flow Calcs_151123

Form DW-1
DRY WEATHER OUTFALL INVESTIGATION FORM

Sample Collection Information

Component	Initial Grab Sample Date/Time	*QC-__A__ Field Duplicate* *(fill in appropriate sequential number)* Date/Time	QC-__B__ Field Blank *(fill in appropriate sequential number)* Date/Time	Labeled
E. coli - 250mL sterile plastic	______	______	______	☐
TSS – 5L plastic	______	______	______	☐
TP – 500mL plastic	______	______	______	☐
Detergents – 500mL plastic	______	______	______	☐
Ortho-P – 500mL sterile plastic *(To be filtered)*	______	______	______	☐
Ortho-P – 250mL sterile plastic *(Filtered Sample)*	______	______	______	☐

Notes: Date/Time recorded on the Lab COC for QC samples will be the collection date at 12:00. Field Blanks will be filled with ultra-pure water from WQL.

Investigation Event Qualitative Results

Observed?	Component	Comments/Description (circle one, if appropriate)				
☐	**GPS**					
☐	**Photos**					
☐	**Sedimentation**					
☐	**Staining**	Oily	Flow line	Paint		
☐	**Flow observed**	Trickle	Moderate	Substantial		
☐	**Odor**	Sewage	Sulfide	Rancid/Sour	Petroleum	
	Color	Clear	Green	Brown	Orange	Other
☐	**Vegetation**	Excessive	Inhibited			
☐	**Floatables** (trash NOT included)	Sewage	Suds	Petroleum		
	Structural condition	Good	Fair	Poor		
	Clarity	Clear	Cloudy	Silty		
	Illicit discharge	Unlikely	Potential	Obvious		
	Trash observed	No	Yes – see Trash Assessment Form (Form 2)			

Date/Time Off-site: ____________________ MDT / MST (circle one)

Investigation Event Qualitative Results (determined in office, post-inspection)

Component	Comments/Description (circle one)	
Compliance status	IN compliance	OUT of compliance

FORM DW-2
TRASH ASSESSMENT FORM

Outfall Information

Outfall ID:________________________

Station Type: _Outfall_ **Location:** ____

Lat: ____________ **Lon:** ____________ **Receiving Water:** ______________________________

Comments: ____

____

____

Personnel:__________________

Date/Time On-site: __________________ MDT / MST (circle one) Note: This is the "Start Date/Time"

Component	Value	Unit
Antecedent dry period	________________________	**Hours**
Total precipitation - previous storm	______________ **Inches**	**Result/Analysis Date:** ___________

Trash Evaluation Includes: ☐ MS4 ☐ Receiving Water ☐ Both

Component	Observed? (check (✓) if yes)	Comments/Description (circle one, if appropriate)
Photos	☐	____
Trash observed	☐	Optimal – No trash observed on first glance. Close examination yields <10 pieces.
	☐	Suboptimal- On first glance, little or no trash observed. Close examination yields 10-50 pieces.
	☐	Marginal – Trash evident in low to medium levels (51-100 pieces).
	☐	Sub marginal – Trash distracts the eye on first glance. Litter and debris >100-400 pieces. Evidence of human use apparent: cans, bottles, clothes, food wrappers, blankets.
	☐	Poor – Site is significantly impacted by trash. Evidence of excessive dumping. Littler observed >400 pieces.

FORM DW-2
TRASH ASSESSMENT FORM

Type of Trash	*Rank 1, Most - 12, Lest	Potential Route (check up to 2)				Potential Source (check up to 2)						
		Dumping	Littering	Upstream	Unable to Determine	Household	Construction	Commercial	Industrial	School	Transient	Unable to Determine
Automotive												
Biohazard												
Business												
Cigarette Butts												
Construction												
Fabric/Clothing												
Food Packaging												
Food Waste												
Household												
Shopping Cart												
Toxic												
Yard Waste												

*Only rank types of trash present in evaluated area from 1 through 12 (1 is most prevalent, 12 is least prevalent).Do not rank types of trash that are not present in evaluated area.

Comments:____

____

____

____

____

____

Date/Time Off-site:________________________ MDT / MST (circle one)

Ada County Highway District

Attn: Adam Van Patten
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6268
Fax (208) 387–6391
Purchase Order:
Project: DWOS
Sampler(s):

						Matrix	Type		Components																							
																										Split 2L each Unless specified						
Lab#	**Begin Date**	**End Date**	**Begin Time**	**End Time**	**Sample Identification**	Water	Grab	Composite	BOD_5—SM 5210B	COD—Hach 8000	TSS—SM 2540D	TDS—SM 2540C	TKN—PSTORP PAI-DK01	TP—EPA 200.7	Orthophosphate—EPA 365.1	Oil & Grease—EPA 1664	Total As, Cd, Cu, Pb, Hg, Ni, Zn, Cr—EPA 200.7	Diss. Cd, As, Cu, Pb, Hg, Ni, Cr —EPA 200.8	Hardness—SM 2340B	E. Coli—SM 9213D	D.O.—4500 – O G	NO_3+NO_2 / NO_2—EPA 353.2	NH_3—SM 4500 NH_3 - F			TrPH—1664 A SGT HEM	Organochlorine Pest.—EPA 8081	Organophosphate Pest.—EPA 8141		BNA—EPA 8270	VOCs — EPA 8260	Number of Containers
						X	X				X			X	X					X												4

Relinquished by (sign)	**Date & Time Transferred**	**Received by (sign)**	**Comments/Special Instructions:**

CLIENT CODE=

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION:		PROJECT INFORMATION:
Project Manager:		**Project Name:** DWOS
Company: Ada County Highway District		**PWS Number:**
Address: 3775 Adams Street		**Purchase Order Number:**
Garden City, ID 83714		**Required Due Date:**
Phone:	**Fax:**	**E-mail Address:**
Sampled by: *(Please print)*	**Transported by:** *(Please print)*	

ANALYTICAL LABS, INC.
1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax: (208) 342-5591 • 1-800-574-5773
Website: www.analyticallaboratories.com
E-mail: ali@analyticallaboratories.com

TESTS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description (Source)	Sample Matrix										Remarks:
				Water	✔	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	

Invoice to: *(If different than above address)*	**Special Instructions:**

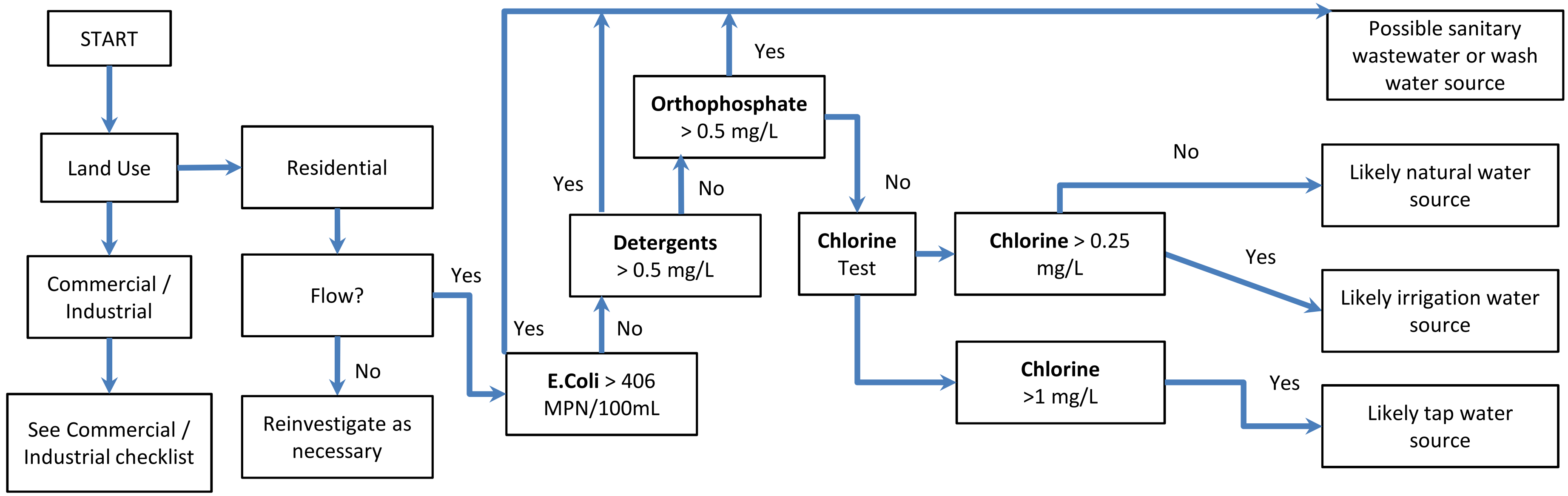
ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstance will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

Note: Samples are discarded 21 days after results are reported. Hazardous samples will be returned to client or disposed of at client expense.

Relinquished By: *(Signature)*	**Print Name:**	**Company:** ACHD	**Date:**	**Time:**
Received By: *(Signature)*	**Print Name:**	**Company:**	**Date:**	**Time:**
Relinquished By: *(Signature)*	**Print Name:**	**Company:**	**Date:**	**Time:**
Received at Laboratory By: *(Signature)*	**Print Name:**	**Company:** Analytical Laboratories	**Date:**	**Time:**
SAMPLE RECEIPT **Total # of Containers:**	**Chains of Custody Seals Y / N / NA**	**Intact: Y / N / NA** **Temperature Received:**	**Condition:**	F-153

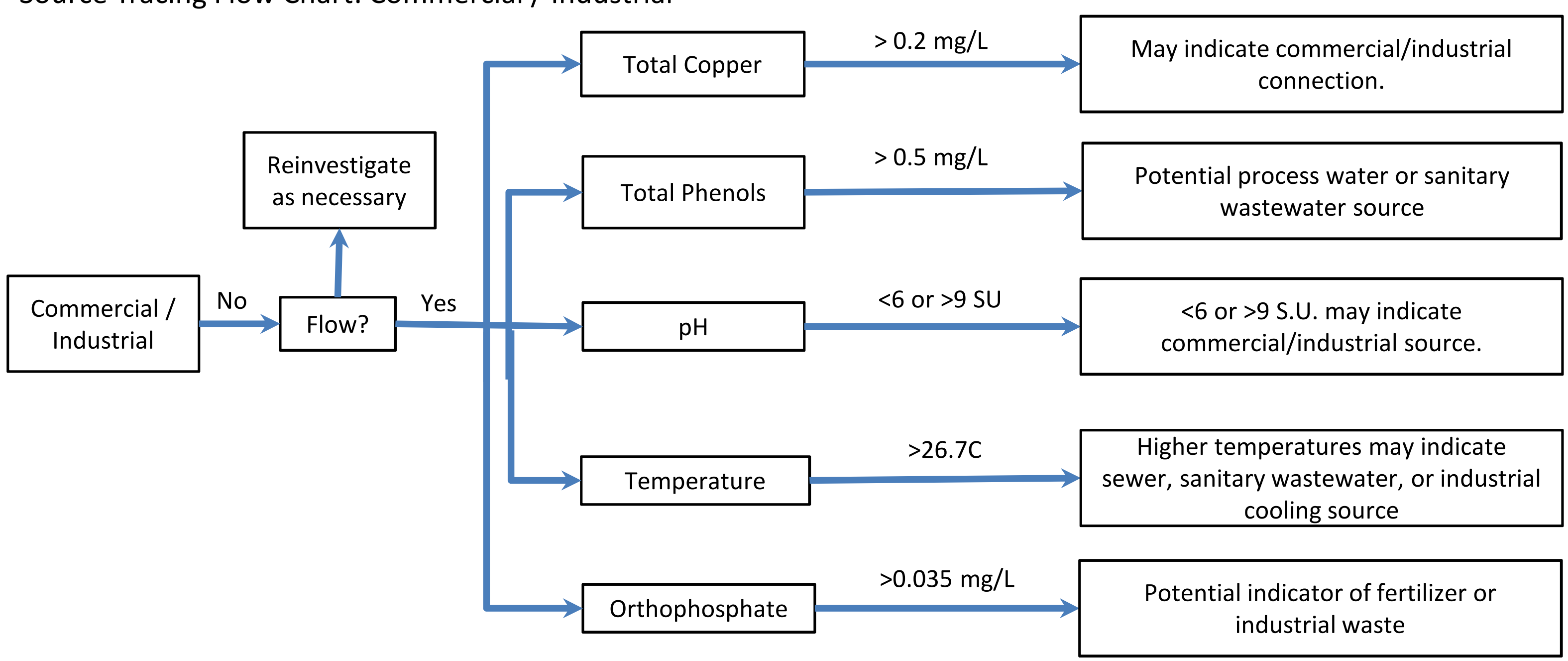
REV. 2/19/10 WHITE: STAYS WITH SAMPLE(S) YELLOW: LAB PINK: SAMPLER

Appendix D: Source Tracing Flow Chart



Source Tracing Flow Chart: Residential

Source Tracing Flow Chart: Commercial / Industrial



Appendix E: Thresholds for Documented Flowing Outfalls

Specific water quality thresholds will be used in conjunction with loading calculations, specific source information, and other program criteria to make the determination whether to discontinue monitoring at any individual previously documented flowing outfall. As defined in the Permit "the sample results must be evaluated to identify feasible actions necessary to eliminate such flows and ensure compliance of Part 1.D of the Permit". If sample analytical results are in exceedance of any of the thresholds listed in Table E-1 for a given outfall, then they must be evaluated to identify feasible actions necessary to eliminate flows. Annual sampling is required until justification exists that the discharge complies with Part 1.D of the permit. If sample analytical results are not in exceedance of any thresholds listed in Table E-1 for a given outfall, then the outfall is considered an allowable discharge and does not require additional sampling or evaluation. Outfalls with allowable discharges and outfalls with no observed flow are to be reinvestigated on a five year rotation.

Table E-1. Thresholds for Water Quality Parameters

Constituent	Threshold	Basis	Source
pH	6.5 - 9.0	Idaho Aquatic Life	IDAPA 58.01.02.250.01.a
Temperature	22 C 19 C	Salmonid Spawning – Peak Salmonid Spawning - Max. daily average	IDAPA 58.01.02.250.02b
Turbidity	Not to exceed 50 NTU greater than background - instantaneous	Idaho Aquatic Life	IDAPA 58.01.02
Dissolved oxygen (DO)	6.0 mg/L	Salmonid Spawning	IDAPA 58.01.02.278.01.0 2.278.01
Conductivity	>50 and <1500	Typical US River Observations	EPA
Total chlorine	0.019 mg/L CMC 0.011 mg/L CCC	Idaho Aquatic Life	IDAPA 58.01.02
Total copper	1.3 mg/L 1.0 mg/L	National Primary Drinking Water National Secondary Drinking Water	IDAPA 58.01.02
Total phenols	21 mg/L	Idaho Human Health Consumption (Water/Organism)	IDAPA 58.01.02
E. coli	406 CFU/100 mL	Idaho Criterion for Primary Contact Recreation; single sample	IDAPA 58.01.02.251.01.c
Total suspended solids	80 mg/L (14 day)	Idaho Aquatic Life; Lower Boise River TMDL 14-day target	Lower Boise River TMDL (1999)
Total phosphorus	0.07 mg/L	Eutrophication	Boise River TMDL
Dissolved orthophosphate	0.07 mg/L	Guideline threshold – no specific criteria	
Detergents as Surfactants	Presence	Indicative of illicit connection – should not be present in dry weather flows	

ACHD may continue or increase the sampling frequency of an outfall until sufficient data exist to determine that a discharge is allowable under the permit requirements and will no longer require annual sampling.

Appendix G: CSDC Program Manual

Construction Site Discharge Control Program Manual

ADA COUNTY HIGHWAY DISTRICT
3775 Adams Street
Garden City, ID 83714
Phone: 208-387-6264
Fax: 208-387-6391

January 2024

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ACKNOWLEDGEMENTS

Primary Contributing Staff:

Seth Kuchenbecker, Environmental Specialist

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DEFINITIONS

Words and phrases as used in this section when capitalized are defined as follows:

"**Ada County Highway District**" is a body politic and corporate of the state of Idaho, which has jurisdiction over and is specifically responsible for all county secondary and city highways in Ada County.

"**Adjoining Property**" means property where erosion, sedimentation, or construction material impacts are occurring, and the cause of impact is directly related to a Construction Activity or Land Disturbing Activity adjoining or upstream from such property.

"**Allowable Discharge**" means a category of non-stormwater discharges allowed by NPDES MS4 Permits and that do not typically require the discharger to obtain a Dewatering Permit.

"**Best Management Practice**" means schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the Pollution of waters of the United States. Best Management Practices also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"**Conditionally Allowable Discharge**" means a category on non-stormwater discharges allowed by NPDES MS4 Permits that typically requires the discharger to obtain a Dewatering Permit. This category of discharge usually involves additional BMPs and oversight to prevent a Pollutant discharge than those discharges in the Allowable Discharge category.

"**Construction Activity**" means Land Disturbing Activities, and other construction related activities that could lead to the generation of Pollutants.

"**Construction Dewatering**" means the act of draining accumulated Stormwater and/or ground water from building foundations, trenches, or other similar points of accumulation on a Construction Site. The surplus water usually contains suspended Sediment and other Pollutants that must be settled or filtered out before discharging from the Construction Site.

"**Construction Site**" means the area where Construction Activities will occur and where Best Management Practices (BMPs) will be installed and maintained. The Construction Site includes construction support activities, which may be located at a different part of the property from where the primary Construction Activity will take place, or on a different piece of property altogether.

"**Construction Site Discharge Control Plan**" means either an Erosion and Sediment Control (ESC) Plan Waiver, a ESC Plan, a Stormwater Pollution Prevention Plan, or a Dewatering Plan approved by ACHD and attached to the permit issued to permit holder.

"**Dewatering**" means the act of draining accumulated Stormwater and/or other surplus water from building foundations, trenches, vaults, pipes, or other similar points of accumulation.

"**Dewatering Permit**" means a permit issued for the discharge of surplus water from a Land Disturbing Activity, Construction Activity, utility vault, or domestic water facilities into the Storm Drain System, ditches, or drains.

"**Dewatering Plan**" means a site-specific written document containing provisions, at minimum, addressing the Best Management Practices to be employed to prevent and control water quality impacts associated with the discharge.

"**Environmentally Sensitive Sites**" means any Construction Site with one or more of the following characteristics:

- Land Disturbing Activities in areas where the predevelopment grades are greater than 15 percent;
- Land Disturbing Activities within 50 feet of a wetland and or water body;
- Land Disturbing Activity or Dewatering near or on known sites contaminated by listed Pollutants or listed by the federal Environmental Protection Agency or the Idaho Department of Environmental Quality as a "Superfund" or a "Brownfield" or site of concern as those terms are used by the governing agencies.

"**Enforcement Response Policy**" means a guidance document that details Ada County Highway District's (ACHD) escalating response to non-compliance issues as they relate to the CSDC Program. The document outlines the purpose of the Construction Site Discharge Control Program, ACHD's legal authority, staff roles and duties, factors influencing enforcement actions, and type of enforcement actions and processes.

"**Erosion & Sediment Control Plan**" means a site-specific written document containing provisions, at minimum, addressing the Best Management Practices to be employed to prevent and control water quality impacts associated with the Construction Activity. Required for all Construction Activities not covered by an Erosion & Sediment Control Plan Waiver.

"**Erosion & Sediment Control Plan Waiver**" also known as a "Small Project Erosion & Sediment Control (ESC) Plan" means a waiver for an ESC Plan. Applicable where Land Disturbing Activity is less than 600 square feet, trenching is less than 50 linear feet and construction Activities do not impact any Environmentally Sensitive Site.

"**Erosion & Sediment Control Prioritization Rating**" means the inspection prioritization system to identify the minimum frequency and type of inspections, using such factors as project type, total area of disturbance, location, and potential threat to water quality.

"**Final Site Stabilization**" means all Land Disturbing Activities at the site have been completed and one or more of the following criteria are met:

- Uniform perennial vegetation (e.g., evenly distributed, without large bare areas) has been established, or provides 70 percent or more of the cover existing prior to Land Disturbing Activities on the Construction Site; and/or
- Permanent non-vegetative stabilization measures (e.g., riprap, gravel, gabions, and geotextiles) have been implemented to provide effective cover for exposed portions of the Construction Site.

"**Idaho Pollutant Discharge Elimination System**" is the state program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under the Clean Water Act.

"**Land Disturbing Activity**" means actions taken to alter the existing vegetation and/or underlying soil of a site, such as clearing, grubbing, grading, site preparation (e.g., excavating, cutting, and filling), soil compaction, and movement and stockpiling of topsoil.

"**License Agreement**" means an agreement between an Operator and Ada County Highway District to allow an activity or infrastructure within the Right-of-Way. A License agreement may include stipulations specific to the activity and can be terminated at any time.

"**Municipal Separate Storm Sewer System**" means a Storm Drain System that discharges to waters of the U.S.

"**National Pollution Discharge Elimination System**" is a federal permit program that controls water pollution by regulating point sources that discharge Pollutants into waters of the U.S.

"**NPDES MS4 Permit**" is a federal permit issued through the National Pollution Discharge Elimination System that authorizes cities, counties, or other governmental entities to discharge Stormwater collected by their Municipal Separate Storm Sewer systems to waters of the U.S.

"**Operator**" means any party associate with a Construction Activity that meets either of the following criteria:

- The party has operation control over construction plans and specification, including the ability to make modification to those plans and specification; or
- The party has day to day operation control of those activities at a project that are necessary to ensure compliance with permit conditions and policy requirements.

"**Pollutant**" means objects including, but not limited to, dredged soils, solid waste, incinerate residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, wrecked or discarded equipment, rock, sand, silt, clay, dust, cellar dirt, industrial, municipal and agricultural waste, gases entrained in water, paints, oil, and other automotive fluids, soil, rubbish, trash, debris, refuse, heavy metals, hazardous waste, road sanding materials, yard waste from commercial landscaping operations, animal waste, materials that result from the process of constructing a building or structure, and nauseous or offensive matter of any kind, which, when discharged to water, cause or contribute to water pollution.

"**Prohibited Discharge**" means a category of non-stormwater discharge specifically prohibited by NPDES MS4 Permits.

"**Right-of-Way**" means public right-of-way under the jurisdiction of Ada County Highway District.

"**Responsible Person**" means a person who has operational control over Construction Activities and day-to-day operational control of plan requirements and permit conditions. A Responsible Person shall be knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who has received certification from the City of Boise through successful completion of the Responsible Person certification program.

"**Storm Drain System**" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) designed or used for collecting or conveying Stormwater.

"**Stormwater**" means stormwater runoff, snowmelt runoff, and surface runoff and drainage.

"**Stormwater Management Plan**" means a written document to describe in detail how the NPDES MS4 Permit holder complies with the required Stormwater management control measures in the permit. The document must provide a current narrative physical description of the permittee's MS4, illustrative maps or graphics, and a citation or description of all related ordinances, policies and activities as implemented within their jurisdiction.

"**Stormwater Pollution Prevention Plan**" means a site-specific, written document containing provisions as outlined in the most current Construction General Permit. Required prior to submission of a Notice of Intent.

"**Subdivision Agreement**" means binding agreement between the Operator and Ada County Highway District (ACHD) to construct Right-of-Way as approved and to be later accepted by ACHD.

"**Temporary Use Permit**" mean a permit issued by Ada County Highway District (ACHD) pursuant to the ACHD Policy Manual to any PERSON who desires to perform any work in the Right-of-Way or encroaches on a right-of way unless the area under ACHD jurisdiction and requires a Construction Site Discharge Control Plan.

"**Turbidity**" means a condition of water quality characterized by the presence of suspended solids and/or organic material.

ACRONYMS

ACHD	Ada County Highway District
BMP	Best Management Practice
CGP	Construction General Permit
CSDC	Construction Site Discharge Control
CWA	Clean Water Act
EPA	Environmental Protection Agency
ERP	Enforcement Response Policy
ESC	Erosion Sediment Control
IDEQ	Idaho Department of Environmental Quality
IPDES	Idaho Pollutant Discharge Elimination System
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
RP	Responsible Person
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan

1 INTRODUCTION

This Construction Site Discharge Control (CSDC) Program Manual provides guidance to the Ada County Highway District (ACHD) Environmental Staff who administer the CSDC Program. ACHD implements and enforces it's CSDC Program throughout Ada County to fulfill National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit requirements. ACHD is regulated by a Phase I NPDES MS4 Permit (IDS027561) that covers the Boise and Garden City area and a Phase II NPDES MS4 Permit (IDS0281185) that covers the cities of Eagle, Meridian, and areas of urbanized Ada County. The CSDC Program is implemented through a combination of ordinances, policies, and guidance manuals. This CSDC Program Manual details the program's purpose, legal authority, regulatory mechanisms, administrative procedures, enforcement tools, educational tools, and reporting requirements.

1.1 BACKGROUND

Water pollution in the United States is regulated under the Clean Water Act (CWA) of 1972. In 1987, Congress amended the CWA to include nonpoint sources of pollution. Nonpoint source pollution occurs when runoff from land carries Pollutants to receiving waters. Section 402 of the CWA provides the legal basis for the NPDES Permit Program, which regulates point and nonpoint source discharges.

In November 2000, EPA issued a Phase I NPDES MS4 Permit to ACHD and five other permittees within the Boise and Garden City area. The other permittees include Boise City, Garden City, Idaho Transportation Department District #3, Ada County Drainage District #3, and Boise State. In October 2002, EPA issued a Phase II NPDES MS4 Permit to ACHD that covers Eagle, Meridian, and parts of urbanized unincorporated Ada County. ACHD is the sole permittee on the Phase II NPDES MS4 Permit. In 2021, Idaho Department of Environmental Quality (IDEQ) took regulatory control over all NPDES MS4 Permits within the State's jurisdiction. The current Phase I and Phase II NPDES MS4 Permits are provided in Appendix A.

The NPDES MS4 Permits mandate the permittees to develop programs and regulations to reduce to the 'maximum extent practicable' the discharge of Pollutants within their jurisdictions. In both the Phase I and Phase II NPDES MS4 Permits, Section 3.3 – Construction Site Stormwater Runoff Control, requires the permittees to reduce Pollutants in Stormwater runoff from Construction Activities within their jurisdiction. To adhere to requirements listed in this section, ACHD developed the CSDC Program.

CSDC Program specific requirements are listed in ACHD Policy Manual Section 8300 - Construction Discharge Control Program and Section 6000 - Permits and Inspection (Appendix C). The program is implemented throughout Ada County due to complexities associated with implementing different standards based on NPDES MS4 Permit boundaries. Countywide implementation also provides consistent expectations for the regulated community wherever they may be working within ACHD' jurisdictional boundaries.

1.2 PURPOSE

The CSDC Program was developed to meet NPDES MS4 Permit Construction Site Stormwater Runoff Control requirements by reducing the discharge of Pollutants from Construction Activity within ACHD's jurisdiction.

The following activities are subject to CSDC Program regulation and inspection:

- Construction Activities performed by ACHD's Maintenance Department.
- Utility, fiber, and frontage improvement work in the Right-of-Way.
- Subdivision and development projects including the construction of new infrastructure to be later dedicated as Right-of-Way.
- Dewatering activities when those activities result in a discharge to the Storm Drain System or when those activities discharge into a nearby surface water if that discharge is associated with work in the Right-of-Way.
- Capital Project Construction Activities.

Program specific objectives include:

- Reviewing of site-specific CSDC Plans (e.g., ESC Plans, SWPPPs and Dewatering Plans) required for permitted Construction Activities.
- Conducting prioritized inspections of projects permitted by ACHD.
- Investigating, tracking, and resolving complaints involving permitted Construction Activities in a timely and consistent manner.
- Enforcing CSDC Program requirements.

2 LEGAL AUTHORITY

ACHD is the governing agency responsible for construction and maintenance of all local roads, including the Storm Drain System, in Ada County, Idaho. ACHD's legal authority is based upon the laws of the State of Idaho. Specific authority is found in Title 40, Idaho Code, Chapters 13 and 14. Because of the limited purpose of ACHD, as defined by the State Code, such legal authorities and provisions are interpreted as intended for facilities and operation and maintenance within the jurisdictional public Right-of-Way. ACHD does not provide police or enforcement power and must rely on the powers of municipal government. Specific legal authority granted to ACHD through state code includes the following:

- **Powers and Duties of Highway Commissioners, Idaho Code 40-1406**
  ACHD Commissioners are empowered to pass ordinances, rules, and regulations as necessary for carrying into effect or discharging all powers and duties conferred to a Countywide Highway District by state code.
  https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/

- **Drainage Authority, Idaho Code 40-1451(1)(d)**
  ACHD has authority over drainage where it is necessary for motorist safety or necessary for public Right-of-Way maintenance. This code provision limits the extent and nature of authority in which ACHD is empowered.
  https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/
- **Subdivision Plat Review, Acceptance and Approval, Idaho Code 40-1415(6)**
  Subdivision plats are required to be submitted to ACHD for acceptance and approval for highway design, drainage provisions, and traffic conditions.
  https://legislature.idaho.gov/statutesrules/idstat/Title40/T40CH14/SECT40-1415/
- **Common Law Authority**
  ACHD has certain common law authority to control discharges of Stormwater into any storm drains which are located within the public Right-of-Way by means of ACHD's control and owner's interest in the public Right-of-Way.
- **Authority as a Municipal Corporation**
  ACHD may have certain inherent authority as a municipal corporation by virtue of its ordinance authority to regulate discharges of Stormwater into ACHD's Storm Drain System.

3 POLICY

The specific requirements of the CSDC Program are detailed in ACHD Policy Manual Section 8300 - Construction Discharge Control Program and Section 6000 - Permits and Inspection

3.1 SECTION 6000

ACHD Policy Manual Section 6000 - Permits and Inspection outlines how ACHD monitors and regulates all construction and maintenance activities within its jurisdiction. Section 6000 encompasses permitting procedures, License Agreements, and site inspections.

3.2 SECTION 8300

ACHD Policy Manual Section 8300 – Construction Discharge Control Program was written to explicitly outline CSDC Program requirements. Section 8300 delineates the Operator's responsibilities, covering plan submission, Best Management Practice (BMP) implementation, and inspection obligations. The section also describes ACHD's plan review process, right to inspection, and authority to enforce CSDC Program requirements.

3.2.1 STANDARD BEST MANAGEMENT PRACTICES

BMPs, when implemented effectively, should protect soil surfaces from erosion and capture eroded soil before it travels off the site. Erosion prevention is the preferred approach, but sediment control is also necessary because some erosion is unavoidable. Because sediment is not the only potential Pollutant on a Construction Site, pollution prevention BMPs are also necessary.

To ensure Operators implement BMPs appropriately, ACHD lists 15 Standard BMPs in Section 8300. Operators must comply with all applicable Standard BMPs, adhering to the design, testing, installation, and maintenance standards outlined in the Idaho Department of Environmental Quality Catalog of Stormwater Best Management Practices for Idaho Cities and Counties (Appendix D) and/or the manufacture's specifications.

Erosion Controls	**Sediment Controls**	**Pollution Prevention Controls**
• Limit Disturbance Area • Slope Stabilization • Stockpile Management	• Construction Entrance • Inlet Protection • Dust Control • Perimeter Controls • Street Sweeping • Surface Water Protections	• Concrete Washout Management • Good House Keeping Practices • Material & Waste Management • Sanitary Facilities • Spill Response • Vehicle & Equipment Maintenance

TABLE 3-1 STANDARD BEST MANAGEMENT PRACTICES

4 PERMITS & AGREEMENTS

To align Operators with policy standards, ACHD mandates that Operators secure a permit or contractual agreement before initiating work on a project within its jurisdiction. The terms of the permit or agreement obligate the Operator to all policy requirements and any other additional conditions stipulated by ACHD.

It is the Operator's responsibility to ensure the acquisition of all relevant construction permits for their project. For more complex projects, multiple permits could be required.

Upon receiving a permit application, Administrative Staff assign the application a permit number with a designated prefix based on the project type and overseeing inspection group.

Permit Prefix	**Project Type**	**Inspection Group**
• ZONE, COM	• Utility, Frontage, Dewatering	• Zone
• FIBP, FIB	• Fiber-Optic	• Fiber
• SUB, SUBP	• Subdivision, Development, Bridge	• Subdivision & Bridge
• PROJ	• Capital Projects	• Capital Projects

TABLE 4-1 INSPECTION GROUPS

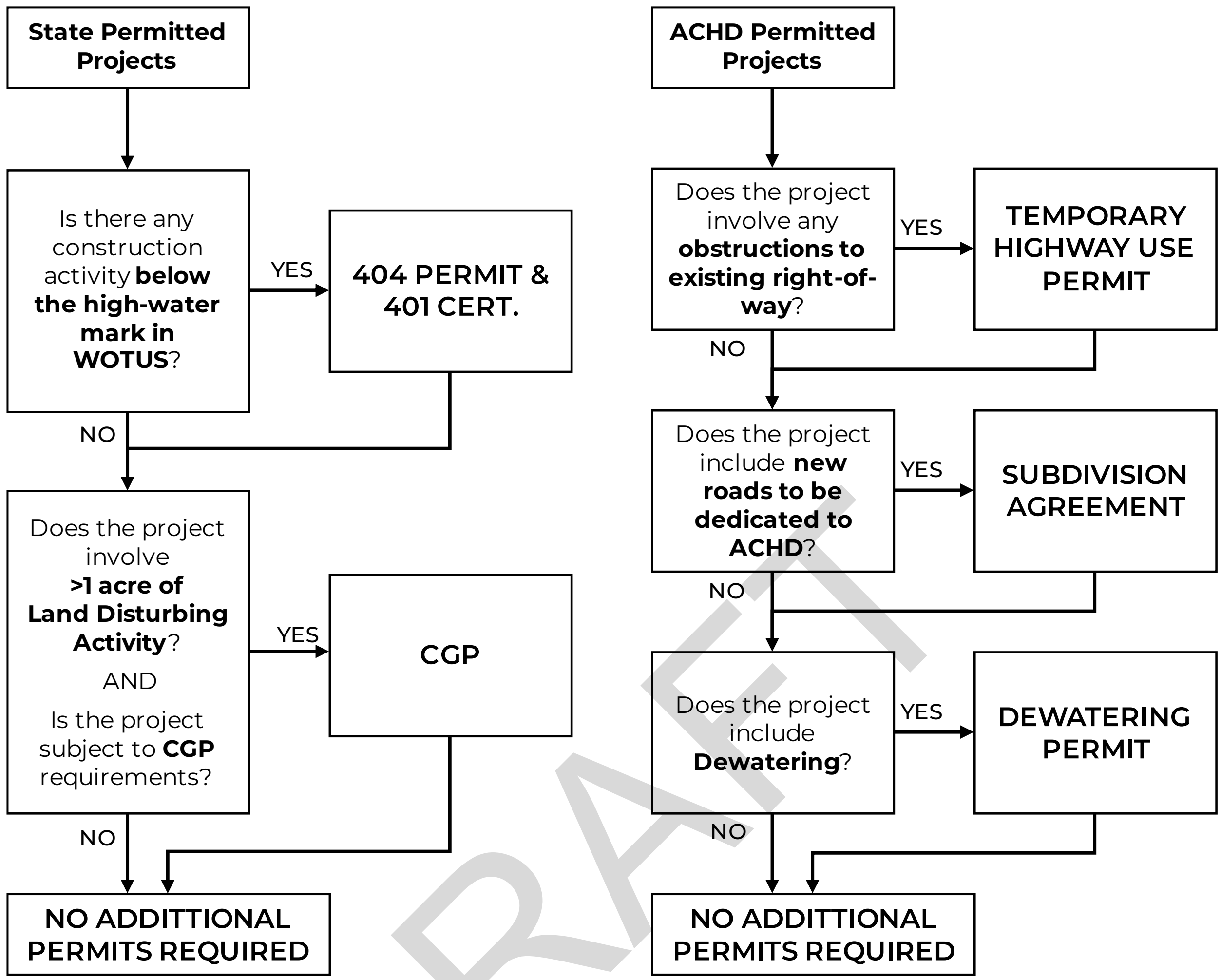

FIGURE 4-1 CONSTRUCTION PERMITS

4.1 TEMPORARY USE PERMIT

Operators intending to work in the Right-of-Way or encroach upon it must obtain a Temporary Use Permit. This permit is commonly issued to Operators working on utility, fiber, or frontage improvement projects. In addition to submitting a completed Temporary Use Permit Application form (Appendix F), the Operator may need to submit additional materials such as a Traffic Control Plan, and a CSDC Plan.

4.2 SUBDIVISION AGREEMENTS

Operators planning to develop and construct a new subdivision, including infrastructure to be dedicated to ACHD, must enter a Subdivision Agreement before commencing work. Due to the complexities of subdivision projects, the application package undergoes a comprehensive review by various ACHD Staff. Construction plans must be approved and stamped before entering an agreement. If the work impacts existing ACHD facilities, a separate Temporary Use Permit must also be obtained. This is common for new utility tie-ins or other frontage work.

4.3 CAPITAL PROJECT CONTRACTS

During Capital Project construction, both ACHD and awarded contractor are considered Operators. The contractor, bound by the contractual agreement, must complete the work as specified by ACHD. The contract language ensures compliance with all CSDC Program requirements as well as additional state and federal requirements. Contracts can be amended or supplemented with an agreement between the contractor and ACHD if needed.

4.4 DEWATERING PERMITS

Dewatering is the discharge or diversion of surplus water from one location to another. Dewatering often involves the use of pumps, filters, and other equipment to remove water and keep a site dry. ACHD classifies non-stormwater discharges into 3 categories: Allowable Discharges, Conditionally Allowable Discharges, and Prohibited Discharges. These categories were created using NPDES MS4 Permit allowable non-stormwater discharge categories.

Allowable Discharges	Conditionally Allowable Discharges	Prohibited Discharges
• Discharges from Emergency Firefighting Activities • Landscape Irrigation Surface Flows • Washwaters (no soaps, solvents, or detergents) • Non-turbid Groundwater or Springwater • Dechlorinated Swimming Pool and Spa Waters	• Construction Dewatering • Waterline Flushing • Utility Vault Dewatering	• Hyper-chlorinated waterline flushing • Wastewater from washout and cleanout of concrete, stucco, paint, form release oils, and other construction materials • Fuels, oils, or other Pollutants used in vehicle or equipment operation and maintenance • Soaps, solvents, or detergents • Toxic or hazardous substances from a spill or other release

TABLE 4-2 NON-STORMWATER DISCHARGES

ACHD regulates all Conditionally Allowed Discharges when: (1) those activities result in a discharge to the Storm Drain System, or (2) those activities discharge directly to surface waters, and that discharge is associated with a permitted Construction Activity. ACHD regulates temporary Dewatering activities through one of three types of Dewatering Permits: General Dewatering Permit, Hydrant Dewatering Permit, or Utility Vault Dewatering Permit. All proposed permanent discharge connections require a License Agreement.

To obtain a Dewatering Permit, Operators must submit a Dewatering Permit application specific to the discharge for review and approval. For example, if an Operator obtained a Hydrant Dewatering Permit to flush waterlines, but now plans to discharge surplus water from a Construction Site, a separate application for a General Dewatering Permit is required.

While it is the Operator's responsibility to secure Dewatering Permit coverage, Environmental Staff may occasionally need to remind regular annual Dewatering Permit holders of their obligation to obtain the permit. Because permit renewal occurs annually, Operators sometimes overlook the requirement. This reminder ensures the Operator can continue to conduct their routine maintenance work without a prolonged period without permit coverage. Environmental Staff can locate the contact information for these Operators by referencing previous correspondence or examining the applicant contact details listed on the operators past applications.

Operators should be encouraged to discharge surplus water to permeable vegetated areas onsite when possible. Only when onsite infiltration is infeasible will ACHD issue a Dewatering Permit to an Operator.

4.4.1 GENERAL DEWATERING PERMIT

General Dewatering Permits are typically issued for Construction Dewatering, but also apply to other temporary Allowable or Conditionally Allowable Discharges. Issued per occurrence, Operators must submit a completed General Dewatering Permit Application form (appendix F) and a site-specific Dewatering Plan for review and approval before issuance. The permit includes sampling and monitoring requirements specific to Construction Dewatering activities.

For Construction Dewatering, daily Turbidity monitoring is required, with records available to Environmental Staff upon request (usually requested weekly). If Construction Dewatering continues for over 30 days, the Operator must collect a representative sample for analytical testing, submitting the results to Environmental Staff for review.

4.4.2 HYDRANT DEWATERING PERMIT

Operators flushing waterlines must obtain an annual Hydrant Dewatering Permit before discharging potable water to the Storm Drain System. These permits, issued by the calendar year, require a completed Hydrant Dewatering Permit Application form (appendix F) and Environmental Staff approval based on the Operator's compliance history. Setup and tear down procedures remain consistent for waterline flushing. BMPs during flushing activities include cleaning gutters, using flow diffusers, and employing dechlorination methods.

Applicants for Hydrant Dewatering Permits are usually municipal water departments, utility companies, or large development companies. Hydrant Dewatering Permit holders, though not required to notify ACHD for each flush, should provide a hydrant flushing schedule to Environmental Staff upon request.

Municipality	Municipal Water Providers
Boise	• Veolia*
Eagle	• City of Eagle Water Department • Veolia*
Garden City	• City of Garden City Water Division
Kuna	• City of Kuna Water Department
Meridian	• Meridian Water Division
Star	• Star Sewer & Water*

TABLE 4-3 MUNICIPAL WATER PROVIDERS ** Indicates private company.*

4.4.3 UTILITY VAULT DEWATERING PERMIT

Operators maintaining utility vaults within the Right-of-Way must obtain an annual Utility Vault Dewatering Permit before discharging utility vault water to the Storm Drain System. Issued by calendar year, applicants, usually utility or fiberoptic companies, must submit a completed Utility Vault Dewatering Permit Application form (Appendix F). Environmental Staff will review the submitted application and the Operator's compliance history before approving the application. Setup and tear-down procedures for utility vault Dewatering activities are consistent. Minimal BMPs are required to ensure the discharge does not flush Pollutants into the Storm Drain System.

As outlined in the Utility Vault Dewatering Application form's supplemental requirements section, Operators must collect an annual representative sample from 3 utility vaults for analytical testing, submitting results to Environmental Staff for review and assessment.

4.5 STATE & FEDERAL CONSTRUCTION PERMITS

ACHD, as an Operator on capital projects, must adhere to state and federal guidelines and permit requirements.

Non-compliance reporting related to state and federal requirements typically falls under the purview of Capital Projects Staff. Environmental Staff will from time to time be asked to provide technical assistance. The Water Quality Permitting Roles & Responsibilities Table (Appendix E) outlines specific Staff responsibilities.

ACHD lacks the authority to enforce state or federal regulations on projects where it is not the Operator. ACHD can only enforce its own policy, permit, and contract requirements. However, if ACHD staff observe a violation, they may report it to the appropriate entity.

4.5.1 CONSTRUCTION GENERAL PERMIT

The Construction General Permit (CGP) (Appendix A) is issued through IDEQ's Idaho Pollutant Discharge Elimination System (IPDES). An Operator must seek CGP coverage if Construction Activities will disturb one or more acres of land or will disturb less than one acre of land but is part of a common plan of development that will ultimately disturb one or more acres of land, and has the potential to discharge to water of the U.S.

If Construction Activities necessitate CGP coverage, both ACHD and the bonded contractor must file for a Notice of Intent (NOI) on IDEQ's IPDES permitting webpage before construction begins. A Notice of Termination (NOT) will be filed in a similar manner upon completion and Final Site Stabilization of the project. Capital Projects Staff oversee the entirety of the construction permitting process and ensure compliance with CGP requirements.

4.5.2 SMALL CONSTRUCTION WAIVERS

IDEQ defines "small construction activities" as projects less than 5 acres. Small Construction Waivers may be available to Operators of "small construction activities" that would otherwise be required to seek CGP coverage. Applicability is determined based on: (1) a Rainfall Erosivity Waiver, (2) a Total Maximum Daily Load (TMDL) Analysis, or (3) an equivalent analysis that determines allocations for small construction sites are not needed. Operators must notify IDEQ via the IPDES permitting webpage of intention to utilize a waiver.

For Capital Projects, Rainfall Erosivity Waivers are a commonly applicable Small Construction Waiver. Eligibility requires a rainfall erosivity factor calculation ("R" in the Revised Universal Soil Loss Equation) less than 5 during construction. Operators can utilize the EPA's online rainfall erosivity calculator to determine potential eligibility for the waiver. The R factor can be calculated using the Construction Site latitude/longitude or address and estimated start and end dates of construction.

4.5.3 404 PERMITS & 401 CERTIFICATIONS

If working below the high water mark within waters of the U.S., Operators must seek 404 Permit (U.S. Army Core of Engineers) and 401 Water Quality Certification (IDEQ) coverage. For Capital Projects involving construction in surface water, the Environmental Programs Coordinator will apply for this permit coverage during the planning stage of the project. It remains the responsibility of the Capital Projects Staff to ensure the project is compliant with the 404 Permit and 401 Water Quality Certification requirements during construction.

5 PLANS

Operators must possess an approved CSDC Plan for permitted Construction Activities involving any amount of Land Disturbing Activity. The CSDC Plan must describe the proposed Construction Activities and the anticipated set of BMPs to be employed. The BMPs must prevent Pollutant discharges and damage to Adjoining Properties. All site specific CSDC Plans must be submitted to the Environmental Staff for review and approval prior to construction. Once approved, the Operator is responsible for ensuring all personnel and subcontractors entering the site adhere to plan conditions.

Site conditions may change during construction, requiring BMP adjustments and CSDC Plan Revision to meet performance standards. Significant changes to site conditions or the approved CSDC Plan must be reported to Environmental Staff.

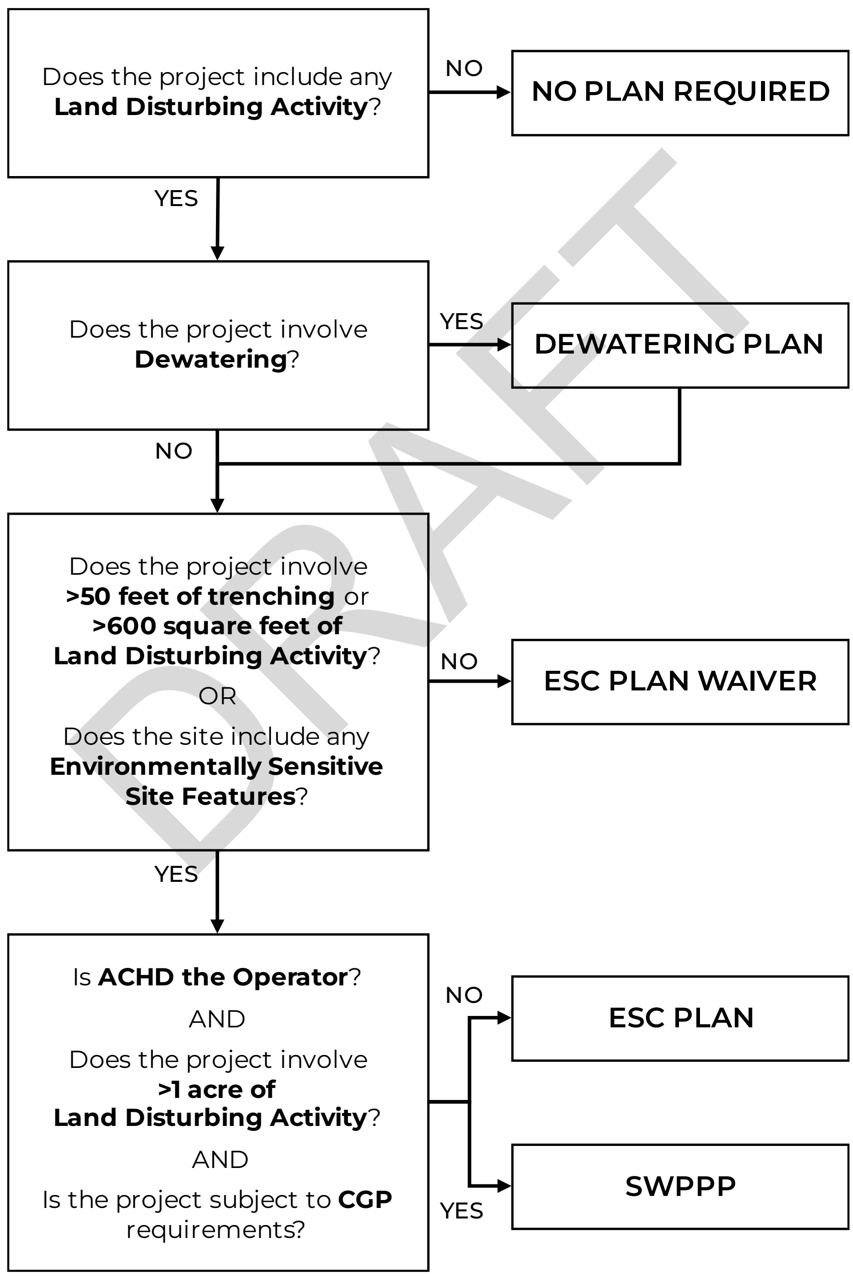

FIGURE 5-1 CONSTRUCTION SITE DISCHARGE CONTROL PLANS

5.1 PLAN TYPES

Depending on the project type and other relevant factors, an Operator may need to submit an Erosion & Sediment Control (ESC) Plan, ESC Plan Waiver, Stormwater Pollution Prevention Plan (SWPPP), and/or Dewatering Plan.

5.1.1 EROSION & SEDIMENT CONTROL PLAN

An ESC Plan is a site specific plan comprising a project narrative and a site map that details the Construction Activity and all BMPs to be utilized. The planned BMPs must prevent Pollutant discharges and damage to Adjoining Properties. Operators should use the ESC Plan Submittal Checklist form (Appendix F) to ensure the plan includes all required components before submitting the plan to Environmental Staff for review and approval. The ESC Plan Template (Appendix F) is also available for Operators to use for smaller, less complicated projects. A SWPPP may be submitted in lieu of an ESC Plan, reviewed only as an ESC Plan to ensure it meets CSDC Plan requirements, not CGP compliance.

5.1.2 EROSION & SEDIMENT CONTROL PLAN WAIVER

An ESC Plan Waiver is applicable for permitted Constructions Activities where Land Disturbing Activity is less than 600 sq.ft., trenching is less than 50 ft., and Construction Activities do not impact any Environmentally Sensitive Sites.

Environmental Sensitive Sites include sites with the following conditions:

- Preexisting slopes greater than 15%.
- Land Disturbing Activity within 50 feet of surface water.
- Land Disturbing Activity on or adjacent to a Brownfield Site.

An application for a Temporary Use Permit is considered an application for an ESC Plan Waiver. If the Construction Activity qualifies for the waiver, the Operator will be automatically subject to ESC Plan Waiver requirements. All Operators of Construction Activities not requiring an application for a Temporary Use Permit (i.e., capital projects), must complete an ESC Plan Waiver form (Appendix F).

5.1.3 STORM WATER POLLUTION PREVENTION PLAN

A SWPPP is mandatory for projects qualifying for CGP coverage without a Small Construction Waiver. SWPPP requirements are outlined in the CGP. For Capital Projects, the contractor is responsible for drafting the SWPPP before filing the NOI. The SWPPP must be reviewed by Environmental Staff to ensure it meets both ESC Plan and the SWPPP requirements.

5.1.4 DEWATERING PLAN

A Dewatering Plan is required for dewatering activities qualifying for a per-occurrence General Dewatering Permit. If working within the Right-of-Way, an Operator may need both an ESC Plan and a Dewatering Plan. The Dewatering Plan is a site specific plan comprising a project narrative and a site map. The plan details the Dewatering activity and all BMPs to be utilized. The planned BMPs must prevent Pollutant discharges and damage to Adjoining Properties. Operators should use the Dewatering Plan Submittal Checklist form (Appendix F) to ensure the plan includes all required components before submitting the plan to Environmental Staff for review and approval.

5.2 PLAN REVIEW PROCEDURE

Environmental Staff conducts a comprehensive review of all submitted site-specific CSDC Plans to ensure compliance with policy, permit, and contract requirements. Using professional judgement, staff assess proposed BMPs to protect Adjoining Properties and prevent Pollutant discharge. The ESC Plan Review Guide (Appendix E) outlines recommended procedures for the review.

5.2.1 PLAN SUBMITTAL

Operators can submit CSDC Plans directly to Environmental Staff or through an Administrative Specialist. When plans are received by Administrative Staff, they will send a plan review task in TRAKiT. If plans are sent to Environmental Staff directly, the plan will usually be for a Subdivision or Capital Project. In those instances, the Environmental Staff will assign the plan review task themselves in TRAKiT.

5.2.2 PLAN REVIEW

Depending on the type of plan received, Environmental Staff must complete either an ESC Plan Review form or a Dewatering Plan Review form (Appendix F) when reviewing the plan. Completing these forms documents the review and helps the plan reviewer ensure all required plan components are included. If any amendments are necessary, Environmental Staff should reach out to the Operator or plan designer directly to request changes and resubmittal.

5.2.3 EROSION & SEDIMENT CONTROL PRIORITIZATION RATING

The plan reviewer assigns an ESC Prioritization Rating during the CSDC Plan review, determining the frequency of ESC Inspections for the permitted Construction Site. The rating is calculated by tallying applicable ESC Prioritization factors, identified on the ESC Plan Review form. If the tally exceeds three or the project disturbs an area over 1 acre, inspections must occur at least annually. Depending on the rating, the project will be inspected annually, every 6 months, every 3 months, or monthly.

5.2.4 DOCUMENTATION

All completed CSDC Plan reviews must be recorded in TRAKiT by Environmental Staff. Maintaining accurate records in TRAKiT allows for easy NPDES MS4 Permit annual reporting. This includes saving and uploading all completed plan review forms.

6 SITE INSPECTIONS

To ensure Operators comply with all permit, policy, program, and contract requirements, ACHD maintains a comprehensive inspection program. ACHD Staff and designated contractors must be granted safe access to inspect all permitted Construction Activities.

6.1 INSPECTION TYPES

Inspections, conducted by staff from several inspection groups, address unique responsibilities. However, all inspectors are trained to identify CSDC Program violations. Should an inspector notice a violation during an inspection, he or she must work with the Operator and/or Environmental Staff to correct the issue.

6.1.1 CONSTRUCTION INSPECTIONS

Inspection staff oversee day-to-day Construction Activities. Zone and Fiber Inspectors may only have time to inspect a project one to two times, while Subdivision and Capital Project Inspectors may see the site more frequently. While these inspection groups typically do not conduct formal ESC Inspections, staff may still work with Operators and/or Environmental Staff, to address CSDC Program violations or BMP deficiencies observed.

6.1.2 ESC INSPECTIONS

During an ESC Inspection, Environmental Staff or an assigned ESC contractor ensures adherence to the approved ESC Plan and effective BMP implementation. Most ESC Inspections are regularly scheduled. Environmental Staff may schedule an ESC Inspection for any permitted Construction Activity; however, most ESC Inspections are only regularly scheduled for subdivisions or commercial development projects. This is because subdivision and commercial development projects are usually assigned a higher ESC Prioritization Rating due to the size, duration, and complexity of the work.

6.1.3 SWPPP INSPECTIONS

For qualifying Capital Projects, Capital Project Staff must ensure compliance with all CGP requirements, including SWPPP Inspections distinct from ESC Inspections. Typically conducted by the contractor or an ESC sub-contractor, SWPPP Inspections must abide by frequency and inspection requirements listed in the CGP. Inspection reports are to be sent to the Capital Projects Staff with a copy of the inspection report in both the SWPPP binder and contract files.

6.1.4 DEWATERING INSPECTIONS

When Construction Dewatering begins, ACHD Staff, usually Environmental Staff, must be present. The inspector ensures the initial offsite discharge is clear and verifies the Operator has trained personnel onsite with a turbidimeter. If the initial offsite discharge does not fall within 50 NTUs of the background flow, the Operator must immediately stop the discharge and adjust BMPs as needed. Turbidity monitoring conducted by ACHD Staff does not fulfill the Operators Turbidity monitoring responsibilities. Periodic inspection may follow to monitor for significant changes to the operation or discharge.

6.2 ESC INSPECTION PROCEDURE

Environmental Staff oversee the scheduling and execution of ESC Inspections for the CSDC Program. This involves planning inspections, visiting Construction Sites, and completing inspection documentation, following the procedures outlined in the ESC Inspection Guide (Appendix E).

6.2.1 ASSIGNING INSPECTIONS

Environmental Staff are responsible for scheduling, assigning, and documenting all ESC Inspections in TRAKiT. These inspections can occur at any stage of construction from the pre-construction meeting to Final Site Stabilization. The frequency of ESC Inspections is determined by the ESC Prioritization Rating linked to the permitted Construction Activity. Typically, these inspections are scheduled at regular intervals after processing the permit or agreement.

If a permit or agreement is closed before achieving Final Site Stabilization, common on subdivision projects where Right-of-Way infrastructure has been complete, but individual lots have not been built out, Environmental Staff may schedule additional inspections beyond the permit closure date. In such cases, jurisdiction and enforcement capabilities become limited, and inspections may only be conducted from the open Right-of-Way. Inspection reports may need to be sent to a new contact if the previous Responsible Person (RP) is no longer overseeing the new stage of construction.

6.2.2 SITE INSPECTION

Construction Activities vary, and conditions on sites are ever changing. Before conducting an ESC Inspection, the inspector, referring to the ESC Inspection Guide, should be familiar with recommended inspection procedures. Inspectors must comprehend the Standard BMPs, along with common compliance issues associated with each. The ESC Inspection Report form (Appendix F) is to be completed by inspectors to ensure thorough inspection of all areas and BMPs for compliance.

In cases where site corrections are necessary, Environmental Staff contacts the RP directly to request action and initiates enforcement if needed.

6.2.3 DOCUMENTATION

Environmental Staff record all completed ESC Inspection in TRAKiT, facilitating easy NPDES MS4 Permit Annual reporting. This involves saving and uploading ESC Inspection Report forms, photologs, and applicable correspondence.

7 ENFORCEMENT

In instances where a permitted Construction Activity violates CSDC Program requirements, including the approved CSDC Plan, the Operator may face enforcement actions, consistent with Enforcement Response Policy (ERP) (Appendix C). Formal enforcement of CSDC Program violations is usually initiated by Environmental Staff.

7.1 NON-COMPLIANCE

Non-compliance issues are typically identified during inspections by ACHD Staff. Issues may also be identified by referrals from other government entities (City of Boise, City of Garden City, or IDEQ). Occasionally, public complaints may be submitted directly to Environmental Staff, the Stormwater Pollution Hotline, or TellUs as well. Environmental Staff must determine if the reported issue is associated with a permitted Construction Activity as the ERP does not apply to non-permitted Construction Activities. All other received reports must be handled on an individual basis and may require assistance from code enforcement if the responsible party is not cooperative.

7.2 FACTORS INFLUENCING ENFORCEMENT

Enforcement action decisions hinge on the violation's nature, severity, and the professional judgment of Environmental Staff.

Factors relating to the impact of the violation:

- Magnitude of the violation.
- Imminent endangerment to human health/welfare or to the environment.
- Duration of the violation.
- Effect of the violation on the receiving water.
- Whether circumstances beyond the control of the responsible party exist, such as unpredictable accidents or unexpected acts of nature.
- Causes a violation of the NPDES permit.
- Has a toxic effect on the aquatic life uses of the receiving water body?

Factors relating to the Operator:

- Compliance history of the Operator.
- Economic benefit realized by the Operator while operating in non-compliance with the requirements.
- Chronic violations by Operator.
- Good faith actions by the Operator.
- Honest intention to remedy non-compliance coupled with actions that support intention.

7.3 ENFORCEMENT ACTIONS

When an Operator is found in non-compliance, Environmental Staff shall proceed with enforcement actions outline in the ERP. The actions are intended to be commensurate with the violation, escalating from informal notices for minor issue to permit revocation and damage cost recovery for severe violations. The process is illustrated in Figure 7-1, and escalation can occur as warranted by the severity of the situation. Environmental Staff initiating enforcement should refer to the procedures described in the ESC Enforcement Response Guide (Appendix F).

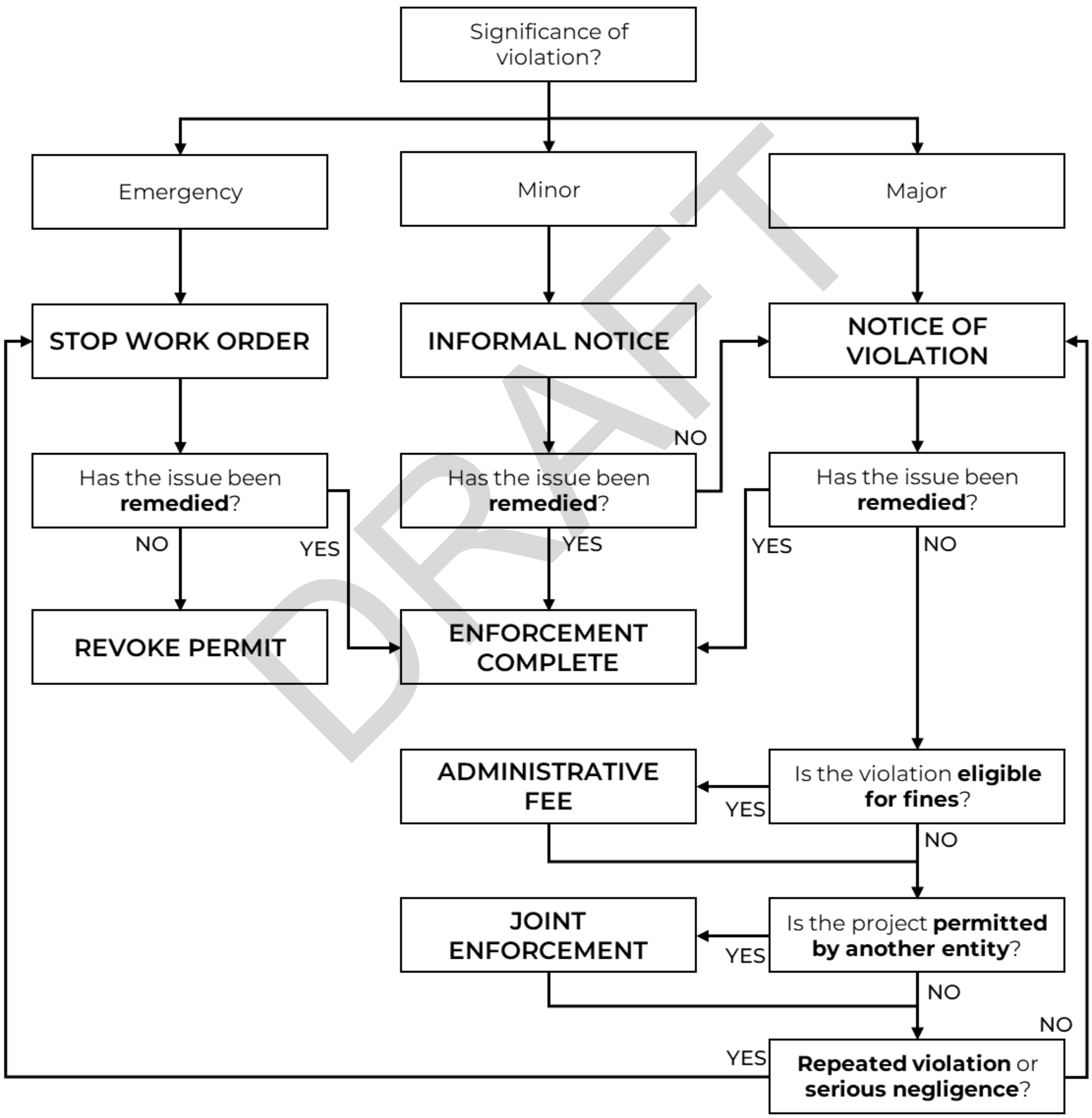

FIGURE 7-1 ENFORCEMENT RESPONSE ACTIONS

7.3.1 INFORMAL NOTICE

Minor violations usually prompt an informal notice, issued verbally or via email with an attached ESC Inspection Report and photolog. Informal notices identify non-compliance, provide necessary corrective actions, and set a deadline for completion.

7.3.2 NOTICE OF VIOLATION

For more serious violations, including disregarding an informal notice or failing to make corrections by the provided deadline, an RP may receive a written Notice of Violation. Prior to issuing a Notice of Violation, Environmental Staff should first consult with Inspection Staff. Because the Inspection Staff are involved in day-to-day oversight of the project, they may be able to provide additional details. Inspection Staff may also assist by temporarily delaying required inspections until the Operator has brought the project back into compliance. The ESC Notice of Violation form (Appendix F) must be completed and sent to the RP either through email or physical delivery.

7.3.3 ADMINISTRATIVE FINES

Administrative fines may be assessed to the Operator for eligible non-compliance issues, as specified in the Fee Schedule (Appendix C). Environmental Staff shall note all administrative fines assessed on the issued ESC Notice of Violation form. Fines will be processed through Administrative Staff and if unpaid, this fee may be recovered by making a claim against the Operator's surety bond.

7.3.4 ENFORCEMENT REFERRAL

In cases where a non-compliance issue affects multiple jurisdictions or ACHD lacks enforcement authority, coordination with entities such as City of Boise, Garden City, or IDEQ may be necessary.

7.3.5 STOP WORK ORDER

A Stop Work Order may be issued for a violation deemed significant enough to warrant immediate action, failure to correct a problem by a provide deadline, or repeated violations. Before issuing a Stop Work Order, consultation with Department Managers is advisable. The Operator should be notified of a Stop Work Order through the issuance of an ESC Notice of Violation.

7.3.6 ADMINISTRATIVE COST RECOVERY

ACHD can initiate corrective action and assess the actual and administrative costs against the Operator. The Operator may be required to pay all costs of investigation, administrative overhead, out-of-pocket expenses, the cost of administrative hearings, the costs of suit, and reasonable attorney's fees. If the Operator makes no reasonable effort to correct the violation, or if the situation is an emergency, ACHD may initiate corrective action and assess costs. Additionally, with coordination of Administrative Staff, the permit holder's bond can be sought or revoked to pay for cleanup costs and to prevent the contractor from starting new jobs within ACHD's jurisdiction.

7.3.7 DOCUMENTATION

All completed enforcement actions should be recorded in TRAKiT by Environmental Staff. Maintaining accurate records in TRAKiT allows for easy NPDES MS4 Permit annual reporting. This documentation may include forms, photologs, applicable correspondence and other items as appropriate.

8 EDUCATION & TRAINING

Environmental Staff conduct regular standard training sessions for designated staff, offering additional training and technical assistance as needed. Environmental Staff may also extend assistance to the public and distribute educational materials.

8.1 ONBOARDING TRAINING

ACHD Staff receive onboarding training within six months of employment, covering various aspects, including a specific session on the CSDC Program. This training session introduces new staff to program requirements, common issues, and procedures for reporting such issues to the appropriate people.

8.2 RESPONSIBLE PERSON TRAINING

A RP must be present on all permitted Construction Sites. The RP shall act as the point of contact for all ESC issues. An RP is an individual with a valid RP certification who is directly in charge of site Construction Activities. An RP certification is obtained through successful completion of an RP training course. Although the RP certification program is managed by the City of Boise, Environmental Staff have permission to provide this training internally to designated ACHD Staff. The RP certification is valid for 3 years and is offered annually for new employees and those needing recertification.

The RP training course covers the following subject areas:

- Negative effects of Construction Site erosion and polluted Stormwater.
- Local permit requirements and processes.
- Principles of ESC and Pollution prevention.
- Proper design and installation of BMPs.
- Performing site inspections, corrective actions, and other requirements necessary to comply with municipal and state Stormwater permits.

8.3 PUBLIC OUTREACH

The City of Boise handles NPDES MS4 Permit Operator training and certification requirements. The City of Boise offers RP training opportunities and issues licenses to others to conduct the training on their behalf. The Operators' completion of the training is tracked by the City of Boise through a database that assigns certification numbers (e.g. CON24-0001) and certification expiration dates. Note that the City of

Boise may waive the RP training requirement if an Operator has completed a similar course and demonstrates the same level of proficiency.

Environmental Staff may provide technical assistance, including assistance with permitting requirements and proper implementation of BMPs, to the public when requested. Additionally, Environmental Staff may distribute fact sheets to Operators, summarizing CSDC Program Requirements and BMPs. These following Fact Sheets are available in Appendix H:

- Commercial Landscaping
- Concrete Cuttings and Slurry
- Crawl Space and Groundwater Dewatering
- Mobile Business
- Parking Lots and Sidewalks
- Sidewalk Cleaning
- Sidewalk Construction and Concrete Waste Management
- Swimming Pools and Hot Tubs

9 ANNUAL REPORTING

ACHD is required to submit an Annual Report form (Appendix F) to IDEQ for both Phase I and Phase II NPDES Permits. ACHD also updates its Stormwater Management Plans (SWMP) annually. The reporting periods for the permits differ, with the Phase I permit year spanning October 1 to September 31, and the Phase II permit year from February 1 to January 31. The information provided for the CSDC Program includes CSDC Plan Reviews, ESC Inspections, Dewatering Inspections, SWPPP Inspections, formal enforcement actions, and internal training figures. This information should be tracked by Environmental Staff on an ongoing basis in TRAKiT or tracking spreadsheets. Environmental Staff consolidating the reporting information should follow the procedures outlined in the CSDC Annual Reporting Guide (Appendix E). Spatial reporting data must be filtered by the MS4 NPDES Permit area boundaries. Note that during Phase II reporting, ACHD voluntarily provides data for activities outside both permit area boundaries as well.

APPENDIX C
POLICY

CONSTRUCTION SITE DISCHARGE CONTROL ENFORCEMENT RESPONSE POLICY

ADA COUNTY HIGHWAY DISTRICT
3775 ADAMS STREET
GARDEN CITY IDAHO 83714
PHONE: 208-387-6264
FAX: 208-387-6391

(REVISED MAY 2022)

TABLE OF CONTENTS

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ACRONYMS

ACHD	Ada County Highway District
BMP	Best Management Practice
CGP	Construction General Permit
CSDC	Construction Site Discharge Control
ERP	Enforcement Response Policy
ESC	Erosion Sediment Control
IDDE	Illicit Discharge Detection Elimination
IDEQ	Idaho Department of Environmental Quality
IPDES	Idaho Pollutant Discharge Elimination System Discharge Permit
NOV	Notice of Violation
NPDES	National Pollution Discharge Elimination System
ROW	Right of Way
RP	Responsible Person
SWO	Stop Work Order
SWPPP	Stormwater Pollution Prevention Plan
SWQS	Stormwater Quality Specialist

1. INTRODUCTION

This Construction Site Discharge Control (CSDC) Enforcement Response Policy (ERP) provides guidance to Ada County Highway District (ACHD) staff who respond to non-compliance issues with relation to the CSDC Program and related ACHD Policies. The following document outlines the CSDC Program, ACHD's legal authority, staff roles and duties, factors influencing enforcement actions, and type of enforcement actions and processes. The approach described in this document is based on a tiered system of enforcement.

1.1 PURPOSE

ACHD implements and enforces the CSDC Program throughout Ada County to fulfill National Pollutant Discharge Elimination System Permit (NPDES Permit) requirements. ACHD is regulated through a NPDES Phase I Permit (IDS027561) that covers the Boise and Garden City area and a Phase II NPDES Permit (IDS0281185) that covers the cities of Eagle, Meridian, and urbanized Ada County. To comply with the NPDES Permits, ACHD must develop, implement, and maintain a written escalating ERP or plan appropriate to its organization's CSDC Program (NPDES Permit 3.3.6). The ERP must:

- Address enforcement of construction site runoff controls for all construction projects in ACHD's jurisdictions, to the extent allowable under Idaho state law (NPDES Permit 3.3.6.1).
- Describe ACHD's potential response to violations with appropriate educational or enforcement responses (NPDES Permit 3.3.6.2).
- Address repeat violations through progressively stricter responses, as needed, to achieve compliance (NPDES Permit 3.3.6.2).
- Describe how ACHD will use its available techniques to ensure compliance, such as: verbal warnings; written notices; escalated enforcement measures such as stop work orders, monetary penalties; and/or other escalating measures to the extent allowable under Idaho state law (NPDES Permit 3.3.6.2).

1.2 CONSTRUCTION SITE DISCHARGE CONTROL PROGRAM OVERVIEW

ACHD implements the CSDC Program through ACHD Policy (Policy) 6000, Permits and Inspection, and Policy 8300, Construction Site Discharge Control Program. Any person who desires to perform any work on a highway or public right-of-way (ROW) or encroaches on a highway or public ROW shall first apply for and obtain a Temporary Highway Use Permit or "permit" through ACHD (Policy 6007.1.1). Additionally, any person desiring to develop and construct a new subdivision which will have infrastructure dedicated to ACHD shall, prior to commencing work, be required to enter into a Subdivision Inspection Agreement and a Subdivision Improvement Agreement (Policy 6007.19.1). The contractor performing the work shall be required to obtain a permit pursuant to Policy (Policy 6007.19.2). All permit applicants must provide an approved Erosion and Sediment Control (ESC) Plan for the proposed work before a permit can be obtained by the applicant (Policy 8303.1). An ESC Plan means a plan, either a Small Project ESC Plan or a Site Specific ESC Plan, containing provisions, at a minimum, addressing material containment, pollutant spill prevention and setting forth best management practices (BMPs) to be utilized during construction activity or land disturbing activity. Site Specific ESC Plans must be reviewed by ACHD for completeness before the plan is approved. All permit applicants must also designate a Responsible Person (RP) who serves as the point of contact for all ESC issues. A RP means any person with operational control over site activities and day-to-day operational control of the approved ESC Plan requirements and permit conditions at the site of any construction activity or land disturbing activity who has received certification from the City of Boise.

The permittee must comply with the standards outlined in Policy 8300. Additionally, the permittee must comply with the approved ESC Plan and all conditions of the permit. The following actions constitute a non-compliance issue:

- Failure to meet any requirement of Policy or approved ESC Plan.
- Allowing or causing a condition that threatens to injure public health, the environment, or public or private property.
- Failure to correct ineffective erosion, sediment, and pollutant control measures after being notified via a Notice of Violation to do so.

Typical construction site violations are related to the following situations:

- Poor project phasing and sequencing.
- Inappropriate concrete washout discharges.
- Unstabilized construction entrances and parking areas.
- Failure to stabilize bare areas.
- Lack of slope protection (mulch/straw, vegetation, silt fencing, etc.).
- Unauthorized activities near intermittent and perennial streams and wetlands.
- Sediment trackout onto paved ROW.
- Poorly planned trenching operations.
- Lack of inlet and outlet protection.
- Non-functional sediment basins and traps.
- Airborne dust.
- Inappropriate housekeeping practices.
- Inadequate documentation and recordkeeping.

2. LEGAL AUTHORITY

ACHD is the governing agency responsible for construction and maintenance of all local roads, including the storm drain system, in Ada County, Idaho. ACHD's legal authority is based upon the laws of the State of Idaho. Specific authority is found in Title 40, Idaho Code, Chapters 13 and 14 https://legislature.idaho.gov/statutesrules/idstat/title40/. Because of the limited purpose of ACHD, as defined by the State Code, such legal authorities and provisions are interpreted as intended for facilities and operation and maintenance within the jurisdictional right-of-way of ACHD. ACHD does not provide police or enforcement power and must rely on the powers of municipal government. Specific legal authority granted to ACHD through state code includes the following:

- **Powers and Duties of Highway Commissioners, Idaho Code 40-1406** ACHD Commissioners are empowered to pass ordinances, rules, and regulations as necessary for carrying into effect or discharging all powers and duties conferred to a Countywide highway district by state code. https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/

- **Drainage Authority, Idaho Code 40-1451(1)(d)**
  ACHD has authority over drainage where it is necessary for motorist safety or necessary for right-of-way maintenance. This code provision limits the extent and nature of authority in which ACHD is empowered.
  https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/
- **Subdivision Plat Review, Acceptance and Approval, Idaho Code 40-1415(6)**
  Subdivision plats are required to be submitted to ACHD for acceptance and approval for highway design, drainage provisions, and traffic conditions.
  https://legislature.idaho.gov/statutesrules/idstat/Title40/T40CH14/SECT40-1415/
- **Common Law Authority**
  ACHD has certain common law authority to control discharges of stormwater into any storm drains which are located within the public right-of-way by means of ACHD's control and owner's interest in the public right-of-way.
- **Authority as a Municipal Corporation**
  ACHD may have certain inherent authority as a municipal corporation by virtue of its ordinance authority to regulate discharges of stormwater into ACHD's stormwater system.

3. DISCOVERY OF NON-COMPLIANCE

ACHD staff conduct regular inspections of all permitted construction activities. Subdivision, Bridge, Project, and Zone Inspectors perform a variety of construction related inspections. These staff members, who spend the most time observing these sites, may identify and follow up on CSDC violations observed at their inspection sites. These inspectors shall discuss the observations with the site operator and specify compliance requirements. They may also issue an Informal Notice (see *Section 5.1*) and document the observed conditions. Documentation is necessary in the event that a higher level of enforcement becomes necessary. Typically, if further CSDC enforcement or guidance is needed, the inspectors will request assistance from a Stormwater Quality Specialist (SWQS).

As a part of the CSDC Program, a SWQS or an ACHD Erosion Control Contractor performs regular site inspections to ensure construction site operators are following CSDC Program and Policy requirements. The inspection frequency is based upon project prioritization ratings calculated during the initial ESC Plan review process. All sites over 1 acre are inspected at least once every 6 months over the permit period.

ACHD staff may also receive CSDC complaints from external sources. Outside agencies and departments who observe or are notified of an issue on an ACHD permitted project may contact ACHD administrative staff or the SWQS directly to report an issue. ACHD staff may receive public complaints in person, over the phone, or through reporting tools such as TellUs or the Stormwater Pollution Hotline. All reports should be investigated. If the complaint is in regard to an ACHD Capital Project, depending on the severity, the Project Inspector, the Capital Projects Construction Coordinator, or the Capital Projects Construction Supervisor will be contacted depending on who is lead of the respective project. If a complaint is found to not involve an ACHD permitted construction activity, the complaint is handled through ACHD's Illicit Discharge Detection and Elimination Program or referred to the appropriate entity. For resolution, the initial reporter should be informed once the reported issue has been addressed.

4. FACTORS INFLUENCING ENFORCEMENT ACTIONS

The approach to making a violation determination involves using the language in Policy and/or permit conditions as a guide to determine whether the information collected demonstrates that a violation has occurred. CSDC compliance determinations must be based solely on the factual information collected and professional judgment.

A determination of the appropriate enforcement action is based on the nature and severity of the CSDC violation and other relevant factors. These factors, relating to the impact of the violation and to the responsible party are summarized in Section 4.1 and Section 4.2, respectively. The relevant factors must be considered when a violation has occurred to promote consistent and timely use of enforcement remedies. A summary of CSDC risk categories, compliance areas, and indicators is provided in *Table 1*.

4.1 FACTORS RELATING TO IMPACT OF VIOLATION

- Magnitude of the violation.
- Imminent endangerment to human health/welfare or to the environment.
- Duration of the violation.
- Effect of the violation on the receiving water.
- Whether circumstances beyond the control of the responsible party exist, such as unpredictable accidents or unexpected acts of nature.
- Causes a violation of the NPDES permit.
- Has a toxic effect on the aquatic life uses of the receiving water body?

4.2 FACTORS RELATING TO RESONSIBLE PARTY

- Compliance history of the responsible party.
- Economic benefit realized by the responsible party while operating in non-compliance with the requirements.
- Chronic violations by responsible party.
- Good faith of the responsible party.
- Honest intention to remedy non-compliance coupled with actions that support intention.

Table 1: Summary of CSDC Risk Categories, Compliance Areas, and Indicators

Risk Category	Compliance Area	Lower Risk Indicators	Higher Risk Indicators
Site Conditions	Environment-ally Sensitive Sites	• Site slopes <10% • Waterways not immediately adjacent to or within site	• Site slopes>10% • Waterways within 50' of site • Project on Brownfield Site • Project discharges to 303d impaired waterway
Site Operator	Compliance History	• Operator is usually in compliance with rules • Operator responds to notes within time frame • Operator is cooperative and not argumentative	• Operator has multiple violations • Operator frequently misses compliance deadlines • Operator is uncooperative, argumentative

Risk Category	Compliance Area	Lower Risk Indicators	Higher Risk Indicators
Administrative Requirements	Permit Coverage	• Operator has obtained Permit coverage through ACHD and has an approved ESC Plan	• Operator has not obtained Permit coverage through ACHD and does not have an approved ESC Plan
BMP Installation	Plan BMP Installation	• All BMPs listed on the approved ESC Plan are in place. • BMPs are installed correctly	• All BMPs listed on the approved ESC Plan are not in place. • BMPs are not installed correctly
	Plan BMP Adequacy	• BMPs are functioning properly • BMPs are adequately controlling stormwater • Erosion and sedimentation issues are minimal • Additional BMPs are not required	• BMPs are functioning poorly • BMPs are not controlling stormwater • Excessive erosion • Additional BMPs are needed to manage the site
BMP Maintenance	BMP Maintenance	• BMPs are maintained • Sediment buildup at BMPs is not excessive • Erosion prevention BMPs fully functional	• BMPs require substantial maintenance • Excessive sediment ate BMPs notes • Poor erosion prevention
Housekeeping	Materials Management	• Materials that may leach pollutants are covered • Materials stored away from drainage system	• Materials leaching pollutant are not covered • Materials stored near storm drain inlets
	Waste Management	• Solid waste collected and stored properly • Concrete, other washwater managed properly	• Poorly managed solid waste, litter present • Washwater on ground or discharged illegally
	Spill Prevention	• Spill prevention practices and material present	• Fuel, oil, or other spills observed
Offsite Discharges	Sediment in Waterway	• No sediment discharges through dewatering or above ground flows to waterways	• Sediment discharges to waterways observed
	Sediment on Ground	• No sediment discharges to offsite areas	• Mud/sediment track-out observed on paved roads
	Airborne Dust	• No observable dust leaving the site	• Airborne dust leaving the site
Project Completion	Site Closeout	• All bare areas stabilized • Vegetation is at least 70% density • All temporary BMPs removed	• Bare areas observed on site • Vegetation is less than 70% density • Temporary BMPs still present

5. TYPE OF ENFORCMENT ACTIONS

In the event of non-compliance, ACHD shall proceed with enforcement action (Policy 8310) described in detail in this section. Enforcement actions are intended to be commensurate with the violation. Minor violations are typically handled through Informal Notices. Major violations are addressed, in order of increasing severity, by issuance of a Notice of Violation, Administrative Fines, Stop Work Order and/or Administrative Cost Recovery. ACHD's enforcement actions are provided in order of escalation in the CSDC ERP flow chart located in *Appendix A*. If the severity of the situation warrants it, ACHD may escalate the enforcement as quickly as needed.

5.1 INFORMAL NOTICE

ACHD shall issue an Informal Notice to the project RP for minor violations. An Informal Notice may be issued verbally or non-verbally (e.g., during sampling and/or inspection visits, over a telephone call, in an informal meeting, or through email). Informal Notices should: 1) identify noncompliant conditions to construction site personnel, 2) provide information on the action(s) needed to bring the situation into compliance, and 3) specify a deadline (1-3 days) for completing compliance activities.

5.2 NOTICE OF VIOLATION

More serious violations, including disregard of an Informal Notice or failing to make corrective actions within the specified compliance period, are subject to a written Notice of Violation (NOV). NOVs are formal written notices to the RP found violating ACHD policy or permit requirements. An NOV is required prior to the issuance of an Administrative Fine.

NOVs include the name and address of the RP, the observed violation, the date and time of the violation, the location, compliance action(s) required, deadline for required compliance (1-2 days), and the signature of a SWQS or inspector. The standard compliance deadlines for BMP violations are listed in *Table 2*. The NOV, example provided in *Appendix B*, is presented to the RP, through hand delivery, mail, email, or other means. A NOV Fact Sheet (*Appendix C*) should be provided to all first-time offenders.

NOVs are entered into TRAKiT, a workflow management tool, with documentation of site conditions, photographs, plans, maps, and/or other items as appropriate. The procedure to enter this information into TRAKiT is provided in *Appendix D*. Inspection staff can see if an NOV has been attached to the TRAKiT project file. However, all ACHD staff involved in the day-today oversite of the project should be notified of any enforcement action above an informal notice. An inspector may hold off on other non-CSDC inspections of the site until the violation has been resolved.

Table 2: BMP Compliance Deadlines per Violation Type

BMP Issue	Violation	Compliance Deadline
Drop Inlet Protection	BMP Not Present	24 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	End of business
Spill Containment	BMP Not Present	48 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	48 Hours
Dust Abatement	BMP Not Present	End of business
	BMP Inadequate	End of business
	BMP Not Maintained	End of business
Construction Entrance	BMP Not Present	48 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	48 Hours
Slope Stabilization	BMP Not Present	72 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	End of business
Erosion Control	BMP Not Present	48 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	End of business

BMP Issue	Violation	Compliance Deadline
Sediment Control	BMP Not Present	24 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	End of business

5.3 ADMINISTRATIVE FINES

If the RP does not correct all CSDC violations by the deadline provided on an issued NOV, ACHD may issue an administrative fine to the permit holder. Administrative fines provide funds for compliance investigations and subsequent contract management that may be necessary to correct deficient work. The issuance of administrative fines is limited to violation types listed in the most current ACHD Approved Fee Schedule. Violation types applicable to the CSDC Program are listed in *Table 3*. This fee, in total, may be recovered by ACHD by making claim against the Permittee's Surety Bond posted in accordance with the provisions of Policy 6007.7.

Table 3: CSDC Violations and Associated Fees

Violation	Associated Fee
Working without a permit (Policy 6007.4.3)	$500.00
Unacceptable debris or material on the Construction Site Within the ROW (Policy 6007.12.5)	$250.00 per instance not to exceed two instances per day
Failure to cover and properly secure all loads of gravel, sand, dirt, landscape bark or other loose material (Policy 6007.12.6)	$250.00 per instance not to exceed two instances per day
Failure to stop work (Policy 6007.18.3)	$2,000.00 Per day

Note: Associated Fees listed refer to the maximum allowed amount. Reduced amounts shall be determined at the discretion of the Deputy Director.

5.4 STOP WORK ORDER

A Stop Work Order (SWO) may be issued for a violation deemed significant enough to warrant immediate action, failure to correct a problem, or repeated violations. A SWO written on a NOV is effective immediately. A SWO should be presented and documented in the same manner as an NOV. Revoking the Temporary Use Permit is equivalent to a SWO (Policy 8311). ACHD may issue a temporary or permanent injunction in an emergency situation (Policy 6007.21.4).

5.5 ADMINISTRATIVE COST RECOVERY

ACHD can initiate corrective action and assess the actual and administrative costs against the permit holder (Policy 6007.25). The violator may be required to pay all costs of investigation, administrative overhead, out-of-pocket expenses, the cost of administrative hearings, the costs of suit, and reasonable attorney's fees. If the RP makes no reasonable effort to correct the violation, or if the situation is an emergency, the ACHD may initiate the corrective action and assess the actual and administrative costs against the permit holder. Additionally, with coordination of ACHD Permit staff, the permit holder's bond can be sought or revoked to pay for cleanup costs and to prevent the contractor from starting new jobs within ACHD ROW.

6. JOINT AND/OR OUTSIDE ENFORCEMENT AUTHORITY

The municipal governments of Boise and Garden City do have specific stormwater ordinances related to illicit discharge and construction site discharge control to address enforcement authority requirements within their jurisdictions. Additionally, ACHD (and the other Phase I NPDES Permittees) have Interagency Agreements for the Enforcement of Stormwater Management in Boise City and Garden City included in *Appendix E* of this ERP.

- **City of Boise**
  Ordinance (Chapter 9-14-2– Erosion Control Regulations and Requirements
  https://codelibrary.amlegal.com/codes/boiseid/latest/boise_id/0-0-0-11668
- **Garden City**
  Ordinance (Chapter 15, 4-15-2) – Erosion Control Regulations and Requirements
  https://www.codepublishing.com/ID/GardenCity/html/GardenCity04/GardenCity0415.html#4-15

The municipal governments of Meridian, Eagle, and Ada County do not have specific stormwater ordinances related to illicit discharge and construction site discharge control. However, these entities do have the following general nuisance related ordinances that can be used to assist ACHD in addressing stormwater related issues.

- **City of Eagle**
  Ordinance No. 4-1-4 – General Nuisance; Procedures and Penalties
  https://codelibrary.amlegal.com/codes/eagleid/latest/eagle_id/0-0-0-1193
- **City of Meridian**
  Ordinance (Chapter 2, 4-2-1) - Public Health and Safety, Nuisances
  https://library.municode.com/id/meridian/codes/code_of_ordinances?nodeId=TIT4PUHESA_CH2NU
- **Ada County**
  Ordinance No. 5-2-4-2B – Deposit of Waste or Lighted Material on Public Ways
  https://codelibrary.amlegal.com/codes/adacountyid/latest/adacounty_id/0-0-0-1423

7. CONSTRUCTION GENERAL PERMIT VIOLATION REFERRAL

For construction projects which are subject to the Idaho Pollutant Discharge Elimination System Discharge Permit (IPDES) Construction General Permit (CGP) and do not respond to educational efforts and joint enforcement actions, ACHD may provide to Idaho Department of Environmental Quality (IDEQ) information regarding the construction project. This applies to projects where operators cannot demonstrate that they have appropriate IPDES permit coverage and/or site operators are deemed by ACHD as not complying with CGP requirements. Information may be submitted to an IDEQ CGP Compliance Officer and include, at a minimum, the following information:

- Construction project location and description.
- Name and contact information of project owner/ operator.
- Estimated construction project disturbance size.
- An account of information provided by the Permittee to the project owner/ operator regarding NPDES filing requirements.

APPENDIX E
GUIDANCE MATERIAL

Construction Site Discharge Control Plan Review Guide

Erosion & Sediment Control Inspection Guide

1 INTRODUCTION

This Erosion and Sediment Control (ESC) Inspection Guide provides guidance to the Ada County Highway District (ACHD) Environmental Staff who oversee the scheduling and execution of ESC Inspections for the Construction Site Discharge Control (CSDC) Program. This guide details the procedures of scheduling, completing, and documenting ESC Inspections. The focus of this document is on the inspection of subdivision projects; however, the principles of this document can be applied to construction sites of any size and type.

1.1 BACKGROUND

ACHD implements and enforces its CSDC Program county-wide to fulfill National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit requirements. Operators of all permitted Construction Activities must abide by their approved CSDC Plan, Standard Best Management Practices (BMP), and other CSDC Program requirements. To ensure compliance, Environmental Staff or designated ESC Contractors will conduct regular ESC Inspections on permitted Construction Sites. ESC Inspections are primarily conducted on subdivision or commercial development projects because this type of construction activity usually has a higher ESC Prioritization Rating. Environmental Staff document the result of each ESC Inspection, notify the project Responsible Person (RP) if a violation is observed, and initiate enforcement if needed.

1.2 CONSIDERATIONS

Inspectors should acknowledge the following considerations.

- Possession of a valid Responsible Person certification from the City of Boise is mandatory.
- ESC Contractors conducting ESC Inspections on behalf of ACHD must possess a CPESC certification or have the ability to possess the certification within six months of the start of the contract.
- Inspectors need TRAKiT access to assign inspections, access project information, and upload inspection documentation and information.

2 PROCEDURES

Inspectors should follow procedural guidance in this section when scheduling, conducting, and documenting inspections, and communicating with a project's RP.

2.1 SCHEDULING INSPECTIONS

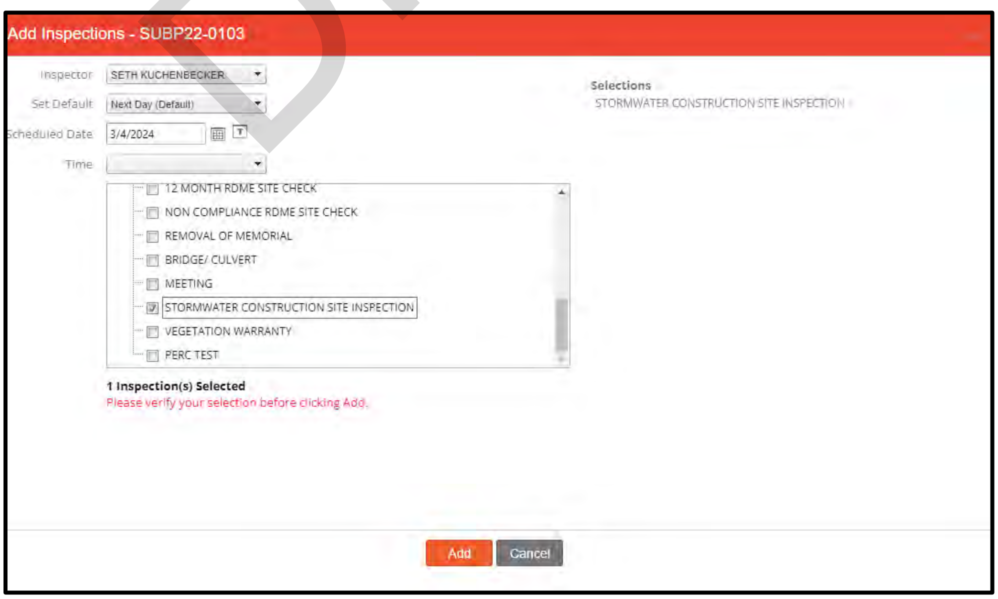
ESC Inspections can be conducted at any stage of construction, from the pre-construction meeting to Final Site Stabilization. The frequency of inspection depends on the ESC Prioritization Rating assigned during the CSDC Plan review. Typically, inspections are scheduled at regular intervals after processing the permit or agreement. Environmental Staff may add extra inspections as needed.

Note: If a permit or agreement is closed before achieving Final Site Stabilization, common on subdivision projects where Right-of-Way infrastructure has been complete, but individual lots have not been built out, Environmental Staff may schedule additional inspections beyond the permit closure date. In such cases, jurisdiction and enforcement capabilities become limited, and inspections may only be conducted from the open Right-of-Way. Inspection reports may need to be sent to a new contact if the previous RP is no longer overseeing the new stage of construction.

2.1.1 CREATING AN INSPECTION TASK

ESC Inspections are initially set up in TRAKiT immediately after CSDC Plan Review. Environmental Staff should follow the instructions below when creating an ESC Inspection Task in TRAKiT.

1. **Open the project file in TRAKiT.**
   Login to TRAKiT and open the project file (i.e., SUBPXX-XXXX).
2. **Create an inspection task.**
   Click the "Add Inspection" button under the "Inspections" section. Use the drop down menu to select the "Inspector." Enter the planned date of the inspection in the "Scheduled Date" field. Scroll through the "Inspection Types" and check the box next to "Stormwater Construction Inspection." Click the "Add" button.



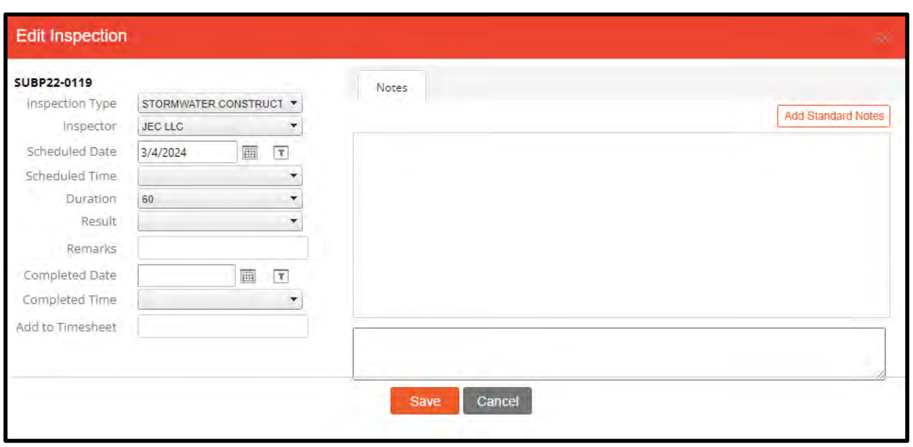
> **Note:** After finishing a CSDC Plan Review, set up inspection tasks by scheduling the first inspection on the first Monday two months later. Follow this with subsequent inspections on the first Monday of each month, determined by the project's ESC Prioritization Rating (monthly, 3-month, or 6-month intervals). Extend inspection up to the projected project completion date. Keep in mind that although inspections are slated for the first Monday, they can be carried out at any time within that month. If multiple phases of a subdivision are active, align the months of inspection to minimize multiple trips to the same site.

3. **Repeat.**
   Repeat Step 2 until all needed inspections are scheduled.

2.1.2 ASSIGNING AN INSPECTION TASK

Due to staffing limitations, ACHD works with an ESC Contractor who conducts a portion of the ESC Inspections on behalf of ACHD. Environmental Staff are responsible for planning and assigning inspections to the ESC Contractor on a weekly basis. The following instructions should be followed by Environmental Staff when assigning ESC Inspections in TRAKiT.

1. **Plan a group of inspections.**
   Group inspections by general area (e.g., Foothills, Boise/Garden City, Eagle, Star, Kuna, North Meridian, South Meridian). At this stage, use best judgement on which sites should be inspected by ACHD or the ESC Contractor. Ensure the ESC Contractor is not involved in the project they are assigned to prevent a conflict of interest. Inspections are typically assigned in groups of 8 weekly.
2. **Open the project file in TRAKiT.**
   Login to TRAKiT and open the project file (i.e., SUBPXX-XXXX).
3. **Update the Inspection task.**
   Click the "Edit" button next to the inspection task. Use the drop down menu to change the "Inspector" of the inspection to the ESC Inspector. Enter the new assigned "Scheduled Date." This will be the Monday of the week the inspection is assigned. Click the "Save" button.



4. **Notify the Inspector.**
   Send an email to the ESC Contractor, informing them that ESC Inspections for the week have been assigned in TRAKiT.

2.1.3 VOIDING AN INSPECTION TASK

Reasons for voiding an inspection include project start delays, early project completion, or a missed inspection. Environmental Staff should follow the instructions below when voiding ESC Inspection in TRAKiT.

1. **Open the project file in TRAKiT.**
   Login to TRAKiT and open the project file (i.e., SUBPXX-XXXX).
2. **Void the inspection Task.**
   Click the "Edit" button next to the inspection task. An inspection task can only be deleted after it has been first voided.

2.2 SITE INSPECTION

Construction Activities vary, and conditions on sites are ever changing. Inspectors should be familiar with the recommended inspection procedures, and Standard BMPs including the common compliance issues associated with each.

Keep safety in mind!

- Use safety equipment such as hard hats, reflective vests, and closed-toed shoes.
- Maintain safety equipment in good condition and proper working order.
- Watch where you are walking and be careful of what is going on overhead.
- Never enter confined spaces, such as a ditch or manhole, unless properly trained, equipped, and certified.

2.2.1 PRE-INSPECTION

The Environmental Specialist typically plans a month's worth of inspections by grouping Construction Sites based on geographical area. Flexibility is encouraged, with inspections ideally scheduled before, during, or after anticipated rain events for optimal effectiveness. Prior to heading to the field, Inspectors should map out the location of the Construction Sites to minimize drive time. Inspectors should prepare for inspections by reviewing available files such as copies of the CSDC Plan, previous ESC Inspection Report forms, civil sheets, and previous correspondence with the project's RP. It is important to make note of any relevant information, such as potential to discharge to surface waters, that may be useful in the field.

Inspectors should always have the following:

- Digital camera
- Copy of the ESC Plan
- Blank ESC Inspection Reports
- Personal protective equipment

2.2.2 INSPECTION SEQUENCE

A keen eye, an understanding of the construction sequence, and accurate documentation are the keys to an effective ESC Inspection. The ESC Inspection Report form serves as a valuable tool, aiding inspectors in noting BMP locations and conditions. Inspectors should make notes and take photos to document concerns or violations. In addition to capturing potential violations, photos should also cover the site entry sign, and general views of the Construction Site. When appropriate, inspectors should also photograph model BMPs, providing examples for other Operators.

Note: If an impact to surface waters is observed, Inspectors must document with photos that the Construction Activity is the only source of the impact, not other upstream sources. This is done by taking shots above and below the project at the impacted waterbody.

A recommended ESC Inspection sequence is outlined below.

1. **Plan your inspection.**
   Review the ESC Plan site map to strategize how you will conduct the inspection. Identify the significant Pollutant sources and BMPs you want to inspect (silt fence installation, sediment basins, slope stabilization, material storage areas, etc.). Consider the Stormwater flow directions when you plan your inspection.
2. **Entering the site.**
   Before entering a Construction Site, observe the surroundings and various stages of construction. Indicate on the ESC Inspection Report form the date/time and weather conditions (e.g., clear, windy, temperature, rain in the previous 24 hours). Review all postings, which, although not an ACHD requirement, may help identify changes in the RP or additional permits through another regulatory agency. If confronted by the Operator, present your credentials, explain the purpose of the inspection, and inform the individual of the typical sequence of events for the inspection.
3. **Inspect discharge points and downstream, off site areas for signs of impact.**
   When practical, begin the inspection at the low point on the Construction Site, observing all discharge points and walk up the slope to inspect the rest of the site. When inspecting discharge points, if sediment appears to be leaving the site, walk downstream to document the extent of travel and impact on surface waters or the Storm Drain System. Inspect down-slope storm drain inlets to ensure that adequately protection.
4. **Compare BMPs in the ESC Plan to site conditions.**
   Evaluate whether BMPs have been adequately installed and maintained. Start by noting the type of perimeter controls installed at the site if needed. Examine the construction entrance/exit for excessive sediment tracking. Check all sediment controls, ensure storm drain inlets are protected, temporary stockpiles have sediment controls and are not placed in the street or sidewalk. If the site borders a surface water, ensure a 50-foot buffer is maintained or

equivalent BMPs are installed. Identify areas where BMPs are needed but are missing.

5. **Inspect disturbed areas not currently being worked.**
   Ensure temporary or permanent cover for disturbed areas not actively worked on. Stabilization should be initiated promptly to limit soil erosion when Construction Activity ceases for more than 14 days. Stabilization must be completed within this timeframe.
6. **Inspect areas with Final Stabilization.**
   Inspect stabilized areas to ensure that excessive erosion is not occurring. Estimate whether the site has been stabilized with uniform perennial vegetative cover with a density of 70% over the entire pervious area. Temporary BMPs in areas with Final Site Stabilization must be removed and sediment must be cleaned out of all conveyances and temporary sediment basins that will be used as permanent water quality management basins. Areas where temporary BMPs have been removed should be stabilized and seeded.

2.2.3 STANDARD BEST MANAGEMENT PRACTICES

The RP overseeing the permitted Construction Activity is required to adhere to the following 15 Standard BMPs. These BMPs should be implemented in accordance with design specifications provided in Idaho Department of Environmental Qualities Best Management Practices Manual. Any failure to implement these BMPs should be noted during the ESC Inspection.

1. **Concrete Waste Management**
   Description: A designated washout area shall be provided, prior to placement of concrete. All wash water from concrete, stucco, paints, drywall adhesive, and similar substances shall be directed into a leak-proof container or leak-proof and lined pit designed so that no overflows can occur due to inadequate sizing or precipitation. Track-out of sediment from accessing the designated washout area is prohibited. A stabilized rock access may be required to prevent Sediment track-out. The washout facility or cleanout activities shall be located as far away as possible from storm water conveyances, storm drain inlets, or surface waters. All concrete cutting slurry and washout shall be removed from the jobsite and disposed of properly.
   Common Issues:
   - No lined washout pit or pan on site.
   - Lining on washout pit is inadequate.
   - Washout pan leaking.
   - Washout pit or pan above capacity.
   - Sediment trackout associated with washout pit or pan use.
   - Concrete washout discharged to soils.
2. **Construction Entrance/Exit Controls**
   Description: Construction traffic shall be restricted to properly designated entrance/exit points. Stabilized construction ramps or other similarly effective

sediment removal BMPs shall be installed at all points that exit onto paved roads. Stabilized construction ramps shall be constructed of material that will not erode or deteriorate under adverse conditions and shall not be placed in a manner as to interfere with or block the passage of stormwater runoff. Construction entrance/exit controls are not required for exit points on linear construction sites that are used only episodically and for very short durations over the life of the project.

Common Issues:

- Stabilized entrance not installed at all access points.
- Rock entrance overrun with sediment.
- Stabilized entrance not sufficient length to prevent sediment trackout.
- Rock entrance constructed of round rock not angular rock.
- Sediment trackout associated with construction entrance/exit failure.

3. **Dust Control**

Description: On areas of exposed soil, or during concrete cutting activities, dust shall be suppressed through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged in stormwater from the site. All dump trucks entering and exiting the project site carrying loads of sand, dirt, gravel, or other similar materials shall be covered/tarped.

Common Issues:

- Trucks entering or exiting the construction site with uncovered loads.
- Water truck not in use during dry and windy conditions.

4. **Good Housekeeping Practices**

Description: For construction and domestic wastes, waste containers (e.g., dumpster, trash receptacle) shall be provided of sufficient size and number to contain construction and domestic wastes. For waste containers that have lids, lids shall be kept closed when not in use, and lids shall be closed at the end of the business day and during storm events. For waste containers that do not have lids, other cover shall be provided (e.g., plastic sheeting, temporary roofs). Overflow of containers shall be cleaned up immediately.

Common Issues:

- Trash containers overfilled.
- Trash containers placed in the street.
- Uncontained trash and debris scattered around the site.

5. **Inlet Protection**

Description: Physical inlet protection BMPs shall be installed to remove sediment from discharges. Protection measure shall be cleaned, or removed and replaced as Sediment accumulates, the filter becomes clogged, and/or performance is compromised. Gutters shall be maintained free and unobstructed for the full depth of the adjacent curb and for at least one foot away from the face of the curb at the gutter line, except for BMPs installed and implemented. Where there is evidence of Sediment accumulation adjacent to the inlet protection measure, the deposited sediment shall be removed. Any soil, waste, or other materials that enter the storm drain system shall be removed.

Common Issues:

- Inlets are unprotected.
- Inlet bags are full.
- Inlet bags are not properly set in inlets.
- Inlet bags left in inlets after site is stabilized.
- Gravel bags busted in gutters.
- Sediment accumulating around inlets.

6. **Limit Disturbance to Land and Vegetation**

Description: Topsoil and vegetation (e.g., trees, grasses, and other plants) shall be protected by prohibiting disturbance or damage to specified areas of the construction site. Efforts shall be made to reduce the amount of bare soil exposed to erosive forces by limiting disturbance to the smallest area possible. For projects disturbing one acre or greater, soil compaction shall be minimized on areas of the site where final vegetative stabilization will occur or where surface infiltration practices will be installed. If soil compaction cannot be avoided, appropriate soil conditioning techniques shall be used.

Common Issues:

- Actual ground disturbing activity is greater than that specified in the ESC Plan.

7. **Material Handling and Storage**

Description: For building and landscaping materials, cover shall be provided to minimize the exposure of Pollutants to precipitation and to Stormwater. Minimizing exposure is not required in cases where the exposure to precipitation and to Stormwater will not result in a discharge of pollutants, or where exposure of a specific material poses little risk of storm water contamination. Hazardous materials shall be separated from construction and domestic waste. Hazardous materials shall be stored in sealed containers to prevent leakage and corrosion. All outside containers shall be contained within appropriately sized secondary containment (e.g., spill berms, dikes, spill containment pallets) to prevent spills from being discharged. Hazardous or toxic waste shall be disposed of in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.

Common Issues:

- Fuel containers not placed in secondary containment.
- Single walled fuel tank trucks not placed in secondary containment.

8. **Perimeter Controls**

Description: Sediment controls shall be installed along the perimeter areas of the construction site that are downslope from exposed soil or other disturbed areas. sediment shall be removed before it has accumulated to one-half of the above ground height of any perimeter control. Perimeter controls may be limited on linear construction sites where perimeter controls are infeasible.

Common Issues:
- Perimeter control BMPs not installed where needed.
- Silt fence and/or straw wattles not trenched in.

9. **Sanitary Facilities**
   Description: For sanitary waste, portable toilets shall be positioned so that they are secure and will not be tipped nor knocked over (e.g., secure with stakes that tie to the portable toilets and go into the ground), and so that they are located away from receiving waters and storm drain inlets or conveyances. Sanitary facilities shall be placed behind sidewalks.
   Common Issues:
   - Port-a-potties not available for onsite workers.
   - Port-a-potties placed on slopes, in streets, on sidewalks, near surface waters, and/or near inlets.
   - Port-a-potties not secured.
10. **Slope Stabilization**
   Description: Land disturbing activities on steep slopes shall be minimized. Slopes shall be immediately stabilized, either temporarily or permanently, after grading work is completed to prevent landslides, slope failures, gully developments and hill erosion. Sediment barriers shall be installed along the face, and at grade breaks of exposed or erodible soils. Other methods for stabilization include slope tracking, slope drains, and mats and blankets.
   Common Issues:
   - Perimeter control BMPs not installed where needed.
   - Straw wattles not trenched in.
   - Rilling of slopes.
11. **Spill Response**
   Description: A spill kit shall be kept on site to respond to any pollutant spills or equipment leaks. Spills shall be cleaned up immediately, using dry clean-up methods where possible, and dispose of used materials properly. Responders are prohibited from hosing the area down to clean surfaces or spills. The source of the spill shall be eliminated to prevent a discharge or a continuation of an ongoing discharge. If absorbent materials are used, they shall be removed from the construction site and disposed of appropriately. All spills of hazardous material, deleterious material or petroleum products which may impact waters (ground and surface) shall be reported immediately.
   Common Issues:
   - No spill kit available onsite.
   - Petroleum spills not cleaned up immediately.
   - Concrete washout spills not cleaned up immediately.
12. **Stockpile Management**
   Description: No debris, dirt, excavated materials, or construction supplies shall be placed on the right-of-way unless permitted by the District or other controlling entity. Piles shall be located outside of any natural buffers and away from any storm water conveyances, drain inlets, and areas where storm water

flow is concentrated. For piles that will be unused for 14 or more days, the piles shall be covered or other appropriate temporary stabilization measures shall be used.

Common Issues:

- Stockpiles placed in streets, on sidewalks, near surface waters, and/or near inlets.
- Inactive stockpiles not stabilized.

13. **Street Sweeping**

Description: Where material has been tracked out from the Construction Site onto paved roads, sidewalks, or other paved areas, deposited sediment shall be removed by the end of the same business day in which the trackout occurs. The sediment track out shall be removed by sweeping, shoveling, vacuuming, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked out sediment into any storm water conveyance, storm drain inlet, or receiving water is prohibited.

Common Issues:

- Sediment trackout.
- Sediment accumulating in gutters.
- Dust generated during sweeping activities.

14. **Surface Water Protections**

Description: When land disturbing activities occur within 50 feet of waters of the U.S., the Responsible Person shall comply with one of the following alternatives; (1) Provide and maintain a 50-foot undisturbed natural buffer, (2) Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by Erosion and Sediment controls that, in combination, achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer, (3) If infeasible to provide and maintain an undisturbed natural buffer of any size, implement Erosion and Sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

Common Issues:

- Surface water BMPs not installed where needed.
- 50’ buffer between surface waters and disturbed area not maintained.
- Silt fence and/or straw wattles not trenched in.

15. **Vehicle Equipment Maintenance and Washing**

Description: Fueling activities associated with large equipment shall be done offsite. Fueling activities associated with small equipment or tools shall be done offsite or in a location away from any storm water conveyance, storm drain inlet, or receiving water and, in an area where any spills can be contained and cleaned properly. Immediately repair equipment leaks and use drip pans when appropriate. Power washing of vehicles or equipment is not allowed on site.

Common Issues:

- Leaking equipment or vehicles on site.

2.3 DOCUMENTION

All ESC Inspections are documented and tracked for NPDES MS4 Permit annual reporting purposes. A completed ESC inspection report consists of both an ESC Inspection Report form and an accompanying photolog. Once combined both are entered into TRAKiT by Environmental Staff.

2.3.1 INSPECTION FORM

Inspectors should fill out all relevant fields on the ESC Inspection Report forms and record notes while on the Construction Site. This will allow the inspector to double check any observations.

Inspectors should be consistent when writing their inspection reports. Potential violations should be identified in such a way that another inspector can take your report and locate the problem area easily. Inspectors need to be specific when they describe observations. Do not write “a discharge was entering the storm drain” but rather “a discharge was entering the storm drain on the east side of the project below the construction entrance.” As a rule, descriptions of potential violations should be in past tense, i.e., “the silt fence was installed without being toed in.”

The Environmental Staff must identify a compliance deadline at the end of the ESC Inspection Report form whenever a punchlist item is identified. Environmental Staff may give the RP up to one week to correct minor punchlist items or as soon the end of business day if major issues are identified.

Note: The Inspector should be careful not to include any information that they are unsure of. The inspection report may be the first step in a compliance process that could reasonably be expected to be contentious. Factual errors in the report will bring the entire report and inspection into question and will hurt Environmental Staff credibility. Therefore, if there is any doubt about the information, it should be left out.

2.3.2 PHOTOLOG

The photolog provides an important visual link between the written notes on the ESC Inspection Report form and the actual inspection. Inspectors do not need to incorporate all the photos taken if they are not relevant to the report.

The photolog should include:

- If the construction site has a posting, take a picture of the posting to help you identify where the following photos were taken. Check to make sure the construction site name and IPDES permit number match the inspection report.
- Include a photo(s) that illustrates general Construction Site conditions. A macro level shot provides insight into whether the site is generally in good shape or poorly maintained. For a site that is generally in compliance, the general Construction Site Conditions photo may be the only site picture in the log.

- Provide photos for all potential violations. The photo serves as a record that the findings actually occurred and provides a means of comparing future site conditions with those on the day of inspection.
- Note the location(s) of the violations on your copy of the site map. Take a photo of the annotated site map and include it in your photolog.
- Photo captions should briefly describe what is observed in the picture.

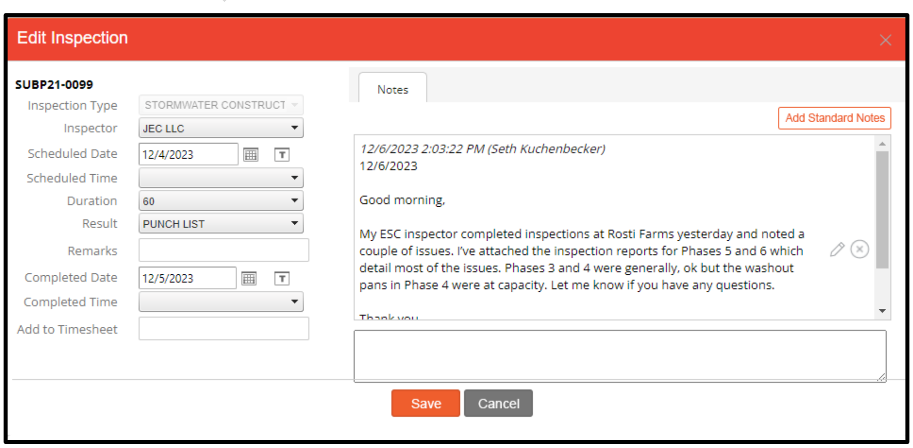
2.3.3 TRAKiT

Completed ESC Inspection Report forms, photologs, inspection results, and related initial correspondence are digitally entered into TRAKiT by Environmental Staff. This record keeping ensures easier NPDES MS4 Permit annual reporting. Following the instructions below, Environmental Staff should upload the ESC Inspection documentation and information into TRAKiT.

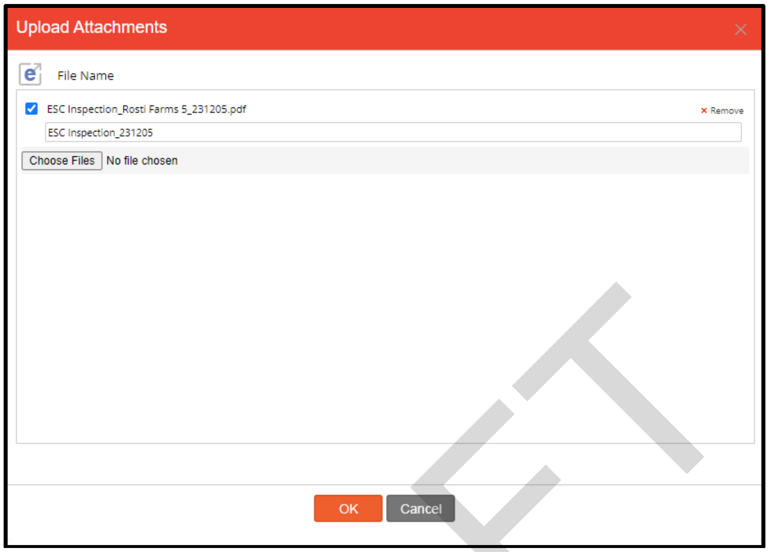
1. **Merge and save the inspection form and photolog as one file on the S: Drive.**
   Once the inspection form and photolog are finalized, use the Print as PDF option for both documents. Merge the two PDFs into one single document. Save the merged document as “ESC Inspection” followed by the project name and date of inspection (i.e., ESC Inspection_Willowbrook Estates 7_240118).

> **Note:** When saving files, do not include the “&” symbol. TRAKiT is not able to open files containing the “&” symbol.

2. **Open the project file in TRAKiT.**
   Login to TRAKiT and open the project file (i.e., SUBPXX-XXXX).
3. **Update the Inspection task.**
   Click the “Edit” button next to the inspection task. Use the drop down menu to change the “Result” of the inspection to the appropriate response. Enter the date of the inspection in the “Competed Date” field. Copy and paste any email communication between yourself and the site Responsible Person in the “Notes” field. Click the “Save” button.



4. **Upload the inspection documentation.**
   Click on the “Attachments” link. Upload the inspection documentation by first clicking the “Add” button and then clicking the “Choose Files” button. Navigate to and select the file you created in step 1. Rename the file label to “ESC Inspection” followed by the date of inspection (i.e., ESC Inspection_240118).



5. **Schedule additional inspections if necessary.**
   At this point, check to see if more inspections are needed. If the site will not be stabilized before the next inspection, add additional inspections. Refer to Section 2.1 of this guide for instructions on setting up additional ESC Inspections or voiding missed or unnecessary ESC Inspections.

2.4 INSPECTION FOLLOW-UP

When violations are observed during an ESC Inspection, Environmental Staff must reach out to the RP to notify them of the inspection results. If necessary, Environmental staff will initiate enforcement actions to bring the Construction Activity back into compliance.

2.4.1 NOTIFICATION OF INSPECTION

After the ESC Inspection Report form and photolog are merged, Environmental Staff should send the finalized document to the RP via email. The email should reiterate the issues noted in the report. For more urgent issues, Environmental Staff may also need to contact the RP via phone to discuss next steps.

Note: Environmental Staff may provide technical assistance or approaches for dealing with the issues. Technical assistance refers to providing general guidance on how to solve erosion and sediment control problems without providing specific design details. In other words, the inspector should not provide engineering advice.

2.4.2 ENFORCEMENT

Enforcement actions, typically led by Environmental Staff, are initiated when a permitted Construction Activity violates the projects CSDC Plan or CSDC Program requirements. A determination of the appropriate enforcement action is based on the nature and severity of the violation, and other relevant factors such as failure to correct deficiencies by a provided deadline. For detailed enforcement procedures, Inspectors should refer to the ESC Enforcement Response Guide.

Construction Site Discharge Control Enforcment Response Guide

Construction Site Discharge Control Annual Reporting Guide

1 INTRODUCTION

This Construction Site Discharge Control (CSDC) Annual Reporting Guide provides guidance to the Ada County Highway District (ACHD) Environmental Staff who provide information for the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit Annual Report. This guide details the procedures of collecting information from staff, generating datasets in TRAKiT, and presenting the compiled information for use in the Stormwater Management Plan (SWMP) and the Annual Report form.

1.1 BACKGROUND

ACHD implements and enforces its CSDC Program county-wide to fulfill NPDES MS4 Permit requirements. The permits mandate ACHD to report data for various CSDC Program activities in a SWMP, and Annual Report form at the end of each NPDES MS4 Permit reporting period. The reporting periods differ for ACHD's NPDES MS4 Permits. The Phase I NPDES MS4 Permit reporting periods spans from October 1 to September 31, while the Phase II NPDES MS4 Permit reporting period spans from February 1 to January 31. Consequently, all spatial CSDC Program activity data must be sorted based upon the respect NPDES MS4 permit areas and reporting periods. For the Phase II NPDES MS4 Permit Annual Report, ACHD voluntarily includes figures for activities outside the permit area boundaries during the reporting period as well.

1.2 CONSIDERATIONS

Environmental Staff should acknowledge the following considerations.

- Environmental Staff need TRAKiT access to generate datasets for Permanent Stormwater Control Inspection, Erosion & Sediment Control (ESC) Inspection, Dewatering Inspection, and CSDC Plan Review figures.
- Environmental Staff may need assistance from staff with GIS privileges to filter reporting data spatially by NPDES MS4 Permit area boundaries.

2 PROCEDURES

Environmental Staff should follow procedural guidance in this section when compiling and presenting the figures for the following:

- CSDC Plan Reviews
- ESC Inspections
- Dewatering Inspections
- SWPPP Inspections
- Permanent Stormwater Control Inspections
- Formal Enforcement Actions
- Responsible Persons Trained

2.1 COMPILING REPORTING DATA

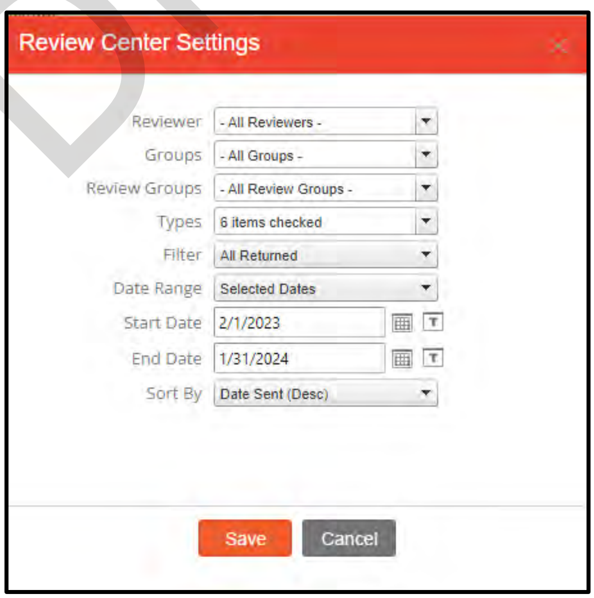
All reportable CSDC Program activities are tracked by Environmental Staff in TRAKiT or in tracking spreadsheets. At the end of every NPDES MS4 Permit reporting period, all relevant data must be complied for use in the Annual Report.

2.1.1 CSDC PLAN REVIEWS

All CSDC Plan Reviews are documented in TRAKiT as they are completed. Environmental Staff should follow the instructions below when pulling CSDC Plan Review data out of the TRAKiT system.

1. **Open TRAKiT.**
   Login to TRAKiT and scroll to the “Review Center” on the home page.
2. **Generate the dataset.**
   Click the “Settings” icon in the “Review Center”. Update the fields as follows.
   - “Reviewer” → “All Reviewers”
   - “Groups” → “All Groups”
   - “Review Groups” → “All Review Groups”
   - “Types” → “ESC Plan”, “Dewatering”, “SWPPP”
   - “Filter” → “All Returned”
   - “Date Range” → “Selected Dates”

   Enter the first and last dates of the reporting period in the “Start Date” and “End Date” fields. Click the “Save” button.



3. **Export the dataset to an Excel spreadsheet.**

Click the “Export” icon in the “Review Center”.

> **Note:** TRAKiT can only export 500 lines of data at one time. If exporting a number higher than that, the data will need to be exported over smaller periods of time such as quarterly or monthly. The exported data can be combined later into one Excel spreadsheet.

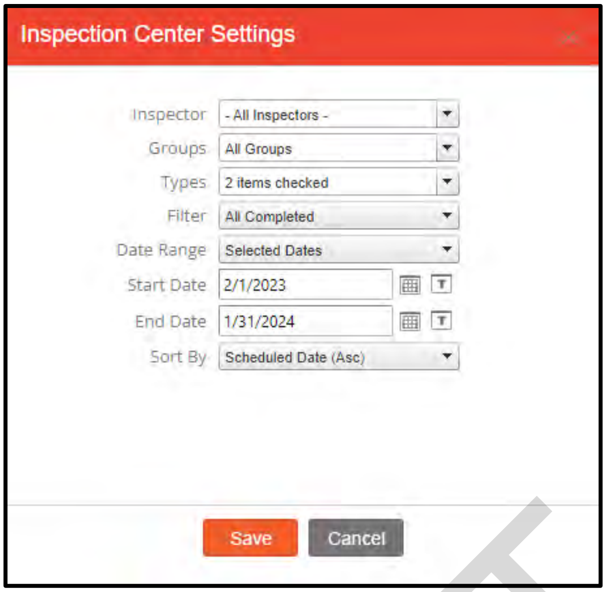
4. **Filter the exported data fields.**
   Open the generated Excel spreadsheet. Remove all column data except for the following.
   - Date Reviewed “DATE_SENT”
   - Address “SITE_ADDR1”
   - City “SITE_CITY”
   - Parcel Number “SITE_APN”
   - Permit Number “ACTIVITYNO”
   - Review Result “STATUS”
5. **Filter the data by permit area.**
   Send the Excel spreadsheet to staff with GIS privileges. That staff member will use the provided address and/or parcel numbers to map the location of the Construction Sites and associate each review with a permit area. Once associated, the Excel spreadsheet will be returned.
6. **Format the data into a table.**
   Use the standard Annual Report formatting rules to format the filtered data.

2.1.2 ESC & DEWATERING INSPECTIONS

All ESC and Dewatering Inspections are documented in TRAKiT as they are completed. Environmental Staff should follow the instructions below when pulling ESC and Dewatering Inspection data out of the TRAKiT system.

1. **Open TRAKiT.**
   Login to TRAKiT and scroll to the “Inspection Center” on the home page.
2. **Generate the dataset.**
   Click the “Settings” icon in the “Inspection Center”. Update the fields as follows.
   - “Inspector” → “All Inspectors”
   - “Groups” → “All Groups”
   - “Types” → “Stormwater Construction Site Inspection”, “Dewatering”,
   - “Filter” → “All Completed”
   - “Date Range” → “Selected Dates”
     Enter the first and last dates of the reporting period in the “Start Date” and “End Date” fields. Click the “Save” button.

   Enter the first and last dates of the reporting period in the “Start Date” and “End Date” fields. Click the “Save” button.



3. **Export the dataset to an Excel spreadsheet.**
   Click the “Export” icon in the “Inspection Center”.

Note: TRAKiT can only export 500 lines of data at one time. If exporting a number higher than that, the data will need to be exported over smaller periods of time such as quarterly or monthly. The exported data can be combined later into one Excel spreadsheet.

4. **Filter the exported data fields.**
   Open the generated Excel spreadsheet. Remove all column data except for the following.
   - Date Inspected “COMPLETED_DATE”
   - Address “SITE_ADDR1”
   - City “SITE_CITY”
   - Parcel Number “SITE_APN”
   - Permit Number “ACTIVITYNO”
   - Inspection Result “RESULT”
5. **Filter the data by permit area.**
   Send the Excel spreadsheet to staff with GIS privileges. That staff member will use the provided address and/or parcel numbers to map the location of the Construction Sites and associate each review with a permit area. Once associated, the Excel spreadsheet will be returned.
6. **Format the data into a table.**
   Use the standard Annual Report formatting rules to format the filtered data.

2.1.3 SWPPP INSPECTIONS

Capital Project Staff manage and track SWPPP inspections on ACHD projects. Environmental Staff will request SWPPP Inspection data from the Construction Services Coordinator after the conclusion of an NPDES MS4 Permit Reporting period.

After receiving the information, Environmental Staff may need to filter the data by permit area boundaries if the Construction Services Coordinator has not already done so. The SWPPP Inspection figures will be presented in the Annual Report as a consolidated total.

2.1.4 PERMANENT STORMWATER CONTROL INSPECTIONS

All Permanent Stormwater Control Inspections are documented in TRAKiT as they are completed. Environmental Staff should follow the instructions below when pulling Permanent Stormwater Control Inspection data out of the TRAKiT system.

1. **Open TRAKiT.**
   Login to TRAKiT and scroll to the “Inspection Center” on the home page.
2. **Generate the dataset.**
   Click the “Settings” icon in the “Inspection Center”. Update the fields as follows.
   - “Inspector” → “All Inspectors”
   - “Groups” → “All Groups”
   - “Types” → “1st Final”, “2nd Final”, “3rd Final”, “4th Final”, “Manhole Collars”, “Perc Rate Test”, “Storm Drain”, “Warranty”
   - “Filter” → “All Completed”
   - “Date Range” → “Selected Dates”
     Enter the first and last dates of the reporting period in the “Start Date” and “End Date” fields. Click the “Save” button.

   Enter the first and last dates of the reporting period in the “Start Date” and “End Date” fields. Click the “Save” button.

3. **Export the dataset to an Excel spreadsheet.**
   Click the “Export” icon in the “Inspection Center”.

> **Note:** TRAKiT can only export 500 lines of data at one time. If exporting a number higher than that, the data will need to be exported over smaller periods of time such as quarterly or monthly. The exported data can be combined later into one Excel spreadsheet.

4. **Filter the exported data fields.**
   Open the generated Excel spreadsheet. Remove all column data except for the following.
   - Date Inspected “COMPLETED_DATE”
   - Address “SITE_ADDR1”
   - City “SITE_CITY”
   - Parcel Number “SITE_APN”
   - Permit Number “ACTIVITYNO”
   - Project Type “RECORD_SUBTYPE”
   - Inspection Type “INSPECTIONTYPE”

   Remove all lines NOT with one of the following Project Types.
   - (New) Subdivisions
   - Gutter/Curb/Sidewalk
   - Frontage Impacting
5. **Filter the data by permit area.**
   Send the Excel spreadsheet to staff with GIS privileges. That staff member will use the provided address and/or parcel numbers to map the location of the Construction Sites and associate each review with a permit area. Once associated, the Excel spreadsheet will be returned.
6. **Format the data into a table.**
   Use the standard Annual Report formatting rules to format the filtered data.

2.1.5 FORMAL ENFORCEMENT ACTIONS

Environmental Staff maintain records of all formal enforcement actions taken, including Notice of Violations, Administrative Fines, and Stop Work Orders. After the NPEDS MS4 Permit Reporting period ends, Environmental Staff compile the number of enforcement actions taken within the period by referencing the ESC Inspection Tracker Excel spreadsheet. Environmental Staff must then filter the data by permit area boundaries. The figures for formal enforcement actions are presented in the Annual Report as a consolidated total.

2.1.6 RESPONSIBLE PERSONS TRAINED

Both Environmental Staff and the Safety & Training Specialist maintain records of ACHD Staff who have successfully completed Responsible Person training and obtained the certification. Post the conclusion of the NPEDS MS4 Permit Reporting period, Environmental Staff can compile the number of trained staff within the period by examining training rosters or filtering the Responsible Person Training Tracker Excel spreadsheet. As this information is not spatial, there is no need to filter it by permit area boundaries. The figures for Responsible Person training are presented as a total in the Annual Report.

2.2 PRESENTING REPORTING DATA

Once all relevant data has been compiled for the NPDES MS4 reporting period, it must be presented in a standard format for use in the SWMP or Annual Report form.

2.2.1 STORMWATER MANAGEMENT PLAN TABLES

The standard table format for the SWMP is outlined below. Adhering to the standardized format facilitates smooth integration into the document.

Table 1. Table Title (Calibri, 11, White) [Fill = #43525A] {Repeat Header Row}		
Table Content Title 1	(Calibri, 11, Automatic)	[Fill = #EFEFED] {Repeat Header Row}
Table content	(Calibri, 10, Automatic)	

* *Table Note* (Calibri,9, Automatic, Italic)

All data extracted from TRAKiT should be populated in the following three tables. This is essentially the 'cleaned-up' version of the raw data and is usually attached in an appendix of the SWMP.

Table XX. CSDC Plan Reviews ACHD Phase XX Permit Area, Idaho MMMM DD, YYYY – MMMM DD, YYYY					
#	Date	Permit Number	Address	City	Result

Table XX. ESC & Dewatering Inspections ACHD Phase XX Permit Area, Idaho MMMM DD, YYYY – MMMM DD, YYYY					
#	Date	Permit Number	Address	City	Result

Table XX. Permanent Stormwater Control Inspections ACHD Phase XX Permit Area, Idaho MMMM DD, YYYY – MMMM DD, YYYY					
#	Date	Permit Number	Address	City	Inspection Type

The following two tables are completed by referencing the raw data. These tables are imbedded and referenced in the SWMP itself.

Table XX. ESC Inspections, CSDC Plan Reviews, and NOVs by Month ACHD Phase XX Permit Area, Idaho MMMM DD, YYYY – MMMM DD, YYYY				
Month	Site Specific Plan Reviews	Site Specific Plans with Deficiencies	ESC Site Inspections Completed	NOVs Issued
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
MMMM	XX	XX	XX	XX
Total	**XX**	**XX**	**XX**	**XX**

Table XX. ESC Inspections, Capital Project SWPPP Inspections, and NOVs ACHD Phase XX Permit Area, Idaho MMMM DD, YYYY – MMMM DD, YYYY	
Activity	Total
ESC Inspections Completed	XX
Capital Project SWPPP Inspections Completed	XX
NOVs Issued	XX

2.2.2 ANNUAL REPORT FIGURES

The remaining compiled data should be presented as a total. The figures will be referenced in the SWMP and Annual Report form.

- SWPPP Inspections Completed: ________
- Staff Trained (Responsible Person): ________

DRAFT Overview of Water Quality Permitting Roles and Responsibilities

Permit	Permitting Authority	Permitted Activity	Project Stage for Permit Submittal	Responsible Person for Permit Submittal	Construction Compliance Responsibility and Reporting Including Non-compliance	Compliance or Technical Assistance	Project Completion Compliance Certification
404	COE	Work below high-water mark in WOTUS	Design	Eric	Kadee and Contractor	Eric	Eric/with assistance from Kadee as needed
401 WQ Certification	IDEQ Regional Office	If there is federal permit for WOTUS discharge	Design	Eric	Kadee and Contractor	Eric	Eric/with assistance from Kadee as needed
CGP SWPPP	IDEQ State Office	Disturbing > 1ac with potential to discharge to MS4 or waterway	Construction	Kadee and Contractor	Kadee and Contractor	Seth	NA
ESC Plan	ACHD	Disturbing <1ac with potential to discharge to MS4 or waterway	Construction	Contractor	Kadee and Contractor	Seth	NA
Dewatering Permit	ACHD	Dewatering occurring that has potential to impact MS4	Construction	Contractor	Kadee and Contractor	Seth	NA
MS4 NPDES Permit	IDEQ State Office	Discharge to WOTUS via MS4	NA	NA	Monica	Monica	NA

DRAFT Water Quality Permitting Non-Compliance – Roles and Responsibilities								
Permit	Permitting Authority	Permitted Activity	Construction Compliance Responsibility	Permitting Agency Contact	24-hour Notification	Non-compliance Report Review	Non-compliance Report Submittal	Compliance Assistance
404	COE	Work below high-water mark in WOTUS	Kadee and Contractor	Local COE permit issuer	Kadee and Contractor	Eric	NA – document in file	Eric
401 WQ Certification	IDEQ Regional Office	If there is federal permit for WOTUS discharge	Kadee and Contractor	Chase Cusak	Kadee and Contractor	Eric	Kadee and Contractor	Eric
CGP SWPPP	IDEQ State Office	Disturbing > 1ac with potential to discharge to MS4 or waterway	Kadee and Contractor	James Craft	Kadee and Contractor	Seth	Kadee and Contractor	Seth
ESC Plan	ACHD	Disturbing <1ac with potential to discharge to MS4 or waterway	Kadee and Contractor	Seth	Kadee and Contractor	Seth	Kadee and Contractor	Seth
Dewatering Permit	ACHD	Dewatering occurring that has potential to impact MS4	Kadee and Contractor	Seth	Kadee and Contractor	Seth	Kadee and Contractor	Seth
MS4 NPDES Permit	IDEQ State Office	Discharge to WOTUS via MS4	Kadee and Contractor	James Craft/Emily Montague	Monica	Monica	Monica	Monica

APPENDIX F
FORMS

For Office Use Only!
Date Received: ______________Date Entered:___________
Inspector: ____________________
5-yr Moratorium List: Yes________ No _______
Permit Number: ___________________________

TEMPORARY HIGHWAY USE PERMIT APPLICATION
E-MAIL TO permits@achdidaho.org
www.achdidaho.org – All Forms – Temporary Use Permit – Permit Application

DATE OF APPLICATION SUBMITTAL	START DATE	END DATE	
Application/ Submitters Contact Name and Phone # Applicant Email:	Annual Permit number if applicable:		
CONTRACTOR Contractor Contact/ Email: Contractor Contact/Phone#:	SUB-CONTRACTOR(S) Sub-Contractor Contact Email: Sub-Contractor Contact/Phone#:		
RESPONSIBLE PERSON	RP CERTIFICATE # CON ___-_____ Exp. Date:	CELL/PHONE#	
FOREMAN	FOREMAN CELL PHONE #	FOREMAN EMAIL #	
24 HR EMERGENCY CONTACT	CONTACT CELL PHONE #	CONTACT EMAIL	
Traffic Control Company	Traffic Control Contact	PHONE #	FAX #
UTILITY WORK/VARIANCE PURPOSES: PLEASE INDICATE THE APPROPRIATE SELECTION: SANITARY-STORM SEWERS (S & W) ☐ WATER MAINS (N & E) ☐ GAS MAINS (N & E) ☐ ELECTRIC, COMMUNICATION, FIBER, CABLE (S&W) ☐	WHICH SIDE OF THE ROAD WILL THE WORK BE PERFORMED? NORTH ☐ EAST ☐ SOUTH ☐ WEST ☐	IDAHO TRANSPORTATION DEPARTMENT PERMIT ATTACHED (ITD) ☐ UTILITY SPACE ALLOCATION APPROVAL ATTACHED ☐	
JOB SITE STREET ADDRESS or STREET/ROAD NAME (where actual work is to be performed):		Nearest CROSSROAD	
CITY		NAME OF ACHD PROJECT, SUBDIVISION NAME, OR COMMERCIAL DEVELOPMENT NAME	
DESCRIPTION OF WORK – BE SPECIFIC – COORDINATE DESCRIPTION WITH TASKS BELOW		CONTRACTOR JOB #	ACHD PROJECT #

DIRT DISTURBANCE WORK:

BELL HOLE < 50'	____	QTY
TRENCH WORK	____	FT
BORE ..... (INCLUDES BEGINNING AND ENDING BELL HOLE)	____	FT
BORE ..... NUMBER STREET CROSSINGS	____	QTY

Above Ground Work Only YES ☐ NO ☐

Sidewalk Obstruction YES ☐ NO ☐

ROAD CLOSURE YES ☐ NO ☐

IF DIRT DISTURBANCE IS OVER 50' AN ESC PLAN MUST BE SUBMITTED AND APPROVED BY ACHD PRIOR TO ANY EXCAVATION

ANY EXCAVATION MUST BE IN COMPLIANCE WITH IDAHO DIG LAW

MISC CONCRETE OR ASPHALT WORK:

CURB & GUTTER ONLY	____	LF
CONCRETE APPROACH (C/G/SW ONLY)	____	LF
CONCRETE APPROACH (C/G ONLY)	____	LF
CURB & GUTTER ONLY	____	LF
SIDEWALK ONLY	____	LF
CURB / GUTTER/ SIDEWALK	____	LF
ASPHALT APPROACH / STREET SURFACING	____	SY

MORATORIUM PURPOSES - IS THE ROADWAY SURFACE TO BE CUT?

YES ☐ NO ☐

For Dirt Disturbance and Misc Concrete or Asphalt work:

Arterial Roadways ($85.00 per day): How many days ____
Collector Roadways ($60.00 per day): How many days ____
Residential Roadways ($30.00 per day): How many days ____

ALL APPLICATIONS MUST PROVIDE APPLICABLE TRAFFIC CONTROL PLANS

ADA COUNTY HIGHWAY DISTRICT

Erosion & Sediment Control Plan Waiver

This Erosion and Sediment Control (ESC) Plan Waiver is designed to comply with Ada County Highway District (ACHD) Construction Site Discharge Control Program ESC Plan requirements. This waiver does NOT meet State or Federal SWPPP requirements. An ESC Plan Waiver is applicable for all permitted activities where land disturbing activity is less than 600 sq.ft., trenching is less than 50 ft., and construction activities do NOT impact any environmentally sensitive sites. The Permit Holder agrees to employ best management practices (BMPs) as specified in this ESC Plan Waiver. Should BMPs employed by the permit holder be found insufficient or not functioning to an acceptable capacity, ACHD may require that those practices be amended or changed.

1 WAIVER ADMINISTRATION

Application Date: ______________________

Project Name: ______________________

Project Location: ______________________ City: ______________

Project Start Date: ______________________ Estimated End Date: ______________

2 CONTACTS

Applicant

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________

Email: ______________________ Phone: ______________

Contractor/Permit Holder (if different than applicant)

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________

Email: ______________________ Phone: ______________

Responsible Person

The listed Responsible Person (RP) has direct, day-to-day control over site activities. The RP shall serve as the 24-hour point-of-contact for all stormwater quality related issues. ACHD will be notified if the RP changes.

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________

Email: ______________________ Phone: ______________

RP Certification #: ______________________ Expiration Date: ______________

3 DESCRIPTION OF WORK

Land Disturbing Activity

Only include ground disturbing activity within the right-of-way. All construction activity must stay within the limits of permitted area. Land disturbing activity, material staging, or any other activity related to construction in the right-of-way outside the permitted area may be deemed a violation.

Length of Trenching: ____________________ Total Disturbed Area: ____________________

Project Details:

Site Features

If a construction site includes any of the following environmentally sensitive site features, this ESC Plan Waiver is NOT applicable for the project, regardless of the size of the project. An ESC Plan must be submitted to ACHD for review and approval if a site includes any of the following.

- ☐ Steep Slopes (s*ite includes preexisting slopes greater than 15%)*
- ☐ Close Proximity to Surface Waters *(site is within 50 feet of a waterbody or wetland)*
- ☐ Brownfield *(site is on or near a Brownfield Site)*

4 CERTIFICATION STATEMENT

By signing this form, I acknowledge that no construction activities may occur prior to the issuance of a Temporary Highway Use Permit. If this ESC Plan Waiver is revoked, the permit holder agrees to immediately halt all construction activity. If this ESC Plan Waiver is revoked, the permit holder may reapply and agree to meet any requirements set by ACHD.

I have read and agree to the terms and conditions of this addendum to the Temporary Highway Use Permit. I certify that I have the authority to obligate my organization to these terms and conditions.

Printed Name: ____

Signature: ______________________________________ Date: ____________________

5 STANDARD AGREEMENT

1. The permit holder shall be responsible for ensuring that all Standard BMPs have been implemented and achieve the function for which they were designed.
2. The permit holder shall inspect the construction site weekly and within 24 hours of a 0.25-inch rain event.
3. The permit holder shall oversee, implement, and maintain BMPs to contain materials onsite, out of the storm drain system and waters of the U.S.
4. The permit holder shall ensure that any sediment, waste, or other materials that enter the right-of-way or storm drain system are removed. All existing permanent storm drain structures shall be cleaned and repaired, if necessary, to pre-construction conditions.
5. The permit holder shall immediately initiate BMP maintenance, if at any time, it is found that a control is not functioning as intended. Such work shall be completed by the close of the next business day.
6. Final site stabilization shall be initiated as soon as practicable on portions of the site where construction activities have permanently ceased, but in no case more than 14 days after the construction activity is completed.
7. The permit holder shall ensure all temporary BMPs have be removed after final site stabilization.
8. This waiver in no way allows the permit holder to discharge surplus water to the storm drain system of waters of the U.S. The permit holder shall submit an application for a Dewatering Permit if dewatering is required.
9. Should the work on this project require working in waters of the U.S. or in any other way impact of waters of the U.S., it is the responsibility of the permit holder to obtain proper permits from all applicable authorities.

6 STANDARD BMPs

1. **Concrete Waste Management:** A designated washout area shall be provided, prior to placement of concrete. All wash water from concrete, stucco, paints, drywall adhesive, and similar substances shall be directed into a leak-proof container or leak-proof and lined pit designed so that no overflows can occur due to inadequate sizing or precipitation. Track-out of sediment from accessing the designated washout area is prohibited. A stabilized rock access may be required to prevent sediment track-out. The washout facility or cleanout activities shall be located as far away as possible from stormwater conveyances, storm drain inlets, or surface waters. All concrete cutting slurry and washout shall be removed from the jobsite and disposed of properly.
2. **Construction Entrance/Exit Controls:** Construction traffic shall be restricted to properly designated entrance/exit points. Stabilized construction ramps or other similarly effective sediment removal BMPs shall be installed at all points that exit onto paved roads. Stabilized construction ramps shall be constructed of material that will not erode or deteriorate under adverse conditions and shall not be placed in a manner as to interfere with or block the passage of stormwater runoff. Construction entrance/exit controls are not required for exit points on linear construction sites that are used only episodically and for very short durations over the life of the project.
3. **Dust Control:** On areas of exposed soil, or during concrete cutting activities, dust shall be suppressed through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged in stormwater from the site. All dump trucks entering and exiting the project site carrying loads of sand, dirt, gravel, or other similar materials shall be covered/tarped.
4. **Good Housekeeping Practices:** For construction and domestic wastes, waste containers (e.g., dumpster, trash receptacle) shall be provided of sufficient size and number to contain construction and domestic wastes. For waste containers that have lids, lids shall be kept closed when not in use, and lids shall be closed at the end of the business day and during storm events. For waste containers that do not have lids, other cover shall be provided (e.g., plastic sheeting, temporary roofs). Overflow of containers shall be cleaned up immediately.
5. **Inlet Protection:** Physical inlet protection BMPs shall be installed to remove sediment from discharges. Protection measure shall be cleaned, or removed and replaced as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Gutters shall be maintained free and unobstructed for the full depth of the adjacent curb and for at least one foot away from the face of the curb at the gutter line, except for BMPs installed and implemented. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, the deposited sediment shall be removed. Any soil, waste, or other materials that enter the storm drain system shall be removed.
6. **Limit Disturbance to Land and Vegetation:** Topsoil and vegetation (e.g., trees, grasses, and other plants) shall be protected by prohibiting disturbance or damage to specified areas of the construction site. Efforts shall be made to reduce the amount of bare soil exposed to erosive forces by limiting disturbance to the smallest area possible. For projects disturbing one acre or greater, soil compaction shall be minimized on areas of the site where final vegetative stabilization will occur or where surface infiltration practices will be installed. If soil compaction cannot be avoided, appropriate soil conditioning techniques shall be used.
7. **Material Handling and Storage:** For building and landscaping materials, cover shall be provided to minimize the exposure of pollutants to precipitation and to stormwater. Minimizing exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material poses little risk of stormwater contamination. Hazardous materials shall be separated from construction and domestic waste. Hazardous materials shall be stored in sealed containers to prevent leakage and corrosion. All outside containers shall be contained within appropriately sized secondary containment (e.g., spill berms, dikes, spill containment pallets) to prevent spills from being discharged. Hazardous or toxic waste shall be disposed of in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.

8. **Perimeter Controls:** Sediment controls shall be installed along the perimeter areas of the construction site that are downslope from exposed soil or other disturbed areas. sediment shall be removed before it has accumulated to one-half of the above ground height of any perimeter control. Perimeter controls may be limited on linear construction sites where perimeter controls are infeasible.
9. **Sanitary Facilities:** For sanitary waste, portable toilets shall be positioned so that they are secure and will not be tipped nor knocked over (e.g., secure with stakes that tie to the portable toilets and go into the ground), and so that they are located away from receiving waters and storm drain inlets or conveyances. Sanitary facilities shall be placed behind sidewalks.
10. **Slope Stabilization:** Land disturbing activities on steep slopes shall be minimized. Slopes shall be immediately stabilized, either temporarily or permanently, after grading work is completed to prevent landslides, slope failures, gully developments and hill erosion. Sediment barriers shall be installed along the face, and at grade breaks of exposed or erodible soils. Other methods for stabilization include slope tracking, slope drains, and mats and blankets.
11. **Spill Response:** A spill kit shall be kept on site to respond to any pollutant spills or equipment leaks. Spills shall be cleaned up immediately, using dry clean-up methods where possible, and dispose of used materials properly. Responders are prohibited from hosing the area down to clean surfaces or spills. The source of the spill shall be eliminated to prevent a discharge or a continuation of an ongoing discharge. If absorbent materials are used, they shall be removed from the construction site and disposed of appropriately. All spills of hazardous material, deleterious material or petroleum products which may impact waters (ground and surface) shall be reported immediately.
12. **Stockpile Management:** No debris, dirt, excavated materials, or construction supplies shall be placed on the right-of-way unless permitted by the District or other controlling entity. Piles shall be located outside of any natural buffers and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated. For piles that will be unused for 14 or more days, the piles shall be covered or other appropriate temporary stabilization measures shall be used.
13. **Street Sweeping:** Where material has been tracked out from the construction site onto paved roads, sidewalks, or other paved areas, deposited sediment shall be removed by the end of the same business day in which the trackout occurs. The sediment track out shall be removed by sweeping, shoveling, vacuuming, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked out sediment into any stormwater conveyance, storm drain inlet, or receiving water is prohibited.
14. **Surface Water Protections:** When land disturbing activities occur within 50 feet of waters of the U.S., the operator shall comply with one of the following alternatives; (1) Provide and maintain a 50-foot undisturbed natural buffer, (2) Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that, in combination, achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer, (3) If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer
15. **Vehicle Equipment Maintenance and Washing:** Fueling activities associated with large equipment shall be done offsite. Fueling activities associated with small equipment or tools shall be done offsite or in a location away from any stormwater conveyance, storm drain inlet, or receiving water and, in an area where any spills can be contained and cleaned properly. Immediately repair equipment leaks and use drip pans when appropriate. Power washing of vehicles or equipment is not allowed on site.

ESC PLAN TEMPLATE – INSTRUCTIONS

An ESC Plan is required on all projects when trenching is expected to exceed 50 feet or land disturbing activity is expected to exceed 600 square feet. To help plan preparers develop the narrative section of their site-specific ESC Plan, ACHD has created this ESC Plan template.

Instructions are provided for each section of this template. The plan preparer should read the instructions for each section before completing that section. Some sections may require only a brief description while others may require more explanation. Space is provided where additional information may be needed.

Title Page
- Insert project information including project name and location.
- Insert contractor/operator information including company name, mailing address, email address, and phone number.
- Insert date the ESC Plan was completed.
- Insert the estimated project start and end dates.

1 Introduction
- Insert the name of project.
- Insert the project street address (or nearest crossroads) and latitude and longitude.
  TIP: Use Google Earth or a similar application to find latitude and longitude.

2 Contacts
- Insert the relevant contact information for the plan preparer, contractor/permit holder, sub-contractor(s), and RP.
- The listed RP must sign and acknowledge his or her responsibilities.

3 Scope of Work
- Insert a detailed description of the proposed construction activities.
- Insert project trenching and total disturbed area values. Include units such as ft., yds., miles, ft.^{2}, yds.^{2}, acres.
- Insert the sequence of events. The sequence of events must include the installation of temporary BMPs, Final Stabilization, and removal of temporary BMPs.
- Insert a list of material and potential pollutants stored on site or associated with the construction activities. The list must include petroleum/oil and sediment.
- Select if dewatering is anticipated. If dewatering is anticipated, include a Dewatering Plan with your submission. Contact ACHD for more specific information on dewatering permitting requirements.

4 Site Assessment
- Insert a detailed description of the site.
- Select if your site has any environmentally sensitive site features.
- Insert a list of receiving waters. If no surface waters are in or adjacent to the site, assume the next closest surface water receives runoff through the storm drain system.

5 Best Management Practices
- List and describe all BMPs that are applicable on your project.
  TIP: Some BMPs are applicable on all projects.

6 Inspections
- Select your site inspection frequency.

7 End of Project

8 Additional Information
- Use this space to provide any additional relevant information that may not have fit in another section.

NOTE: An ESC Plan Map/Drawing must be included with your ESC Plan submittal.

ESC Plan Map/Drawing
- Attach an ESC Plan Map/Drawing that includes the following:
  - North Arrow, Scale, Date, and Key
  - Property Boundaries and Lot Lines
  - Site Drainage Pattern (e.g., topo lines or direction of flow)
  - All Drainage Features (e.g., surface waters and storm drain inlets).
    TIP: Use ACHD's Storm Drain Inlet Mapping Tool to locate inlets in and around the project area.
  - Existing and Proposed Conditions
  - Location of BMPs
  - Material Storage and Staging Areas

EROSION & SEDIMENT CONTROL (ESC) PLAN

PROJECT

____

____

____

OPERATOR / PERMIT HOLDER

____

____

____

____

____

DATE PLAN PREPARED

____

ESTIMATED PROJECT DATES

Start Date: ____________________

Completion Date: ____________________

WARNING: This ESC Plan Template should only be used for projects permitted through the Ada County Highway District (ACHD). This plan does not meet Federal/State SWPPP Requirements. Please use the EPA SWPPP Template for projects >1 acre and meeting the eligibility requirements outlined in the most current Construction General Permit.

TABLE OF CONTENTS

1 INTRODUCTION

The purpose of this ESC Plan is to detail how the operator plans to minimize erosion caused by stormwater runoff and to prevent sediment and other construction pollution from entering the Boise River, its tributaries, and ACHD's storm drain system. This ESC Plan provides project details, identifies the control measures, and describes how and when these controls will be implemented and maintained.

1.1 PROJECT NAME

Project Name: ______________________________

1.2 PROJECT LOCATION

Street Address: ______________________________

City/State/Zip: ______________________________

Latitude: ________________ Longitude: ________________

2 CONTACTS

2.1 PLAN PREPARER

Contact Name: ______________________________

Company Name: ______________________________

Street Address: ______________________________

City/State/Zip: ______________________________

Email: ________________ Phone: ________________

2.2 OPERATOR/PERMIT HOLDER

Contact Name: ______________________________

Company Name: ______________________________

Street Address: ______________________________

City/State/Zip: ______________________________

Email: ________________ Phone: ________________

2.3 SUB-CONTRACTORS

Contact Name: ______________________________

Company Name: ______________________________

Street Address: ______________________________

City/State/Zip: ______________________________

Email: ________________ Phone: ________________

2.4 RESPONSIBLE PERSON

The listed Responsible Person (RP) has direct, day-to-day control over site activities. The RP shall serve as the 24-hour point-of-contact for all stormwater quality related issues. ACHD will be notified if the RP changes.

Contact Name: ______________________________

Company Name: ______________________________

Street Address: ______________________________

City/State/Zip: ______________________________

Email: ____________________ Phone: ____________________

RP Certification: ____________________ Expiration Date: ____________________

By signing below, the RP acknowledges that he or she has reviewed this ESC Plan and understands his or her responsibilities.

Signature: ______________________________ Date: __________

3 SCOPE OF WORK

3.1 DESCRIPTION OF WORK

3.2 LAND DISTURBING ACTIVITY

All construction activity will stay within the limits of disturbance. Land disturbing activity, material staging, or any other activity related to construction in the right-of-way outside the permitted area may be deemed a violation. Disturbance limits are identified on the attached ESC map/drawing.

Length of Trenching: ____________________

Total Disturbed Area: ____________________

3.3 SEQUENCE OF ACTIVITES

Work Activity	Schedule

3.4 MATERIALS & POTENTIAL POLLUTANTS

Material or Potential Pollutant	Source of Pollutant

3.5 DEWATERING

If dewatering is anticipated, a Dewatering Plan will be attached to this ESC Plan. In no way does this ESC Plan alone allow the operator to discharge surplus water into the storm drain system. If discharging surplus water into the storm drain system is required, both a Dewatering Plan and a Dewatering Permit Application will be submitted to ACHD for review and approval.

- Is dewatering anticipated?
  ☐ Yes ☐ No

4 SITE ASSESSMENT

4.1 SITE DESCRIPTION

4.2 SITE FEATURES

- Are any predevelopment grades greater than 15 percent?
  ☐ Yes ☐ No
- Will any land disturbing activities occur within 50 feet of a wetland and or other waterbody?
  ☐ Yes ☐ No
- Are any of the listed receiving waters a 303d sediment or nutrient impaired water body?
  ☐ Yes ☐ No
- Is the project site on or adjacent to an EPA or DEQ listed site of concern (e.g. Superfund or Brownfield)?
  ☐ Yes ☐ No

4.3 RECEIVING WATERS

Name of Waterway/Waterbody

5 BEST MANAGEMENT PRACTICES

During the entirety of this project, the permit holder and RP will use the following BMPs to minimize erosion and pollutant discharges in stormwater. These controls will be designed, installed, maintained, and removed in accordance with the manufacture specifications and specifications in DEQ's Idaho Catalog of Stormwater Best Management Practices.

5.1 EROSION & SEDIMENT CONTROLS

5.2 MATERIAL HANDLING, STORAGE, & DISPOSAL

5.3 SPILL PREVENTION & CONTROL

Required Notifications:

Agency	Phone Number	Notification
Stormwater Pollution Hotline	208-395-8888	Spills to the storm drain system.
Idaho Department of Environmental Quality	208-373-0550	Notification must be made immediately if a hazardous material is spilled to surface water or to land such that there is likelihood that it will enter surface waters. Petroleum spills to land of more than 25 gallons require notification within 24 hours. Petroleum spills of any size that causes a sheen on nearby surface water require notification within 24 hours. Spills less than 25 gallons and do not cause a sheen are only required to be reported if cleanup cannot be accomplished within 24 hours.
Idaho State Communication Center	800-632-8000	If assistance is needed responding and to a spill or accident involving oil, gas, or hazardous material.
National Response Center	800-424-8802	Within 24 hours of an oil or chemical spill that is a reportable quantity per 40 CFR 302.

6 INSPECTIONS

During each site inspection, the RP will at a minimum check whether all BMPs are installed, operational, and working as intended to minimize pollutant discharges. The RP will also check for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on the site. Any locations where new or modified stormwater controls are necessary will be identified during the inspection.

6.1 INSPECTION FREQUENCY

At a minimum, the RP will conduct a site inspection in accordance with one of the two schedules below:

- ☐ Once every seven calendar days.
- ☐ Once every 14 calendar days, and within 24 hours of a storm event producing 0.25 inches or greater of rain.

6.2 MAINTENANCE & CORRECTIVE ACTIONS

Specific maintenance requirements for each BMP, as well as any recommendations by the manufacturer will be followed. The RP will address any BMP failures by determining whether there was a failure in design, installation, or maintenance. The RP will perform the appropriate measures to correct the failure, including determining whether BMPs should be modified or if additional measures will be taken. The RP will immediately initiate corrections and complete such work by the close of the next business day.

7 END OF PROJECT

7.1 FINAL SITE STABILIZATION

Final site stabilization will be initiated as soon as practicable in portions of the site where construction activities have permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has stopped. Once final landscaping and/or final stabilization have been completed and the project receives final inspections approval, the conditions of this ESC Plan shall cease.

7.2 TEMPORARY BMP REMOVAL

All temporary physical BMPs will be removed after final site stabilization. All debris and sediment left on the street will be swept and removed at the end of the project.

8 ADDITIONAL INFORMATION

REVISED: JAN 2024

ADA COUNTY HIGHWAY DISTRICT

Erosion & Sediment Control Plan Submittal Checklist

1 PROJECT INFORMATION

Project Name: ____

2 PLAN SUBMITTAL

Before submitting the Erosion & Sediment Control Plan for review and approval, check the appropriate boxes to affirm all plan requirements have been satisfied.

#	Plan Components		Yes	N/A
01	Intro.	Title/Name of Project	☐	☐
		Project Location	☐	☐
		Project Schedule	☐	☐
02	Contacts	Name & Contact Information of Plan Designer	☐	☐
		Name & Contact Information of Operator/Permit Holder	☐	☐
		Name, Contact Information, Certification, & Signature of Responsible Person	☐	☐
03	Scope of Work	Description of Work	☐	☐
		Total Land Disturbing Activity	☐	☐
		Sequence of Activities	☐	☐
		Materials & Potential Pollutants	☐	☐
		Planned Dewatering Activities	☐	☐
04	Site Assess.	Description of Site	☐	☐
		Environmentally Sensitive Site Features	☐	☐
		Receiving Waters	☐	☐
05	BMPs	Erosion & Sediment Controls	☐	☐
		Material Handling, Storage, & Disposal	☐	☐
		Spill Prevention & Control	☐	☐
		BMP Maintenance & Corrective Action	☐	☐
		Temporary BMP Removal	☐	☐
06		Inspection Frequency	☐	☐
07		Final Site Stabilization	☐	☐
08	Map/ Drawing	North Arrow, Scale, Key, & Date	☐	☐
		Property Boundaries & Lot Lines (applicable for subdivision work only)	☐	☐
		Site Drainage Pattern (e.g., topo lines or arrows indicating direction of flow)	☐	☐
		Drainage Features (e.g., surface waters & storm drain inlets)	☐	☐
		Existing & Proposed Conditions	☐	☐
		Location of BMPs	☐	☐
		Material Storage & Staging Areas	☐	☐

ACHD

ADA COUNTY HIGHWAY DISTRICT

Erosion & Sediment Control Plan Review

1 PROJECT INFORMATION

Permit #: ____________________ IPDES (CGP) #: (if applicable) ____________________

Project Name: ____________________

Responsible Person (RP) Name: ____________________

RP Email: ____________________ RP Phone: ____________________

2 PLAN REVIEW

#		Plan Components	Yes	No	N/A
01	Intro.	Title/Name of Project	☐	☐	☐
		Project Location	☐	☐	☐
		Project Schedule	☐	☐	☐
02	Con-tacts	Name & Contact Information of Plan Designer	☐	☐	☐
		Name & Contact Information of Operator/Permit Holder	☐	☐	☐
		Name, Contact Information, Certification, & Signature of RP	☐	☐	☐
03	Scope of Work	Description of Work	☐	☐	☐
		Total Land Disturbing Activity	☐	☐	☐
		Sequence of Activities	☐	☐	☐
		Materials & Potential Pollutants	☐	☐	☐
		Planned Dewatering Activities	☐	☐	☐
04	Site Assess.	Description of Site	☐	☐	☐
		Environmentally Sensitive Site Features	☐	☐	☐
		Receiving Waters	☐	☐	☐
05	BMPs	Erosion & Sediment Controls	☐	☐	☐
		Material Handling, Storage, & Disposal	☐	☐	☐
		Spill Prevention & Control	☐	☐	☐
		BMP Maintenance & Corrective Action	☐	☐	☐
		Temporary BMP Removal	☐	☐	☐
06		Inspection Frequency	☐	☐	☐
07		Final Site Stabilization	☐	☐	☐
08	Map/ Drawing	North Arrow, Scale, Key, & Date	☐	☐	☐
		Property Boundaries & Lot Lines	☐	☐	☐
		Site Drainage Pattern	☐	☐	☐
		Drainage Features	☐	☐	☐
		Existing & Proposed Conditions	☐	☐	☐
		Location of BMPs	☐	☐	☐
		Material Storage & Staging Areas	☐	☐	☐

3 PRIORITIZATION RATING

Point[1]	Prioritization Factor	Factor Description
☐	Large Project	Project includes over 1 acre of Land Disturbing Activity.
☐	Seasonal Timing	Project occurring between September 1 and May 31.
☐	Long Term Project	Project duration is longer than 3 months.
☐	Steep Slope	Site includes preexisting slopes greater than 15%.
☐	Proximity to Surface Waters	Site is within 50 feet of a waterbody or wetland.
☐	Impaired Waters	Site discharges to a 303d impaired for sediment of nutrient waterbody.
☐	Dewatering	Construction Dewatering into the Storm Drain System anticipated.
☐	Brownfield	Site is on or near a Brownfield Site.
☐	Sewer	Project includes maintenance or installation of sanitary sewer.
☐	Subdivision	Project typically involves subdivided lots and roadways.

[1]ESC Site Inspection Frequency is determined by the Plan Reviewer tallying ESC Prioritization Points. Sites over 5 acres will be inspected a minimum of once a year.
0-3 Points = Very Low ESC Prioritization Rating = No ESC Site Inspection Needed
4 Points = Low ESC Prioritization Rating = ESC Site Inspection Every 6 Months
5 Points = Medium ESC Prioritization Rating = ESC Site Inspection Every 3 Months
6-10 Points = High ESC Prioritization Rating = ESC Site Inspection Every Month

4 REVIEW RESULTS

Date Reviewed: ______________________________

Result: ☐ Approved ☐ Resubmittal Required (amendments needed) ☐ Declined

Project Start Date: ____________________________ End Date: ____________________________________

ESC Prioritization Rating: ☐ Very Low ☐ Low ☐ Medium ☐ High

ESC Inspection Frequency: ☐ None ☐ 6-Month ☐ 3-Month ☐ Monthly

Additional Details:

REVISED: JAN 2024

ADA COUNTY HIGHWAY DISTRICT

General Dewatering Permit Application

All operators must obtain a General Dewatering Permit prior to discharging any uncontaminated surplus water into the Ada County Highway District's (ACHD) storm drain system. General Dewatering Permits are issued on a per occurrence basis. To obtain a General Dewatering Permit, applicants must submit a completed application to permits@achdidaho.org. Once a General Dewatering Permit has been processed and approved, the permit holder agrees to employ best management practices (BMPs) for the proper management and control of the discharge. Should BMPs employed by the permit holder be found insufficient or not functioning to an acceptable capacity, ACHD may require that those practices be amended or changed. Per Occurrence Fee (ACHD Policy 6007.4) = $100.

For Official Use Only!

Permit #: ______________________

Date Entered: ______________________

1 PERMIT ADMINISTRATION

Application Date: ______________________

Project Name: ______________________

Project Location: ______________________ City: ______________________

Dewatering Start Date: ______________________ Estimated End Date: ______________________

2 CONTACTS

Applicant

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Contractor/Permit Holder (if different than applicant)

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Responsible Person

The listed Responsible Person (RP) has direct, day-to-day control over site activities. The RP shall serve as the 24-hour point-of-contact for all stormwater quality related issues. ACHD will be notified if the RP changes.

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

RP Certification #: ______________________ Expiration Date: ______________________

3 DESCRIPTION OF WORK

Traffic (provide applicable traffic control plans)

Sidewalk Obstruction? ☐ Yes ☐ No   Road Restriction? ☐ Yes ☐ No

Discharge

Dewatering Activity: ☐ Construction Dewatering ☐ Water Line Flushing ☐ Surplus Irrigation Water

☐ Other: ______________________________

Discharge Rate: ____________________   Total Volume: ____________________

Discharge Type: ☐ Continuous ☐ Batch

Discharge Details:

4 CERTIFICATION STATEMENT

By signing this application, I acknowledge that no discharges may occur prior to the issuance of a General Dewatering Permit. If this General Dewatering Permit is revoked, the permit holder agrees to immediately halt all activity that may result in a discharge into the storm drain system. If this General Dewatering Permit is revoked, the permit holder may reapply and agree to meet any requirements set by ACHD.

I have read and agree to the terms and conditions of this addendum to the Temporary Highway Use Permit. I certify that I have the authority to obligate my organization to these terms and conditions.

Printed Name: ______________________________

Signature: ______________________________   Date: ____________________

5 STANDARD AGREEMENT

1. The permit holder acknowledges that the storm drain system is owned, operated, and maintained by ACHD, and that ACHD reserves the right to revoke, deny or terminate any discharge under this dewatering permit.
2. This dewatering permit does not authorize or grant discharge rights to the separate sanitary sewer system. If discharge to the sanitary sewer system is required, the permit holder must obtain the written consent of the owner of, or jurisdiction governing, the sanitary sewer system prior to discharge.
3. Issuance of a dewatering permit does not exempt the permit holder from the requirements of obtaining a license agreement for any structures or facilities placed in the public right-of-way or additional Temporary Highway Use Permit from ACHD, if required.
4. All piping to the discharge point across the public right-of-way must comply with applicable requirements, codes, and standards including traffic control devices and applications and adherence to public safety standards.
5. The permit holder is responsible for the quality of water being discharged into the storm drain system, and agrees to defend, indemnify, and hold ACHD harmless for all claims or damages resulting from the discharge, including violations of the NPDES MS4 Permit or any other applicable law or regulation.
6. The permit holder is authorized to discharge only those categories of non-storm water described and defined in NPDES MS4 Permit Section 2.4. No other discharges or discharge pathways are authorized under this dewatering permit.
7. The permit holder must not discharge any water, substance, or other material into the storm drain system that causes or has the reasonable potential to cause or contribute to an excursion violating applicable Idaho Water Quality Standards (WQS), or that otherwise violates, or threatens the violation of, the terms of the NPDES MS4 Permit.
8. The permit holder is prohibited from discharging water with high levels of chlorine, commonly known as super-chlorinated water. Super-chlorinated water is typically used for disinfecting water system components after repair, new construction, or well disinfection. Any water containing more than 4 milligrams per liter (mg/L) of total residual chlorine is considered to be super-chlorinated. Instead, the permit holder must utilize non-discharge alternatives such as sanitary sewer disposal (by either connecting to a sanitary sewer or by hauling to a sewage treatment plant) and land disposal.
9. The discharge may not cause flooding or damage to the street or exceed the available capacity of the storm drain system.
10. The permit holder must comply with all supplemental requirements and standard BMPs as set forth by ACHD.

6 STANDARD BMPs

1. Clear the flow path of all loose debris, surface contaminants, and/or hazardous materials that could be carried into storm drain system during dewatering operations.
2. Employ sediment filtration BMPs to reduce the turbidity of the discharge to <50 NTUs for discharges of groundwater or any other water source that may contain sediment. Sediment filtration BMPs may include the use of geotextile bags, silt screens or settling ponds. The permit holder shall maintain and monitor sediment filtration BMPs regularly to ensure their effectiveness and prevent clogging.
3. Water containing less than 4 milligrams per liter (mg/L) of total residual chlorine is considered potable and is an authorized discharge. However, large volumes of water with chlorine at this concentration can still be toxic to aquatic ecosystems. To mitigate potential harm, employ dechlorination methods as needed. Dechlorination methods may include aeration, retention, dissipation, or chemical treatment.
4. Pump, haul, and dispose of surplus water properly, or discharge it to the separate sanitary sewer system if the discharge contains any other pollutant or an oily sheen.
5. Educate site workers to promote BMPs and reduce the risk of pollution from dewatering activities.

7 SUPPLEMENTAL REQUIREMENTS

1. The applicant shall provide ACHD with a dewatering plan for review and approval with the General Dewatering Permit Application, which shall include the following:

   (1) Project Introduction
      - (a) Title/Name of Project
      - (b) Project Location
      - (c) Project Schedule

   (2) Project Contacts
      - (a) Name & Contact Information of Permit Holder
      - (b) Name & Contact Information of Plan Designer
      - (c) Name, Contact Information, Certification, & Signature of RP

   (3) Scope of Work
      - (a) Description of Dewatering Activity
      - (b) Type/Source of Surplus Water (e.g., well point, pit, or open trench)
      - (c) Discharge Rate & Total Volume
      - (d) Frequency and Duration of Discharge (e.g., continuous or batch)
      - (e) Discharge Point

    - (f) Equipment & Pumps Used
    - (g) Contingency Plan
- (4) Site Assessment
    - (a) Description of Site
    - (b) Environmentally Sensitive Site Features
    - (c) Receiving Waters
- (5) BMPs
    - (a) Erosion and Sediment Controls
    - (b) Pretreatment
- (6) Monitoring
    - (a) Turbidity Monitoring
    - (b) Additional Sampling (applicable for discharges exceeding 30-days)
    - (c) BMP Maintenance & Corrective Action
- (7) Written Permission from Owners/Operators (if applicable)
- (8) Map/Drawing
    - (a) North Arrow, Scale, Key, and Date
    - (b) Location of Receiving Storm Drain System Infrastructure
    - (c) Discharge Conveyance System Including Location of Pump
    - (d) Location of Proposed BMPs

2. The RP shall contact ACHD for an inspection of the dewatering setup prior to commencing the discharge.
3. When construction dewatering, the RP must utilize a regularly calibrated turbidimeter for field measurements. The RP shall collect a turbidity sample from the initial discharge at the Discharge Point. The RP shall conduct daily sample collection and analysis at the discharge point thereafter. When discharging directly into surface waters, the RP must obtain both upstream and downstream turbidity samples for each monitoring event. Upstream samples shall be collected immediately upstream of the project area to establish background levels. Downstream samples shall be collected immediately downstream of the discharge point and within any visible plume. If at any time a visible change in turbidity is identified, additional samples shall be collected and analyzed. The RP shall record turbidity, location, date, and time for each monitoring event. Comprehensive turbidity logs must be maintained through the entire dewatering activity and be made available for District review upon request.
4. If construction dewatering If dewatering exceeds 30 days, the RP must collect a representative sample at the discharge point for analytical testing. The results of the analytical testing shall be submitted to the District for review and assessment. Sample analysis shall consist of, at a minimum, the following analytical components and respective methods, sample type, and frequency.

Component	Method	Unit	Sample Type	Frequency
Temperature (field)	EPA 170.1	°C	Grab	1 sample/ 30 days
E. coli	Colilert QT /2000 or equivalent	MPN/100ml	Grab	1 sample/ 30 days
Turbidity	EPA 180.1	NTU	Grab	1 sample/ 30 days
Total Suspended Solids (TSS)	SM 2540 D	mg/L	Grab	1 sample/ 30 days
Total Phosphorus	EPA 200.7	mg/L	Grab	1 sample/ 30 days
Dissolved Orthophosphate	EPA 365.1	mg/L	Grab	1 sample/ 30 days

SM=Standard Methods for the Examination of Water and Wastewater; Colilert = Colilert, IDEXX Laboratories, Inc

ACHD

ADA COUNTY HIGHWAY DISTRICT

Hydrant Dewatering Permit Application

All operators of hydrants within Ada County Highway District (ACHD) right-of-way must obtain a Hydrant Dewatering Permit prior to discharging any uncontaminated surplus water into the storm drain system from a hydrant, during routine maintenance activities. Hydrant Dewatering Permits are issued annually (Jan. 1 – Dec. 31). To obtain a Hydrant Dewatering Permit, applicants must submit a completed application to permits@achdidaho.org. Once a Hydrant Dewatering Permit has been processed and approved, the permit holder agrees to employ best management practices (BMPs) for the proper management and control of the discharge. Should BMPs employed by the permit holder be found insufficient or not functioning to an acceptable capacity, ACHD may require that those practices be amended or changed. These requirements do not apply to emergency situations and unavoidable discharges of potable water such as flows from firefighting activities and water main breaks. Annual Fee (ACHD Policy 6007.4) = $1200.

1 PERMIT ADMINISTRATION

Application Date: ______________________

Permit Year: (Jan. 1 – Dec. 31) ______________________

For Official Use Only!
Permit #: ______________________
Date Entered: ______________________

2 CONTACTS

Applicant

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Contractor/Permit Holder (if different than applicant)

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Responsible Person

The listed Responsible Person (RP) has direct, day-to-day control over site activities. The RP shall serve as the 24-hour point-of-contact for all stormwater quality related issues. ACHD will be notified if the RP changes.

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

RP Certification #: ______________________ Expiration Date: ______________________

3 CERTIFICATION STATEMENT

By signing this application, I acknowledge that no discharges may occur prior to the issuance of a Hydrant Dewatering Permit. If this Hydrant Dewatering Permit is revoked, the permit holder agrees to immediately halt all activity that may result in a discharge into the storm drain system. If this Hydrant Permit is revoked, the permit holder may reapply and agree to meet any requirements set by ACHD.

I have read and agree to the terms and conditions of this addendum to the Temporary Highway Use Permit. I certify that I have the authority to obligate my organization to these terms and conditions.

Printed Name: ______________________________

Signature: ______________________________ Date: ______________

4 STANDARD AGREEMENT

1. The permit holder acknowledges that the storm drain system is owned, operated, and maintained by ACHD, and that ACHD reserves the right to revoke, deny or terminate any discharge under this dewatering permit.
2. This dewatering permit does not authorize or grant discharge rights to the separate sanitary sewer system. If discharge to the sanitary sewer system is required, the permit holder must obtain the written consent of the owner of, or jurisdiction governing, the sanitary sewer system prior to discharge.
3. Issuance of a dewatering permit does not exempt the permit holder from the requirements of obtaining a license agreement for any structures or facilities placed in the public right-of-way or additional Temporary Highway Use Permit from ACHD, if required.
4. All piping to the discharge point across the public right-of-way must comply with applicable requirements, codes, and standards including traffic control devices and applications and adherence to public safety standards.
5. The permit holder is responsible for the quality of water being discharged into the storm drain system, and agrees to defend, indemnify, and hold ACHD harmless for all claims or damages resulting from the discharge, including violations of the NPDES MS4 Permit or any other applicable law or regulation.
6. The permit holder is authorized to discharge only those categories of non-storm water described and defined in NPDES MS4 Permit Section 2.4. No other discharges or discharge pathways are authorized under this dewatering permit.
7. The permit holder must not discharge any water, substance, or other material into the storm drain system that causes or has the reasonable potential to cause or contribute to an excursion violating applicable Idaho water quality standards, or that otherwise violates, or threatens the violation of, the terms of the NPDES MS4 Permit.
8. The permit holder is prohibited from discharging water with high levels of chlorine, commonly known as super-chlorinated water. Super-chlorinated water is typically used for disinfecting water system components after repair, new construction, or well disinfection. Any water containing more than 4 milligrams per liter (mg/L) of total residual chlorine is considered to be super-chlorinated. Instead, the permit holder must utilize non-discharge alternatives such as sanitary sewer disposal (by either connecting to a sanitary sewer or by hauling to a sewage treatment plant) and land disposal.
9. The discharge may not cause flooding or damage to the street or exceed the available capacity of the storm drain system.
10. The permit holder must comply with all supplemental requirements and standard BMPs as set forth by ACHD.

5 STANDARD BMPs

1. Clear the flow path of all loose debris, surface contaminants, and/or hazardous materials that could be carried into storm drain system during dewatering operations.
2. Employ sediment filtration BMPs to reduce the turbidity of the discharge to <50 NTUs for discharges of groundwater or any other water source that may contain sediment. Sediment filtration BMPs may include the use of geotextile bags, silt screens or settling ponds. The permit holder shall maintain and monitor sediment filtration BMPs regularly to ensure their effectiveness and prevent clogging.
3. Water containing less than 4 milligrams per liter (mg/L) of total residual chlorine is considered potable and is an authorized discharge. However, large volumes of water with chlorine at this concentration can still be toxic to aquatic ecosystems. To mitigate potential harm, employ dechlorination methods as needed. Dechlorination methods may include aeration, retention, dissipation, or chemical treatment.
4. Pump, haul, and dispose of surplus water properly, or discharge it to the separate sanitary sewer system if the discharge contains any other pollutant or an oily sheen.
5. Educate site workers to promote BMPs and reduce the risk of pollution from dewatering activities.

ACHD

ADA COUNTY HIGHWAY DISTRICT

Utility Vault Dewatering Permit Application

All operators of utility vaults within Ada County Highway District (ACHD) right-of-way must obtain a Utility Vault Dewatering Permit prior to discharging any uncontaminated surplus water into the storm drain system from an underground utility vault, such as a manhole or transformer vault, during maintenance or repair activities. Utility Vault Dewatering Permits are issued annually (Jan. 1 – Dec. 31). To obtain a Utility Vault Dewatering Permit, applicants must submit a completed application to permits@achdidaho.org. Reissuance is subject to the submission of required analytical testing results. Once a Utility Vault Dewatering Permit has been processed and approved, the permit holder agrees to employ best management practices (BMPs) for the proper management and control of the discharge. Should BMPs employed by the permit holder be found insufficient or not functioning to an acceptable capacity, ACHD may require that those practices be amended or changed. Annual Fee (ACHD Policy 6007.4) = $1200.

1 PERMIT ADMINISTRATION

Application Date: ______________________

Permit Year: (Jan. 1 – Dec. 31) ______________________

For Official Use Only!
Permit #: ______________________
Date Entered: ______________________

2 CONTACTS

Applicant

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Contractor/Permit Holder (if different than applicant)

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

Responsible Person

The listed Responsible Person (RP) has direct, day-to-day control over site activities. The RP shall serve as the 24-hour point-of-contact for all stormwater quality related issues. ACHD will be notified if the RP changes.

Contact Name: ______________________

Company Name: ______________________

Mailing Address: ______________________ City: ______________________

Email: ______________________ Phone: ______________________

RP Certification #: ______________________ Expiration Date: ______________________

3 CERTIFICATION STATEMENT

By signing this application, I acknowledge that no discharges may occur prior to the issuance of a Utility Vault Dewatering Permit. If this Utility Vault Dewatering Permit is revoked, the permit holder agrees to immediately halt all activity that may result in a discharge into the storm drain system. If this Utility Vault Dewatering Permit is revoked, the permit holder may reapply and agree to meet any requirements set by ACHD.

I have read and agree to the terms and conditions of this addendum to the Temporary Highway Use Permit. I certify that I have the authority to obligate my organization to these terms and conditions.

Printed Name: ______________________________

Signature: ______________________________ Date: ______________

4 STANDARD AGREEMENT

1. The permit holder acknowledges that the storm drain system is owned, operated, and maintained by ACHD, and that ACHD reserves the right to revoke, deny or terminate any discharge under this dewatering permit.
2. This dewatering permit does not authorize or grant discharge rights to the separate sanitary sewer system. If discharge to the sanitary sewer system is required, the permit holder must obtain the written consent of the owner of, or jurisdiction governing, the sanitary sewer system prior to discharge.
3. Issuance of a dewatering permit does not exempt the permit holder from the requirements of obtaining a license agreement for any structures or facilities placed in the public right-of-way or additional Temporary Highway Use Permit from ACHD, if required.
4. All piping to the discharge point across the public right-of-way must comply with applicable requirements, codes, and standards including traffic control devices and applications and adherence to public safety standards.
5. The permit holder is responsible for the quality of water being discharged into the storm drain system, and agrees to defend, indemnify, and hold ACHD harmless for all claims or damages resulting from the discharge, including violations of the NPDES MS4 Permit or any other applicable law or regulation.
6. The permit holder is authorized to discharge only those categories of non-storm water described and defined in NPDES MS4 Permit Section 2.4. No other discharges or discharge pathways are authorized under this dewatering permit.
7. The permit holder must not discharge any water, substance, or other material into the storm drain system that causes or has the reasonable potential to cause or contribute to an excursion violating applicable Idaho water quality standards, or that otherwise violates, or threatens the violation of, the terms of the NPDES MS4 Permit.
8. The permit holder is prohibited from discharging water with high levels of chlorine, commonly known as super-chlorinated water. Super-chlorinated water is typically used for disinfecting water system components after repair, new construction, or well disinfection. Any water containing more than 4 milligrams per liter (mg/L) of total residual chlorine is considered to be super-chlorinated. Instead, the permit holder must utilize non-discharge alternatives such as sanitary sewer disposal (by either connecting to a sanitary sewer or by hauling to a sewage treatment plant) and land disposal.
9. The discharge may not cause flooding or damage to the street or exceed the available capacity of the storm drain system.
10. The permit holder must comply with all supplemental requirements and standard BMPs as set forth by ACHD.

5 STANDARD BMPs

1. Clear the flow path of all loose debris, surface contaminants, and/or hazardous materials that could be carried into Storm drain system during dewatering operations.
2. Employ sediment filtration BMPs to reduce the turbidity of the discharge to <50 NTUs for discharges of groundwater or any other water source that may contain sediment. Sediment filtration BMPs may include the use of geotextile bags, silt screens or settling ponds. The permit holder shall maintain and monitor sediment filtration BMPs regularly to ensure their effectiveness and prevent clogging.
3. Water containing less than 4 milligrams per liter (mg/L) of total residual chlorine is considered potable and is an authorized discharge. However, large volumes of water with chlorine at this concentration can still be toxic to aquatic ecosystems. To mitigate potential harm, employ dechlorination methods as needed. Dechlorination methods may include aeration, retention, dissipation, or chemical treatment.
4. Pump, haul, and dispose of surplus water properly, or discharge it to the separate sanitary sewer system if the discharge contains any other pollutant or an oily sheen.
5. Educate site workers to promote BMPs and reduce the risk of pollution from dewatering activities.

6 SUPPLEMENTAL REQUIREMENTS

1. The RP shall collect representative samples of the utility vault water from no less than three (3) sites. The analytical testing results shall be submitted to ACHD for review and assessment before issuance/reissuance of a Utility Vault Dewatering Permit. Sample analysis shall consist of, at a minimum, the following analytical components and respective methods, sample type, and frequency.

Component	Method	Unit	Sample Type	Frequency
pH (field)	EPA 150.1	S.U.	Grab	3 samples/ year
Temperature (field)	EPA 170.1	° C	Grab	3 samples/ year
E. coli	Colilert QT /2000 or equivalent	MPN/100ml	Grab	3 samples/ year
Turbidity	EPA 180.1	NTU	Grab	3 samples/ year
Total Suspended Solids (TSS)	SM 2540 D	mg/L	Grab	3 samples/ year
Hardness as Ca CO3	EPA 200.7	mg/L	Grab	3 samples/ year
Total Phosphorus	EPA 200.7	mg/L	Grab	3 samples/ year
Dissolved Orthophosphate	EPA 365.1	mg/L	Grab	3 samples/ year
Arsenic – Total	EPA 200.8	ug/L	Grab	3 samples/ year
Cadmium – Total	EPA 200.8	ug/L	Grab	3 samples/ year
Cadmium –Dissolved	EPA 200.8	ug/L	Grab	3 samples/ year
Copper – Dissolved	EPA 200.8	ug/L	Grab	3 samples/ year
Lead – Total	EPA 200.8	ug/L	Grab	3 samples/ year
Lead – Dissolved	EPA 200.8	ug/L	Grab	3 samples/ year
Zinc – Dissolved	EPA 200.8 or EPA 200.7	ug/L	Grab	3 samples/ year
Mercury - Total	EPA 245.2	mg/L	Grab	3 samples/ year

SM=Standard Methods for the Examination of Water and Wastewater; Colilert = Colilert, IDEXX Laboratories, Inc

ACHD

ADA COUNTY HIGHWAY DISTRICT

Dewatering Plan Submittal Checklist

1 PROJECT INFORMATION

Project Name: ____

2 PLAN SUBMITTAL

Before submitting the Dewatering Plan for review and approval, check the appropriate boxes to affirm all plan requirements have been satisfied.

#	Plan Components		Yes	N/A
01	Intro.	Title/Name of Project	☐	☐
		Project Location	☐	☐
		Project Schedule	☐	☐
02	Con-tacts	Name & Contact Information of Plan Designer	☐	☐
		Name & Contact Information of Operator/Permit Holder	☐	☐
		Name, Contact Information, Certification, & Signature of RP	☐	☐
03	Scope of Work	Description of Dewatering Activity	☐	☐
		Type/Source of Surplus Water (e.g., well point, pit, or open trench)	☐	☐
		Discharge Rate & Total Volume	☐	☐
		Frequency & Duration of Discharge (e.g., continuous or batch)	☐	☐
		Discharge Point (e.g., onsite, sanitary sewer, storm drain, surface waters)	☐	☐
		Equipment & Pumps Used	☐	☐
		Contingency Plan	☐	☐
04	Site Assess.	Description of Site	☐	☐
		Environmentally Sensitive Site Features	☐	☐
		Receiving Waters	☐	☐
05	BMP	Erosion & Sediment Controls	☐	☐
		Pretreatment BMPs	☐	☐
		BMP Maintenance & Corrective Action	☐	☐
06		Turbidity Monitoring	☐	☐
		Additional Sampling (applicable for discharges exceeding 30-days)	☐	☐
07		Written Permissions from Owners/Operators (if applicable)	☐	☐
08	Map/ Drawing	North Arrow, Scale, Key, & Date	☐	☐
		Discharge Conveyance System (e.g., pump, hoses, channels, basins, or tanks)	☐	☐
		Location of Discharge Point	☐	☐
		Location of BMPs	☐	☐

ADA COUNTY HIGHWAY DISTRICT

Dewatering Plan Review

1 PROJECT INFORMATION

Permit #: ______________________ IPDES (CGP) #: (if applicable) ______________________

Project Name: ______________________

Responsible Person (RP) Name: ______________________

RP Email: ______________________ RP Phone: ______________________

2 PLAN REVIEW

#		Plan Components	Yes	No	N/A
01	Intro.	Title/Name of Project	☐	☐	☐
		Project Location	☐	☐	☐
		Project Schedule	☐	☐	☐
02	Con-tacts	Name & Contact Information of Plan Designer	☐	☐	☐
		Name & Contact Information of Operator/Permit Holder	☐	☐	☐
		Name, Contact Information, Certification, & Signature of RP	☐	☐	☐
03	Scope of Work	Description of Dewatering Activity	☐	☐	☐
		Type/Source of Surplus Water	☐	☐	☐
		Discharge Rate & Total Volume	☐	☐	☐
		Frequency & Duration of Discharge	☐	☐	☐
		Discharge Point	☐	☐	☐
		Equipment & Pumps Used	☐	☐	☐
		Contingency Plan	☐	☐	☐
04	Site Assess.	Description of Site	☐	☐	☐
		Environmentally Sensitive Site Features	☐	☐	☐
		Receiving Waters	☐	☐	☐
05	BMP	Erosion & Sediment Controls	☐	☐	☐
		Pretreatment BMPs	☐	☐	☐
		BMP Maintenance & Corrective Action	☐	☐	☐
06		Turbidity Monitoring	☐	☐	☐
		Additional Sampling	☐	☐	☐
07		Written Permissions from Owners/Operators	☐	☐	☐
08	Map/ Drawing	North Arrow, Scale, Key, & Date	☐	☐	☐
		Discharge Conveyance System	☐	☐	☐
		Location of Discharge Point	☐	☐	☐
		Location of BMPs	☐	☐	☐

3 REVIEW RESULTS

Date Reviewed: ______________________________

Result: ☐ Approved ☐ Resubmittal Required (amendments needed) ☐ Declined

Project Start Date: ____________________________ End Date: ____________________________________

Additional Details:

ACHD

ADA COUNTY HIGHWAY DISTRICT

Erosion & Sediment Control Inspection Report

1 PROJECT INFORMATION

Permit #: ______________________ IPDES (CGP) #: (if applicable) ______________________

Project Name: ______________________

Responsible Person (RP) Name: ______________________

RP Email: ______________________ RP Phone: ______________________

2 INSPECTION

Inspection Date: ______________________ Time: ______________________

Phase of Construction: ☐ Not Started ☐ Early ☐ Mid ☐ Late ☐ Site Stabilized

Weather Conditions: ☐ Breezy ☐ Clear ☐ Overcast ☐ Rain ☐ Sleet ☐ Snow

Temperature: (˚F) ______________________ 24hr Rain Total: (NWS BOI-Airport) ______________________

Discharge observed? ☐ Yes ☐ No (if yes, describe below)

Additional Details:

3 BEST MANAGEMENT PRACTICES

#	Type of BMP	BMP Implemented	Corrections Needed	Notes/Action Needed
01	Limit Disturbance Disturbed areas not actively being worked are stabilized within 14 days	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
02	Slope Stabilization Slopes not actively being worked are stabilized (no rilling/erosion)	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
03	Surface Water Protections A 50' buffer or equivalent controls maintained between receiving waters	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
04	Perimeter Controls Perimeter controls and sediment barriers are adequately maintained	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
05	Inlet Protection Inlet protection BMPs are installed and in good condition	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	

#	Type of BMP	BMP Implemented	Corrections Needed	Notes/Action Needed
06	Construction Entrance/Exit Control Stabilized construction entrance/exit preventing sediment trackout	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
07	Street Sweeping Sediment tracked onto paved surfaces has been removed	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
08	Dust Control Dust is suppressed through the appropriate application of water	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
09	Stockpile Management Debris, dirt, excavated materials are placed outside of the right-of-way	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
10	Good House Keeping Trash/litter from work areas is collected and contained in dumpsters	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
11	Material Handling & Storage Materials that are potential contaminants are stored under cover	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
12	Sanitary Facilities Portable toilets are secure and positioned away from inlets/waters	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
13	Vehicle Maintenance Equipment fueling, cleaning, and maintenance areas are free of spills	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
14	Concrete Waste Management Washout facilities are available, clearly marked, and maintained	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
15	Spill Response A spill kit is kept on site and all spills have been cleaned up	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
16	Other	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	

4 INSPECTION RESULTS

Result: ☐ Pass ☐ Punchlist (Warning) ☐ Notice of Violation

Compliance Deadline: ____________________________

ADA COUNTY HIGHWAY DISTRICT

Erosion & Sediment Control
NOTICE OF VIOLATION

1 PROJECT INFORMATION

Permit #: ____________________ IPDES (CGP) #: (if applicable) ____________________

Project Name: ____________________

Responsible Person (RP) Name: ____________________

RP Email: ____________________ RP Phone: ____________________

2 VIOLATION

#	Violation	Quantity	Policy Section

3 ENFORCEMENT

Action: ☐ Notice of Violation ☐ Inspection Hold ☐ Fee(s) Assessed ($100 x ______ = $ __________)

☐ Referral to DEQ ☐ Stop Work Order

Date Issued: ____________________ Compliance Deadline: ____________________

Failure to comply by the indicated date shall result in escalation of enforcement action.

In case of error, or if you have any questions, please call the inspector between 8:00 a.m. and 4:30 p.m. Monday through Friday at 208-387-6264. Thank you for your cooperation in this matter.