

NATURAL RESOURCES AND CONSERVATION



GREG GIANFORTE, GOVERNOR

1539 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE: (406) 444-2074
FAX: (406) 444-2684PO BOX 201601
HELENA, MONTANA 59620-1601

DECISION NOTICE ADOPTION OF EXISTING ENVIRONMENTAL REVIEW

Town of Philipsburg Sewer Lagoons Wastewater Treatment System and Capacity Increase
January 2022
Town of Philipsburg
46°20'53.5" N | 113°19'02.6" W
Granite County

Existing Environmental Review Document: Water Resources Development Act
Environmental Review Document

Type and Purpose of Action

Philipsburg Wastewater Lagoon System (Wastewater System) was built in the 1960s and discharges into Flint Creek, a major tributary of the Upper Clark Fork River. The Wastewater System is comprised of a gravity wastewater collection network combined with a two-cell facultative lagoon treatment system. Portions of the system have been in place for nearly one hundred years. The old, aging system is not meeting the Town's Montana Pollution Discharge Elimination System (MPDES) discharge permit conditions. Montana DEQ issued an Administrative Order of Consent for historic exceedances including Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), and E. coli.

The Philipsburg Sewer Lagoons Wastewater Treatment System and Capacity Increase Project aims to address issues with the aging wastewater treatment system infrastructure and bring the Town into compliance with its MPDES discharge permit conditions by:

1. Installation of a new aerated rock filter or equal determined in the treatment pre-selection phase.
2. Installation of a new UV disinfection system and blowers and construct new building for the UV disinfection system and blowers.
3. Evaluation of the lagoon improvements and headworks building and equipment. If possible, construct lagoon improvements and headworks building and equipment.

Project Construction is estimated to begin June 2023, and be completed October 2023.

Explanation of the decision(s) that must be made regarding the proposed action (i.e. approve grant or loan and provide funding):

DNRC will approve the grant to provide funding for the Philipsburg Sewer Lagoons Wastewater Treatment System and Capacity Increase Project.

Criteria for Adopting Existing Environmental Review

- The existing environmental review covers an action paralleling or closely related to the proposed action.
- The information in the existing environmental review is accurate and clearly presented.

- The information in the existing environmental review is applicable to the action being considered.
- All appropriate Agencies were consulted during preparation of the existing environmental review.
- Alternatives to the proposed action evaluated as part of the existing environmental review effort.
- The impacts of the proposed action been accurately identified as part of the existing environmental review.
- The existing environmental review identifies any significant impacts as a result of the proposed action and those identified will they be mitigated below the level of significance.

Adopt

The existing environmental review can be considered sufficient to satisfy DNRC's MEPA review responsibilities. No further analysis needed.

Existing Analysis Reviewed By:	Name: Katherine Certalic
	Title: ARPA Program Specialist Date: 06/14/2023
	Email: kcertalic@mt.gov

Approved By:	Name: Autumn Coleman
	Title: Bureau Chief
Signature:	<i>Autumn Coleman</i> Date: 6/26/2023 9:33:45 AM MDT

DocuSigned by: 077FC22FC836461...

FINDING OF NO SIGNIFICANT IMPACT

PHILIPSBURG WASTEWATER TREATMENT IMPROVEMENTS TOWN OF PHILIPSBURG, MONTANA MAY 2023

In accordance with the National Environmental Policy Act (NEPA) and its implementing regulations, the attached Environmental Assessment (EA) prepared by Great West Engineering describes the expected direct and indirect impacts of the proposed Philipsburg wastewater treatment improvements on the existing environment. The U.S. Army Corps of Engineers, Omaha District (USACE) has independently evaluated the EA and determined that the EA adequately and accurately discusses the purpose and need, describes the existing environmental conditions, describes the environmental impacts, and provides appropriate mitigation measures in accordance with NEPA.

Alternative analysis in the EA included the no action and the preferred action. The preferred action included construction of new headworks, aerated rock filter, aerated lagoons, and UV disinfection. Six other alternatives were considered by a previous Preliminary Engineering Report. These alternatives were: Alternative 2, New Aerated Rock Filter and UV Disinfection; Alternative 3, New Aerated Rock Filter, Rebuild Existing Lagoon, and UV Disinfection; Alternative 4, New Aerated Rock Filter, New Aerated Lagoons, Rebuild Existing Lagoons, and UV Disinfection; Alternative 5, New Aerated Rock Filter, New Aerated Lagoons, and UV Disinfection (PREFERRED); Alternative 6, Construction of a new mechanical treatment plant; and Alternative 7, New Facultative Lagoon and UV Disinfection. Alternative 2 was eliminated because of the Town's funding scenario and ability to responsibly add a new lagoon component to the proposed project. Alternatives 3 and 4 were eliminated due to the Town's desire to leave the existing lagoons untouched and in operation for summertime storage or potential future expansion areas. Alternative 6 was eliminated due to the cost of a mechanical treatment plant and the potential O&M complications and logistics of operating a mechanical system for a small community. Alternative 7 was eliminated due to the large footprint required to build a new facultative lagoon south of the existing lagoons. Alternative 5 was ultimately selected based on the proven treatment performance of aerated lagoon systems and aerated rock filter systems.

The No Action alternative was eliminated because it not only let pollution of Flint Creek continue to accumulate and negatively impact the water quality, but the system would also be unable to sustain any growth within the community of Philipsburg. The preferred alternative provides a cost-effective, low maintenance solution to the Town's treatment system, and allows for the use of the existing lagoons as summertime storage when nutrient limits cannot be easily met with the selected technology.

All environmental, cultural, and economic factors relevant to the Recommended Plan were considered in the attached EA. No significant impacts are expected to occur to these resources as the resources either do not occur within the proposed project area or the construction is considered minor and temporary in nature and appropriate Best Management Practices would be implemented to avoid adverse impacts. The Recommended Plan will result in short term/minor construction-related impacts. These impacts include increased noise in the project area during construction and increased particulate matter from exhaust and dust generated by construction equipment. These impacts are considered temporary, are minimized with Best Management Practices, and pre-existing conditions will reestablish following construction.

After evaluating the anticipated environmental, economic, and social effects of the proposed activity; it is my determination that implementation of the Recommended Plan would not constitute a major Federal action that would significantly affect the quality of human environment. The proposed action has been coordinated with the appropriate resource agencies and the public, and there are no significant unresolved issues. Therefore, preparation of an Environmental Impact Statement is not required.

Date: 13 JUN 2023



Mark R. Himes, P.E.
Colonel, Corps of Engineers
District Commander

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Authority	1
1.2 Proposed Action	1
1.2.1 Project Location	2
1.3 Purpose and Need for the Proposed Action	4
1.4 Prior Reports	4
2.0 ALTERNATIVES TO THE PROPOSED ACTION	5
2.1 Alternative 1 – No Action	5
2.2 Alternative 2 – New Aerated Rock Filter and UV Disinfection	6
2.3 Alternative 3 – New Aerated Rock Filter, New Facultative Lagoon, Rebuild Existing Lagoon, and UV Disinfection	6
2.4 Alternative 4 – New Aerated Rock Filter, New Aerated Lagoons, Rebuild Existing Lagoon, and UV Disinfection	6
2.5 Alternative 5 – New Headworks, New Aerated Rock Filter, New Aerated Lagoons, and UV Disinfection (PREFERRED ALTERNATIVE)	6
2.6 Alternative 6 – Construct a New Mechanical Treatment System	9
2.7 Alternative 7 – New Facultative Lagoon and UV Disinfection	9
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	9
3.1 Environmental Setting	10
3.1.1 Climate	10
3.1.2 Geology	10
3.2 Resources Eliminated from Environmental Consequences Analysis	11
3.3 Relevant Resources	13
3.3.1 Air Quality	13
3.3.2 Water Quality	13
3.3.3 Wetlands	14
3.3.4 Aquatic Resources/Fisheries	18
3.3.5 Terrestrial Resources	19
3.3.6 Wildlife	20
3.3.7 Threatened and Endangered Species	21
3.3.8 Cultural Resources	23
3.3.9 Recreational Resources	24
3.3.10 Soils	24

3.3.11 Aesthetics 25

3.3.12 Socioeconomics and Environmental Justice 25

4.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 27

5.0 CUMULATIVE IMPACTS 27

6.0 MITIGATION 27

7.0 COORDINATION 29

8.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS 31

8.1 Archeological Resources Protection Act, 16 U.S.C. 470, et seq. 31

8.2 Bald and Golden Eagle Protection Act (16 U.S.C. Sect. 668. 668 note, 668a-66d)..... 31

8.3 Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq. 31

8.4 Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq..... 31

8.5 Comprehensive Environmental Response Compensation and Liability Act (CERCLA) .. 31

8.6 Endangered Species Act, 16 U.S.C. 1531, et seq. 31

8.7 Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq. 32

8.8 Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq..... 32

8.9 Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq. 32

8.10 Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 as amended)..... 32

8.11 National Environmental Policy Act, 42 U.S.C. 4321, et seq. 32

8.12 National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq. 32

8.13 Rivers and Harbors Act, 33 U.S.C. 403, et seq..... 32

8.14 Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq..... 32

8.15 Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq..... 32

8.16 Protection & Enhancement of the Cultural Environment (Executive Order 11593) 33

8.17 Floodplain Management (Executive Order 11988) 33

8.18 Protection of Wetlands (Executive Order 11990)..... 33

8.19 Environmental Justice (Executive Order 12898)..... 33

8.20 EO Invasive Species (Executive Order 13122) 33

8.21 Responsibility of Federal Agencies to Protect Migratory Birds (Executive Order 13186)
..... 33

9.0 PREPARER 35

10.0 LITERATURE 36

APPENDICES

Appendix A: Scoping and Agency Coordination

Appendix B: 2022 MEPA Environmental Checklist

Appendix C: 2015 Wetland Delineation Report

Appendix D: Draft Design Drawings

Appendix E: US EPA EJSscreen Report

ENVIRONMENTAL ASSESSMENT

TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS

PHILIPSBURG, GRANITE COUNTY, MONTANA

1.0 INTRODUCTION

Great West Engineering has prepared this Environmental Assessment (EA) to evaluate the potential impacts of the Town of Philipsburg Wastewater Treatment System Improvements Project. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality's (CEQ) Regulations (40 CFR 1500-1508), as reflected in the U.S. Army Corps of Engineers (Corps) Engineering Regulation ER 200-2-2. This document is being completed in accordance 40 CFR § 1506.5(b), which allow an applicant to prepare an EA for a federal action in coordination with the lead federal agency (i.e., Corps). The Corps has independently evaluated and verified the information and analysis undertaken in this EA and takes full responsibility for its scope and content.

This EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the District Commander to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The finding of the EA determines whether an EIS is required. If the EA indicates that no significant impact is likely, then the Corps can release a FONSI and carry on with the proposed action.

1.1 Authority

The proposed action is authorized as part of Section 595 of the 1999 Water Resources Development Act, as amended. Section 595 allows for the Corps to provide design and construction assistance for water-related environmental infrastructure, resource protection and development projects. Projects may include wastewater treatment and related facilities, water supply and related facilities, environmental restoration and surface water protection and development. This assistance is available to non-federal interests in Montana, Idaho, New Mexico, rural Utah, Wyoming, and rural Nevada. Design and construction assistance is provided only for projects that are owned by public entities and project costs are shared 75-percent federal contribution and 25-percent non-federal contribution.

1.2 Proposed Action

The proposed action consists of constructing a new enclosed headwork system, 2-celled partial-mix aerated lagoon system, followed by a new Submerged Attached Growth Reactor (SAGR) system, and an ultraviolet disinfection system with discharge to Flint Creek under the Town's existing MPDES permit. The goal of the proposed project is to improve the quality of effluent discharge to Flint Creek in order to fulfill the requirements of an Administrative Order on Consent placed on the system by MT DEQ.

The project will take place within the boundaries of the Town's existing property, and the existing 2-celled lagoon system will be kept in place for use as a storage facility during summer

months when nutrient limits cannot be met for discharge to surface water. The new embankments will be constructed using approximately 30,000 CY of imported fill material consisting of approved structural fill based on recommendations of SK Geotechnical's Site Evaluation Report. Construction is anticipated to begin near the end of the second quarter of 2023 and be complete before 2024. Construction will be accomplished with equipment chosen by the selected Contractor within the recommendations of the design and Geotechnical Report. The existing lagoon system will be kept in place throughout construction of the new system to ensure that wastewater treatment is not negatively impacted by construction activities. The proposed system will be operator friendly, with minimal added Operation and Maintenance items to maintain flow through the system. The proposed system can easily be manipulated by opening or closing valves seasonally as required, and minimal maintenance procedures will be required for new mechanical headworks and UV disinfection elements.

Prior to determining the preferred alternative, the Town hired Pioneer Technical to provide an addendum to the Wastewater System Preliminary Engineering Report (PER) based on a previous PER published by Sanderson Stewart in 2014. The PER included an analysis of the existing wastewater facilities and attempted to identify specific deficiencies within the system. Alternatives were developed to correct the deficiencies. Some alternatives were discussed for the wastewater collection system, sludge removal and disposal, and treatment system. Six treatment system alternatives were considered in the PER alternatives:

- No Action Alternative, continue use of existing system,
- New Aerated Rock Filter and UV Disinfection,
- New Aerated Rock Filter, Rebuild Existing Lagoon, and UV Disinfection,
- New Aerated Rock Filter, New Aerated Lagoons, Rebuild Existing Lagoons, and UV Disinfection,
- New Headworks, New Aerated Rock Filter, New Aerated Lagoons and UV Disinfection.
- Construction of a New Mechanical Treatment Plant,

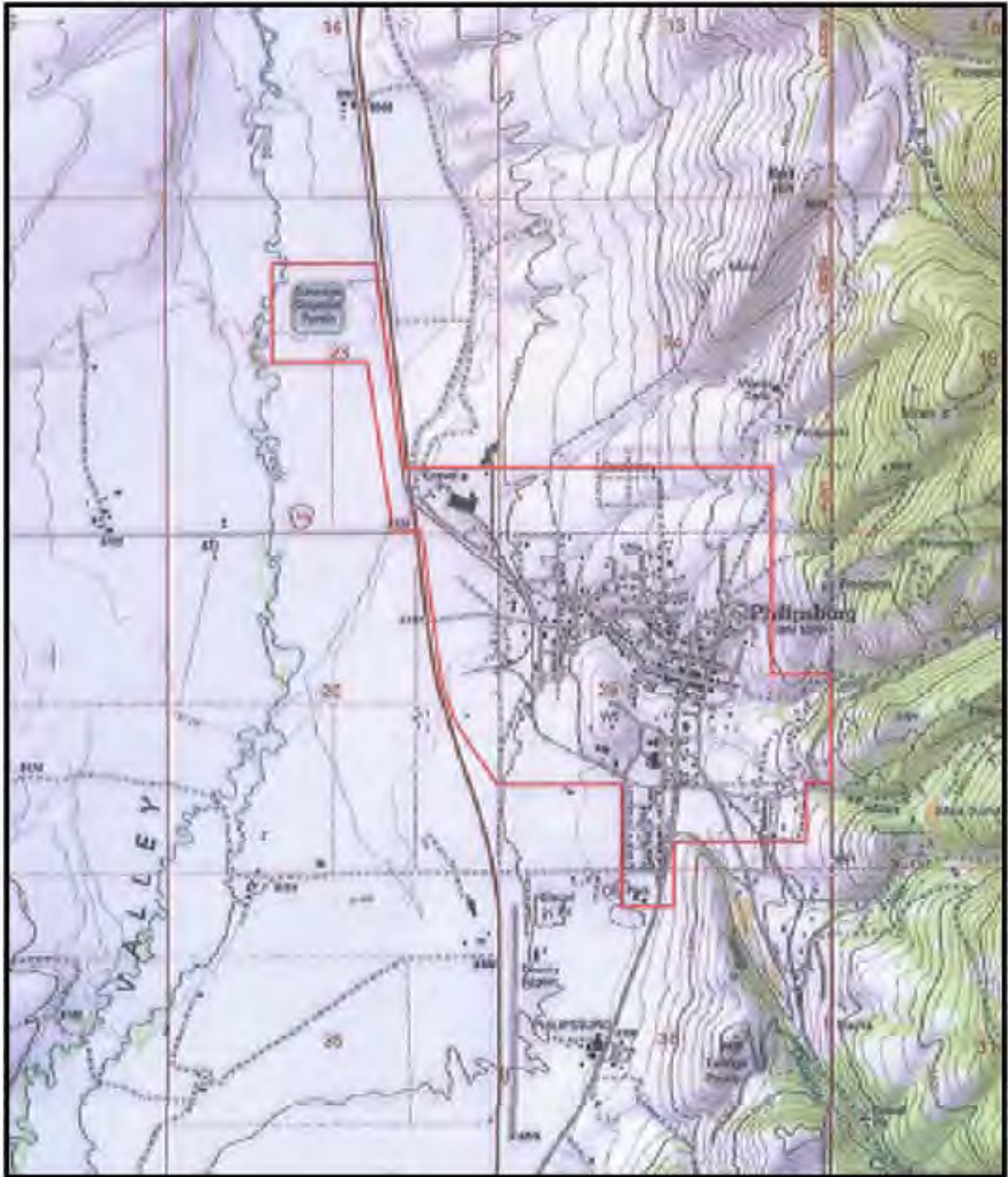
The alternatives analysis for the project will be discussed in Section 2.0 of this document. Please see the attached Design Plans and Geotechnical report for reference.

1.2.1 Project Location

The proposed project is located near the Town of Philipsburg in Granite County, Montana in Section 23, Township 07N, Range 14W. The proposed project location is on the Town's existing 64-acre property, directly south of the existing wastewater treatment lagoons, which is approximately 1 mile north of Philipsburg, on the west side of MT Highway 1. The project site is located between Highway 1 and Flint Creek, and the footprint of the proposed project will be performed on about 10 acres of land.

Figure #2-1 from Pioneer Technical Services' 2020 PER displays the Planning and Service Area of the project.

Figure 2-1. Planning and Service Area



1.3 Purpose and Need for the Proposed Action

The purpose of the proposed action is to improve the performance of the Town of Philipsburg's wastewater treatment system in order to satisfy the requirements of the Administrative Order on Consent (AOC), which requires that Philipsburg's wastewater treatment facility achieve the following requirements by their enforceable deadlines.

- Effluent limits for BOD, TSS and *E.coli* are stayed until November 30, 2024
- The Ammonia Mixing Zone Study is no longer required, and will not be conducted by DEQ
- Submit a plan and schedule for sludge removal no later than November 30, 2023
- Achieve permit compliance no later than November 30, 2024.

The need of the proposed action is to implement more effective wastewater treatment processes to satisfy the above requirements. The existing lagoon system has had difficulty satisfying the BOD, TSS, *E.coli*, TN, and TP standards and requires upgrades to comply with permit limits. The existing treatment facilities do not include disinfection. Disinfection facilities must be added to satisfy *E.coli* standards. The existing lagoons are not designed to remove ammonia or nutrients. The proposed SAGR nitrification reactors will provide additional TSS and BOD removal as well as ammonia treatment.

1.4 Prior Reports

The Town of Philipsburg worked with Sanderson Stewart to complete a Preliminary Engineering Report (PER) in 2014, which resulted in four recommendations for updating the wastewater collection, treatment, and disposal systems, including:

- Phase I – Replace existing outfall main west of Highway 1 to eliminate infiltration and potential exfiltration to groundwater.
- Phase II – Remove existing sludge in the facultative lagoons to increase capacity and remove metals-contaminated materials.
- Phase III – Construct a new lagoon system and reconstruct/reconfigure the existing lagoons for storage. Construct a new land application system for the treated wastewater.
- Phase IV – Replace under-sized and aging collection mains serving the community.

The Town completed Phase I of the improvements in 2016, and then hired Pioneer Technical to continue the process of completing the subsequent phases. In June 2020, Pioneer Technical completed a PER update on behalf of the Town of Philipsburg in order to provide new information, update the alternatives analysis, costs, and schedule for completing the recommended Phase II and Phase III work. In this process, Pioneer Technical completed a Uniform Environmental Checklist and sent letters to the appropriate agencies for comment on the proposed Phase II and Phase III project.

In the summer of 2020, the Town of Philipsburg took the initiative to complete sludge removal from Cell #1 of the existing system. They placed the sludge in geotubes south of Cell #1 to dry, and then the sludge was hauled to Missoula for disposal in the summer of 2022.

Since then, the Town of Philipsburg has hired Great West Engineering to complete the final design of the Phase III from the 2014 PER. Great West Engineering has worked with the Town of Philipsburg to complete a MEPA Checklist to supplement the 2020 Environmental Checklist completed by Pioneer Technical. That checklist is included in Appendix B of this document.

2.0 ALTERNATIVES TO THE PROPOSED ACTION

Six alternatives to the proposed action were considered. These alternatives were: Alternative 1 - No-Action; Alternative 2, New Aerated Rock Filter and UV Disinfection; Alternative 3, New Aerated Rock Filter, Rebuild Existing Lagoon, and UV Disinfection; Alternative 4, New Aerated Rock Filter, New Aerated Lagoons, Rebuild Existing Lagoons, and UV Disinfection; Alternative 5, New Aerated Rock Filter, New Aerated Lagoons, and UV Disinfection (PREFERRED ALTERNATIVE); Alternative 6, Construction of a new mechanical treatment plant; and Alternative 7, New Facultative Lagoon and UV Disinfection.

These alternatives were analyzed in the PER provided by Pioneer Technical and later re-visited by Great West Engineering. Alternative 1 was eliminated from consideration because the existing system is not providing the necessary treatment to meet the requirements of the AOC. Alternative 2 was eliminated because of the Town's funding scenario and ability to responsibly add a new lagoon component to the proposed project. Alternatives 3 and 4 were eliminated due to the Town's desire to leave the existing lagoons untouched and in operation for summertime storage or potential future expansion areas. Alternative 6 was eliminated due to the cost of a mechanical treatment plant and the potential O&M complications and logistics of operating a mechanical system for a small community. Alternative 7 was eliminated due to the large footprint required to build a new facultative lagoon south of the existing lagoons.

Alternative 5 was ultimately selected based on the proven treatment performance of aerated lagoon systems and aerated rock filter (SAGR) systems. The preferred alternative provides a cost-effective, low maintenance solution to the Town's treatment system, and allows for the use of the existing lagoons as summertime storage when nutrient limits cannot be easily met with the selected technology. The project was discussed at a public meeting in Philipsburg in June 2022, where the Town Council voted to move forward with procurement of treatment equipment and final design of the system.

2.1 Alternative 1 – No Action

In the No Action alternative, the proposed action would not be constructed. In the case of the No Action alternative, the conditions of the AOC provided by DEQ will not be met, and the Town of Philipsburg will likely begin accumulating state and federal fines for pollution of Flint Creek, which is home to endangered populations of bull trout. As mentioned above, the current 2-celled facultative lagoon system cannot effectively treat the high loads of BOD and TSS of the influent wastewater. Additionally, the existing system is discharging effluent with high concentrations of E.coli, TN, and TP to Flint Creek. In the No Action Alternative, not only with pollution of Flint Creek continue to accumulate and negatively impact the water quality, but the system will also be unable to sustain any growth within the community of Philipsburg due to lack of capacity and treatment capability.

2.2 Alternative 2 – New Aerated Rock Filter and UV Disinfection

Alternative 2 was eliminated from consideration due to the Town’s desire to add a lagoon component to the proposed system.

2.3 Alternative 3 – New Aerated Rock Filter, New Facultative Lagoon, Rebuild Existing Lagoon, and UV Disinfection

Alternative 3 was eliminated from consideration due to the Town’s desire to leave the existing lagoon(s) untouched.

2.4 Alternative 4 – New Aerated Rock Filter, New Aerated Lagoons, Rebuild Existing Lagoon, and UV Disinfection

Alternative 4 was eliminated from consideration due to the Town’s desire to leave the existing lagoon(s) untouched.

2.5 Alternative 5 – New Headworks, New Aerated Rock Filter, New Aerated Lagoons, and UV Disinfection (PREFERRED ALTERNATIVE)

This alternative was not specifically explored in the 2020 PER, but rather was selected based on analysis done by Great West Engineering and the Philipsburg Town Council. Under this alternative, a combination of Alternatives 2 and 4 will be implemented to construct a new aerated rock filter system, a new 2-celled partial mix aerated lagoon system, and a new UV disinfection system. New embankments constructed with suitable fill would be required to construct the aerated rock filters, piping, and buildings for new equipment. This alternative was selected due to the existing lagoons passing a leak test, and the Town elected to leave them untouched rather than lining them with HDPE or doing any work on the existing embankments.

The new HDPE or LLDPE lined aerated lagoon system would be constructed south of the existing Cell 1 on the Town’s property. The new aerated lagoon embankments will be approximately 5 feet higher than the Cell 1 embankments to allow for gravity flow into the system while still protecting the lagoons from shallow groundwater and allowing for a water depth of 10 feet. This would require re-grading the influent gravity sewer main to decrease the slope and allow for gravity flow without a lift station. The side slopes of the new aerated lagoon would not be covered because of their relatively small size and the fact that aerated lagoons seldom freeze, so the liner is not subject to ice damage.

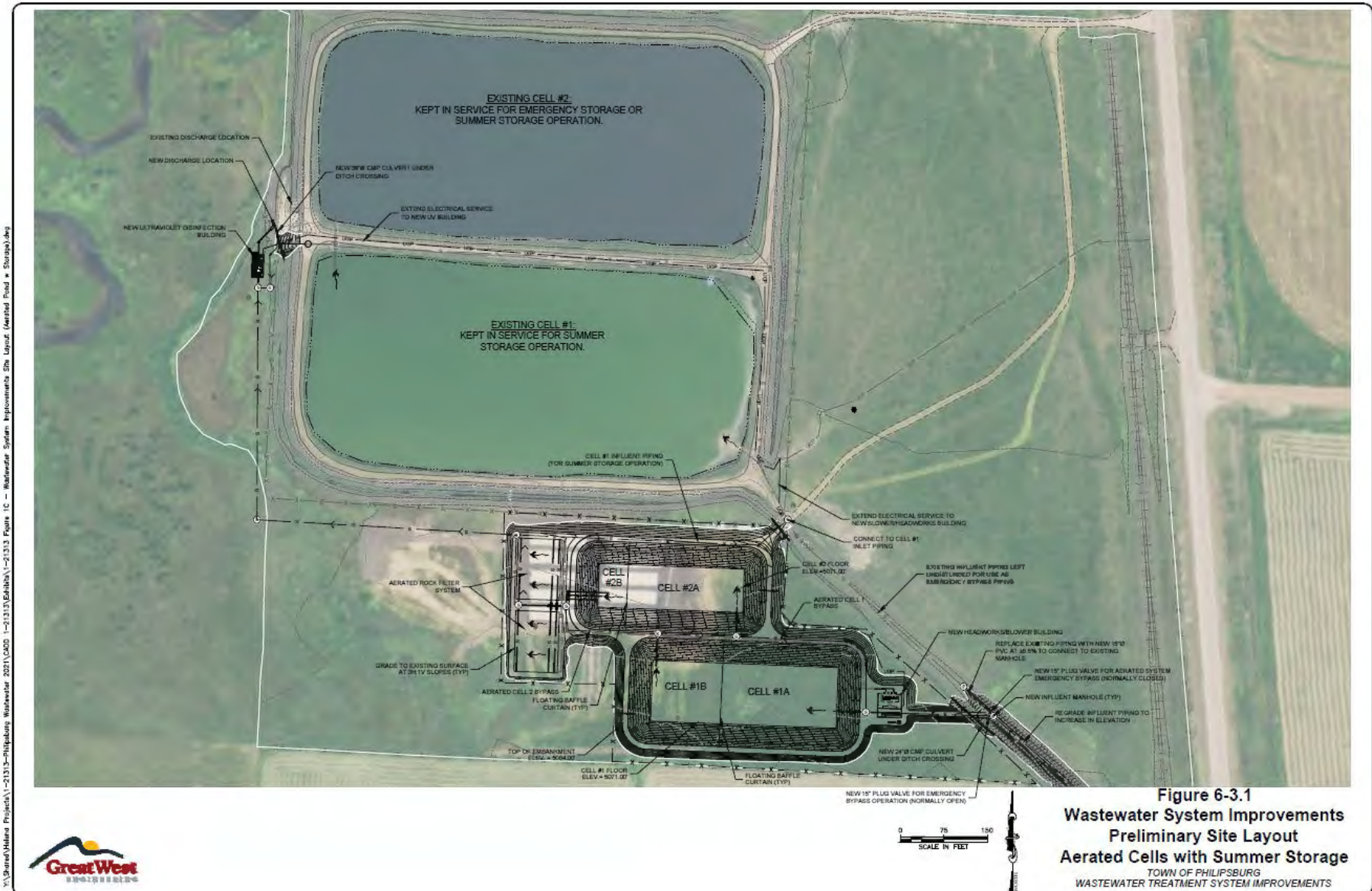
As the existing lagoons will not be altered in any way, a backup generator is not anticipated because the existing lagoons will be used as emergency storage, as well as for storage during summer months when the Town’s discharge permit has a relatively low limit for phosphorous that is difficult to meet with the proposed technology.

Once the wastewater has passed through the aerated rock filter, it will be disinfected using UV disinfection. After disinfection, the final treated effluent will discharge to a new discharge outfall structure in the same approximate location as the existing discharge.

The configuration of the system will allow for any one of the cells, or the entire aerated system, to be taken out of service for maintenance or repairs without a substantial impact on the treatment performance of the system.

During the months of July through September the Town discharge permit has relatively low limit for phosphorus. Currently, the Town manages the water levels in the lagoons to eliminate discharge during these months. The new system would operate similarly, and as mentioned previously, the existing lagoons will be available for use as summer storage facilities in order to avoid permit violations.

Figure 6-3.1 displays the Preferred Alternative 5, which was not directly analyzed in the 2020 PER, but is similar to Alternative 4 without the rehab to the existing lagoon.



2.6 Alternative 6 – Construct a New Mechanical Treatment System

Alternative 6 was eliminated from consideration due to the cost of a mechanical treatment plant and the potential O&M complications and logistics of operating a mechanical system for a small community. Alternative 7 was eliminated due to the large footprint required to build a new facultative lagoon south of the existing lagoons.

2.7 Alternative 7 – New Facultative Lagoon and UV Disinfection

Alternative 7 was eliminated from consideration due to the large footprint required to build a new facultative lagoon south of the existing lagoons.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter presents an analysis of each resource topic that was identified as having a potential to be affected by implementation of the Proposed Action. Each section describes the environmental setting as it relates to that specific resource topic; the direct and indirect effects that could result from implementation of the Proposed Action; and mitigation measures that would avoid, reduce, or compensate for substantial adverse effects of the Proposed Action.

The relevant resources section of this chapter presents the adverse and beneficial environmental effects of the No Action Alternative and the Preferred Alternative. The section is organized by resource category and presents the existing conditions of the resource and effects of each of the alternatives on the resource. Impacts are quantified whenever possible. Qualitative descriptions of impacts are explained by accompanying text where used.

“Significance” has been analyzed in this document in terms of both context (sensitivity) and intensity (magnitude and duration):

- Magnitude
 - No effect – resource not measurably impacted.
 - Minor – noticeable impacts to the resource in the project area, but the resource is still mostly functional.
 - Moderate – the resource is impaired, so that it cannot function normally.
 - Major – the resource is severely impaired so that it is no longer functional in the project area.

- Duration
 - Short term – temporary effects caused by the construction and/or implementation of a selected alternative.
 - Long term – caused by an alternative after the action has been completed and/or after the action is in full and complete operation.

3.1 Environmental Setting

3.1.1 Climate

Project climate information is essential for selection of blower equipment and aeration system design. The Aerated Rock Filter Bed(s) will be designed to produce the needed effluent concentrations based on the following site ambient temperature information, as well as anticipated wastewater temperature range. The project site is located at approximately 5,075 feet above sea level.

Table 1-18 illustrates the average ambient temperature for the summer and winter months. The air temperatures are based on historical data from the Western Regional Climate Center from 1955 through 2016.

Table 1-18 – Philipsburg Average Temperatures (WRCC Station #246472)

Season	Average Temperature
Summer Months (Apr. – Sep.)	52.7 degrees Fahrenheit
Winter Months (Nov. – Mar.)	30.1 degrees Fahrenheit

Philipsburg has a semi-arid climate with long, dry winters and warm, mild summers that are slightly wetter. The area often receives cold winter conditions with temperatures often dropping below freezing and even below zero. Average winter temperatures range from 14 degrees Fahrenheit to 44 degrees Fahrenheit. However, extreme winter temperatures can reach down to negative 30 degrees Fahrenheit at times. Average summer temperatures range from 33 degrees Fahrenheit to 80 degrees Fahrenheit, with occasional days of temperatures above 90 degrees Fahrenheit. Philipsburg receives an annual precipitation of 14.57 inches, and an average total annual snowfall of 39.2 inches.

3.1.2 Geology

As discussed in the Sanderson Stewart 2014 Preliminary Engineering Report, the Flint Creek Valley is made up of gravelly loam soils with deposits consisting of heterogeneous unconsolidated sediments. Sedimentary rock formations, mainly sandstone and shale with some limestone, in the Flint Creek Range have been slowly eroded over time and carried by wind and water to the valley floor. The soil sediments range greatly in size from coarse gravel to fine silt or clay.

The Pioneer Technical Services site investigation also establishes that, within the project site itself, soil consists generally of topsoil and clay for 2.5 to 3 feet of depth. Consolidated sand and gravel is located below the topsoil and clay layer to approximately 19 feet. Design of improvements will be completed in accordance with geotechnical recommendations. Site grading will be completed to construct the improvements. The area will be final graded, top soiled, and seeded upon completion of the project.

3.2 Resources Eliminated from Environmental Consequences Analysis

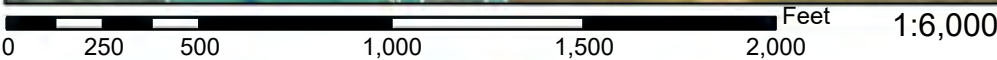
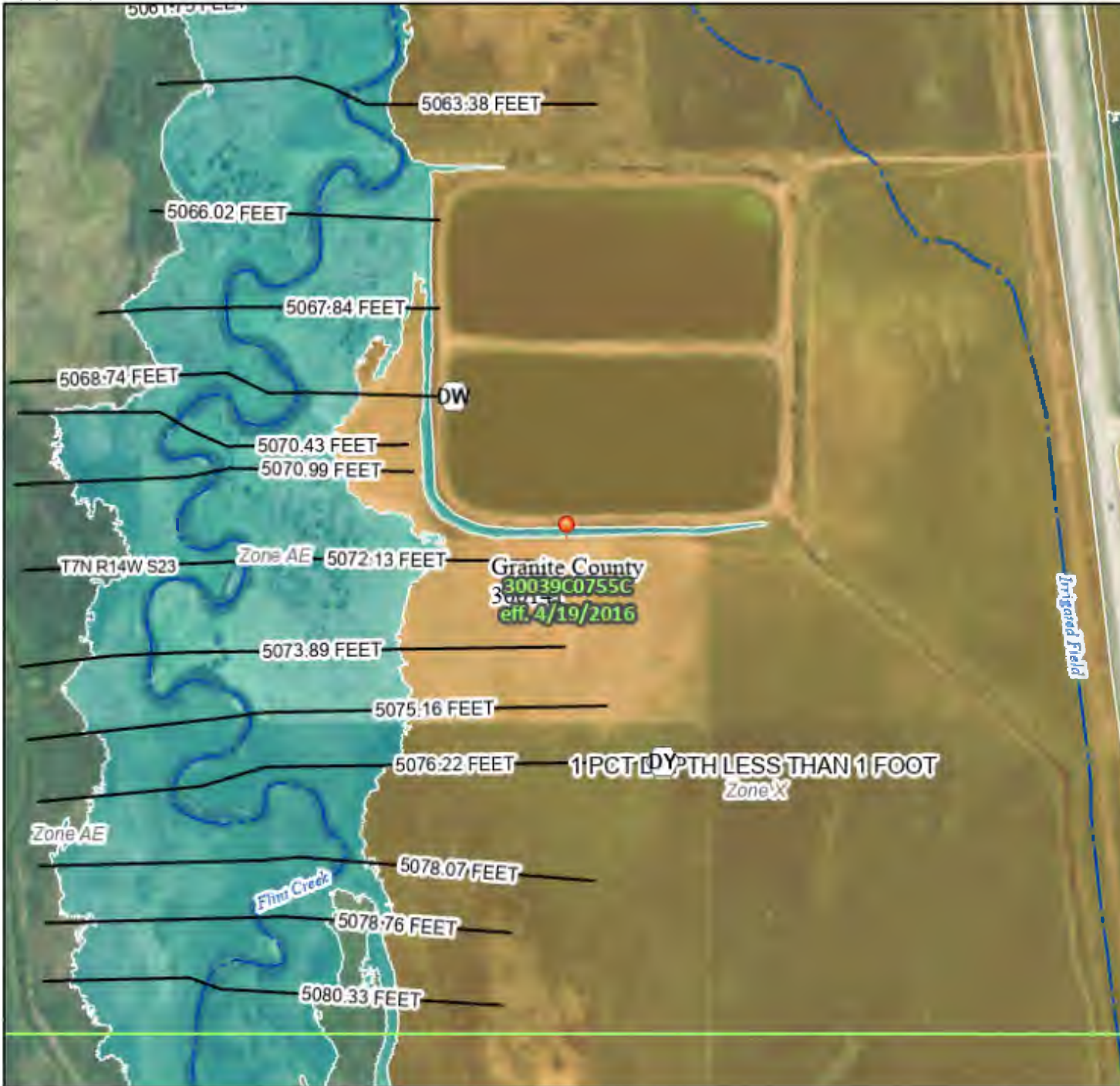
The following resources have been considered and found not to be affected by the proposed alternatives. Where there were no potential effects identified, the resource itself has been eliminated from further evaluation and analysis. A summary follows.

- Hazardous Facilities
 - No hazardous facilities located in proximity to the lagoons or planned improvements area adjacent to the lagoons.
- Floodplains and Floodplain Management
 - No project activities will take place in the 100-year floodplain. A Storm Water Pollution Prevention Plan (SWPPP) will be completed to assure runoff into the floodplain will not occur. The FEMA National Flood Hazard Layer Firmette for the site is included below for reference.
- Agricultural Lands, Production, & Farmland Protection
 - There are some farm grounds adjacent to the project site. However, those grounds will not be impacted by the Proposed Action.
- Unique Natural Features
 - There are no unique natural features in the immediate vicinity of the project area.
- Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics
 - No anticipated adverse impacts to visual quality in the area of the Proposed Action.
- Changes in Demographic (population) Characteristics
 - No anticipated impacts to population characteristics.
- Displacement or Relocation of Businesses or Residents
 - There is no business or residential development in the vicinity of the proposed project.
- Lead Based Paint and/or Asbestos
 - There are no existing buildings or structures on the project site, and no known sources of asbestos or lead paint.
- Educational Facilities – Schools, Colleges, Universities
 - No anticipated impact to educational facilities.
- Health care – Medical Services
 - No anticipated impact to health care facilities.
- Social Services – Governmental Services
 - No anticipated impact to social or governmental services.
- Social Structures & Mores
 - No anticipated impact to social structures and mores.
- Land Use Compatibility
 - No anticipated impacts affecting growth, land use, or development activity in the area.
- Community Water Supply
 - There is no community water supply infrastructure near the project area.
- Public Safety – Police
 - No anticipated impacts that would affect public safety or police operation.
- Fire Protection – Hazards
 - No anticipated impacts that would affect fire protection.

National Flood Hazard Layer FIRMMette



113°19'23"W 46°21'1"N



Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | | |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard Zone D |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance |
| | | 17.5 Water Surface Elevation |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| MAP PANELS | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/28/2022 at 4:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

3.3 Relevant Resources

This section contains a description of relevant resources that could be impacted by the project. The important resources described in this section are those recognized by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public.

3.3.1 Air Quality

The air quality in the Philipsburg area is generally excellent with occasional spikes in PM_{2.5} concentrations due to air inversions during the winter and wildfire smoke during late summer months. The area is within state air quality standards for the five major measured pollutants (ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, nitrogen dioxide).

3.3.1.1 Alternative 1 – No Action

Without implementation of the proposed action, there will be no change to air quality in the project area.

3.3.1.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, short-term, minor, non-recurring, local impacts related to construction equipment would occur during the construction process. No long-term impacts are anticipated. These short-term impacts are strictly related to dust and emissions from construction equipment and activities, and may be mitigated by using appropriate construction practices such as dust control, as well as mufflers and emission control devices on construction equipment and best management practices during construction. The selected Contractor will be responsible for ensuring that air quality in the project area does not violate the Clean Air Act or state air quality standards.

3.3.2 Water Quality

The surface water associated with the proposed action is Upper Flint Creek. Flint Creek is listed as impaired and has TMDLs for nutrients and metals. Flint Creek is home to a native population of endangered bull trout and is considered a high-quality state surface water.

3.3.2.1 Alternative 1 – No Action

Without implementation of the proposed action, long-term, moderate to major impacts to water quality are expected due to continued pollution from poorly treated effluent from the wastewater treatment plant. The low-quality effluent will contribute to high nutrient loads and TMDL exceedances within Flint Creek without implementation of the proposed action.

3.3.2.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, there may be negative short term, minor impacts to adjacent surface water quality related to runoff, sedimentation, and dust settling from construction activities. These impacts can be mitigated through the use of dust control and a Stormwater Pollution Prevention Plan (SWPPP) to avoid any runoff from the construction site to

surface water. The included mitigation efforts will likely include the continuous application of water on dusty roadways during construction and the use of sediment fencing, straw-rolls, temporary stormwater containment or discharge facilities, erosion control, and fuel containment facilities.

Conversely, there will be positive, long-term, moderate to major impacts resulting from the proposed action due to a drastic enhancement of wastewater treatment. Improving wastewater treatment will improve water quality in the receiving water (Flint Creek). Improving water quality in the discharge would provide cumulative benefits to the upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stakeholders in response to the TMDL's and nutrient limits for the drainage.

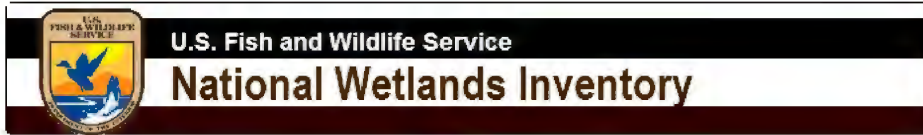
3.3.3 Wetlands

There are wetland areas adjacent to the project area. The wetlands in the area are dominated by vegetative species including *Alopecurus aequalis* (short awn foxtail, OBL), reeds (*Juncus balticus*, alternatively *J. arcticus*, *mountain reed*, FACW), and sedges (*Carex utriculata* [beaked sedge, OBL] and *C. nebrascensis* [Nebraska sedge, OBL]). *Phalaris arundinacea* (reed canary grass, FACW) and *Calamagrostis stricta* (northern reed grass, FACW) are also present in the boundary community.

The Town had a wetland delineation investigation and report completed in 2015. The report concluded that the wetland boundary is generally located west of the existing lagoons and partially disagrees with the wetland boundary shown by the US Fish and Wildlife Service National Wetlands Inventory Mapper.

While the 2015 wetland delineation does not show any substantial wetlands on the Town's property south of the lagoons, the National Wetlands Inventory Mapper shows a small (approximately 1.5 acres) area south of the existing lagoons that will be impacted by the proposed action. This small portion of wetland that may be impacted by construction is considered a non-jurisdictional, Palustrine, Emergent, Persistent, Temporary Flooded (PEM1A) wetland. This area in question was used for sludge drying during the 2020 sludge removal and dewatering project and thus no longer supports the characteristics of a potential wetland environment.

The reason that the area was used for sludge drying is because the 2015 wetland delineation does not classify this area as a wetland. The full 2015 wetland delineation report can be found in Appendix C. The following figures display the NWI wetlands map, the 2015 wetlands delineation map, and an aerial image from Google Earth dated April 15, 2021, displaying the sludge dewatering operation south of the existing lagoons in the location of the proposed action. The area of impact is approximately 100 feet from any delineated wetland shown in the 2015 report, and approximately 850 feet from the nearest point of Flint Creek.



Philipsburg WW Treatment Site Wetlands



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

January 21, 2022

Wetlands

- Estuarine and Marine Deepwater
- Freshwater Emergent Wetland
- Lake
- Estuarine and Marine Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

2015 Wetland Delineation Report Figure (Courtesy of Pioneer Technical 2020 PER)

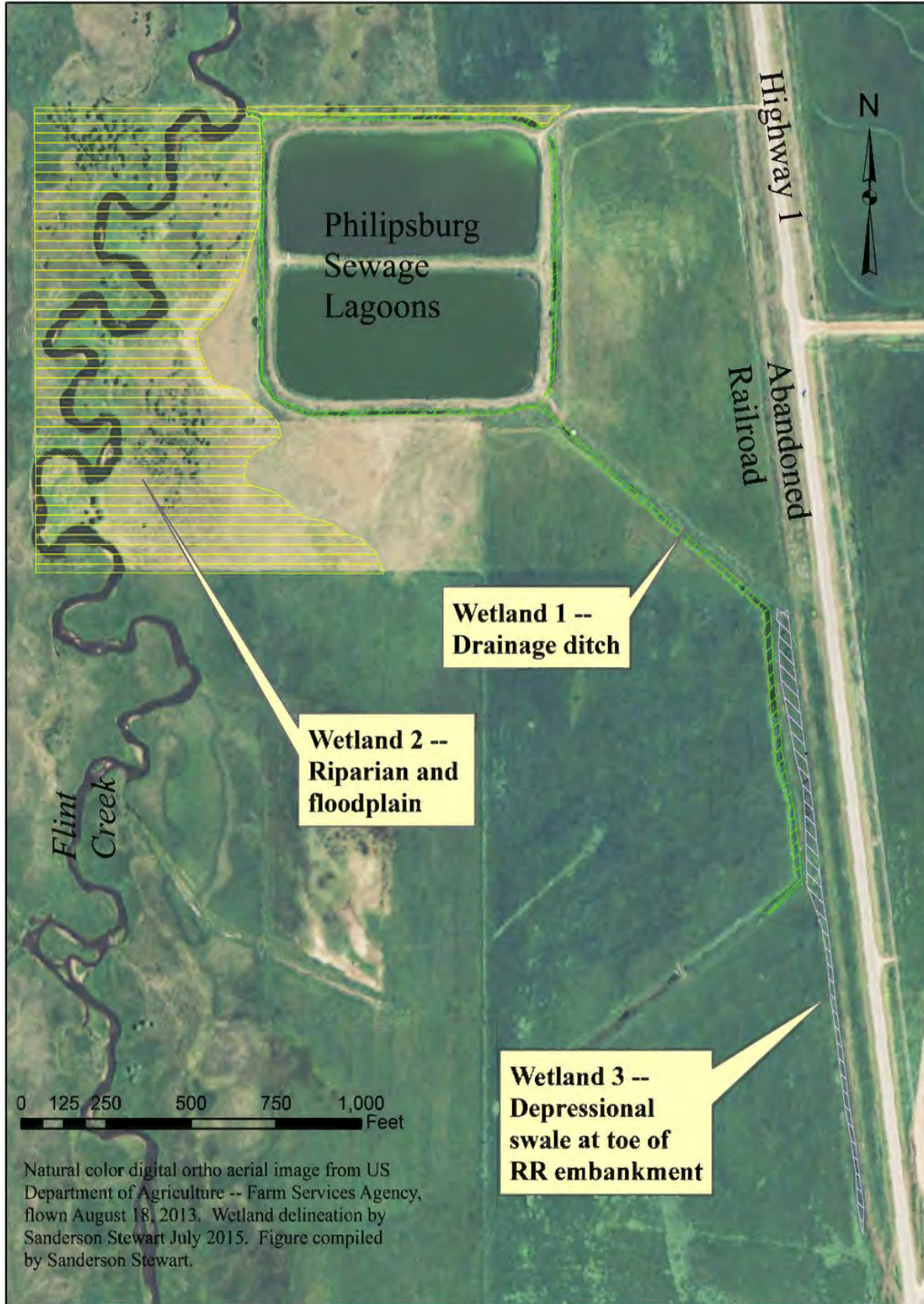


Figure 3. Delineated wetland areas. [See text for scope of work and extent of delineation.]

Google Earth Aerial: Extents of Sludge Drying Area

Dated April 15th, 2021.

Note: dried sludge was removed from the site during the summer of 2022.



3.3.3.1 Alternative 1 – No-Action

Without implementation of the proposed action, there will be no construction impacts to adjacent wetlands. However, negative, long-term, moderate impacts may be expected without the proposed action due to continued discharge of poorly treated effluent wastewater into the Flint Creek watershed. The negative impacts include further impairment of the water quality within Flint Creek and any downstream wetlands due TMDL exceedances downstream of the wastewater treatment facility.

3.3.3.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, no fill will be placed in any of the wetlands delineated in the 2015 wetland inventory. There will also be no fill placed in any of the previously undisturbed wetlands that are shown on the NWI wetlands map. There is potential for some negative, minor, short-term impacts related to sedimentation and runoff during construction. This will be mitigated through the use of a Storm Water Pollution Prevention Plan (SWPPP) to ensure that runoff from construction into any wetlands cannot occur. Other adjacent wetland boundaries will be marked during operations to ensure that workers do not disturb wetlands. It is not anticipated that any permits will be required for work done in the proposed project area.

With the implementation of the Preferred Alternative, there are long-term, moderate, positive impacts anticipated related to reduced pollution in the Flint Creek Watershed, which supports the adjacent wetland areas in watershed for nearly 30 miles north to its confluence with the Clark Fork River.

3.3.4 Aquatic Resources/Fisheries

As mentioned above, Upper Flint Creek is home to a native population of endangered bull trout, along with brook, brown, rainbow, and westslope cutthroat trout, mountain whitefish, longnose sucker, and largescale sucker. Extensive electro-shocking surveys have been conducted by MT Fish, Wildlife, and Parks (FWP) in recent years, which have confirmed the presence of the above species.

There are also numerous species of invertebrates that rely on Flint Creek in the area of the project. According to the MT Natural Heritage Program Species Snapshot, there are 24 invertebrate species occurring within the USGS 1:24 Quadrangle Map for the Philipsburg area. Of those 24 invertebrate species, 23 primarily occur within or depend upon the waters of Flint Creek for reproduction, habitat, or food. Four of the species are Caddisflies, eight are Mayflies, two are Stoneflies, three are snails, and one is a damselfly (dragonfly). These invertebrates provide a steady food source for trout and other species in Flint Creek, including endangered Bull Trout. The entire ecosystem relies upon the water quality of Flint Creek, which is a high-quality state surface water, but is listed as impaired and has TMDL's for nutrients and metals. The current low-quality discharge from the wastewater treatment facility contributes to the nutrient load in the Creek and has a major negative impact on the TMDL's for the Flint Creek watershed. Flint Creek is not designated under the Wild & Scenic Rivers Act. A complete list of the invertebrate and fish species that can be found in the USGS 1:24 Quadrangle Map for the Philipsburg Area can be found at the following link:

<https://mtnhp.org/SpeciesSnapshot/?Vector=QUAD24|4611333|&Species=Species|AF,I|&Rank=>

3.3.4.1 Alternative 1 – No Action

Without implementation of the proposed action, moderate, long-term, negative impacts are anticipated due to continued pollution from the wastewater system. Without implementation of the proposed alternative, potential harm to the fishery will occur for years to come. High nutrient loads will be continuously introduced into Flint Creek through the effluent discharge from the system, which could lead to high nutrient and BOD levels within the creek, increased temperature, and potential fish kills.

3.3.4.2 Alternative 2 – Preferred Alternative

With the implementation of the preferred alternative, effluent quality will drastically improve. The fishery will be positively impacted in the long-term due to increased wastewater treatment, decreased nutrient loads, and higher quality effluent. Implementing the preferred alternative will improve the quality of water within Flint Creek downstream of the wastewater treatment facility and enhance the health of the aquatic resources/fishery within Flint Creek.

There may, however, be some minor short-term impacts related to turbidity due to runoff from construction activities. As discussed in previous sections, this will be mitigated through the use of Best Management Practices and a SWPPP. The practices that are anticipated to be implemented include the use of strawrolls, sediment fencing, temporary stormwater containment or drainage facilities, erosion control, and fuel containment areas. By using a combination of these methods, the selected contractor will easily mitigate the risk of minor short-term turbidity impacts within Flint Creek.

3.3.5 Terrestrial Resources

Non-aquatic vegetation and wildlife species in the project area primarily rely upon Upper Flint Creek adjacent to the project site. The habitat in the immediate vicinity of the project area is a river bottom grassland dominated primarily by native fescue and upland grasses. According to the Montana Natural Heritage Program Species Snapshot Website, there are 68 species of vascular plants within the USGS 1:24 Quadrangle Map for the Philipsburg Area. Of these, seven are considered noxious weeds, including two species of toadflax, Canada Thistle, Spotted Knapweed, Hound's-tongue, Whitetop, and the Common Tansy. None of these species have been specifically documented in the project area. The disturbance area of the project is previously disturbed due to sludge removal operations and is of low quality as a result. A complete list of the vascular plant species in the USGS 1:24 Quadrangle Map for the Philipsburg Area can be found at the following link:

<https://mtnhp.org/SpeciesSnapshot/?Vector=QUAD24|4611333|&Species=Species|P|&Rank=>

3.3.5.1 Alternative 1 – No Action

Without implementation of the proposed action, continued pollution of the resource will occur in the foreseeable future. Being that the terrestrial species in the project area depend on Flint Creek for habitat and high-quality water, continued pollution will impair the resource and cause long-term negative impacts.

3.3.5.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, there will be approximately 6 acres of disturbed area where the project footprint will permanently occupy. Within the 6 acres of disturbance, approximately 4 acres will be either lagoon footprint, SAGR footprint, small buildings with concrete foundations, or tops of embankments that will be covered with road base and/or gravel upon completion of the project. The other approximately 2 acres will be final graded into stable slopes, reseeded, and restored with native flora. As mentioned previously, approximately 1.5 acres of the project footprint have already been disturbed by the 2020 sludge drying project and do not currently support a healthy ecosystem. When considering the final restoration of the proposed project upon completion, a total of approximately 2.5 acres of low quality, previously disturbed grassland may be eliminated as a result of the Preferred Alternative. This is considered a long-term, minor impact because the area is of low quality, and previously disturbed by sludge removal operations.

In contrast, the improved wastewater treatment and effluent discharge from the system will drastically improve the water quality in Flint Creek. As mentioned, the terrestrial resources of the area depend upon Flint Creek for habitat and high-quality water. Although the immediate project area will have minor impacts due to construction, it is anticipated that the downstream terrestrial ecosystem will experience long-term, major, positive benefits related to enhanced water quality in Flint Creek. Improved water quality will improve terrestrial habitat downstream of the facility.

If, during construction, noxious weeds are encountered within the project area, the selected Contractor will be responsible for ensuring that the weeds are not spread outside of the project area by ensuring that noxious weeds are killed prior to ripping any topsoil and keeping construction equipment clean from seeds when removed from the project site.

3.3.6 Wildlife

According to the Montana Natural Heritage Program Species Snapshot, wildlife that inhabit and/or use the area surrounding the Town of Philipsburg include 45 mammal species, 195 bird species, 3 reptile species, 3 amphibious species, and 77 invertebrate species. Of these, there are 12 mammal species of concern, 26 bird species of concern, 1 amphibious species of concern, and 2 invertebrate species of concern. A complete list of the wildlife found in the Philipsburg area can be found at the following link:

<https://mtnhp.org/SpeciesSnapshot/?Vector=TOWNS|83|&Species=&Rank=>

Mammals listed as Species of Concern include Canada Lynx, Fisher, Fringed Myotis, Grizzly Bear, Hoary Bat, Little Brown Myotis, Long-eared Myotis, Long-legged Myotis, Preble's Shrew, Silver-haired Bat, Townsend's Big-eared Bat, Western Pygmy Shrew, and Wolverine.

Some bird species listed as Species of Concern or Species of Special Status include Bald Eagle, Golden Eagle, 2 species of owl, Great Blue Heron, and the American White Pelican. Multiple species of ducks and Canada Geese also frequent the area.

The only amphibious species of concern is the Western Toad.

The invertebrates listed as Species of Concern include Western Pearlshell and Lyrate Mountainsnail.

3.3.6.1 Alternative 1 – No Action

Without implementation of the proposed action, continued pollution from poorly treated wastewater effluent may have a long-term, major, negative impact on the wildlife species that depend upon the waters of Flint Creek and the surrounding ecosystems.

3.3.6.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, cumulative benefits will be provided to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stakeholders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will improve aquatic and riparian habitat used by the above-mentioned species and benefit the wildlife as a whole in the area.

There are no recorded Bald or Golden Eagle nests in the proposed project area. However, a site visit and survey will be conducted prior to construction in order to ensure no activity will take place that could harm any eagle nests in the area.

No migratory bird nesting areas have been recorded in the proposed project area. There are four migratory bird species mentioned in the USFWS IPaC report for the project area. These birds include the Bald Eagle, Golden Eagle, Evening Grosbeak, and Bobolink. The only one of these birds that nest on the ground is the Bobolink, typically between May 20th to July 31st. No ground nests have been observed in the proposed project area in previous site visits. It is the intention of the project that no migratory bird habitat will be adversely impacted by the proposed project. A large portion of the earthwork that will take place under the proposed project will be done in the previously disturbed area that was used for sludge dewatering in the 2020 sludge removal project. Any other areas of disturbance will be surveyed prior to construction to ensure that no active nesting areas will be disturbed. If active nests are discovered, construction will be delayed in those areas until after the active nesting season. Upon completion of the proposed project, migratory bird habitat and potential nesting area surrounding the project will be greatly improved for long-term benefits to the area's wildlife.

3.3.7 Threatened and Endangered Species

According to the USFWS IPaC report for the project area, the following species are listed as critical or endangered that may coincide with the area of disturbance:

- Canada Lynx (Threatened)
- North American Wolverine (Proposed Threatened)
- Bull Trout (Threatened)
- Monarch Butterfly (Candidate)
- Whitebark Pine (Threatened)
- Bull Trout Critical Habitat

The USFWS was initially contacted via email from Christopher R. Weber (USACE) on February 22, 2023 regarding the proposed Wastewater Improvements Project. After some correspondence, the USFWS provided a Letter of Concurrence with the project, acknowledging that the USFWS agrees that the proposed project *may affect, but is not likely to adversely affect* the threatened bull trout or its designated critical habitat. The Letter of Concurrence, dated March 16th, 2023, is included in Appendix A.

3.3.7.1 Alternative 1 – No Action

Without implementation of the proposed action, further pollution of surrounding environment and habitat will continue to occur. The poorly treated wastewater effluent is exceeding permit limits and will cause major, long-term, negative impact to Threatened and Endangered Species, particularly the Bull Trout in Flint Creek.

3.3.7.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, runoff and sedimentation occurring due to construction activities could have potential short term, minor impacts on Critical Bull Trout Habitat. These impacts would be mitigated through the use of a Stormwater Pollution Prevention Plan (SWPPP) during construction. The SWPPP will be provided by the selected Contractor, which will detail the Contractor's plans to prevent runoff from the site toward Flint Creek, such as using strawrolls, sediment fencing, temporary stormwater containment or drainage facilities, erosion control and consistent monitoring to ensure the SWPPP is being implemented correctly. The Contractor will also be encouraged to implement a fuel containment area and store their equipment near the east side of the property to ensure that it is kept far away from Flint Creek during storage. Finally, the delineated wetlands east of Flint Creek will be staked prior to the beginning of construction. This will create a "buffer zone" between the construction area and the waters of Flint Creek, thus protecting the water quality of the creek during the construction timeline. A determination of "may affect, but not likely to adversely affect" has been made for the bull trout and its critical habitat.

There will be no anticipated impacts to lynx or wolverines due to no consistent reports of the species in the project area. Lynx and wolverines typically reside in mountainous areas surrounding Philipsburg, and rarely venture into the "creek bottom" habitat of Flint Creek. A determination of "no effect" has been made for both lynx and wolverine.

Additionally, the implementation of the Preferred Alternative will drastically improve the quality of the treated effluent from the system. Improving the water quality in the discharge will provide major, long-term, positive benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stakeholders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will improve the Critical Bull Trout Habitat and will benefit many fish and wildlife species, including Bull Trout.

There are no Whitebark Pine trees in the project area, so there will be no impact on Whitebark Pines. Therefore, a determination of "no effect" has been made for Whitebark Pines.

Monarch butterflies will not be impacted by the construction of the Preferred Alternative because they use Milkweed to reproduce, and there is no Milkweed in the project area, according to the Montana Natural Heritage Program Species Snapshot. Due to the previously disturbed nature of the grassland in the project area, there is no documented viable habitat for the Monarch. Additionally, no critical habitat has been designated for Monarch Butterflies, and the butterfly is merely a candidate species currently. It has not yet been listed or proposed for listing by the USFWS. A determination of “no effect” has been made for monarchs.

As mentioned previously, USFWS was contacted via email from Christopher R. Weber (USACE) on February 22, 2023 regarding the proposed Wastewater Improvements Project. After some correspondence, the USFWS provided a Letter of Concurrence with the project, acknowledging that the USFWS agrees that the proposed project *may affect, but is not likely to adversely affect* the threatened bull trout or its designated critical habitat. The Letter of Concurrence, dated March 16th, 2023, is included in Appendix A. Upon completion, the proposed project is expected to provide direct, beneficial, long-term impacts to threatened and endangered species due to improved environmental conditions resulting from high-quality treated effluent.

3.3.8 Cultural Resources

Section 106 of the National Historic Preservation Act (54 U.S.C. § 300101 et seq.) requires federal agencies to consider the effects of proposed federal undertakings on historic properties included or eligible for the National Register of Historic Places. The implementing of regulations for section 106 (36 CFR § 800) requires federal agencies to consult with various parties, including the Advisory Council on Historic Preservation, SHPO, and Indian tribes and THPOs, to identify and evaluate historic properties, and to assess and resolve effects to historic properties.

There are no known cultural properties that would be impacted. No structures over 50 years old would be disturbed, and proposed work would be conducted in previously disturbed ground. If in the unlikely event that archeological material is discovered during project construction, work in the area of discovery will cease, the discovery would be investigated by a qualified archeologist, and the find would be coordinated with the SHPO and the Tribes.

It is SHPO’s position that any structure over fifty years of age is considered historic and is potentially eligible for listing in the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, we would recommend that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place.

Recommended Plan

Mr. Damon Murdo, Cultural Records Manager with the Montana State Historic Preservation Office (MTSHPO), conducted a cultural resource file search and determined a low likelihood that cultural resources would be impacted, and in a letter dated January 26, 2023, Mr. Murdo stated “as long as there will be no disturbance or alteration to structures over fifty years of age, we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time.” However,

should structures need to be altered or if cultural materials are inadvertently discovered during this project, we would contact MTSHPO, and the site be investigated.

3.3.8.1 Alternative 1 – No Action

No impacts anticipated.

3.3.8.2 Alternative 2 – Preferred Alternative

No impacts anticipated.

3.3.9 Recreational Resources

Flint Creek provides recreational access as a waterway. There are no public fishing access sites in the immediate areas upstream or downstream of the project area. No access is currently provided through the project area. There is no plan to allow public access through the Town's wastewater treatment property due to the risk of exposure to raw wastewater and/or vandalism to the system.

3.3.9.1 Alternative 1 - No-Action

Minor, long-term, negative impacts to recreational resources could be anticipated as a result of not implementing the proposed project due to further pollution of the high-quality surface water of Flint Creek.

3.3.9.2 Alternative 2 – Preferred Alternative

Minor, long-term, positive impacts to recreational resources could be anticipated as a result of the implementation of the Preferred Alternative. Although no new access to Flint Creek is planned, the effluent from the system will be drastically improved, which will improve the overall health of the resource. Improved health and water quality of Flint Creek will improve recreational opportunities within Flint Creek by improving the ecosystem and health of the fishery.

3.3.10 Soils

The project site is in Montana Ecoregion 17ak, classified as "Deer Lodge-Philipsburg-Avon Grassy Intermontane Hills and Valleys." This is part of the Middle Rockies formation, which partially consists of intermontane valley floors dominated by cropland and pastureland. The specific soil formation in the project area is generally topsoil and organic clay 2.5 to 3 feet below ground surface (bgs). Consolidated sand and gravel is located below the topsoil and clay layer to approximately 19 feet of depth. There is prime farmland near the project area, but no farmland specifically within the boundaries of the project area.

3.3.10.1 Alternative 1 – No Action

Without the implementation of the preferred alternative, there will be no significant impact on soils in the project area.

3.3.10.2 Alternative 2 – Preferred Alternative

With the implementation of the Preferred Alternative, topsoils in the project area will be stripped and stockpiled for use in restoration upon completion of the project. It will be required for acceptable soils to be imported into the project site in order to construct the new lagoon embankments. Imported soils will be compacted, high quality, structural material graded to stable slopes and capped with native topsoil. It will be reseeded with a native seed mix to further restore the project area upon completion of construction. As a result of the project, there will be minimal, long-term, negative impacts to the project area related to the loss of a small amount of native soil. High quality topsoil will be stockpiled for use within the project site or elsewhere in the area to ensure no substantial loss of high-quality soil.

3.3.11 Aesthetics

There are currently two wastewater treatment lagoons at the project site. The lagoons are offset approximately 700 feet from the highway, with no permanent structures in the immediate vicinity. The lagoon embankments are covered with mostly native grasses. Overall, the site does appear to be out of place for the area. There are no significant aesthetic issues with the existing project site.

3.3.11.1 Alternative 1 - No-Action

Without implementation of the preferred alternative, no impacts to the site's aesthetic are anticipated.

3.3.11.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, there may be short term, minor, negative aesthetic impacts related to construction activities in the form of material stockpiles, equipment staging areas, dust, and other general construction practices. These impacts are to be expected with any construction project, and may be mitigated by keeping construction activity as far from the highway as possible. No existing structures or residential properties will have their views restricted during construction of the project.

Furthermore, the wastewater treatment facility will be expanded within the Town's property. The expanded facility will include two small buildings, two new lagoons, and two SAGR basins, which appear to be mulch beds, flush with the surface. The preferred alternative will place the top of the embankments approximately 5 feet higher than the existing lagoon embankments, with 3H:1V slopes along the entire perimeter. The new infrastructure will be offset approximately 550 feet from the highway and will not be adjacent to any existing structures or homes. The preferred alternative will not block the view or negatively impact the aesthetics of the area. When the site is fully restored, it will appear to blend in with its environment as the existing lagoons currently do. There will be no long-term aesthetic impacts on the project area.

3.3.12 Socioeconomics and Environmental Justice

Socioeconomics of Philipsburg, including the Town's economics, demographics, social structures, businesses and residents, public health and safety, employment, housing conditions,

income patterns, tax base and revenues, and community and government facilities and services, will largely be unimpacted by the proposed project. All of the above-mentioned socioeconomic features of the community are based primarily on local residents and tourism within the Town limits of Philipsburg.

According to the US EPA, Environmental Justice is defined as, “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” Currently, Philipsburg is a rural town, very dependent on the surrounding environmental resources for water, employment, economics, recreation, and tourism. Philipsburg’s Town Council has conducted extensive surveys and public outreach with the local population to raise awareness about the Town’s facilities and infrastructure, as well as where their water comes from and the importance of wastewater treatment to prevent further contamination of environmental resources in the Flint Creek watershed.

According to Climate and Economic Justice Screening Tool from the Council on Environmental Quality, Granite County is NOT identified as disadvantaged when it comes to climate change, energy, housing, health, pollution, transportation, water and wastewater, and workforce development. The following link can be used to see the specific results from the Screening Tool for Granite County: <https://screeningtool.geoplatform.gov/en#8.12/46.111/-113.703>

Additionally, the EPA’s EJScreen Report shows the Town of Philipsburg at or below the 63rd percentile for the nation in all Environmental Justice Categories, and at or below the 79th percentile for all socioeconomic indicators aside from “Over Age 64.” The EJScreen Report can be found in Appendix E of this document.

3.3.12.1 Alternative 1 - No-Action

Without implementation of the proposed action, socioeconomics of the Town of Philipsburg will certainly experience major, long-term, adverse impacts. These impacts will primarily be to the Town’s economy due to the inability to allow more development due to lack of capacity within the Town’s wastewater system, along with potential fines and enforcement from DEQ as a result of failing to meet the requirements of the Town’s AOC.

Furthermore, continued pollution of the Flint Creek Watershed will result from the “No Action” alternative, which will place residents downstream of the wastewater treatment facility into an unhealthy environmental situation. Without the proposed project, there will likely be major, long-term, negative impacts to the Environmental Justice of residents downstream of Philipsburg.

3.3.12.2 Alternative 2 – Preferred Alternative

With implementation of the Preferred Alternative, the socioeconomics of the Town of Philipsburg will likely experience some short and long-term benefits. In the short term, the Town’s economy will likely experience a minor boost during construction due to an influx of construction workers into the community. In the long term, an expanded wastewater treatment system will allow the Town to approve new developments for housing, businesses, commercial

and industrial purposes, etc. due to the expanded capacity of the system. Implementation of the proposed project will also help the Town avoid any environmental fines or enforcement due to contamination of Flint Creek.

As shown in Appendix E's EJScreen Report, Wastewater Discharge is in the 74th percentile throughout the nation for "Wastewater Discharge," meaning that the effluent from the current wastewater treatment facility is of low quality. Implementation of the Preferred Alternative will provide major, long-term, positive impacts to Environmental Justice in Philipsburg. The upgraded wastewater treatment system will improve the environment of the Flint Creek Watershed, thus providing safe recreation and environmental resources for residents downstream of Philipsburg. The proposed project will not result in placing any low-income residents in areas of environmental degradation.

4.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

There is no irreversible or irretrievable commitment of resources involved with the proposed action should it be implemented.

5.0 CUMULATIVE IMPACTS

The Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7)". Cumulative Effects can result from individually minor but collectively significant actions taking place over a period of time."

There are no cumulative adverse impacts anticipated stemming from the proposed project. The purpose of the project is to improve the capacity and effectiveness of the Town's wastewater treatment system.

In the future, the improvements made to Philipsburg's wastewater system could expand into improvements to the Town's collection system. Paired with the treatment improvements, the result of these projects will provide cumulative long-term benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stakeholders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will drastically improve the outlook of the habitat, environment, water quality, wildlife, and socioeconomic status of the Flint Creek and Philipsburg area.

6.0 MITIGATION

The 2020 PER details the environmental considerations of the preferred alternative with the following discussion:

"Short-term environmental impacts of this alternative will generally be limited to construction activities which can include noise, dust, exhaust emissions and sediments (turbidity). The short-

term impacts can be mitigated using appropriate construction practices including dust control, as well as mufflers and emission control devices on construction equipment, and best management practices for erosion and sediment control during construction.” Some best management practices that are expected to be implemented during construction include preservations of existing vegetation, sequenced construction phasing, silt fences, site stabilization, fuel containment, waste management, and general dust control.

Water quality in the discharge will be required to meet new limits which will improve the water quality in Flint Creek.

As discussed previously in this report, the biggest long term adverse impact that may stem from the proposed action is the disturbance of the wetland south of the existing lagoons. However, the wetland has been previously disturbed by construction activity during the 2020 sludge removal project, so it is no longer a viable wetland habitat. Also, the Town had a wetlands delineation investigation and report completed in 2015. According to the investigation, the field immediately to the south of the existing lagoons was not identified as a delineated wetland. The wetlands boundary is generally located west of the existing lagoons. Therefore, it is unlikely that any jurisdictional wetland habitat will be disturbed as a result of the proposed project. In order to avoid any substantial environmental mitigation, construction activities will be restricted to the areas east and south of the existing lagoons, with some activity occurring west of the existing lagoons in an area where wetland habitat does not exist. Additionally, best management practices such as the use of strawrolls, sediment fencing, stormwater containment and discharge facilities, and erosion control will be implemented into a required SWPPP during the construction of the proposed project.

7.0 COORDINATION

MT Department of Commerce, Census and Economic Information Center
MT Department of Labor and Industry
MT Department of Environmental Quality
MT Department of Fish, Wildlife, and Parks
MT Department of Natural Resources and Conservation
MT Department of Transportation
MT State Historic Preservation Officer

Response Provided, See Appendix A

Granite County Floodplain Administrator
U.S. Environmental Protection Agency
U.S. Department of Interior, Fish and Wildlife Service

Response Provided, See Appendix A

U.S. Forest Service
U.S. Army Corps of Engineers
National Parks Service
Federal Aviation Administration
Bureau of Land Management
Bureau of Indian Affairs
Natural Resources Conservation Service, State Conservationist
Occupational Safety and Health Administration
U.S. Department of Transportation

Recommendations of the U.S. Fish and Wildlife Service in accordance with the Fish and Wildlife Coordination Act: There are no specific recommendations from the US Fish and Wildlife Service. Rather, the USFWS provided concurrence to the Biological Assessment (BA), which was used to determine that the proposed project *may affect, not likely to adversely affect* bull trout and its designated critical habitat. The USFWS requests that the proposed measures to “minimize the potential for sediment and contaminants to reach Flint Creek from work area (e.g., implementation of the SWPPP)” are implemented during construction in order to avoid any impact to bull trout and its critical habitat.

Recommendations from the MT State Historic Preservation Office: Damon Murdo of MT SHPO responded to the letter dated May 20, 2020 with the following response: “Based on previous ground disturbance in the area, and as long as there will be no disturbance or alteration to structures over fifty years of age, we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project, we would ask that our office be contacted, and the site investigated.” The full response from MTSHPO can be found in Appendix A.

Public comments can be listed and summarized here.

8.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

8.1 Archeological Resources Protection Act, 16 U.S.C. 470, et seq.

In compliance. There are no known historical, cultural, or archaeological resources in the area of disturbance related to the wastewater lagoons.

8.2 Bald and Golden Eagle Protection Act (16 U.S.C. Sect. 668. 668 note, 668a-66d)

In compliance. There are no known Bald or Golden Eagle nests in the project area.

8.3 Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.

Short term, minor, non-recurring, local impacts related to construction equipment may occur due to construction activities. No long-term impacts are anticipated. These short term impacts may be mitigated by using appropriate construction practices including dust control, as well as mufflers and emission control devices on construction equipment, and best management practices during construction. The selected Contractor will be responsible for ensuring that air quality in the project area does not violate the Clean Air Act.

8.4 Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.

The project is in compliance with the Clean Water Act. The purpose of the proposed project is to improve the quality of the effluent discharged into Flint Creek to improve the overall water quality of the watershed. A Stormwater Pollution Prevention Plan (SWPPP) will be required during construction to ensure that runoff from construction activities does not pollute any surrounding waters.

8.5 Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

Not applicable due to the project site not being within a Superfund site.

8.6 Endangered Species Act, 16 U.S.C. 1531, et seq.

The project will benefit endangered species by improving the water quality in Flint Creek, which will improve habitat that is home to an endangered population of Bull Trout. Bull Trout Critical Habitat may be affected temporarily during construction. However, mitigation efforts will be taken to ensure that no sedimentation or runoff occurs from the construction site into Flint Creek or the adjacent wetlands. A SWPPP will be required prior to construction beginning. No endangered species will be adversely impacted in the long-term setting as a result of the proposed project. The USFWS provided a letter of concurrence (Appendix A), which establishes the determination of *may affect, not likely to adversely affect* the bull trout and its designated critical habitat. As long as the above-mentioned best management practices and mitigation measures are implemented during construction, threatened and endangered species are not expected to be negatively impacted due to the proposed project.

8.7 Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq.

In compliance. The proposed project will directly improve the water quality of Flint Creek, thus improving recreation opportunities in the watershed.

8.8 Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.

In compliance. The proposed project will directly improve the water quality of Flint Creek, thus improving fish and wildlife habitat that depends on the watershed.

8.9 Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq.

In compliance. The proposed project will directly improve the water quality of Flint Creek, thus improving the “quality and quantity of outdoor recreation resources” in the area.

8.10 Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 as amended)

In compliance. The proposed project will improve the water quality of Flint Creek, thus improving migratory bird habitat in the project area. There are no known nesting areas in the project area, and if any nests are found, construction may be delayed to ensure that no adverse impacts occur during nesting season.

8.11 National Environmental Policy Act, 42 U.S.C. 4321, et seq.

In compliance. The project will improve water quality in Flint Creek, which will “encourage productive and enjoyable harmony between man and his environment; [...] promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [...] enrich the understanding of the ecological systems and natural resources important to the Nation,” which is the Congressional declaration of purpose of the Act.

8.12 National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq.

In compliance. There are no known historical, cultural, or archaeological resources in the area of disturbance related to the proposed project.

8.13 Rivers and Harbors Act, 33 U.S.C. 403, et seq.

Not applicable due to no alteration of any navigable river or harbor as a result of the proposed project.

8.14 Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.

In compliance. There will be no permanent adverse impacts to the flow of water, the floodplain, or the watershed of Flint Creek. Water quality will be improved, but water quantity will not exceed the allowable discharge into Flint Creek under the Town of Philipsburg’s MPDES permit.

8.15 Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq.

Not applicable due to no farmlands being affected by the proposed project.

8.16 Protection & Enhancement of the Cultural Environment (Executive Order 11593)

In compliance. There are no known historical, cultural, or archaeological resources in the area of disturbance related to the proposed project.

8.17 Floodplain Management (Executive Order 11988)

In Compliance. There will be no alterations to the floodplain related to the proposed project.

8.18 Protection of Wetlands (Executive Order 11990)

In compliance. As discussed previously in this report, the biggest long term adverse impact that may stem from the proposed action is the disturbance of the wetland south of the existing lagoons. However, the wetland has been previously disturbed by construction activity during the 2020 sludge removal project, so it is no longer a viable wetland habitat. Also, the Town had a wetlands delineation investigation and report completed in 2015. According to the investigation, “the fields south of the existing lagoon site where the proposed action will take place have a history of being flood irrigated. The fields have not been flood irrigated in the past decade and will not be flood irrigated in the future. The report states that, “Although there is facultative (FAC) wetland vegetation noted in the fields south of the Philipsburg parcel, these fields are flood-irrigated in short episodes that do not meet the hydrology criteria of the US COE for wetlands.” The wetlands boundary is generally located west of the existing lagoons.

Therefore, it is unlikely that any official wetland habitat will be disturbed as a result of the proposed project. In order to avoid any substantial environmental mitigation, construction activities will be restricted to the areas east and south of the existing lagoons, with some activity occurring west of the existing lagoons in an area where wetland habitat does not exist.

A Stormwater Pollution Prevention Plan (SWPPP) will be required during construction to ensure runoff from the project area does not enter any wetland habitat west of the project area.

8.19 Environmental Justice (Executive Order 12898)

In compliance. The proposed project will not result in placing lower income households in areas where environmental degradation has occurred. Environmental conditions will be improved downstream of Philipsburg as a result of the proposed project.

8.20 EO Invasive Species (Executive Order 13122)

In compliance. There are no reported invasive species found in the project area. If invasive species are discovered during construction, care will be taken to ensure that construction equipment is kept clean and transportation of invasive species of any sort is prevented.

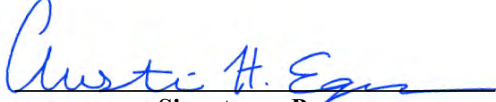
8.21 Responsibility of Federal Agencies to Protect Migratory Birds (Executive Order 13186)

In compliance. The proposed project will improve the water quality of Flint Creek, thus improving migratory bird habitat in the project area. There are no known nesting areas in the

project area, and if any nests are found, construction may be delayed to ensure that no adverse impacts occur during nesting season.

9.0 PREPARER

This EA was prepared by Austin Egan, PE, Great West Engineering, 2501 Belt View Drive, Helena, MT 59601 on behalf of the Town of Philipsburg, MT and reviewed by the Christopher Weber, U.S. Army Corps of Engineers, Omaha District; PM-AC, 1616 Capitol Avenue, Omaha, Nebraska 68102. In accordance with 40 CFR § 1506.3, the Corps will adopt this document and prepare a Finding of No Significant Impact.

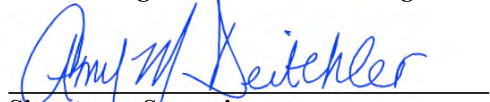


Signature - Preparer

Austin Egan, PE, Great West Engineering

March 24, 2023

Date



Signature - Supervisor

Amy Deitchler, PE, Great West Engineering

March 24, 2023

Date

10.0 LITERATURE

Pioneer Technical. June 2020. Town of Philipsburg, MT Wastewater System Preliminary Engineering Report Update. Prepared for Town of Philipsburg, MT. Pioneer Technical, 201 E. Broadway Street, Suite C, Helena, MT 59601

List of Electronic Resources used for data gathering to aid in the development of this Environmental Assessment:

Montana Natural Heritage Program, Montana Natural Heritage – Species Snapshot. MT.gov, Retrieved February 14th, 2023, from <https://mtnhp.org/SpeciesSnapshot/?Vector=QUAD24|4611333|&Species=&Rank=>

United States Fish and Wildlife Service. (n.d.). *Wetlands Mapper*. National Wetlands Inventory – Surface Waters and Wetlands. Retrieved February 14, 2023, from <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

United States Fish and Wildlife Service. (n.d.). *Information for Planning and consultation*. IPaC. Retrieved February 14, 2023, from <https://ipac.ecosphere.fws.gov/location/BA67UFMALNE2HN5MIR3BLG5TDY/resources>

United States Environmental Protection Agency. (n.d.). *EPA's Environmental Justice Screening and Mapping Tool (Version 2.1)*. EPA EJScreen. Retrieved February 14, 2023, from <https://ejscreen.epa.gov/mapper/>

US EPA, USGS, USDA NRCS, USFS, State of Montana. (n.d.). *Ecoregions of Montana, Second Edition*. Retrieved February 14, 2023, from https://gaftp.epa.gov/epadatacommons/ORD/Ecoregions/mt/mt_front_1.pdf

US Council on Environmental Quality. (n.d.). *Climate and Economic Justice Screening Tool*. Retrieved February 14, 2023, from <https://screeningtool.geoplatform.gov/en#3.56/25.03/-112.15>

APPENDICES

Appendix A – Scoping and Agency Coordination

Appendix B – 2022 MEPA Checklist

Appendix C – 2015 Wetland Delineation Report

Appendix D – Draft Design Drawings

Appendix E – US EPA EJSscreen Report

Appendix A

Scoping and Agency Coordination



May 20, 2020

State Historic Preservation Office
1410 8th Ave.
PO Box 201202
Helena, MT 59620

RE: Town of Philipsburg
Wastewater Improvements Project

To whom it may concern:

The purpose of this letter is to solicit comments regarding any issues of concern that may result from the construction of a wastewater system improvements project located in Philipsburg, Montana. The Town's wastewater treatment lagoons are located in Section 23 of Township 7N and 14W and has a latitude of 46.367 degrees North and longitude of 113.317 degrees West. A vicinity map is enclosed.

The existing wastewater treatment facility consists of two facultative treatment lagoons that discharge to Flint Creek. The existing wastewater treatment lagoon system has periodic violations of the Town's discharge permit.

The draft PER has identified two primary tasks to improve the treatment facility's effectiveness including: removal and disposal of sludge from the existing lagoons; and, providing enhanced treatment equipment.

The sludge removal project is planned to occur during the summer of 2020. If funding is available, the sludge will be disposed of in 2021 or 2022. A general site plan for sludge dewatering and drying using filter bags is enclosed. In addition, if funding is available and the project is affordable, a project to enhanced treatment could occur in 2022.

The proposed project would help the Town meet the conditions of its discharge permit and expand its treatment capability to meet the Town's needs for the 20-year planning period.

The Town is considering two basic options to improve its treatment capability including:

- 1) Maintaining its existing facultative lagoons for primary treatment and adding enhance treatment including the addition of ultraviolet disinfection;
- 2) Constructing a new facultative lagoons plus provide enhanced treatment, ultraviolet disinfection, and maintain its existing lagoons for treatment and storage during the July through September period.

All treatment improvements will be located within the limits of the Town's existing wastewater treatment lagoon property. All options under consideration include continuing to discharge to Flint Creek. General site plans of these improvement are enclosed.

Philipsburg Wastewater Improvements Project
May 20, 2020
Page 2 of 2

Information from your agency will be invaluable during the planning process and your response will be much appreciated. Comments can be sent via email to tkuxhuas@pioneer-technical.com or mailed to:

Todd K. Kuxhaus, PE
Pioneer Technical Services, Inc.
201 E. Broadway Street, Suite C
Helena, MT 59601

If you have no comment on this project, please check the box below and countersign the bottom of this letter and return it to me at the address listed above.

Please send responses no later than June 22, 2020. If you need further information or wish to discuss the project, please do not hesitate to contact me at (406) 723-1896. We look forward to hearing from you and thank you.

Yours truly,

Sincerely,



Todd Kuxhaus, P.E.
Project Manager

I have reviewed the enclosed information and have no comment on the project at this time.

Signature

Date

Todd Kuxhaus

From: Murdo, Damon <dmurdo@mt.gov>
Sent: Friday, May 29, 2020 1:23 PM
To: Todd Kuxhaus
Subject: TOWN OF PHILIPSBURG WASTEWATER IMPROVEMENTS
Attachments: 2020052702.pdf; Reports.pdf; Sites.pdf



May 29, 2020

Todd Kuxhaus
Pioneer Technical Services, Inc.
201 E. Broadway, Suite C
Helena MT 59601

RE: TOWN OF PHILIPSBURG WASTEWATER IMPROVEMENTS. SHPO Project #: 2020052702

Dear Mr. Kuxhaus:

I have conducted a cultural resource file search for the above-cited project located in Section 23, T7N R14W. According to our records there have been two previously recorded sites within the designated search locale. In addition to the sites there has been one previously conducted cultural resource inventory done in the area. I've attached a list of the sites and report. If you would like any further information regarding the sites or report, you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered and are over fifty years old, we would recommend that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place.

Based on previous ground disturbance in the area, and as long as there will be no disturbance or alteration to structures over fifty years of age, we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project, we would ask that our office be contacted, and the site investigated.

If you have any further questions or comments, you may contact me at (406) 444-7767 or by e-mail at dmurdo@mt.gov. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: DEQ/AWW/2020



STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

CRABS Township, Range, Section Results

Report Date: 5/29/2020

Township: 7 N Range: 14 W Section: 23

FERGUSON DAVID

1/29/2007 A CULTURAL RESOURCE REVIEW OF THE WHISKEY FLATS SUBDIVISION, PHASE III, GRANITE COUNTY, MONTANA

CRABS Document Number: GN 6 29316 Agency Document Number:

STATE HISTORIC PRESERVATION OFFICE
Cultural Resource Information Systems
 CRIS Township, Range, Section Report
 Report Date: 5/29/2020



Site #	Twp	Range	Section	Qs	Site Type 1	Site Type 2	Owner	NR Status
24GN1084	7N	14W	23	Comb	Historic District	Historic More Than One Decade	BLM	Undetermined*
24GN0832	7N	14W	23	comb	Historic Mining	Historic More Than One Decade	BLM and Other	Eligible



STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

CRABS Township, Range, Section Results

Report Date: 5/29/2020

Township: 7 N Range: 14 W Section: 23

FERGUSON DAVID

1/29/2007 A CULTURAL RESOURCE REVIEW OF THE WHISKEY FLATS SUBDIVISION, PHASE III, GRANITE COUNTY, MONTANA

CRABS Document Number: GN 6 29316 Agency Document Number:

STATE HISTORIC PRESERVATION OFFICE
Cultural Resource Information Systems
 CRIS Township, Range, Section Report
 Report Date: 5/29/2020



Site #	Twp	Range	Section	QS	Site Type 1	Site Type 2	Owner	NR Status
24GN1084	7N	14W	23	Comb	Historic District	Historic More Than One Decade	BLM	Undetermined*
24GN0832	7N	14W	23	comb	Historic Mining	Historic More Than One Decade	BLM and Other	Eligible



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Montana Ecological Services Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287



In Reply Refer to:
FWS/R6
M06 COE (I) 2023-0056886

March 16, 2023

Christopher R. Weber
U.S. Army Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102

Dear Mr. Weber:

We have reviewed your March 7, 2023, Biological Assessment (BA), regarding proposed U.S. Army Corps of Engineers funding for improvements to the existing Phillipsburg Wastewater Treatment Plant in Phillipsburg, Granite County, Montana. This response is provided by the U.S. Fish and Wildlife Service (Service) under the authority of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The Project would improve an existing wastewater treatment system located at the northwestern edge of Phillipsburg and just east of Flint Creek, as indicated in maps included with your BA. The proposed action consists of constructing a new aerated rock filter system, a new 2-celled partial mix aerated lagoon system, and a new ultraviolet disinfection system. New embankments constructed with suitable fill would be required to construct the aerated rock filters, piping, and buildings for new equipment. The new lagoon system would be constructed south of the existing Cell 1 on the Town of Philipsburg's property. The new aerated lagoon embankments would be approximately 5 feet higher than Cell 1 to allow for gravity to flow into the system while still protecting the lagoons from shallow groundwater and allowing a water depth of 10 feet. This would require re-grading the influent gravity sewer main to decrease the slope and allow gravity flow without a lift station. The project area would be approximately 18.5 acres. All construction equipment and materials will be staged in a designated staging area east of the existing lagoons. There are wetlands west of the project area, but all wetlands will be avoided from all disturbance and construction activities. All areas of the project that would experience disturbance will be fully contained within property owned by the Town of Philipsburg or in adjacent pipeline easements. The areas disturbed within the project area are existing disturbed pastureland. Any areas disturbed in the project area will be restored and re-seeded with native species before the

INTERIOR REGION 5
MISSOURI BASIN

KANSAS, MONTANA*, NEBRASKA, NORTH DAKOTA,
SOUTH DAKOTA

*PARTIAL

INTERIOR REGION 7
UPPER COLORADO RIVER BASIN

COLORADO, NEW MEXICO, UTAH, WYOMING

project is completed. The proposed project is anticipated to begin in late spring of 2023 and be completed in late Fall of 2023. Construction is anticipated to take 180 days to reach substantial completion.

At its closest point, construction would occur within approximately 850 feet of Flint Creek. To minimize the potential for sediment and turbidity impacts to Flint Creek during construction, a variety of best management practices will be utilized. These will include the required implementation of a Stormwater Pollution Prevention Plan (SWPPP) by the selected Contractor. The SWPPP will detail the Contractor's plans to prevent runoff from the site toward Flint Creek, such as using strawrolls, sediment fencing, temporary stormwater containment or drainage facilities, erosion control, and consistent monitoring to ensure that the SWPPP is being implemented correctly. The Contractor will also be encouraged to implement a fuel containment area and stage their equipment near the east side of the property to ensure it is kept far away from Flint Creek during storage. Finally, the delineated wetlands east of Flint Creek near the project area will be staked prior to the beginning of construction. The selected Contractor will be instructed to avoid any activity within the delineated wetlands. This will create a "buffer zone" between the construction area and the waters of Flint Creek, thus protecting the water quality of the creek during the construction timeline.

The proposed project would have beneficial impacts long-term on the water quality within Flint Creek. The quality of the discharged effluent would increase significantly, thereby reducing the volume and concentration of harmful nutrients being introduced into Flint Creek.

Threatened and Endangered Species

The BA indicates your determination that the proposed project *may affect, but is not likely to adversely affect* the threatened bull trout (*Salvelinus confluentus*) or its designated critical habitat. Bull trout are currently present within Flint Creek as indicated by Montana Fish, Wildlife and Parks survey data (summarized in your BA). Flint Creek is designated as critical habitat (75 FR 64063) and identified as spawning and rearing habitat.

Considering that no work is proposed within approximately 850 feet of Flint Creek, that measures are proposed to minimize the potential for sediment and contaminants to reach Flint Creek from work areas (e.g., implementation of the SWPPP), and that the long-term effects of the project should improve water quality within Flint Creek; we believe that effects to bull trout and their designated critical habitat would be insignificant or beneficial. We therefore concur with your *may affect, not likely to adversely affect* determinations for the bull trout and its designated critical habitat.

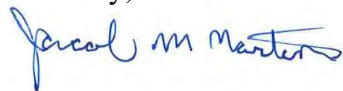
This concludes informal consultation on this proposed action pursuant to regulations in 50 CFR 402.13 implementing the ESA of 1973, as amended. This action should be re-analyzed if new information reveals effects that may affect threatened, endangered or proposed species, if the Project is modified in a manner that causes an effect not considered in this consultation, or if the conservation measures stated in the BA will not be implemented.

Phillipsburg Wastewater System Improvements

3

Thank you for the opportunity to comment on the proposed project. The Service appreciates your efforts to incorporate fish and wildlife resource concerns into your project planning. If you have further questions related to this letter, please contact Jacob Martin at 406-430-9007 or jacob_martin@fws.gov.

Sincerely,

A handwritten signature in blue ink that reads "Jacob M. Martin". The signature is written in a cursive style with a large initial "J" and a distinct "M".

for Adam Zerrenner
Office Supervisor

Appendix B

2020 MEPA Checklist

For assistance in preparing the Environmental Checklist, contact DNRC grant manager listed on grant application.

Environmental Checklist

Environmental Checklist Prepared by:

On: 6/2/2022

Austin Egan, PE

Great West Engineering

Name of Person 1
(406)495-6170

Organization
aegan@greatwesteng.com

Phone Number
Click or tap here to enter text.

Email
Click or tap here to enter text.

Name of Person 2
Click or tap here to enter text.

Organization
Click or tap here to enter text.

Phone Number

Email

Amy Deitchler, PE - Great West Engineering – (406)495-6160 – adeitchler@greatwesteng.com

List additional people above. Include organization, phone number and email for all.

Physical Environment			
Impact Code	Impact Type	Permits/ Mitigation Required?	Explanation of Impact to Resource
1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Site grading will be completed to construct the improvements. The area will be final graded, top soiled, and seeded at the end of the project. Formation is generally topsoil and clay for 2.5 to 3 feet below ground surface. Consolidated sand and gravel is located below the topsoil and clay layer to approximately 19 feet of depth. <u>Preferred Alternative Environmental Narrative:</u> No impacts anticipated. Design of improvements will be completed in accordance with geotechnical recommendations.
2. Hazardous Facilities (example: power lines, hazardous waste sites, acceptable distance from explosive and flammable hazards including chemical/petrochemical storage tanks, underground fuel storage tanks, and related facilities such as natural gas storage facilities and propane storage tanks)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> No such facilities are located in proximity to the lagoons or planned improvements site area adjacent to the lagoons. <u>Preferred Alternative Environmental Narrative:</u> No impacts anticipated.

3. Surrounding Air Quality (example: dust, odors, emissions)			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<u>Current Conditions:</u> No current air quality issues in the project area. <u>Preferred Alternative Environmental Narrative:</u> Short-term, minor, non-recurring, local impacts related to construction equipment. No long term impacts anticipated.
4. Groundwater Resources and Aquifers (example: quantity, quality, distribution, depth to groundwater, sole source aquifers)			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<u>Current Conditions:</u> Groundwater levels in the area range from approximately 3 to 7.5 feet below ground surface and may present some temporary adverse impact with regard to construction activities. <u>Preferred Alternative Environmental Narrative:</u> Groundwater conditions will require special consideration during design and construction of wastewater system improvements. Design of improvements will be completed in accordance with geotechnical recommendations. No long-term impacts are anticipated.
5. Surface Water/Water Quality, Quantity and Distribution (example: streams, lakes, storm runoff, irrigation systems, canals)			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Surface water in the area is Upper Flint Creek. Flint Creek is listed as impaired and has TMDL's for nutrients and metals. <u>Preferred Alternative Environmental Narrative:</u> Improving wastewater treatment will improve water quality in the receiving water. Improving water quality in the discharge provides cumulative benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stake holders in response to the TMDL's and nutrient limits for the drainage.
6. Floodplains and Floodplain Management (Identify any floodplains within one mile of the boundary of the project.)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> The Flint Creek floodplain boundary is located west of the lagoons and the proposed treatment site. <u>Preferred Alternative Environmental Narrative:</u> No project activities will take place in the 100-year floodplain. A Stormwater pollution Prevention Plan (SWPPP) will be completed to assure runoff into the floodplain will not occur during construction.

7. Wetlands (Identify any wetlands within one mile of the boundary of the project and state potential impacts.)			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<p><u>Current Conditions:</u> A small portion of non-jurisdictional wetland will be used to construct the new treatment facility. The wetland in question has already been disturbed by sludge removal and disposal operations adjacent to the existing lagoons. The Town had a wetlands delineation investigation and report completed in 2015. The wetlands boundary is generally located west of the lagoons.</p> <p><u>Preferred Alternative Environmental Narrative:</u> This impact will be mitigated by purchasing wetland credits or creating in-kind wetlands in the project area if necessary. A Stormwater Pollution Prevention Plan (SWPPP) will be completed to assure runoff into the wetland will not occur during construction. Other adjacent wetland boundaries will be marked during operations to assure workers do not disturb wetlands.</p>
8. Agricultural Lands, Production, and Farmland Protection (example: grazing, forestry, cropland, prime or unique agricultural lands) Identify any prime or important farm ground or forest lands within one mile of the boundary of the project.			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<p><u>Current Conditions:</u> Figure 2-2 in the 2014 PER illustrates the land use in the project area.</p> <p><u>Preferred Alternative Environmental Narrative:</u> There are some farm grounds around the project site. However, those grounds will not be impacted by the project. See land cover mapping in Appendix D of the 2020 PER prepared by Pioneer Technical.</p>
9. Vegetation and Wildlife Species and Habitats, Including Fish (example: terrestrial, avian and aquatic life and habitats)			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<p><u>Current Conditions:</u> Vegetation and wildlife species, including fish, in the project area, primarily rely upon Upper Flint Creek adjacent to the project site.</p> <p><u>Preferred Alternative Environmental Narrative:</u> Improving the water quality in the discharge provides cumulative benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stake holders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will improve the aquatic habitat and will benefit fish and wildlife species.</p>

10. Unique, Endangered, Fragile, or Limited Environmental Resources, Including Endangered Species (example: plants, fish or wildlife)			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Flint Creek is home to a small population of endangered Bull Trout. <u>Preferred Alternative Environmental Narrative:</u> Improving the water quality in the discharge provides cumulative benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stake holders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will improve the aquatic habitat and will benefit fish and wildlife species, including bull trout.
11. Unique Natural Features (example: geologic features)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> There are no unique natural features in the immediate vicinity of the project area. <u>Preferred Alternative Environmental Narrative:</u> No impacts anticipated.
12. Access to, and Quality of, Recreational and Wilderness Activities, Public Lands and Waterways (including Federally Designated Wild & Scenic Rivers), and Public Open Space			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Flint Creek provides recreational access as a waterway. <u>Preferred Alternative Environmental Narrative:</u> The project will not impact access to Flint Creek. Improving the water quality in the discharge provides cumulative benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stake holders in response to the TMDL's and nutrient limits for the drainage. Improved water quality will improve recreational quality.
Human Environment			
Impact Code	Impact Type	Resource	
1. Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> No current visual quality issues at the project site. <u>Preferred Alternative Environmental Narrative:</u> No anticipated adverse impacts. Indirect beneficial impact may occur by improving water quality in Flint Creek. The activities that will occur during wastewater system improvements will be at the current lagoon site. Activities will be visible from Highway #1, but are short-term and are common general construction activities.
2. Nuisances (example: glare, fumes)			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<u>Current Conditions:</u> No current nuisances at the project site. <u>Preferred Alternative Environmental Narrative:</u> Short-term, non-recurring, local, minor fumes from construction equipment. No other anticipated impact.

3. Noise – Suitable Separation Between Housing and Other Noise Sensitive Activities and Major Noise Sources (example: aircraft, highways and railroads.)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> No current noise issues at the project site. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts. The project site is located well away from housing or other facilities.
4. Historic Properties, Cultural, and Archaeological Resources** (Please see end of Environmental Checklist for details if Cultural Survey has not been performed per SHPO Section 106)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> No known historical, cultural, or archaeological resources known in the project area of disturbance related to the wastewater lagoons. <u>Preferred Alternative Environmental Narrative:</u> No impact anticipated.
5. Changes in Demographic (Population) Characteristics (example: quantity, distribution, density)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts to population characteristics.
6. General Housing Conditions – Quality, Quantity, Affordability			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Current wastewater treatment facility is insufficient to treat future design flows of projected population demand. <u>Preferred Alternative Environmental Narrative:</u> The proposed project will result in improved sustainability of the wastewater system.
7. Businesses or Residents (example: loss of, displacement, or relocation)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts. There is no business or residential development in the vicinity of the proposed project.
8. Public Health and Safety			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input checked="" type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Upper Flint Creek is a prime recreational area and is also an important agricultural water source. <u>Preferred Alternative Environmental Narrative:</u> Improving the water quality in the discharge provides cumulative benefits to the Upper Flint Creek drainage when considered with water improvements (past and future) that are being made by the State and other stake holders in response to the TMDL's and nutrient limits for the drainage. Improved water quality is a beneficial impact to all people that use the resource.
9. Local Employment – Quantity or Distribution of Employment, Economic Impact			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Community workforce made up primarily of local residents. <u>Preferred Alternative Environmental Narrative:</u> Short term economic benefit related to construction worker influx to the community.

10. Income Patterns – Economic Impact			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Local economy based primarily on local residents and tourism. <u>Preferred Alternative Environmental Narrative:</u> Short term economic benefit related to construction worker influx to the community.
11. Local and State Tax Base and Revenues			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Local and State Tax Base and Revenues based primarily on local residents and tourism. <u>Preferred Alternative Environmental Narrative:</u> Some additional State benefit related to construction worker influx to the community.
12. Community and Government Services and Facilities (example: educational facilities; health and medical services and facilities; police; emergency medical services; and parks, playgrounds and open space)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impact to community and government services and facilities.
13. Commercial and Industrial Facilities – Production and Activity, Growth or Decline			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Main commercial/industrial facility in the community is Philipsburg Brewing Company <u>Preferred Alternative Environmental Narrative:</u> Short term economic benefit in the community related to construction project.
14. Social Structures and Mores (example: standards of social conduct/social conventions)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impact to social standards and mores.
15. Land Use Compatibility (example: growth, land use change, development activity, adjacent land uses and potential conflicts)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts affecting growth, land use, or development activity in the area.

16. Energy Resources – Consumption and Conservation			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<p><u>Current Conditions:</u> There is currently no power demand at the existing lagoon site.</p> <p><u>Preferred Alternative Environmental Narrative:</u> The project will result in a permanent and long-term energy demand. Electrical power is required to operate the proposed system. The impact of higher energy use will be mitigated by the benefits of meeting the Clean Water Act requirements relating to the discharge of treated effluent into Upper Flint Creek. There are no alternatives available that will resolve the wastewater treatment needs that do not require energy or operation of the system.</p>
17. Solid Waste Management			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<p><u>Current Conditions:</u> Lagoon sludge creates solid waste that requires disposal. Sludge disposal is not part of the proposed project.</p> <p><u>Preferred Alternative Environmental Narrative:</u> Local, minor impact to the local landfill related to solids disposal from potential addition of headworks equipment. If a headworks system is implemented, very little demand will be added to the local transfer station and landfill. No mitigation is anticipated to be necessary due to the low volume of solids generation that is anticipated.</p>
18. Wastewater Treatment – Sewage System			
<input type="checkbox"/> No Impact <input checked="" type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<p><u>Current Conditions:</u> Current wastewater treatment system is unable to effectively treat the wastewater, causing pollution and operational difficulties.</p> <p><u>Preferred Alternative Environmental Narrative:</u> Wastewater treatment system improvements will directly improve treatment resulting in higher quality in the discharge to Upper Flint Creek.</p>
19. Storm Water – Surface Drainage			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input checked="" type="checkbox"/> Adverse	<input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> NA	<p><u>Current Conditions:</u> No current stormwater or surface drainage issues at the project site.</p> <p><u>Preferred Alternative Environmental Narrative:</u> Minor, short-term, non-recurring, local adverse impacts to storm water – surface water drainage will occur due to the construction of the wastewater system improvements. Impact will be a disruption in the natural runoff pattern. The impact will be mitigated by obtaining a Stormwater Pollution Prevention Plan Permit (SWPPP) and adhering to the conditions of the permit. The improvements will be reclaimed after improvements have been completed. The project design will include a site grading and drainage plan that will be submitted to MDEQ with the project plans and specifications.</p>

20. Community Water Supply			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> There are no community water supplies in the WWTP area.
21. Fire Protection – Hazards			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts that would affect fire protection.
22. Cultural Facilities, Cultural Uniqueness and Diversity			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts to cultural facilities, cultural uniqueness, and diversity.
23. Transportation Networks and Traffic Flow Conflicts (example: rail; auto including local traffic; airport runway clear zones – avoidance of incompatible land use in airport runway clear zones)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> Improvements are anticipated to take place outside or any road right of ways, and no traffic impacts are anticipated.
24. Consistency with Local Ordinances, Resolutions, or Plans (example: conformance with local comprehensive plans, zoning, or capital improvement plans.)			
<input type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Click or tap here to enter text. <u>Preferred Alternative Environmental Narrative:</u>
25. Private Property Rights (example: a regulatory action or project activity that reduces, minimizes, or eliminates the use of private property.)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> Proposed improvements will take place on property owned by the Town, and no other private property owners will be impacted.
26. Environmental Justice (example: does the project avoid placing lower income households in areas where environmental degradation has occurred, such as adjacent to brownfield sites?)			
<input checked="" type="checkbox"/> No Impact <input type="checkbox"/> Beneficial <input type="checkbox"/> Adverse	<input type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> Cumulative	<input type="checkbox"/> Permit <input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> NA	<u>Current Conditions:</u> Not applicable to proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts. The project will not result in placing lower income households in areas where environmental degradation has occurred.

27. Lead Based Paint and/or Asbestos (example: does the project replace asbestos-lined pipes? Do any structures qualify as containing lead-based paint?)			
<input checked="" type="checkbox"/> No Impact	<input type="checkbox"/> Direct	<input type="checkbox"/> Permit	<u>Current Conditions:</u> Not applicable to the proposed project. <u>Preferred Alternative Environmental Narrative:</u> No anticipated impacts. There are no existing buildings or structures at the project site.
<input type="checkbox"/> Beneficial	<input type="checkbox"/> Indirect	<input type="checkbox"/> Mitigation	
<input type="checkbox"/> Adverse	<input type="checkbox"/> Cumulative	<input checked="" type="checkbox"/> NA	

Additional Information

****If no cultural survey has been performed, or is not expected to be needed, applicant must agree to the following statement:**

I hereby agree that, to my knowledge, there are no cultural or paleontological materials in the proposed project site. If previously unknown cultural or paleontological materials are identified during project related activities, the DNRC grant manager will be notified, and all work will cease until a professional assessment of such resources can be made.

List all sources of information used to complete the Environmental Checklist. Sources may include studies, plans, documents, or the individuals, organizations, or agencies contacted for assistance. For individuals, groups, or agencies, please include a contact person and phone number. List any scoping documents or meetings and/or public meetings during project development.

**Great West Engineering
Pioneer Technical – 2020 Preliminary Engineering Report and Environmental Checklist**

Below is a list of electronic resources available for data gathering to aid in the development of the Environmental Checklist:

Abandoned Mines (DEQ): <https://deq.mt.gov/cleanupandrec/Programs/aml>

Agricultural Statistics (USDA): [USDA - National Agricultural Statistics Service - Data and Statistics](https://www.nationalagstats.com/)

Air Quality

- Nonattainment Areas: [Plan and Rule Development | Montana DEQ \(mt.gov\)](https://deq.mt.gov/airquality/PlanandRuleDevelopment/)
- Opening Burning Guidelines: [Open Burning | Montana DEQ \(mt.gov\)](https://deq.mt.gov/airquality/OpenBurning/)

Army Corps of Engineers: <http://www.usace.army.mil/Home.aspx>

Bureau of Business and Economic Research, UM: <http://www.bber.umt.edu/>

Cadastral (for property ownership info): <http://svc.mt.gov/msl/mtcadastral>

Census Information, MT Dept. of Commerce: <http://ceic.mt.gov>

Conservation Districts, MT: <http://macdnet.org/>

Cultural Records

- Montana Historical Society: <https://mhs.mt.gov/Shpo/CulturalRecords>

DEQ data search tools: [Montana DEQ's GIS Portal \(mt.gov\)](http://mt.gov)

- Including Clean Water Act Info Center, Hazardous Waste Handlers, Petroleum Release Fund Claims, Unpermitted Releases, Underground Storage Tanks, Source Water Protection

EPA Enforcement and Compliance History Online <http://echo.epa.gov/>

Farmland Classification: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Fish (Also See Wildlife)

- Montana Fisheries Information System: [Montana Fish, Wildlife & Parks GIS Data \(arcgis.com\)](http://arcgis.com)
- Aquatic Invasive Species: [Montana FWP AIS Surveys Dashboard 2021 \(arcgis.com\)](http://arcgis.com)

Floodplain Maps, FEMA: <https://msc.fema.gov/portal>

Geographic Information, Natural Resources Information System: <http://nris.mt.gov/gis>

Geologic Information - [MBMG - Publications - Download Geologic Maps \(mtech.edu\)](http://mtech.edu)

Maps of Montana for species observations, land cover, wetland and riparian areas, land management: [Montana Natural Heritage Program \(mtnhp.org\)](http://mtnhp.org); <http://mtnhp.org/mapviewer/?t=6>

Montana Department of Transportation: <https://www.mdt.mt.gov/>

- Environmental Manual: <http://www.mdt.mt.gov/publications/docs/manuals/env/preface.pdf>
- Environmental Manual - Chapter 29, Permits Required: <https://www.mdt.mt.gov/publications/docs/manuals/env/Chapter%2029%20PERMITS%20REQUIRED.pdf>

Montana Board of Oil and Gas Conservation Information System:

- <http://bogc.dnrc.mt.gov/webApps/DataMiner/>

Plants

- Plant database, USDA Natural Resources Conservation Service: <http://plants.usda.gov/java>
- Plant Species, MT Field Guide: <http://fieldguide.mt.gov/default.aspx>
- Plant Species of Concern: <http://mtnhp.org/SpeciesOfConcern/Default.aspx?AorP=p>
- Threatened, Endangered and Rare Plants, USDA: <https://plants.usda.gov/home/raritySearch>

Soils

- USDA Natural Resource Conservation Service database: [https://websoilsurvey.nrcs.usda.gov/app/](http://websoilsurvey.nrcs.usda.gov/app/)
- Montana soil and water conservation districts: <http://swcdmi.org/>

State Historic Preservation Office: <http://mhs.mt.gov/Shpo>

Tourism, UM – Institute of Tourism & Recreation Research: <http://www.itrr.umt.edu>

Tribal Resources:

- Blackfeet Tribal Environmental Permits: <http://www.blackfeetenvironmental.com>
- CSKT Natural Resources Department: <http://nrd.csktribes.org/>
- Montana Office of Indian Affairs: <http://tribalnations.mt.gov/>
- Tribal Historic Preservation Officer List: [Search - NATHPO](#)
- Tribal Directory Assessment Tool (TDAT): <https://egis.hud.gov/tdat/>

Vehicle Traffic Count (MDT): <http://www.mdt.mt.gov/publications/datastats/traffic.shtml>

Water

- Stream Record Extension Facilitator, USGS: [USGS | National Water Dashboard](#)
- Streamstats basin characteristics, USGS: <http://water.usgs.gov/osw/streamstats/>
- Water Resources Division, DNRC: <http://dnrc.mt.gov/divisions/water> ; [ArcGIS Web Application \(mt.gov\)](#)
- Water Rights Bureau, DNRC: <http://dnrc.mt.gov/divisions/water/water-rights>
- Water Right Query System, DNRC: [DNRC Water Right Query System \(mt.gov\)](#)
- Wetlands database, USFWS: <http://www.fws.gov/wetlands/Data/mapper.html>

Wild and Scenic Rivers: <http://www.rivers.gov/montana.php>

Wildlife

- Animal Species, MT Field Guide: <http://fieldguide.mt.gov/default.aspx>
- Animal Species of Concern: <http://mtnhp.org/SpeciesOfConcern/Default.aspx?AorP=a>
- Aquatic Invasive Species: [Montana FWP AIS Surveys Dashboard 2021 \(arcgis.com\)](#)
- Critical Habitat Mapper, USFWS: <http://ecos.fws.gov/crithab/>
- Crucial Areas Planning System/Habitat Assessment Tool: [Habitat MT \(HB 526\) Funded Lands \(arcgis.com\)](#)
- FWP Contact Map: <http://fwp.mt.gov/gis/maps/contactUs/> (includes biologist responsibility areas)
- Maps and GIS Data, FWP: [Montana Fish, Wildlife & Parks GIS Data \(arcgis.com\)](#)
- Sage grouse management, FWP: [Montana Fish, Wildlife & Parks GIS Data : Sage-grouse Habitat/Current Distribution \(Montana\) : Sage-grouse Habitat/Current Distribution \(Montana\) \(arcgis.com\)](#)
- Sage grouse habitat conservation program, DNRC: <http://sagegrouse.mt.gov/>
- Sage grouse habitat map: <https://sagegrouse.mt.gov/ProgramMap>

Appendix C

2015 Wetland Delineation Report



July 22, 2015

Mr. John Vukonich
Director of Public Works
Town of Philipsburg
PO Box 608
Philipsburg, MT 59858

Reference: Wetland Delineation Report
Town of Philipsburg Wetland Delineation/Assessment
Project No. 13007.07

Dear John:

A wetland delineation and waters of the U.S. assessment was conducted for the Town of Philipsburg's wastewater lagoon property. The property of interest is located approximately one mile north of Philipsburg, Montana, within Section 23, Township 7 North, Range 14 West (Figure 1). Sanderson Stewart personnel performing the field work were Carol Lee-Roark, PhD, and Christina Thelen, PE. Field investigations were conducted on July 9, 2015. The site visit included identification of likely waters of the US and a delineation of affiliated wetlands within the property boundary and along the proposed easement for the new outfall line (Figure 2).

The field investigation of the wetland area followed the methods of the US Army Corps of Engineers (COE) as authorized by 1977 Executive Order and Section 404 of the Clean Water Act. The field investigation followed the guidance of the 1987 COE Wetlands Manual (COE, 1987; WTI, 1999) and the Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (v. 2.0, May 2010).

A wetland delineation was previously performed for a portion of the site by NRCS – Missoula Regional Office in December 2008. Only wetlands located to the west and south of the lagoons within the Town property were assessed during the 2008 delineation. The delineation that Sanderson Stewart conducted in July 2015 included a re-assessment of the 2008 delineation to confirm the findings, and an assessment of the portions of the remaining property that may be impacted in upcoming proposed work. The area within the proposed easement corridor for the new sewer outfall line was also assessed. Sanderson Stewart used aerial photos, calibrated and quantified survey data, and field measurements to map wetlands. Field Wetland Determination Data Forms are included as an attachment to this letter (Attachment A). The location and area of the delineated wetlands is shown on Figure 3.



To Plan and Design
Enduring Communities...

Mr. John Vukonich
 July 22, 2015
 Page 2

Three wetland areas were identified on the property (Figure 3). An additional wetland area that was noted but was not delineated, resides within the highway right-of-way on the west side of Hwy 1. A summary of the wetlands and potential jurisdictional status is presented in the table below. The COE makes the final determination regarding jurisdictional status of waters and affiliated wetlands.

Wetland	Type	Area	Likely Jurisdictional
WL-1	Irrigation / waste ditch	1.67 acres	Yes
WL-2	Wet meadow and riparian	20.13 acres	Yes
WL-3	Drainage Swale	0.94 acres	No

Wetland WL-1

Wetland WL-1 includes the wetlands associated with an irrigation/waste ditch that enters the property in the southeast corner (Figure 3). The ditch diagonals northwest across the property and then follows the south side of the existing lagoons, then flows north along the west side of the lagoons. The ditch waters then flow into Flint Creek just northwest of the lagoons. There are also groundwater interception ditches that border the east and north side of the lagoons that connect to the main ditch.

The wetlands that are included in WL-1 reside within the ditches, both along the channel bottom and at the edge of the flowing water. The source of hydrology for the wetlands is from irrigation waste returns and groundwater/irrigation infiltration that flow through the ditch.

The ditch is characterized along its entire length by a fringe wetland dominated by *Alopecurus aequalis* (short awn foxtail, OBL). Small areas of the ditch may be dominated by another wet grass, *Phalaris arundinacea* (reed canary grass, FACW) or *Calamagrostis stricta* (northern reed grass, FACW). Throughout the majority of the ditch there is flow (aquatic plants within the ditch were not identified). There is a small area of pooled stagnant water with *Schoenoplectus spp*, likely *S. pungens* (three square bulrush, OBL), in the ditch on the north of the lagoon.

The soils within the vicinity of the ditches are shown on the soil map (Attachment A). The soils are all listed as hydric or having a hydric component. No soil pits were dug within WL-1 during the field investigation since the soils within the wetland areas were inundated at the time.

Wetland WL-2

Wetland WL-2 is located to the west and to the southwest of the lagoons, adjacent to Flint Creek (Figure 3). A wetland delineation was performed for this area in 2008 by NRCS – Missoula Regional Office (Attachment B). A wetland was identified at that time and labeled Farmed Wetland Pasture. Sanderson Stewart confirmed the presence of this wetland during the July 2015 assessment, and re-evaluated the wetland boundary. Minor changes were made to the boundary that was delineated in 2008 to reflect the 2015 field investigation and additional data from more recent aerial photos from the US Department of Agriculture Farm Services Agency.

Mr. John Vukonich
July 22, 2015
Page 3

Only the eastern wetland boundary was investigated and delineated. There is additional wetland that extends west to the Town property boundary (to and across Flint Creek). Reconnaissance level field observation, the previous 2008 NRCS delineation, aerial photos, and NWI maps indicate that the wetland extends to the western parcel boundary.

Hydrology for WL-2 is mainly from groundwater, association with Flint Creek, and irrigation. Monitoring wells within the vicinity of the wetland area show groundwater levels fairly high. Groundwater levels measured during the field investigation on July 9, 2015, are posted on Figure 4.

The boundary of the wetland was characterized by a wetland vegetation community dominated by *Alopecurus aequalis* (short awn foxtail, OBL). Other characteristic dominant vegetation species included reeds (*Juncus balticus*, alternatively *J. arcticus*, mountain reed, FACW), and sedges (*Carex utriculata* [beaked sedge, OBL] and *C. nebrascensis* [Nebraska sedge, OBL]). *Phalaris arundinacea* (reed canary grass, FACW) and *Calamagrostis stricta* (northern reed grass, FACW) are also present in the boundary community.

The wet meadow and riparian area extend to the western boundary of the Philipsburg parcel of land. There are scrub/shrub wetlands with willows and other characteristic wetland vegetation communities west of the boundary area that are not described here.

Soils fall mainly within the Mannixlee clay loam, 0 to 2 percent slopes (645A) unit. This soil unit is rated as 100% hydric. Soil pits from the 2008 delineation confirmed the soils within this wetland soil unit are hydric.

Wetland WL-3

Wetland WL-3 is located just west of the abandoned railroad tracks, west of Highway 1 (Figure 3). This wetland was delineated within the proposed easement where the new sewer outfall line will be located. Wetland WL-3 is located in a depressional swale and receives surface water runoff from both the abandoned railroad bed and from the irrigated pasture to the west. The northern end of WL-3 is bordered by both the railroad bed (east) and the spoils berm of the irrigation waste ditch (west). There is no surface connection between the irrigation waste ditch and WL-3. There is no downstream continuous channel or wetland connection from WL-3 to the north. Since no direct connections exist to other waters, it is likely that this wetland is non-jurisdictional. The US Army Corps makes the final determination on jurisdictional status.

There are additional discontinuous patches of wetland vegetation north of WL-3 within the topographic position at the toe of the railroad embankment. Between these small wetland vegetation community patches there is no consistent drainage channel or wetland connection. It is also likely that these small isolated patches of wetland vegetation are non-jurisdictional.

The vegetation community in the swale at the western toe of the railroad embankment is dominated by *Alopecurus aequalis* (short awn foxtail, OBL). Additional components of the wetland vegetation

Mr. John Vukonich
July 22, 2015
Page 4

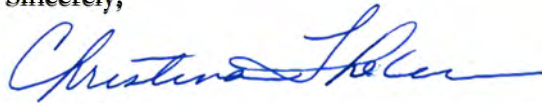
community include *Carex* spp (sedges, OBL-FAC), and *Juncus balticus* (alternatively *J. arcticus*, mountain rush, FACW), *Agrostis stolonifera* (redtop, FAC), and *Deschampsia caespitosa* (tufted hair grass, FACW).

Soils within WL-3 are identified as the soil unit Saypo loam, cool, 0 to 4 percent slopes. This unit is rated as 5% hydric according to NRCS. A soil pit within the wetland area was noted to have hydric indicators. The soil profile and indicators are presented in the Field Data Sheets (Attachment A).

The overall site hydrology related to the wetland areas delineated is strongly influenced by flood irrigation of fields to the south of the Philipsburg parcel, and the previous history of flood irrigation of fields within the Philipsburg parcel. The fields in the Philipsburg parcel have not been flood irrigated for the last 5 years and will not be flood irrigated in the future (personal comm. J. Vukonich). Although there is facultative (FAC) wetland vegetation noted in the fields south of the Philipsburg parcel, these fields are flood-irrigated in short episodes that do not meet the hydrology criteria of the US COE for wetlands.

If you need any further information or have any questions, please contact me at 406/922-4340, or at email address cthelen@sandersonstewart.com.

Sincerely,



Chris Thelen, PE
Senior Environmental Engineer

CT/jil
Enc.

P:BOZ_13007.07_Wetland_Delineation_Letter_Report_072216_SC

Enclosures:

- Figure 1. Site Location Map
- Figure 2. Project Location on Aerial Map
- Figure 3. Wetland Delineation Map
- Figure 4. Groundwater Depths, July 9, 2015
- Attachment A:
 - Wetland Determination Data Forms
 - NWI MNHP Map
 - Soil Map
 - Site Photos

Attachment B: 2008 NRCS Wetland Delineation Letter

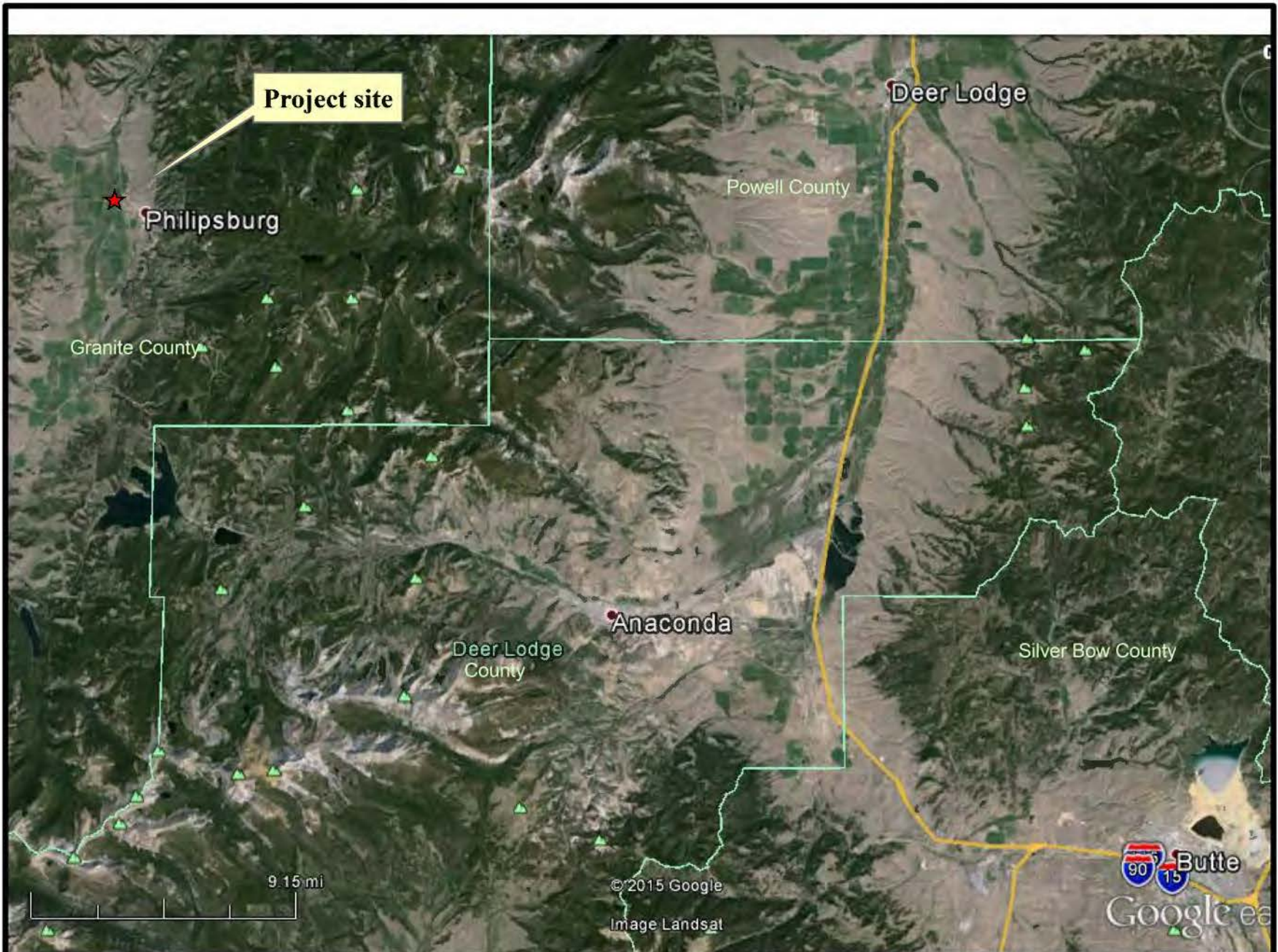


Figure 1. Proposed project site location

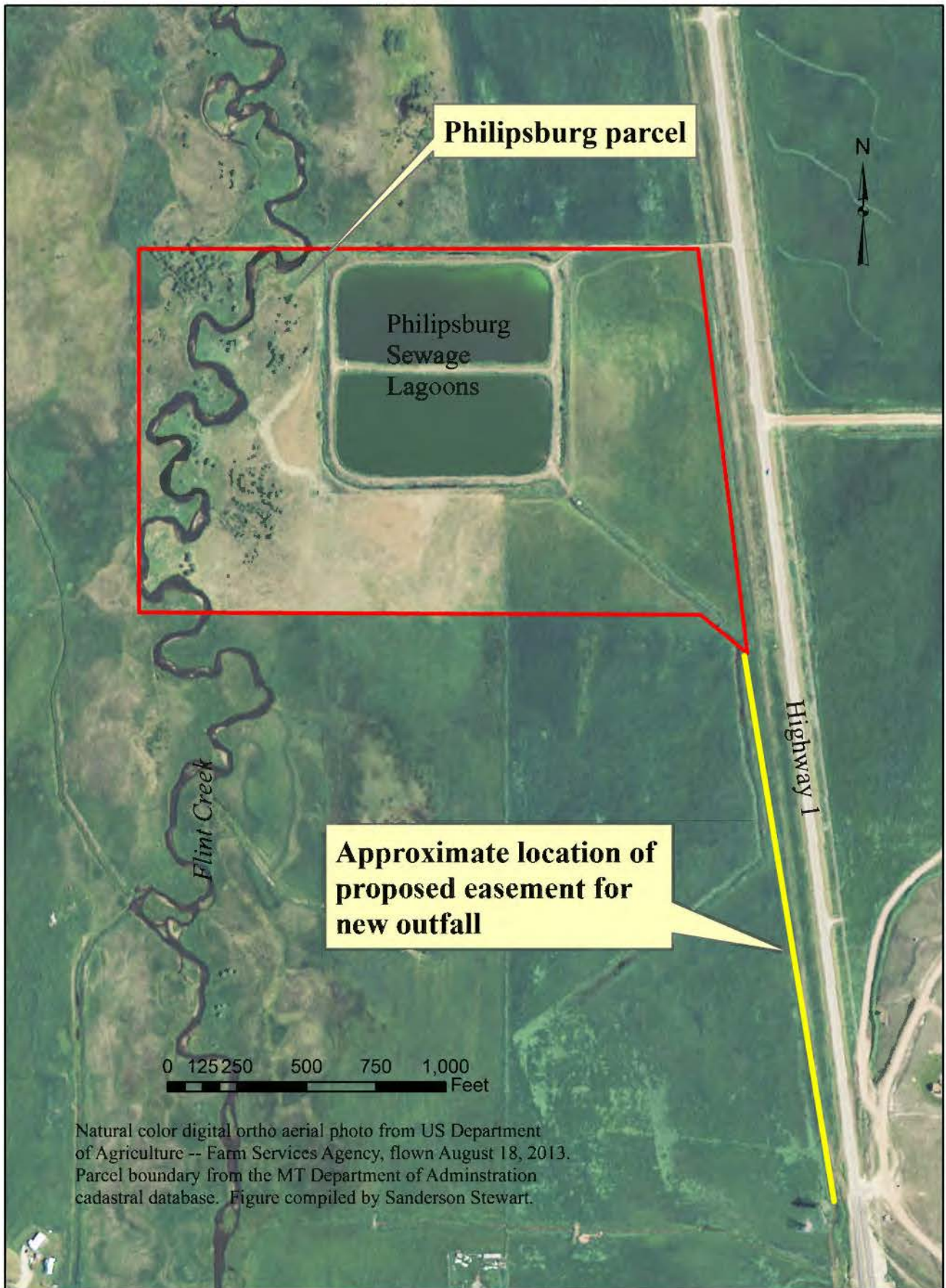


Figure 2. 2013 Aerial photo showing proposed project site location

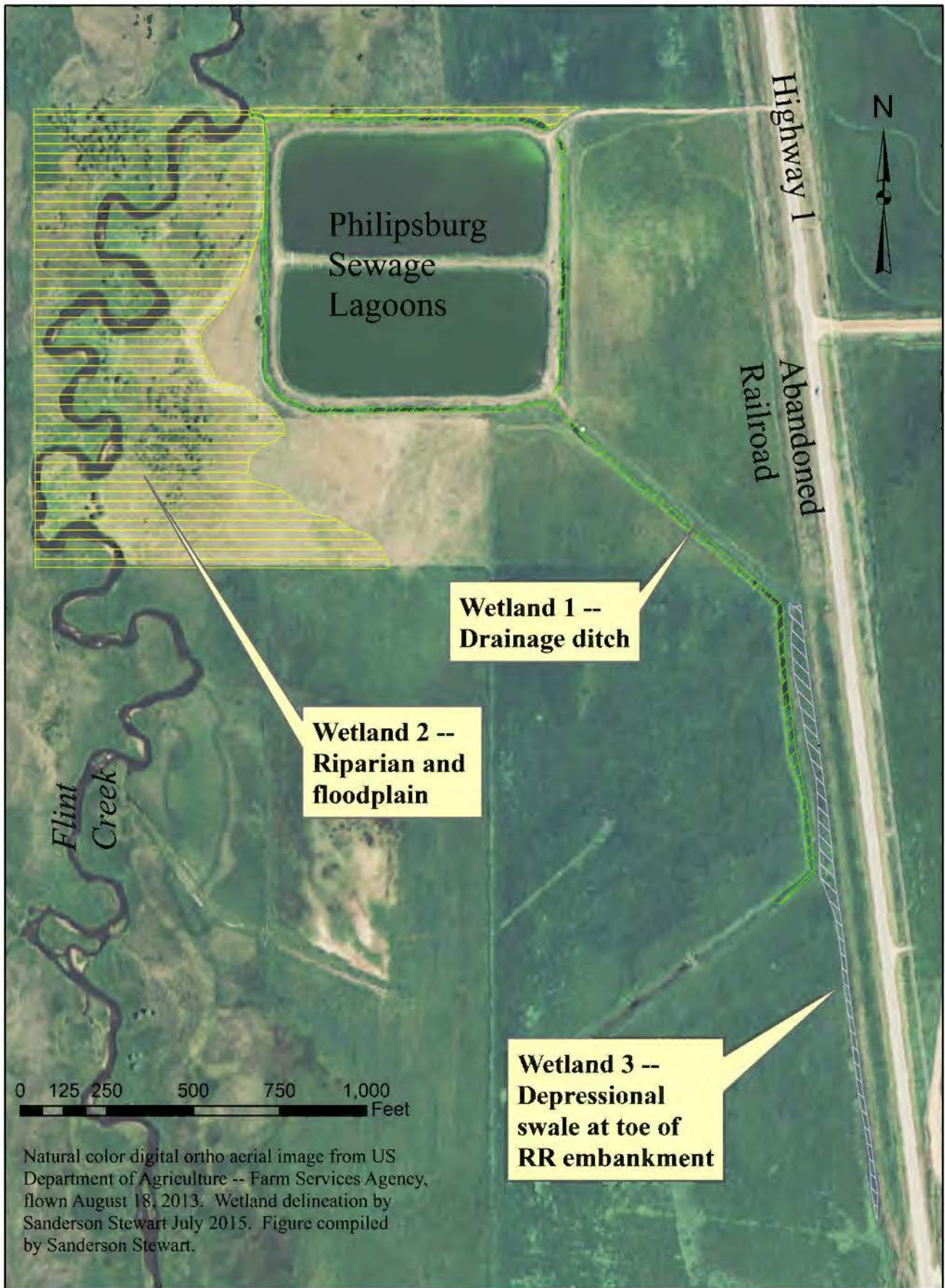


Figure 3. Delineated wetland areas. [See text for scope of work and extent of delineation.]

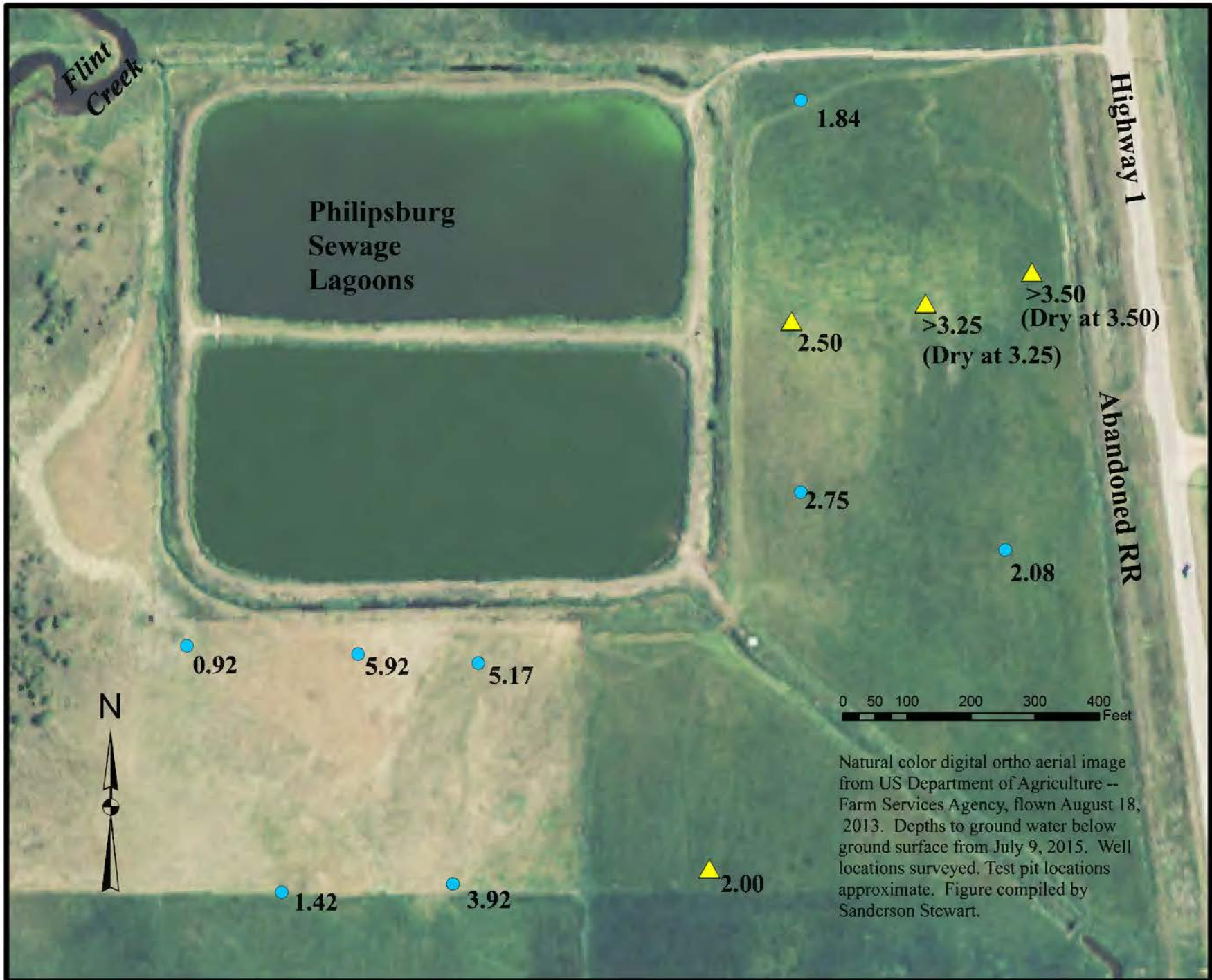
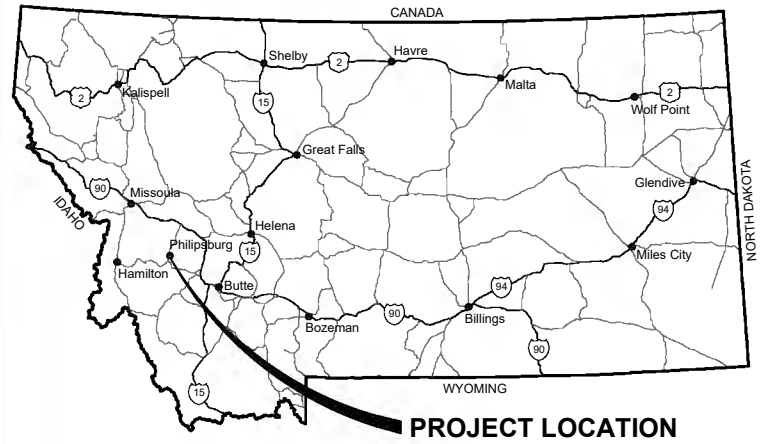


Figure 4. Ground water depth below ground surface, in feet, July 9, 2015. Blue dots wells (surveyed). Yellow triangles test pits (approximate).

Appendix D

Draft Design Drawings

TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS FOR DEQ REVIEW



PROJECT LOCATION

SECTION 23, TOWNSHIP 07N, AND RANGE 14W

TOWN OF PHILIPSBURG
WW TREATMENT SITE

FLINT CREEK



NOT TO SCALE

PLANS PREPARED FOR:

DANIEL REDDISH, MAYOR
TOWN OF PHILIPSBURG

APPROVED BY:

AUSTIN EGAN, PE
GREAT WEST ENGINEERING

QA/QC BY:

AMY DEITCHLER, PE
GREAT WEST ENGINEERING

PLANS PREPARED BY:

AUSTIN EGAN, PE
ANGUS ROEPER, EI



AMERICAN RESCUE PLAN ACT (ARPA)
MONTANA COAL ENDOWMENT PROGRAM (MCEP)
WATER RESOURCES DEVELOPMENT ACT (WRDA)

NO.	REVISION DESCRIPTION	BY	DATE	SET NO.
△				
△				
△				
△				
△				
△				

SHEET NO.
G1

Y:\shared\Helena Projects\1-21313-Philpsburg Wastewater 2021\CAD\1-21313-Sheets\1-21313-G1-Cover.dwg

SHEET INDEX

GENERAL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE - TITLE</u>
SHEET 1	G1 - COVER
SHEET 2	G2 - SHEET INDEX
SHEET 3	G3 - LEGEND ABBREVIATIONS & GENERAL NOTES
SHEET 4	G4 - DESIGN CRITERIA
SHEET 5	G5 - PROCESS FLOW DIAGRAM
SHEET 6	G6 - HYDRAULIC PROFILE - NON SUMMER MONTHS
SHEET 7	G7 - HYDRAULIC PROFILE - SUMMER STORAGE

CIVIL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE - TITLE</u>
SHEET 8	C1 - EXISTING SITE LAYOUT
SHEET 9	C2 - PROPOSED IMPROVEMENTS PLAN (STORAGE)
SHEET 10	C3 - SITE PIPING PLAN
SHEET 11	C4 - SITE GRADING PLAN
SHEET 12	C5 - INFLUENT GRAVITY MAIN STA 0+00 TO 6+00
SHEET 13	C6 - INFLUENT GRAVITY MAIN STA 6+00 TO 12+00
SHEET 14	C7 - INFLUENT GRAVITY MAIN STA 12+00 TO 15+00
SHEET 15	C8 - CELL 1 INFLUENT GRAVITY MAIN
SHEET 16	C9 - LAGOON LINER VENT SYSTEM
SHEET 17	C10 - LAGOON CROSS SECTIONS
SHEET 18	C11 - CELL EMBANKMENT DETAILS
SHEET 19	C12 - LAGOON OVERFLOW DETAILS
SHEET 20	C13 - CELL 1 LAGOON INLET DETAILS
SHEET 21	C14 - CELL 1 LAGOON OUTLET DETAILS
SHEET 22	C15 - CELL 1 EFFLUENT PLAN & PROFILE
SHEET 23	C16 - CELL 1 BYPASS PLAN & PROFILE
SHEET 24	C17 - CELL 2 INFLUENT DETAILS
SHEET 25	C18 - CELL 2 MULTI LEVEL OUTLET
SHEET 26	C19 - CELL 2 BYPASS PLAN & PROFILE
SHEET 27	C20 - SAGR SPLITTER AND LEVEL CONTROL DETAIL
SHEET 28	C21 - SAGR EFFLUENT AND LEVEL CONTROL DETAIL
SHEET 29	C22 - SAGR EFFLUENT PLAN & PROFILE STA.45+00 TO 51+00
SHEET 30	C23 - SAGR EFFLUENT PLAN & PROFILE STA. 51+00 TO 56+00
SHEET 31	C24 - STORAGE OUTFALL PLAN & PROFILE
SHEET 32	C25 - STORAGE EFFLUENT PLAN & PROFILE
SHEET 33	C26 - STORAGE EFFLUENT STRUCTURE DETAILS
SHEET 34	C27 - LAGOON DETAIL
SHEET 35	C28 - LAGOON DETAIL
SHEET 36	C29 - GENERAL DETAIL
SHEET 37	C30 - GENERAL DETAIL
SHEET 38	C31 - GENERAL DETAILS
SHEET 39	C32 - LAGOON & SAGR DETAIL

PROCESS DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE - TITLE</u>
SHEET 40	P1 - LAGOON AERATION PLAN
SHEET 42	P2 - LAGOON AERATION DETAILS
SHEET 43	P3 - LAGOON AERATION DETAILS
SHEET 44	P4 - LAGOON BAFFLE DETAILS
SHEET 45	P5 - SAGR OVERALL PLAN
SHEET 44	P6 - SAGR AERATION AND FLOW DISTRIBUTION SECTION
SHEET 46	P7 - SAGR DETAILS
SHEET 47	P8 - BLOWER BUILDING PLAN
SHEET 48	P9 - BLOWER PIPING SECTIONS
SHEET 49	P10 - BLOWER DETAILS
SHEET 50	P11 - UV BUILDING PLAN
SHEET 51	P12 - UV DETAILS
SHEET 52	P13 - PROCESS DETAILS

ARCHITECTURAL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE</u>	<u>TITLE</u>
--------------	-------------------	--------------

STRUCTURAL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE</u>	<u>TITLE</u>
--------------	-------------------	--------------

MECHANICAL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE</u>	<u>TITLE</u>
--------------	-------------------	--------------

ELECTRICAL DRAWINGS

<u>SHEET</u>	<u>DISCIPLINE</u>	<u>TITLE</u>
--------------	-------------------	--------------

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313	DESIGNED: AHE	DRAWN: AR, AE	CHECKED: AMD	APPROVED: AHE	DATE: JANUARY 2023
------------------	---------------	---------------	--------------	---------------	--------------------



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SHEET INDEX

SHEET NO.
G2

ABBREVIATIONS

⊙	AT	LPG	LIQUID PROPANE GAS
Δ	ANGLE OF DEFLECTION, DELTA ANGLE	LT	LEFT
<PT	ANGLE POINT	MAX	MAXIMUM
AB	ANCHOR BOLT	MD	MEASURE DOWN
ABDN	ABANDON	MFD	MANUFACTURED
AC	ASBESTOS CONCRETE	MFR	MANUFACTURE, MANUFACTURER
ADDN	ADDITIONAL	MH	MANHOLE
ADJ	ADJACENT	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR	MISC	MISCELLANEOUS
ALT	ALTERNATE	MJ	MECHANICAL JOINT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MOV	MOTOR OPERATED VALVE
APPROX	APPROXIMATE	MPWSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS
APVD	APPROVED	N	NORTH
ARCH	ARCHITECTURE, ARCHITECTURAL	NE	NORTHEAST
ASPH	ASPHALT	NG	NATURAL GAS
AVE	AVENUE	NDT	NOT IN CONTRACT
AVG	AVERAGE	NO	NUMBER
BFV	BUTTERFLY VALVE	NOM	NOMINAL
BLDG	BUILDING	NTS	NOT TO SCALE
BLK	BLOCK	NW	NORTHWEST
BLVD	BOULEVARD	OC	ON CENTER
BM	BEAM, BENCHMARK	OD	OUTSIDE DIAMETER
BOT	BOTTOM	OF	OVERFLOW
BRG	BEARING	OH	OVERHEAD
BRKT	BRACKET	OHP	OVERHEAD POWER
BVC	BEGIN VERTICAL CURVE	OHT	OVERHEAD TELEPHONE
C-C	CENTER TO CENTER	OPNG	OPENING
CHAN	CHANNEL	PC	POINT OF CURVATURE
CHK	CHECK	PCC	POINT OF COMPOUND CURVATURE
CI	CAST IRON	PE	PLAIN END, POLYETHYLENE
CIPC	CAST-IN-PLACE CONCRETE	PERP	PERPENDICULAR
CIRC	CIRCULAR	PI	POINT OF INTERSECTION
CJ	CONSTRUCTION JOINT, CONTROL JOINT	P	PROPERTY LINE
CL	CENTER LINE	PNL	PANEL
CLR	CLEAR, CLEARANCE	PRC	POINT OF REVERSE CURVATURE
CMP	CORRUGATED METAL PIPE	PREFAB	PREFABRICATED
CMU	CONCRETE MASONRY UNITS	PRELIM	PRELIMINARY
CO	CLEANOUT	PREP	PREPARE, PREPARATION
COL	COLUMN	PROP	PROPERTY
CONC	CONCRETE	PRV	PRESSURE REDUCING VALVE
CONSTR	CONSTRUCTION	PSF	POUNDS PER SQUARE FOOT
CONT	CONTINUE, CONTINUED, CONTINUOUS	PSI	POUNDS PER SQUARE INCH
CONTR	CONTRACTOR	PT	POINT, POINT OF TANGENCY
COORD	COORDINATE	PVC	POLYVINYL CHLORIDE
CP	CONTROL PANEL, CONTROL POINT	PVI	POINT OF VERTICAL INTERSECTION
CPLG	COUPLING	PVMT	PAVEMENT
CTR	CENTER	R, RAD	RADIUS
CTV	CABLE TELEVISION	RC	REINFORCED CONCRETE
CU	CUBIC, COPPER	RCP	REINFORCED CONCRETE PIPE
CF	CUBIC FEET	RD	ROAD
CULV	CULVERT	RDCR	REDUCER
CY	CUBIC YARD	REBAR	REINFORCEMENT BAR
DET	DETAIL	REF	REFERENCE
DI	DUCTILE IRON, DRAIN INLET	REINF	REINFORCE
DIA, Ø	DIAMETER	REQD	REQUIRED
DIAG	DIAGONAL	RR	RAILROAD
DIM	DIMENSION	RST	REINFORCING STEEL
DR	DRIVE	RT	RIGHT
DWG	DRAWING	R/W	RIGHT-OF-WAY
E	EAST	S	SOUTH, SANITARY SEWER
EA	EACH	SAN	SANITARY
EL, ELEV	ELEVATION	SCH	SCHEDULE
ELB	ELBOW	SD	STORM DRAIN
ELEC	ELECTRIC, ELECTRICAL	SDWK	SIDEWALK
ENCL	ENCLOSE	SE	SOUTHEAST
ENGR	ENGINEER	SECT	SECTION
EOP	EDGE OF PAVEMENT	SF	SQUARE FOOT
EQ	EQUAL, EQUALLY	SHT	SHEET
EQ SP	EQUALLY SPACED	SIM	SIMILAR
EQUIP	EQUIPMENT	SLP	SLOPE
EQUIV	EQUIVALENT	SPEC	SPECIFICATION
EVC	END VERTICAL CURVE	SQ	SQUARE
EW	EACH WAY	SSTL	STAINLESS STEEL
EXC	EXCAVATE	STA	STATION
EXP	EXPANSION	SS	SANITARY SEWER SERVICE
EXP JT	EXPANSION JOINT	STD	STANDARD
EXST	EXISTING	ST	STEEL
FCV	FLOW CONTROL VALVE	STRUCT	STRUCTURE
FD	FLOOR DRAIN	SW	SOUTHWEST
FDN	FOUNDATION	SYM	SYMMETRICAL
FES	FLARED END SECTION	TB	THRUST BLOCK
FET	FLARED END TERMINAL	TBC	TOP BACK OF CURB
FF	FINISHED FLOOR	TBM	TEMPORARY BENCH MARK
FG	FINISH GRADE	TEL	TELEPHONE
FHYD	FIRE HYDRANT	TEMP	TEMPORARY
FJ	FLANGE JOINT	THRU	THROUGH
FL	FLOW LINE	TYP	TYPICAL
FLEX	FLEXIBLE	UG	UNDERGROUND
FM	FORCEMAIN	UGP	UNDERGROUND POWER
FT	FOOT, FEET	UGT	UNDERGROUND TELEPHONE
FO	FIBER OPTIC	UTIL	UTILITY
FTG	FOOTING, FITTING	V	VALVE, VOLT
G	NATURAL GAS	VB	VALVE BOX
GA	GAGE, GAUGE	VERT	VERTICAL
GAL	GALLON	VOL	VOLUME
GALV	GALVANIZED	W	WEST, WATER
GND	GROUND	WTR	WATER
GVL	GRAVEL	WD	WOOD
HB	HOSE BIB	W/	WITH
HDPE	HIGH DENSITY POLYETHYLENE	W/O	WITHOUT
HOR, HORIZ	HORIZONTAL	WL	WETLAND
HWY	HIGHWAY	WM	WIRE MESH, WATER METER
HYD	HYDRANT	WS	WATERSTOP, WATER SURFACE, WATER SERVICE
ID	INSIDE DIAMETER	WT	WEIGHT
IE	INVERT ELEVATION	WV	WATER VALVE
IN	INCH	WVF	WELDED WIRE FABRIC
INV	INVERT	WWM	WELDED WIRE MESH
JB	JUNCTION BOX	XFMR	TRANSFORMER
JT	JOINT	X-ING	CROSSING
K	RATE OF VERTICAL CURVATURE	XS	CROSS SECTION
LBS	POUNDS	YD	YARD
LF	LINEAR FEET		
LN	LANE		

LEGEND

EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION
---	---	MAJOR CONTOUR	⊙	⊙	STUMP
---	---	MINOR CONTOUR	○	○	SHRUB/BUSH
OHT	OHT	OVERHEAD TELEPHONE	☀	☀	TREE-CONIFER
UGT	UGT	UNDERGROUND TELEPHONE	☀	☀	TREE-DECIDUOUS
CTV	CTV	CABLE TELEVISION	~~~~~	~~~~~	TREE LINE
FO	FO	FIBER OPTIC	⊕	⊕	COMMUNICATION MANHOLE
G	G	NATURAL GAS	⊗	⊗	COMMUNICATION VAULT
OHP	OHP	OVERHEAD POWER	□	□	TELEPHONE RISER
UGP	UGP	UNDERGROUND POWER	□	□	CABLE TV RISER
S	S	SANITARY SEWER	□	□	NATURAL GAS METER
SS	SS	SANITARY SEWER SERVICE	□	□	NATURAL GAS RISER
FM	FM	SANITARY SEWER FORCEMAIN	□	□	NATURAL GAS VALVE
SD	SD	STORM DRAIN	⊗	⊗	LIGHT POLE
---	---	STORM CULVERT	⊗	⊗	STREET LIGHT POLE
W	W	WATER	⊗	⊗	POWER RISER
WS	WS	WATER SERVICE	⊗	⊗	PAD MOUNTED TRANSFORMER
○	○	CHAINLINK FENCE	⊗	⊗	POWER VAULT
X	X	BARBED WIRE FENCE	⊗	⊗	UTILITY POLE
□	□	WOOD FENCE	⊗	⊗	GUY WIRE
---	---	PAVED ROAD	⊗	⊗	SANITARY MANHOLE
---	---	GRAVEL ROAD	⊗	⊗	SANITARY CLEANOUT
---	---	PROPERTY/LOT LINE	⊗	⊗	SANITARY LAMPHOLE
---	---	PROPERTY EASEMENT	⊗	⊗	STORM MANHOLE
---	---	PROPERTY SETBACK	⊗	⊗	STORM ROUND INLET
---	---	RIGHT-OF-WAY	⊗	⊗	STORM SQUARE INLET
---	---	CITY LIMIT/DISTRICT BOUNDARY	⊗	⊗	STORM CATCH BASIN
---	---	RAILROAD	⊗	⊗	11.25' ELBOW
---	---	DITCH	⊗	⊗	22.50' ELBOW
---	---	WATER EDGE	⊗	⊗	45' ELBOW
---	---	WETLAND	⊗	⊗	90' ELBOW
---	---	BUILDING	⊗	⊗	TEE
⊕	⊕	BENCHMARK	⊗	⊗	CROSS
⊗	⊗	CONTROL POINT	⊗	⊗	CAP
⊗	⊗	PROPERTY PIN	⊗	⊗	FIRE HYDRANT
⊗	⊗	BORING	⊗	⊗	GATE VALVE
⊗	⊗	MONITORING WELL	⊗	⊗	REDUCER
⊗	⊗	TEST PIT	⊗	⊗	WATER METER
⊗	⊗	BOLLARD	⊗	⊗	WELL
⊗	⊗	MAIL BOX	⊗	⊗	CURB STOP
⊗	⊗	SIGN	⊗	⊗	FROST FREE HYDRANT

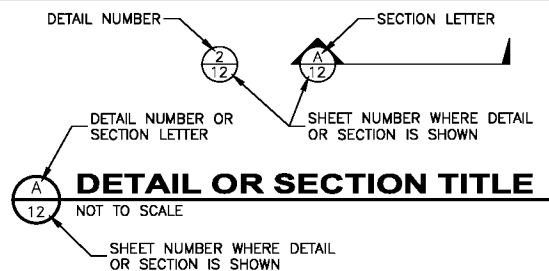
GENERAL NOTES:

1. THIS IS A STANDARD LEGEND AND ABBREVIATION LIST. THEREFORE, NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED ON THIS PROJECT.
2. UNLESS MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK WILL CONFORM TO THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, SIXTH EDITION, APRIL 2010 (REFERRED TO COLLECTIVELY AS MPWSS).
3. EXISTING UNDERGROUND UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE. FOR ACCURATE LOCATION, THE CONTRACTOR SHALL CONTACT, PRIOR TO EXCAVATION, THE UTILITIES UNDERGROUND LOCATION CENTER AT: 1-800-424-5555.

PROJECT NOTES:

1. LOCATIONS AND SIZES OF PIPES, MANHOLES, VALVES, AND APPURTENANCES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND SIZED OF MAINS AS REQUIRED FOR THE NEW INSTALLATION.
2. UNDERGROUND UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF UTILITIES AS REQUIRED FOR THE INSTALLATION OF THE WASTEWATER SYSTEM IMPROVEMENTS.
3. THRUST BLOCKS ARE REQUIRED ON ALL FITTINGS AND VALVES IF RESTRAINED JOINT FITTINGS ARE NOT USED.
4. ALL PIPE WITH LESS THAN 4 FEET OF COVER BETWEEN THE TOP OF PIPE AND FINISH GROUND SURFACE SHALL BE INSULATED PER DETAILS SHOWN IN THE DRAWINGS.
5. ALL NEW CONCRETE STRUCTURES THAT WILL HOLD WATER WILL BE REQUIRED TO PASS HYDROSTATIC LEAKAGE TESTING, CONDUCTED BY THE CONTRACTOR, IN ACCORDANCE WITH THE SPECIFICATIONS.

GENERAL DESIGN DESIGNATIONS:



DATE					
BY					
REVISION DESCRIPTION					
NO.					

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

GreatWest
250 BELT VIEW DRIVE
HELENA, MT
(406)449-8991

TOWN OF PHILIPSBURG

WASTEWATER SYSTEM IMPROVEMENTS

LEGEND ABBREVIATIONS & GENERAL NOTES

SHEET NO.
G3

DESIGN CRITERIA

POPULATION

CURRENT POPULATION	PEOPLE	1,020
DESIGN POPULATION	PEOPLE	1,462

SYSTEM WASTEWATER FLOWS

AVERAGE MONTH PER CAPITA FLOW	GPCD	100
CURRENT ANNUAL AVERAGE FLOW	MGD	0.102
CURRENT MAXIMUM MONTH FLOW	MGD	0.111
MAX DAY FLOW	MGD	0.364
DESIGN ANNUAL AVERAGE FLOW	MGD	0.1512
DESIGN MAXIMUM MONTH	MGD	0.172
	DESIGN PEAK	
	HOUR	GPM 386

LAGOON INFLUENT WASTEWATER INFLUENT CHARACTERISTICS (AVG. ANNUAL)

DESIGN BOD ₅ CONCENTRATION	MG/L	348
DESIGN BOD ₅ LOAD	LB/D	424
DESIGN TSS CONCENTRATION	MG/L	264
DESIGN TSS LOAD	LB/D	322
DESIGN TKN CONCENTRATION	MG/L	54
DESIGN TKN LOAD	LB/D	65.8

EXISTING CELL 1 DATA

WATER DEPTH	FT	3.0
SLUDGE DEPTH	FT	2.0
WATER VOLUME	GAL	5,895,342
DETENTION TIME (AT DESIGN FLOW)	DAYS	43.3

EXISTING CELL 2 DATA

WATER DEPTH	FT	4.0
SLUDGE DEPTH	FT	1.0
WATER VOLUME	GAL	7,694,570
DETENTION TIME (AT DESIGN FLOW)	DAYS	56.5

PARTIAL MIX AERATED CELL #1 DATA

WATER DEPTH	FT	8 (MIN)
SLUDGE DEPTH	FT	2
TOTAL WATER COLUMN DEPTH	FT	10 (MIN)
WATER VOLUME	GAL	3,581,555
DETENTION TIME (AT DESIGN FLOW)	DAYS	23.7
AERATION REQUIREMENT	LB O ₂ /LB BOD ₅ REMOVED	1.5
MINIMUM DISSOLVED OXYGEN	MG/L	2.0

PARTIAL MIX AERATED CELL #2 DATA

WATER DEPTH	FT	8 (MIN)
SLUDGE DEPTH	FT	2
TOTAL WATER COLUMN DEPTH	FT	10 (MIN)
WATER VOLUME	GAL	2,246,375
DETENTION TIME (AT DESIGN FLOW)	DAYS	14.9
AERATION REQUIREMENT	LB O ₂ /LB BOD ₅ REMOVED	1.5
MINIMUM DISSOLVED OXYGEN	MG/L	2.0

SAGR WASTEWATER INFLUENT CHARACTERISTICS

BOD ₅ INFLUENT DESIGN CONCENTRATION	MG/L	30
DESIGN BOD ₅ LOAD	LB/D	41.7
DESIGN TSS CONCENTRATION	MG/L	30
DESIGN TSS LOAD	LB/D	41.7
DESIGN TKN CONCENTRATION	MG/L	49
DESIGN TKN LOAD	LB/D	68

SUBMERGED ATTACHED GROWTH REACTORS (SAGR'S)

GEOMETRY		
NUMBER OF AERATED ROCK FILTERS	EA	2
NOMINAL WATER VOLUME PER BED	MG	0.377
NOMINAL BED LENGTH	FT	105
NOMINAL BED WIDTH	FT	60
TOTAL ROCK/WATER DEPTH	FT	8
DETENTION TIME AT DESIGN FLOW	HRS	60
LLPDE LINER	MILS	60
NON-WOVEN GEOTEXTILE	OZ	8
FILTER BED MEDIA		WASHED ROCK
FILTER BED MEDIA POROSITY	%	40
INSULATION TYPE		MULCH, WOOD CHIPS, OR RUBBER CHIPS
INSULATION THICKNESS	FT	1.0

AERATION/BLOWERS

BLOWER DRIVE TYPE

BLOWER SIZE	HP	40	
NUMBER OF BLOWERS	EA	2	
DESIGN AIRFLOW PER BLOWER	SCFM	583	
NORMAL OPERATING PRESSURE	PSI	6.0	
MAXIMUM OPERATING PRESSURE	PSI	7.2	
SOUND LEVEL	dB(A)	74	
DIFFUSER TYPE		H3-4	COARSE BUBBLE
MINIMUM DO CONCENTRATION	MG/L	2.0	3.0
ALPHA		0.60	0.70
BETA		0.95	0.95
THETA		1.024	1.024

SAGR DESIGN TARGET EFFLUENT WASTEWATER CHARACTERISTICS

BOD ₅ AVERAGE MONTHLY	MG/L	<15	MIN. 85% REMOVAL TOTAL FACILITY
TSS AVERAGE MONTHLY	MG/L	<15	MIN. 85% REMOVAL TOTAL FACILITY

FINAL EFFLUENT PERMIT LIMITS

BOD ₅ AVERAGE MONTHLY	MG/L	30
BOD ₅ AVERAGE MONTHLY	LB/D	40
BOD ₅ AVERAGE MONTHLY	% REMOVAL	85
TSS AVERAGE MONTHLY	MG/L	45
TSS AVERAGE MONTHLY	LB/D	60
TSS AVERAGE MONTHLY	% REMOVAL	65
E.COLI SUMMER AVERAGE MONTHLY	CFU/100ML	126
E.COLI WINTER AVERAGE MONTHLY	CFU/100ML	630
TOTAL NITROGEN (JULY 1 - SEPT. 30)	LB/D	15.6
TOTAL PHOSPHOROUS (JULY 1 - SEPT. 30)	LB/D	3.88

UV DISINFECTION

CONFIGURATION		HORIZONTAL
NUMBER OF UV CHANNELS		1
UV TRANSMITTANCE (DESIGN)	%	50 (MINIMUM)
UV DOSAGE (MIN.)	MJ/CM^2	30

NO.	REVISION DESCRIPTION	BY	DATE

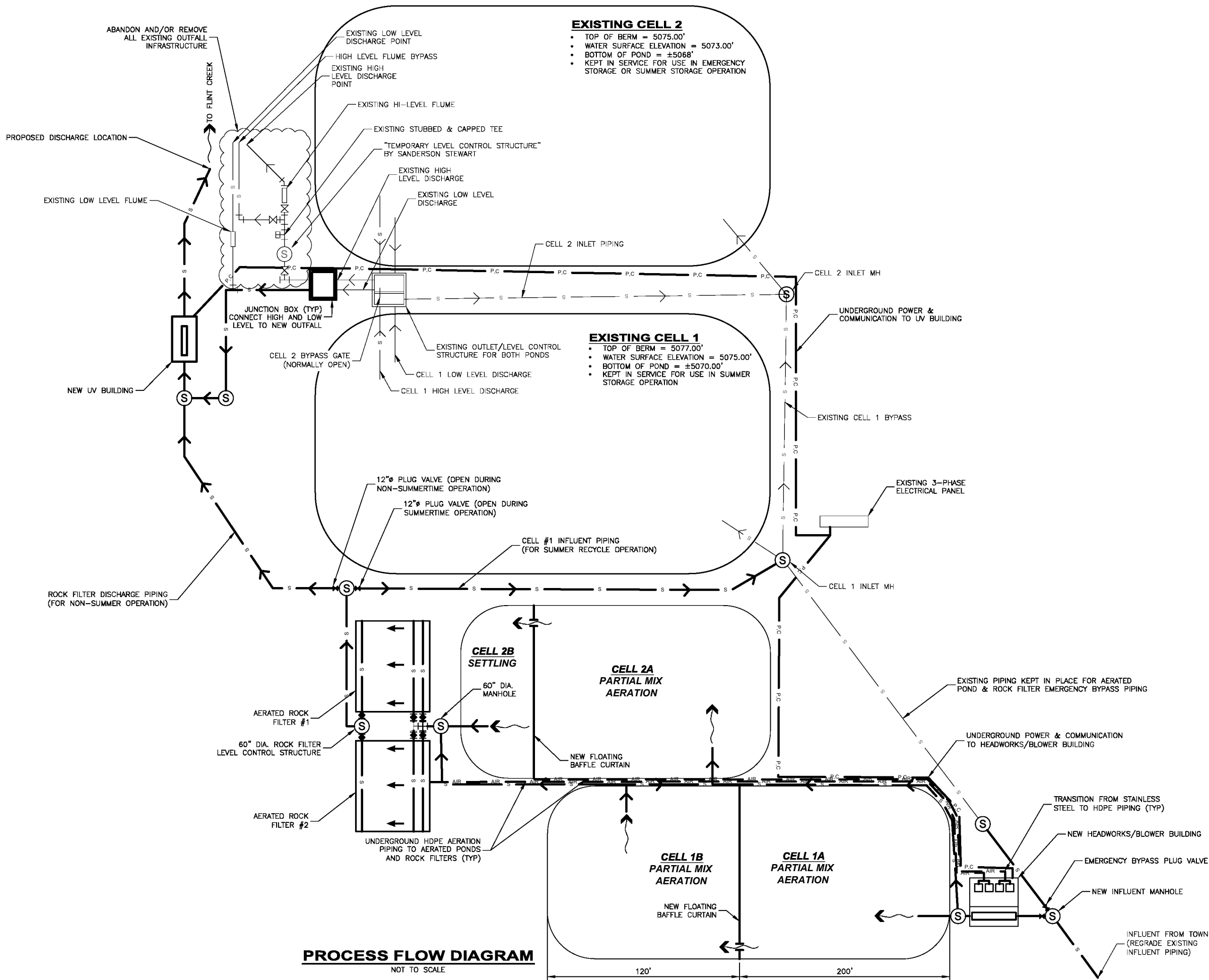
PROJECT: 1-21313	DESIGNED: AHE	DRAWN: AR, AE	CHECKED: AMD	APPROVED: AHE	DATE: JANUARY 2023
------------------	---------------	---------------	--------------	---------------	--------------------



**TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
DESIGN CRITERIA**

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-G4-Design Criteria.dwg

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-65-Process Flow Diagram (Storage).dwg



NO.	REVISION DESCRIPTION	BY	DATE

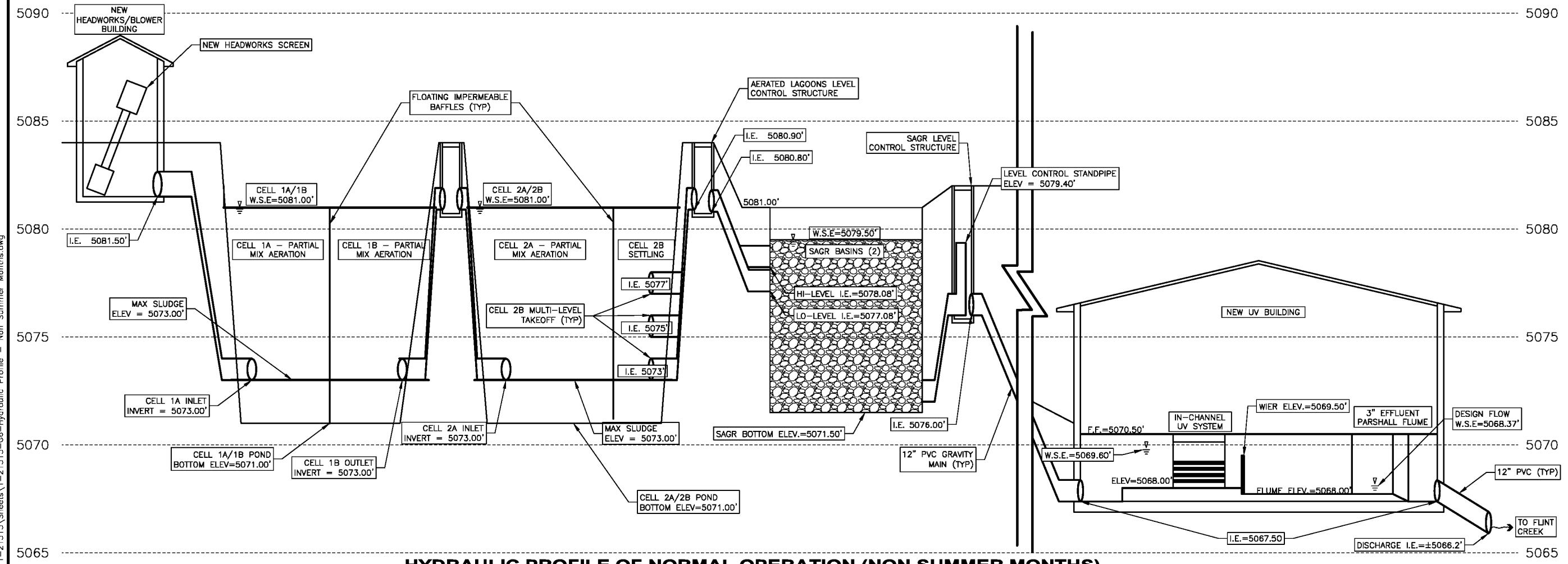
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 PROCESS FLOW DIAGRAM

SHEET NO.
G5

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-06-Hydraulic Profile - Non Summer Months.dwg



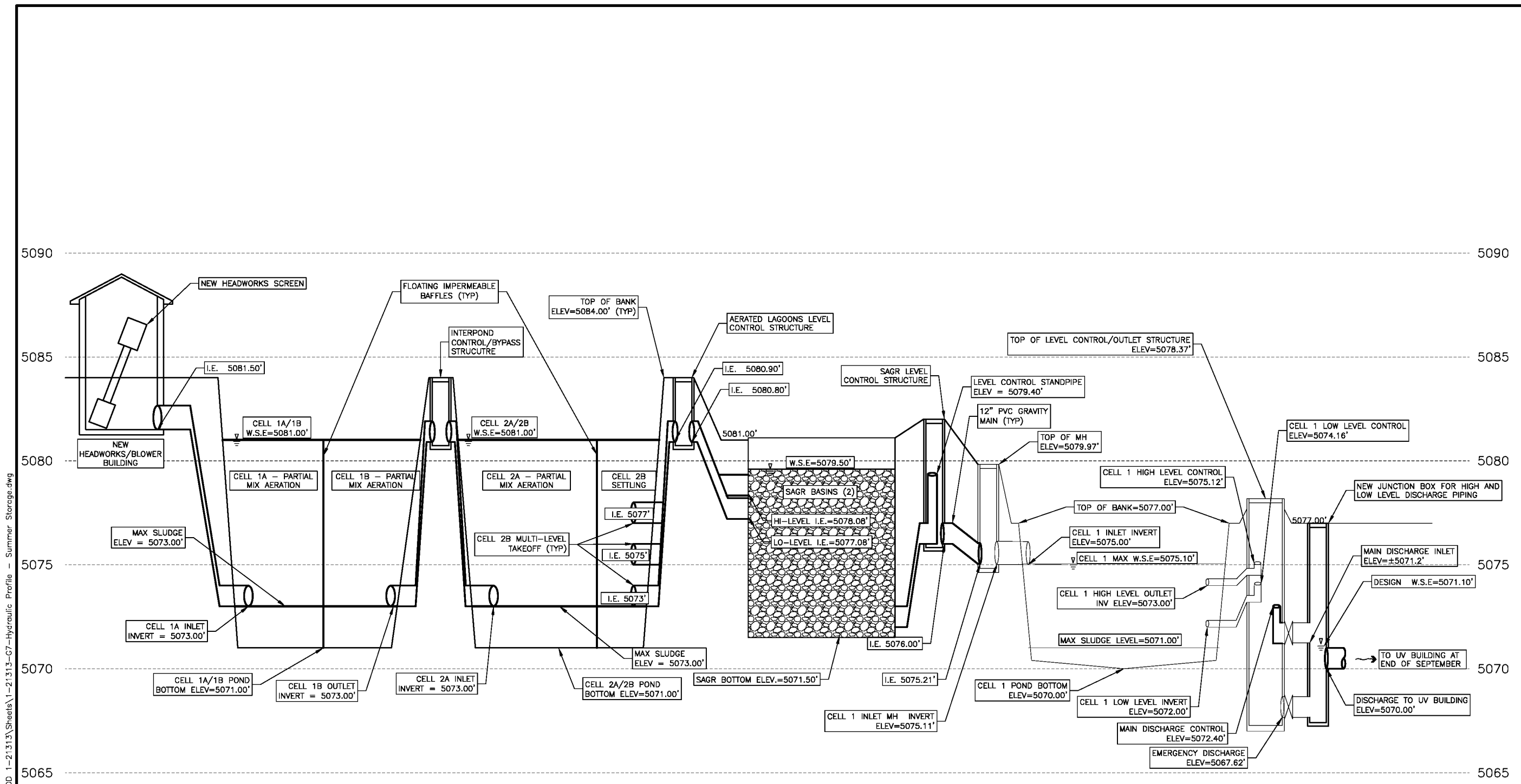
HYDRAULIC PROFILE OF NORMAL OPERATION (NON SUMMER MONTHS)
NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 HYDRAULIC PROFILE - NON SUMMER MONTHS



HYDRAULIC PROFILE OF STORAGE OPERATION (SUMMER MONTHS)
NOT TO SCALE

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Philipsburg Wastewater 2021\1-21313-G7-Hydraulic Profile - Summer Storage.dwg

NO.	REVISION DESCRIPTION	BY	DATE

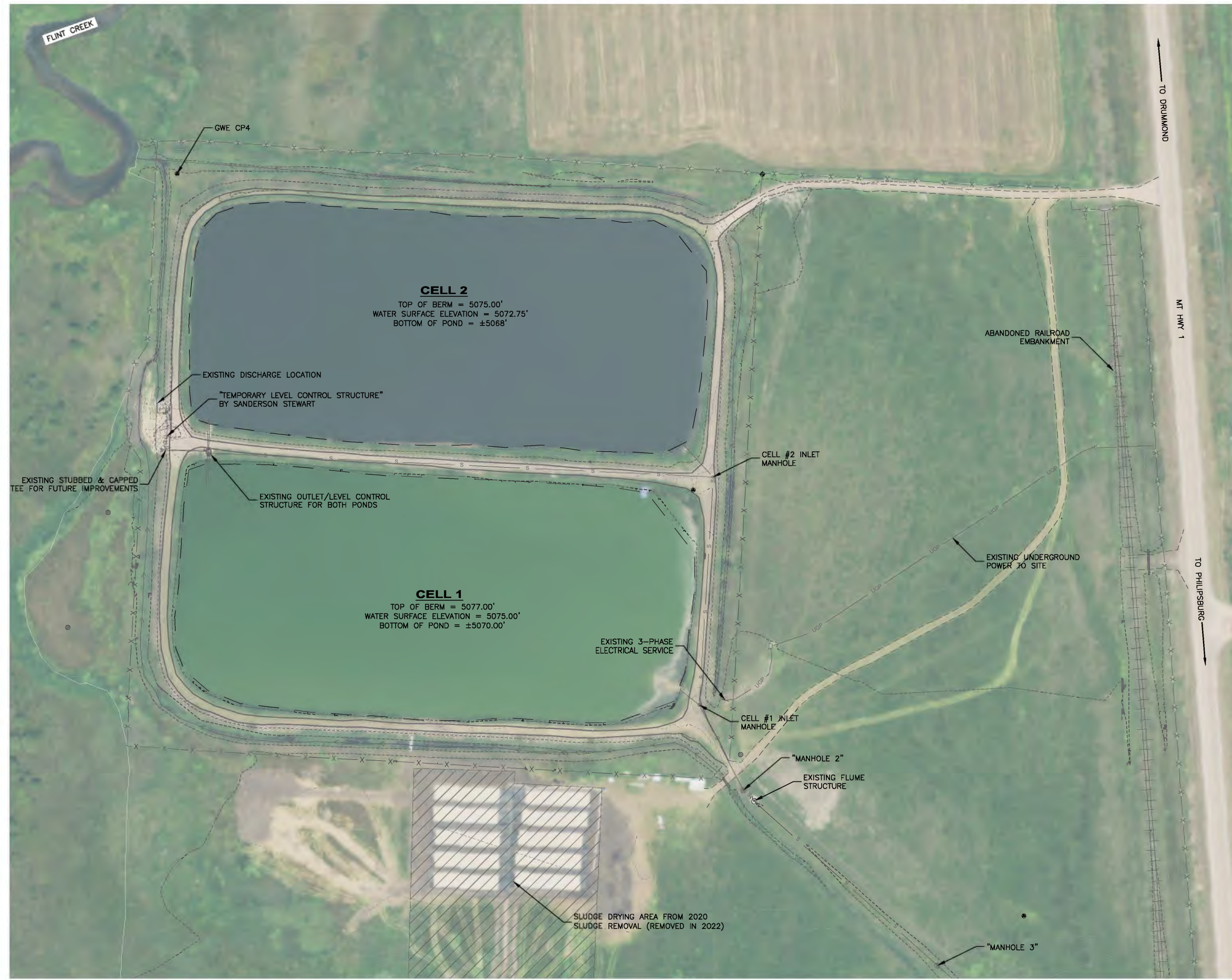
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 HYDRAULIC PROFILE - SUMMER STORAGE

SHEET NO.
G7

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-C1-Existing Site Plan.dwg



PLAN VIEW OF EXISTING SITE



TOWN OF PHILIPSBURG

WASTEWATER SYSTEM IMPROVEMENTS

EXISTING SITE LAYOUT

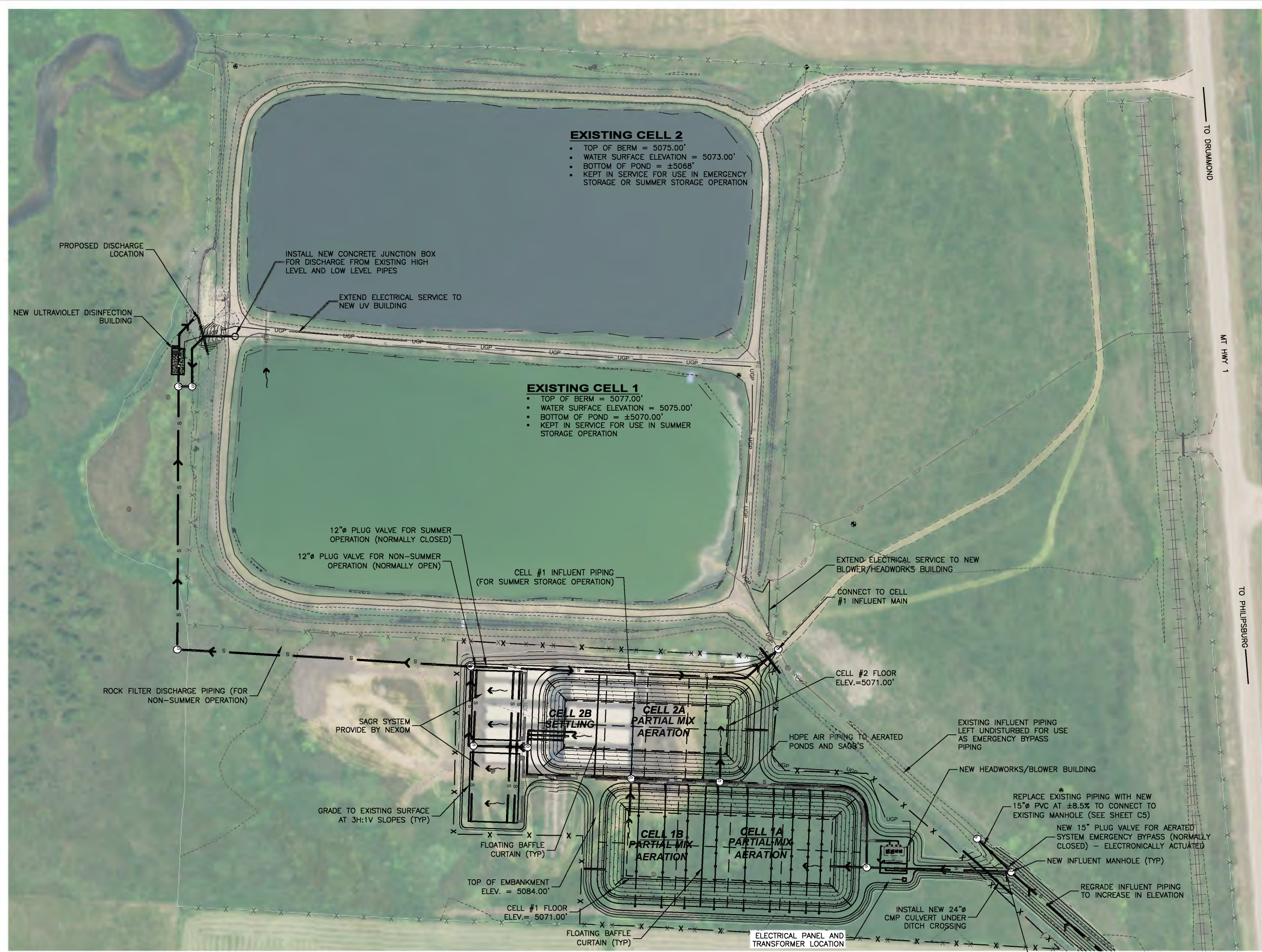
SHEET NO.

C1

PROJECT: 1-21313	NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: AHE	△			
DRAWN: AR, AE	△			
CHECKED: AMD	△			
APPROVED: AHE	△			
DATE: JANUARY 2023				



Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-C2-Proposed Improvements Layout - Storage Alternative.dwg



PLAN VIEW OF PROPOSED IMPROVEMENTS

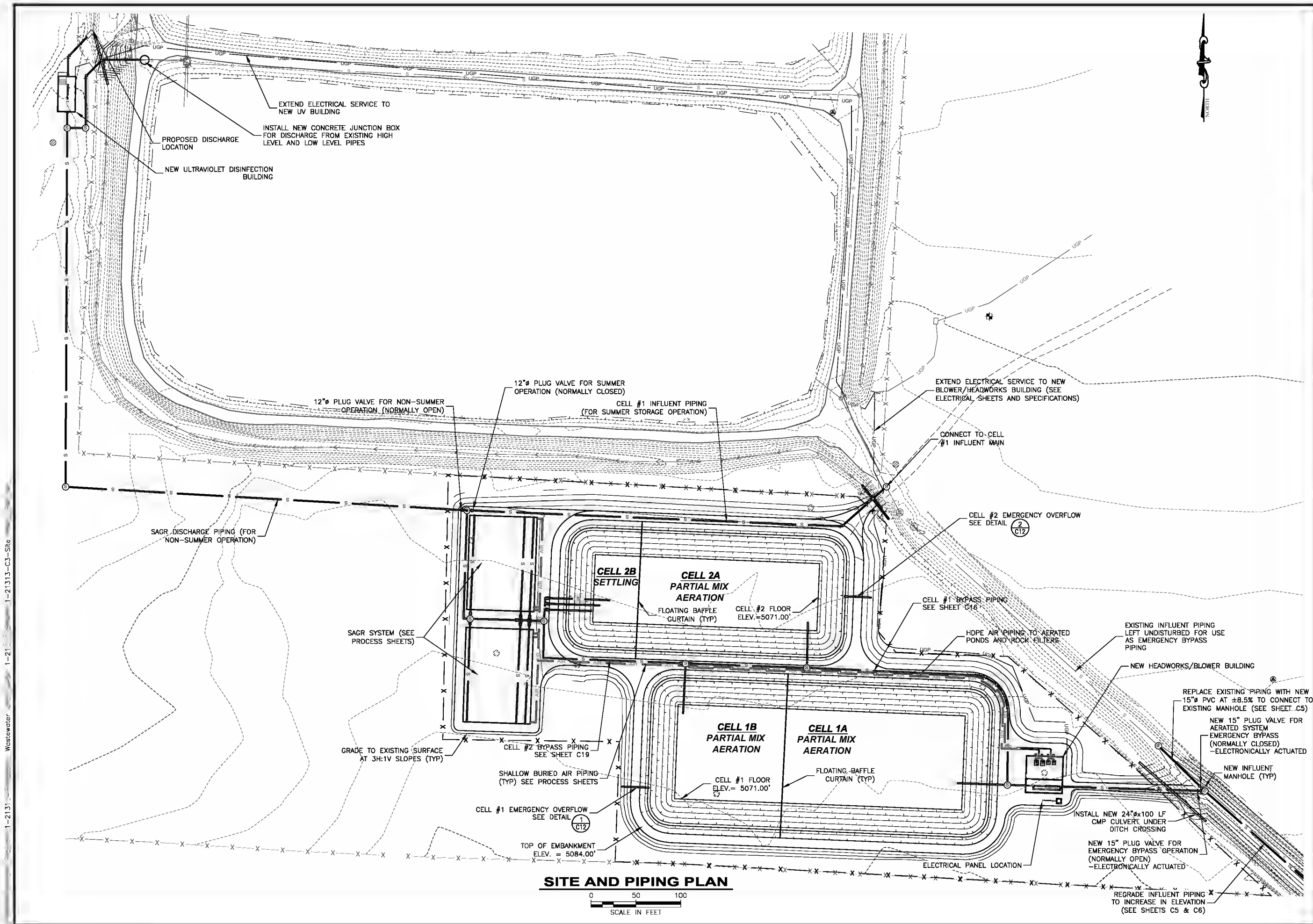
0 50 100
SCALE IN FEET



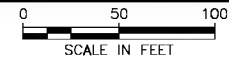
PROJECT: 1-21313		NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: AHE		△			
DRAWN: AR, AE		△			
CHECKED: AMD		△			
APPROVED: AHE		△			
DATE: JANUARY 2023					

TOWN OF PHILIPSBURG	
WASTEWATER SYSTEM IMPROVEMENTS	
PROPOSED IMPROVEMENTS PLAN (STORAGE)	
SHEET NO.	
C2	





SITE AND PIPING PLAN



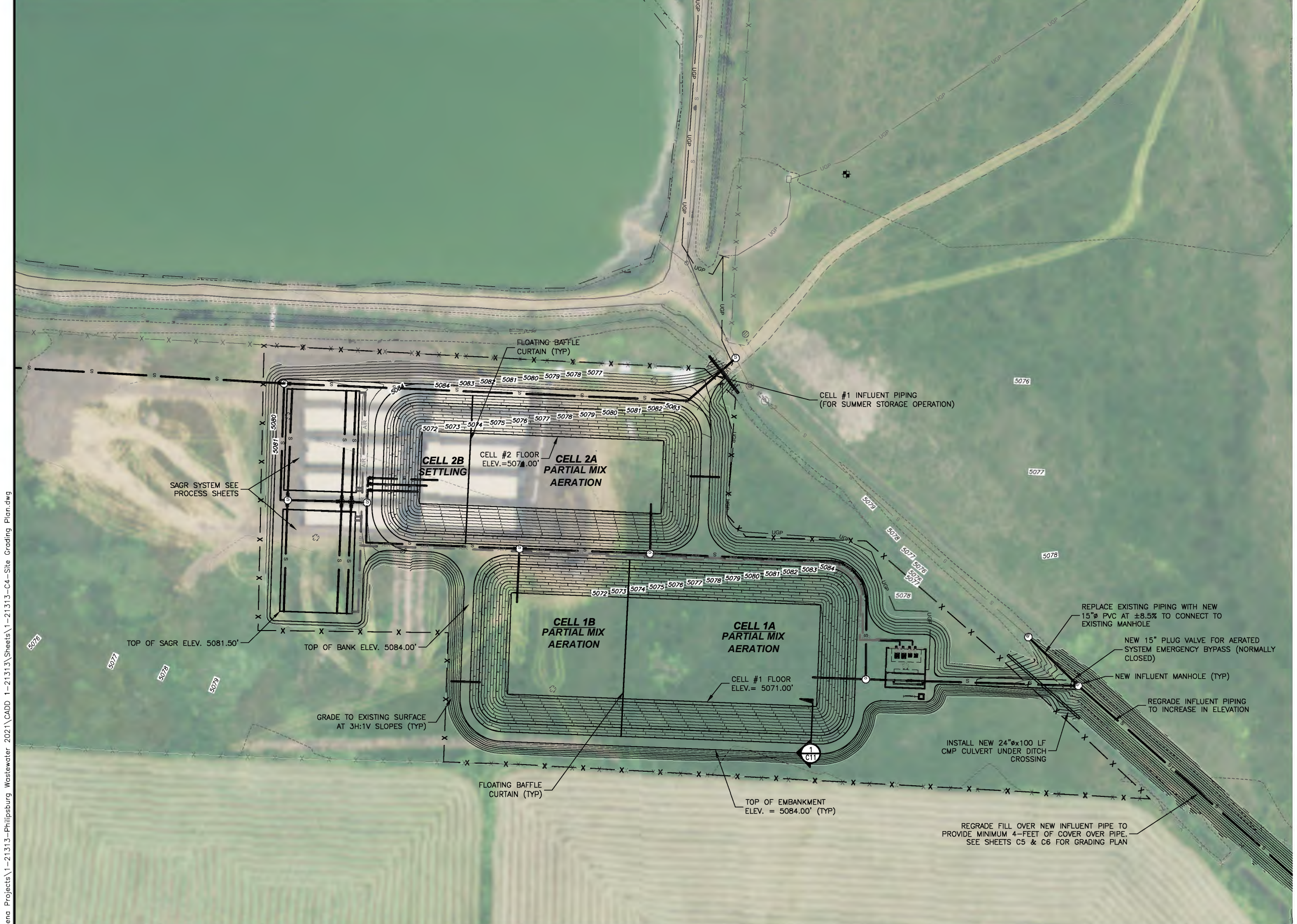
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SITE PIPING PLAN

SHEET NO.
C3



NO.	REVISION DESCRIPTION	BY	DATE

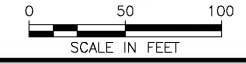
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



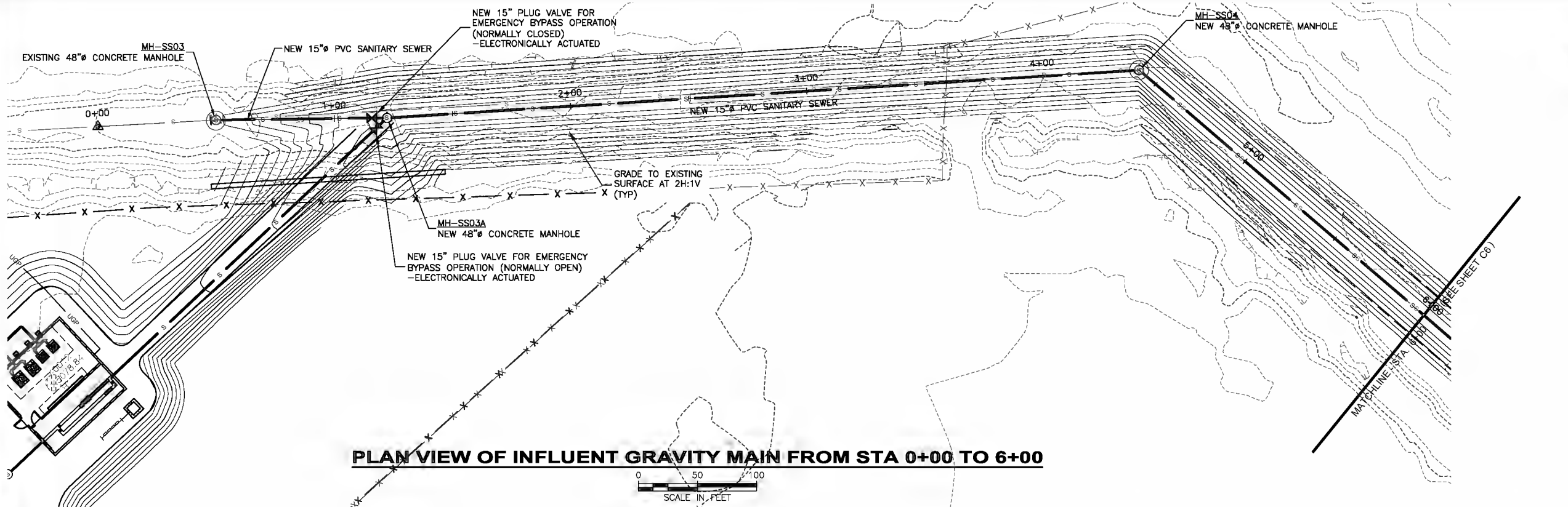
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SITE GRADING PLAN

SHEET NO.
C4
 OF ---

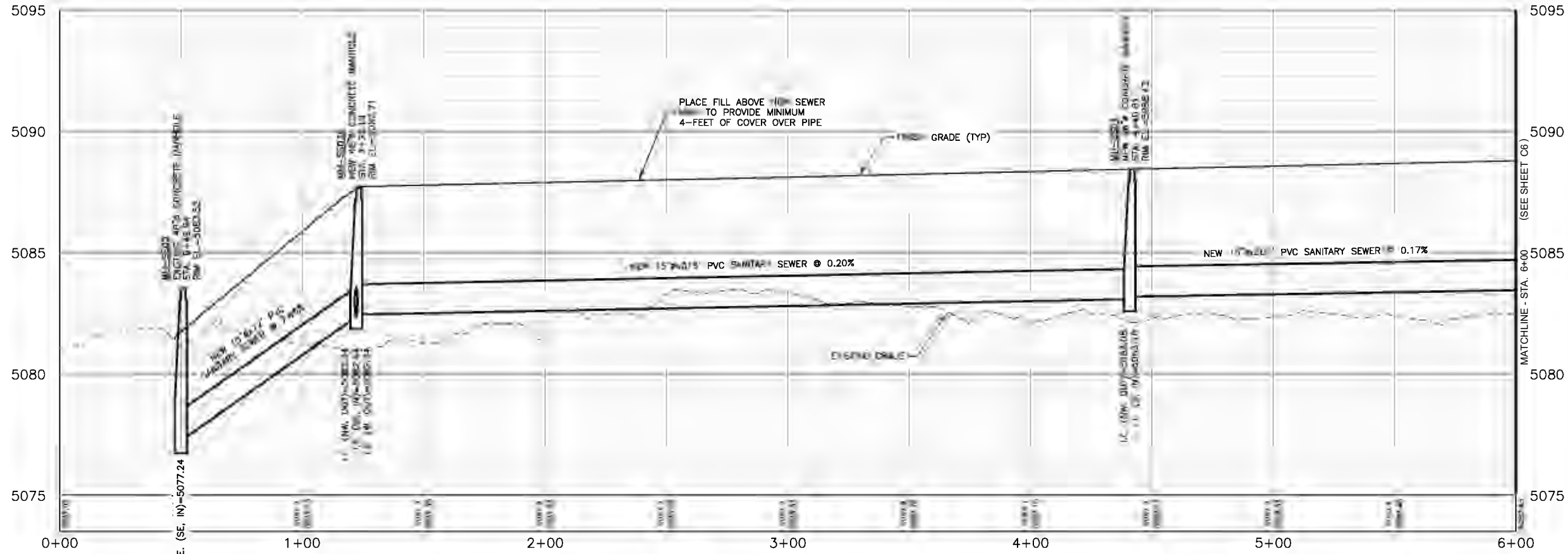
SITE GRADING PLAN



Y:\shared\Ielena Projects\1-21313-Philpsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-C4-Site Grading Plan.dwg



PLAN VIEW OF INFLUENT GRAVITY MAIN FROM STA 0+00 TO 6+00



PROFILE VIEW OF INFLUENT GRAVITY MAIN - STA. 0+00 TO STA. 6+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

1-2131-Profile 1-2131 Wastewater Sewer - July 1-21 1-21313-CS-Influent Main STA 0+00 to

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

Great West ENGINEERING
260 BELT VIEW DRIVE
HELENA, MT 59601
(406) 449-6897

TOWN OF PHILIPSBURG

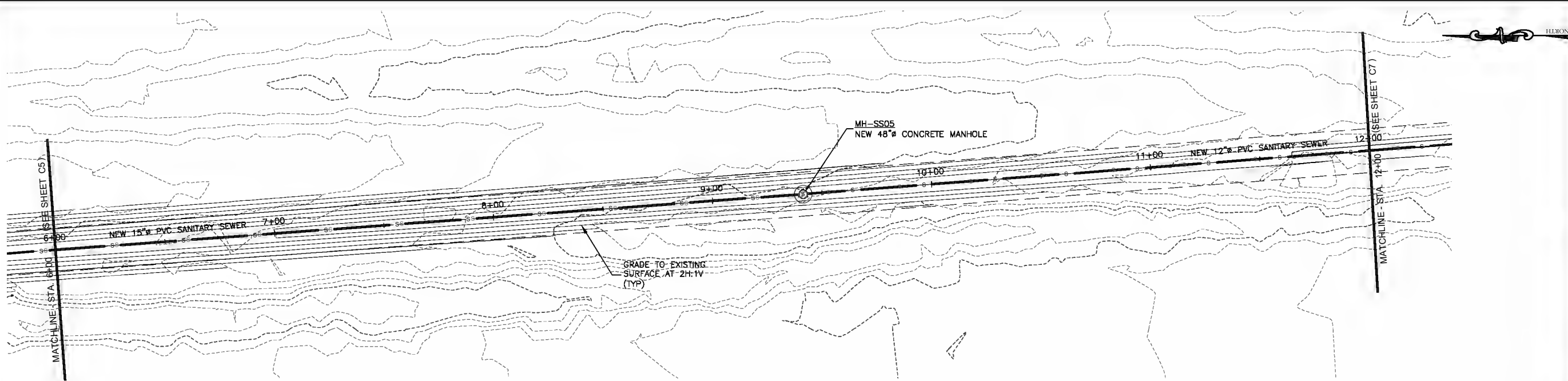
WASTEWATER SYSTEM IMPROVEMENTS

INFLUENT GRAVITY MAIN STA 0+00 TO 6+00
STA 3+00 TO 13+00

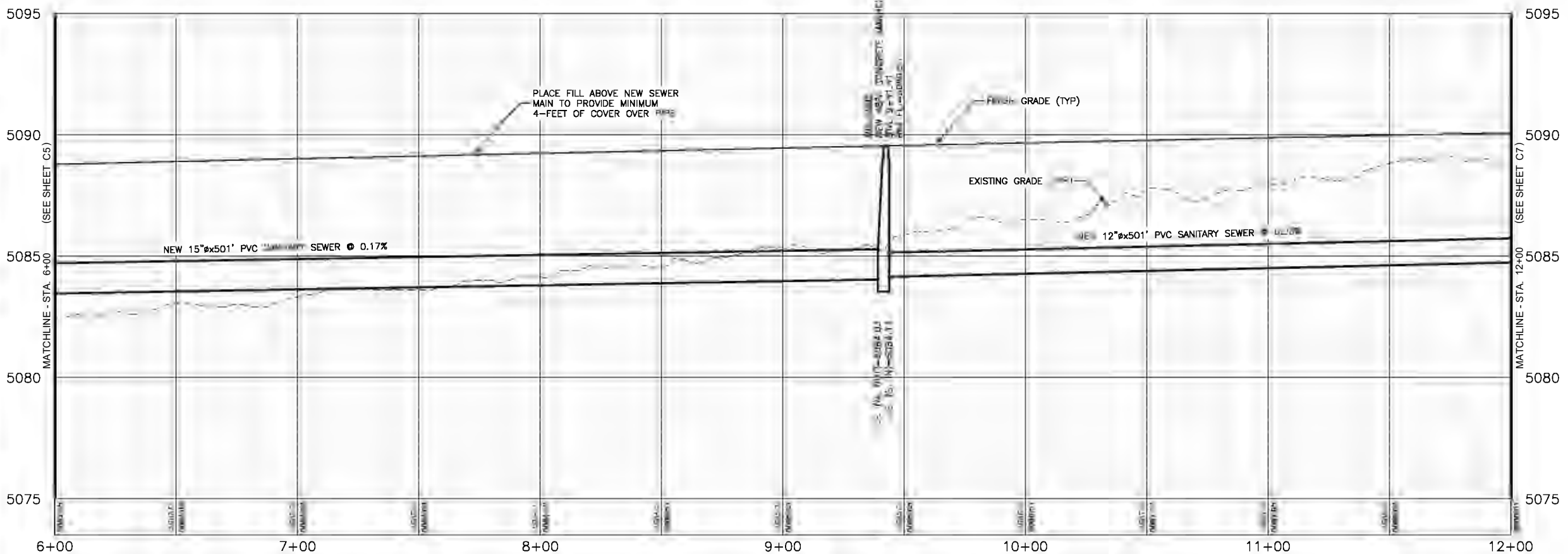
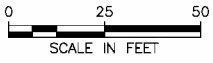
SHEET NO.

C5

OF ---



PLAN VIEW OF INFLUENT GRAVITY MAIN FROM STA 6+00 TO 12+00



PROFILE VIEW OF INFLUENT GRAVITY MAIN - STA. 6+00 TO STA. 12+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

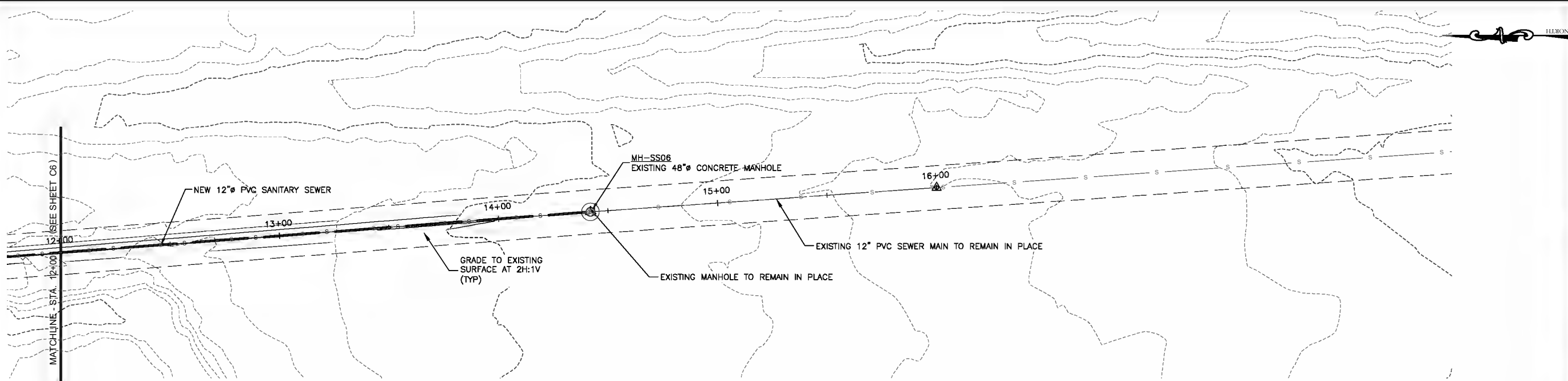
Profile: 1-2131 Wastewater 1-2131-1-2131-3-C6-Influent Main STA 6+00 to 12+00

PROJECT: 1-21313	DESIGNED: AHE
NO.	DRAWN: AR, AE
REVISION DESCRIPTION	CHECKED: AMD
	APPROVED: AHE
	DATE: JANUARY 2023
BY	DATE

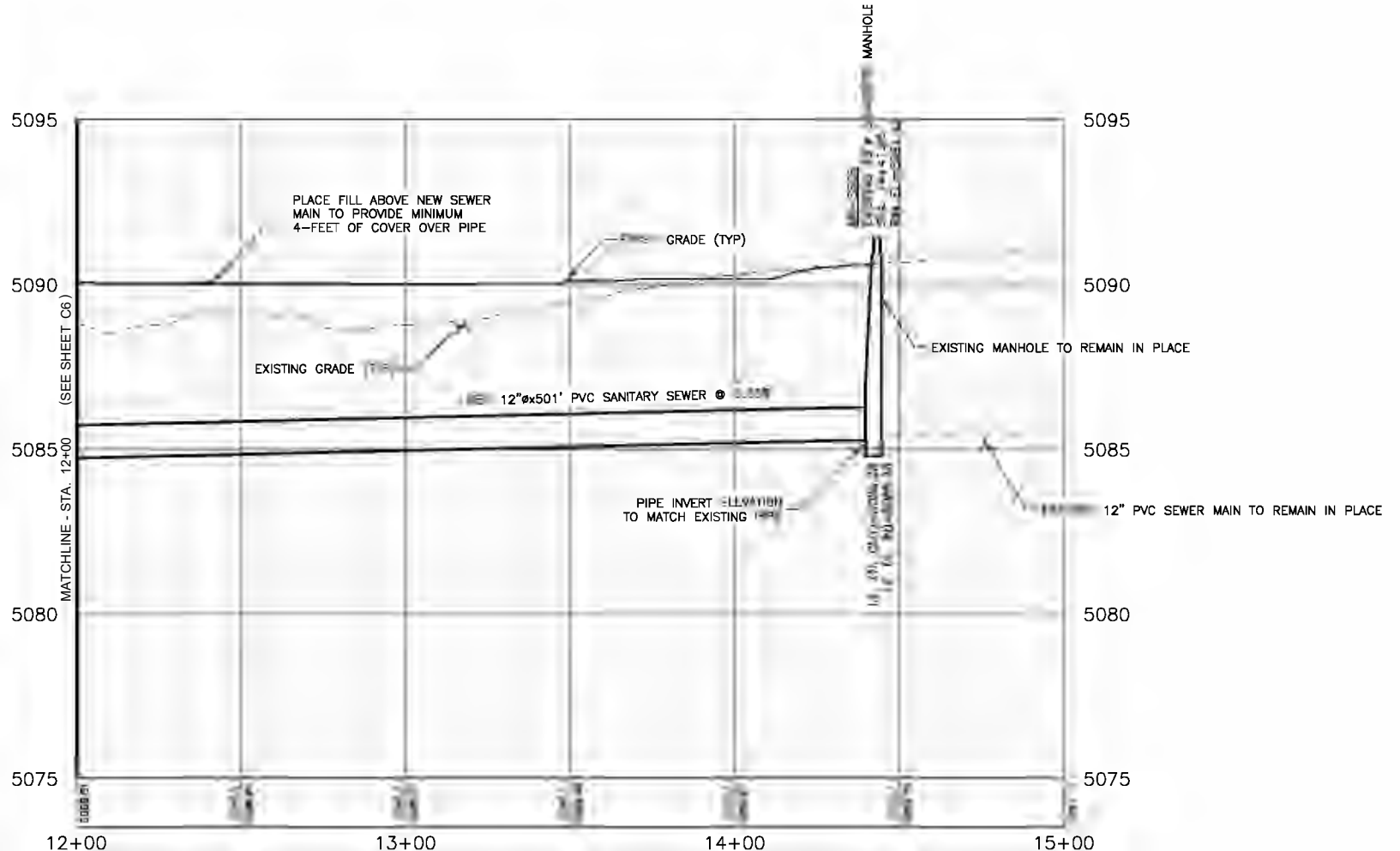
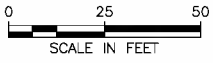


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 INFLUENT GRAVITY MAIN STA 6+00 TO 12+00
 STA 13+00 TO 18+00

SHEET NO.
C6
 OF ---



PLAN VIEW OF INFLUENT GRAVITY MAIN FROM STA 12+00 TO 15+00



PROFILE VIEW OF INFLUENT GRAVITY MAIN - STA. 12+00 TO STA. 15+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

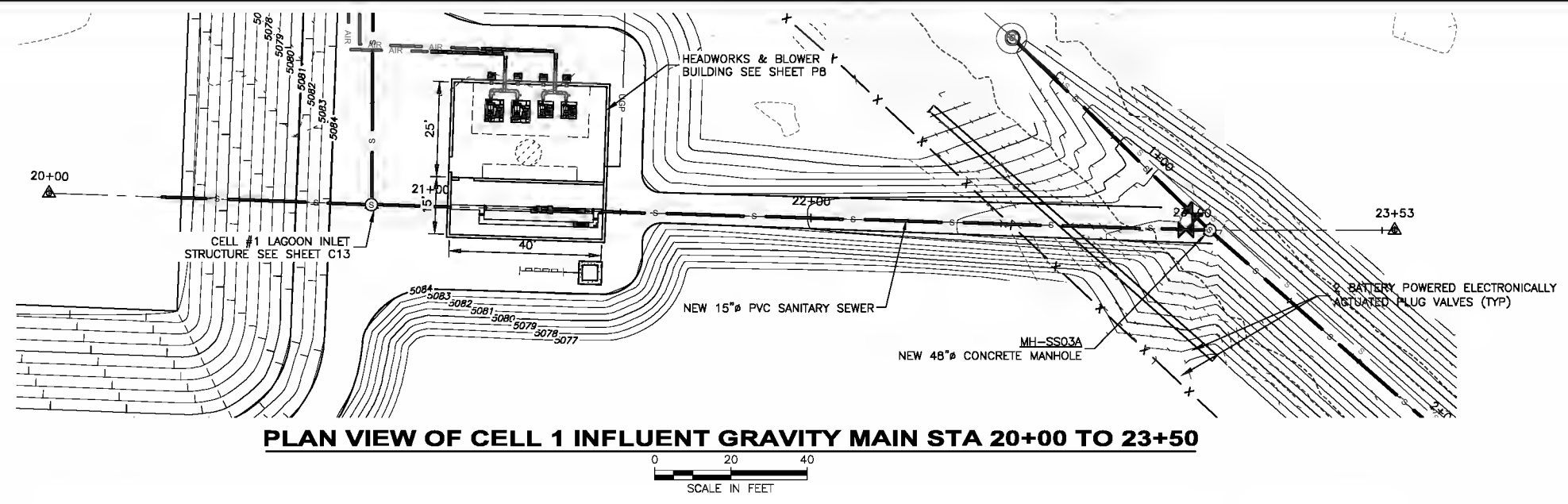
PROJECT: 1-21313	DESIGNED: AHE
DRAWN: AR, AE	CHECKED: AMD
APPROVED: AHE	DATE: JANUARY 2023

NO.	REVISION DESCRIPTION	BY	DATE



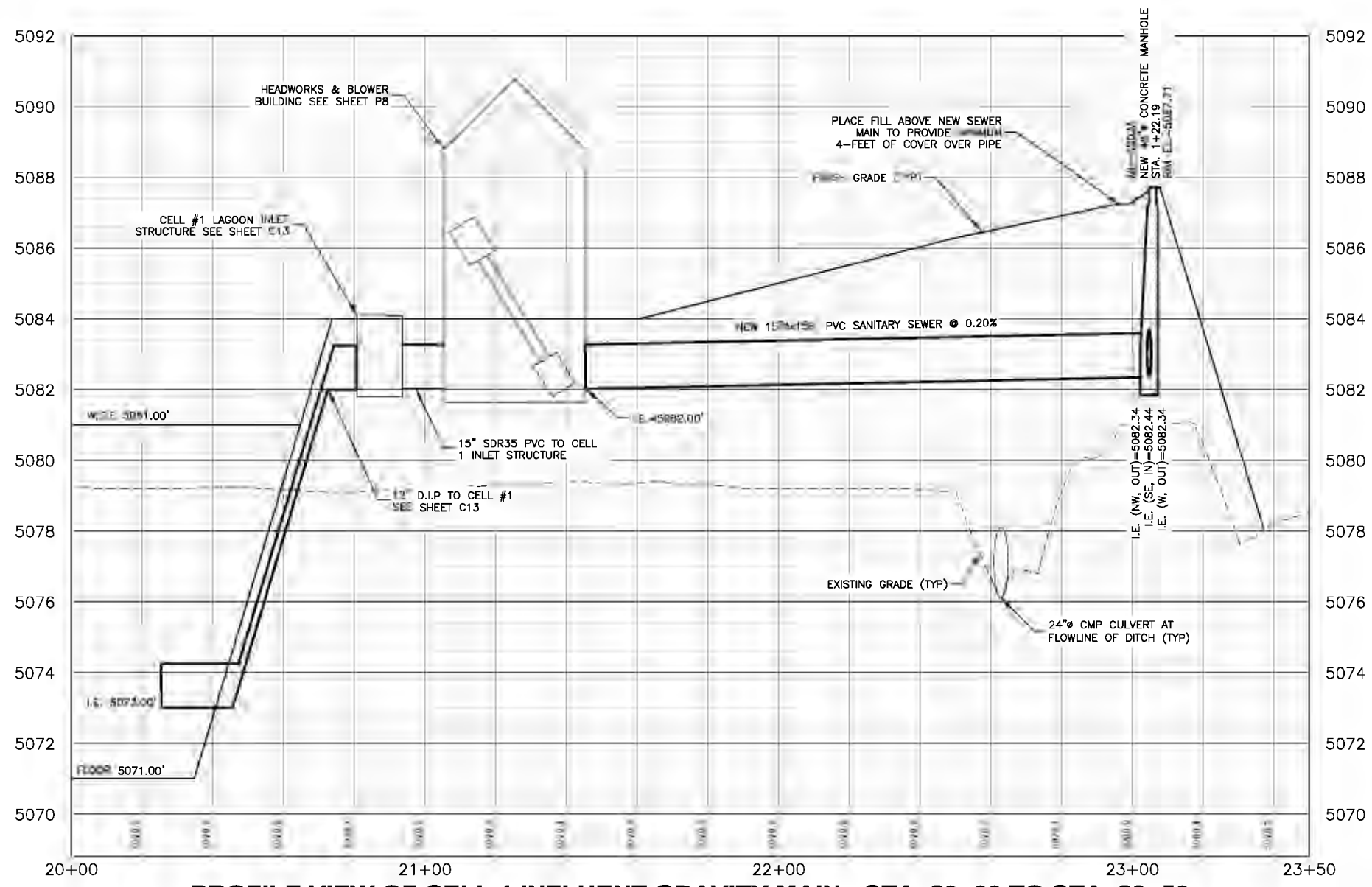
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
INFLUENT GRAVITY MAIN STA 12+00 TO 15+00

SHEET NO.
C7
OF ---



PLAN VIEW OF CELL 1 INFLUENT GRAVITY MAIN STA 20+00 TO 23+50

0 20 40
SCALE IN FEET



PROFILE VIEW OF CELL 1 INFLUENT GRAVITY MAIN - STA. 20+00 TO STA. 23+50

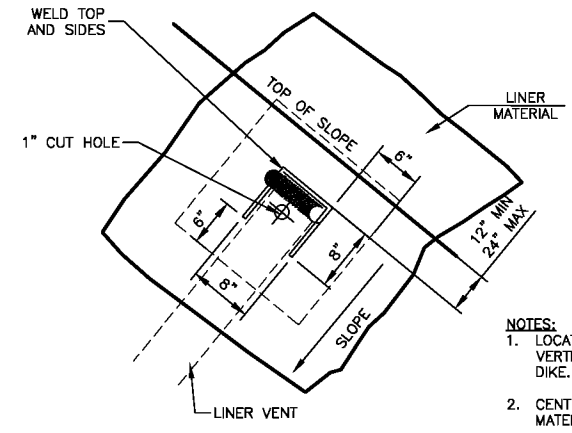
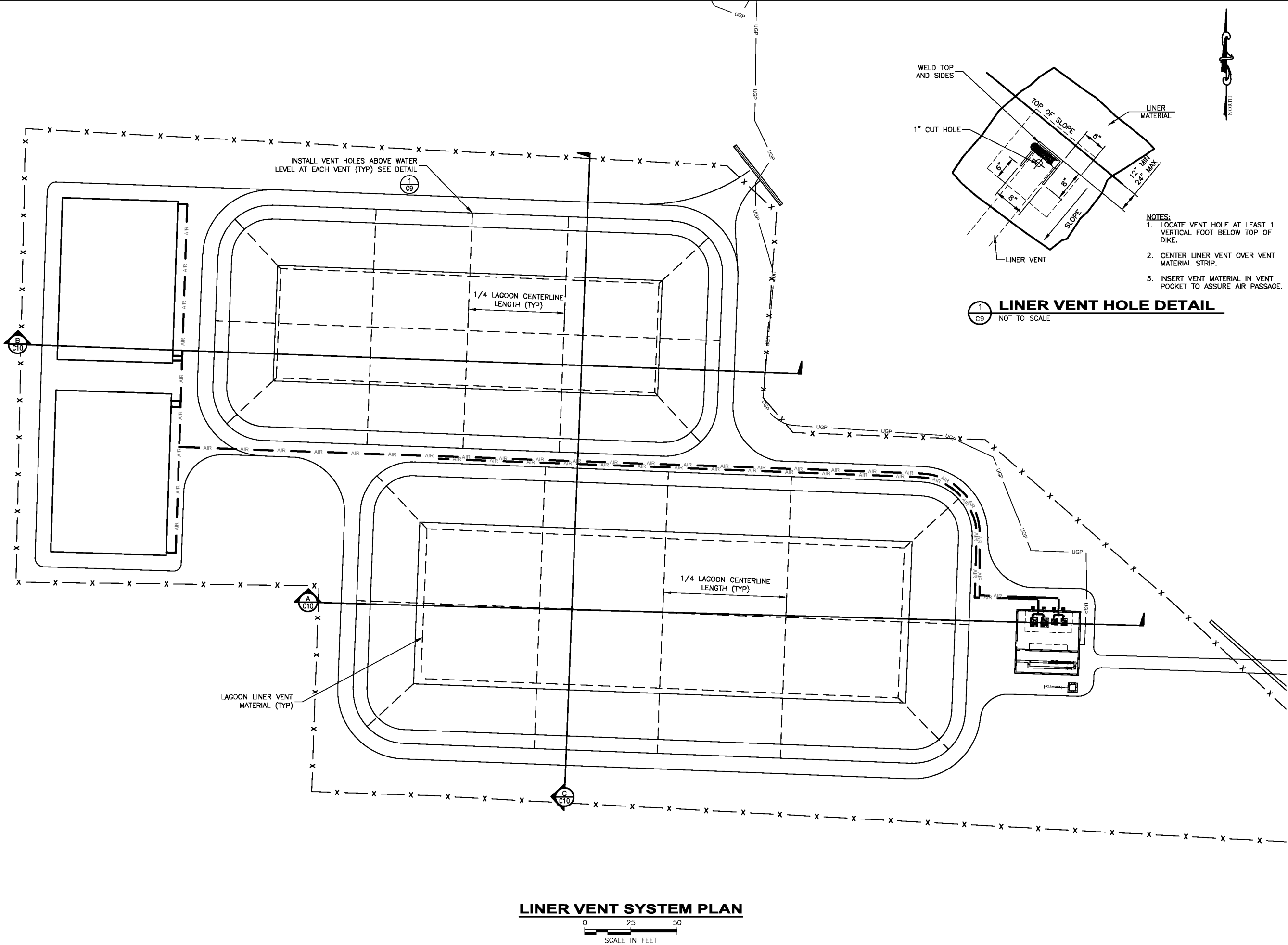
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



Profile: 1-2131 - Wastewater - Cell 1 - Influent - Main STA 20+00 to 23+50

NO.	REVISION DESCRIPTION	BY	DATE
1			
PROJECT: 1-21313 DESIGNED: AHE DRAWN: AR, AE CHECKED: AMD APPROVED: AHE DATE: JANUARY 2023			
			
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS CELL 1 INFLUENT GRAVITY MAIN STA 20+00 TO 23+54			
SHEET NO. C8 OF ---			

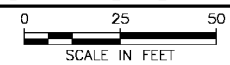
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-C9-Lagoon Liner Vent System.dwg



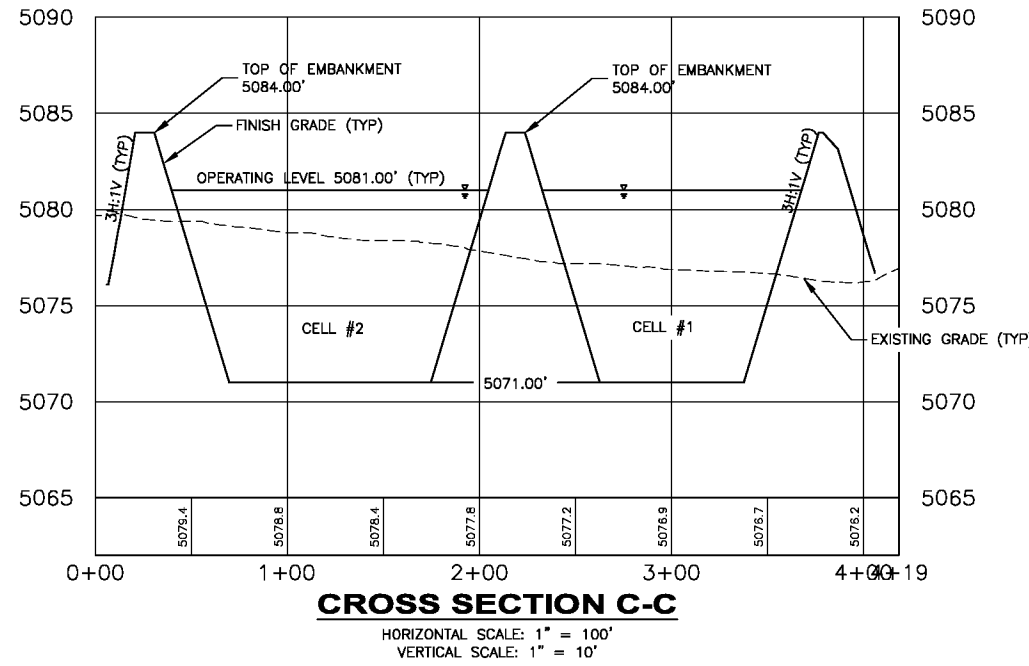
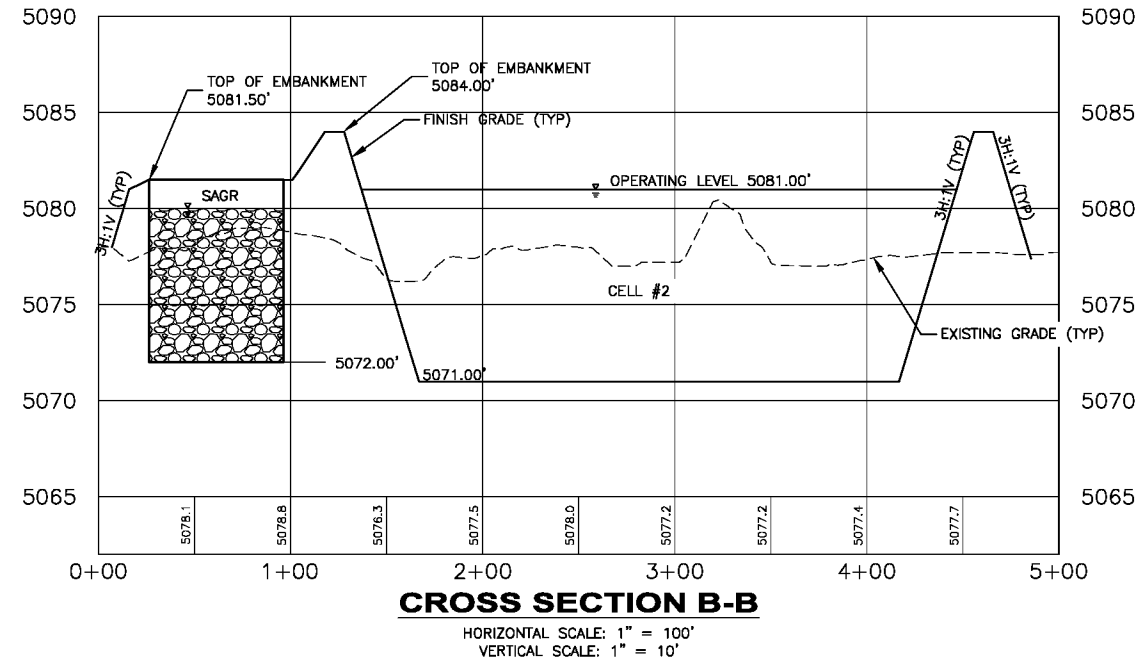
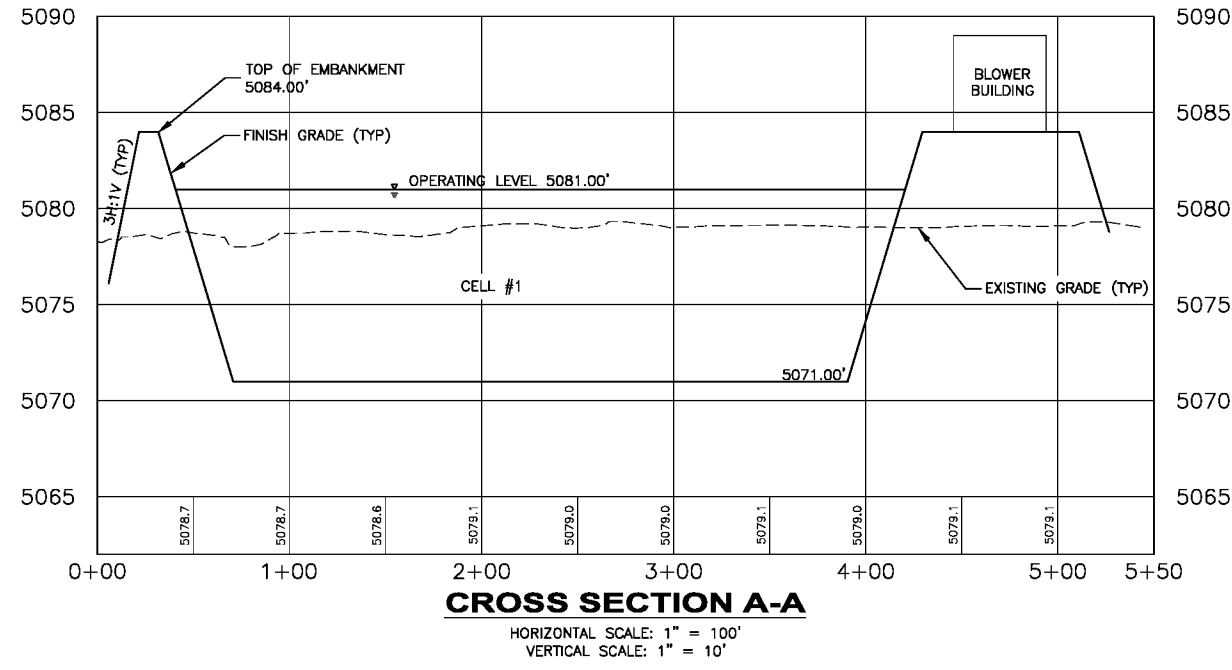
- NOTES:**
1. LOCATE VENT HOLE AT LEAST 1 VERTICAL FOOT BELOW TOP OF DIKE.
 2. CENTER LINER VENT OVER VENT MATERIAL STRIP.
 3. INSERT VENT MATERIAL IN VENT POCKET TO ASSURE AIR PASSAGE.

1 C9 LINER VENT HOLE DETAIL
NOT TO SCALE

LINER VENT SYSTEM PLAN



PROJECT: 1-21313		BY: DATE
DESIGNED: AHE	REVISION DESCRIPTION	
DRAWN: AR, AE		
CHECKED: AMD		
APPROVED: AHE		
DATE: JANUARY 2023		
 260 BELT VIEW DRIVE HELENA, MT (406)449-8991		
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS LAGOON LINER VENT SYSTEM		
SHEET NO. C9 OF ---		



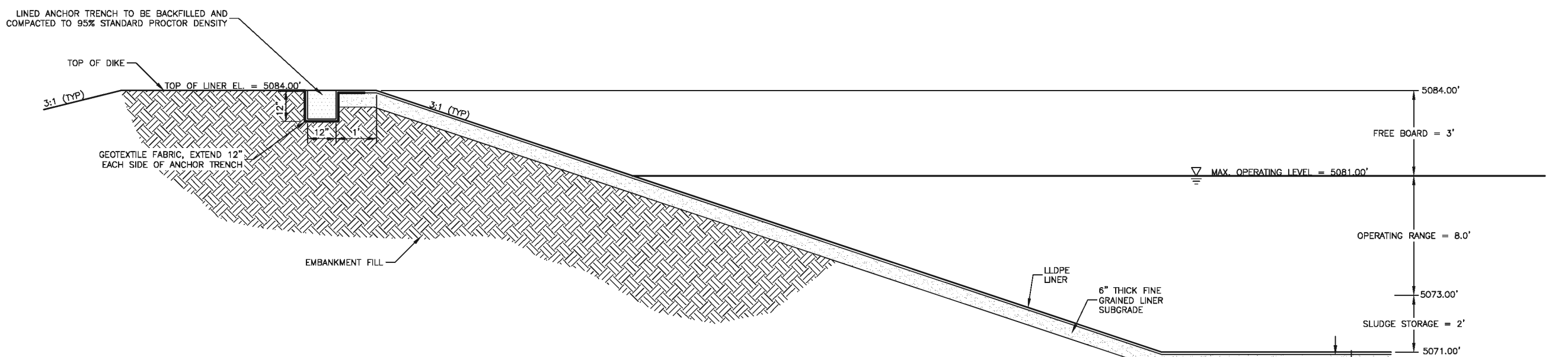
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



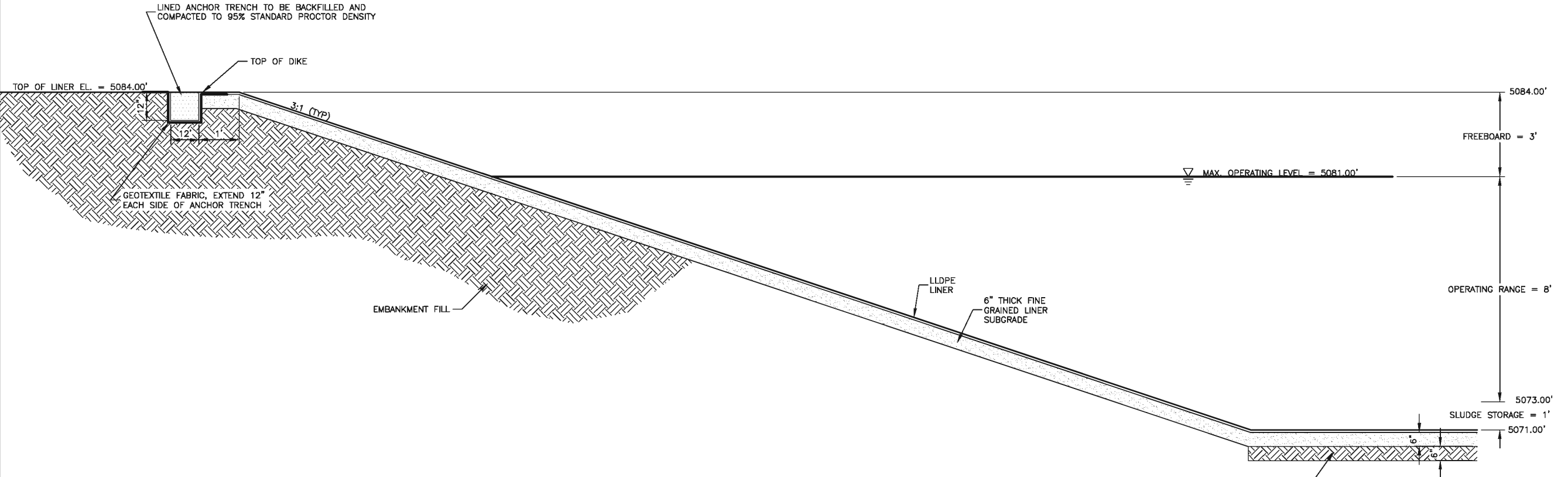
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 LAGOON CROSS SECTIONS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-C10-Lagoon Cross Sections.dwg



- GENERAL NOTES:**
1. EMBANKMENT TO BE CONSTRUCTED & COMPACTED AS SPECIFIED IN SECTION 02300 - EARTHWORK.
 2. REMOVE ANY PROTRUDING OR JAGGED MATERIAL FROM LINER ANCHOR TRENCH BEFORE PLACING GEOGRID OR GEOTEXTILE MATERIAL.
 3. CONTRACTOR TO PLACE 6" (MIN) OF FINE GRAINED LINER SUBGRADE BENEATH THE FINISH LINER ELEVATIONS.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REFERENCING THE GEOTECHNICAL EVALUATION OF THE SITE FOR DETAILED RECOMMENDATIONS ON LAGOON AND EMBANKMENT CONSTRUCTION.

1 LAGOON CELL 1 EMBANKMENT
C11 NOT TO SCALE



2 LAGOON CELL 2 EMBANKMENT
C11 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

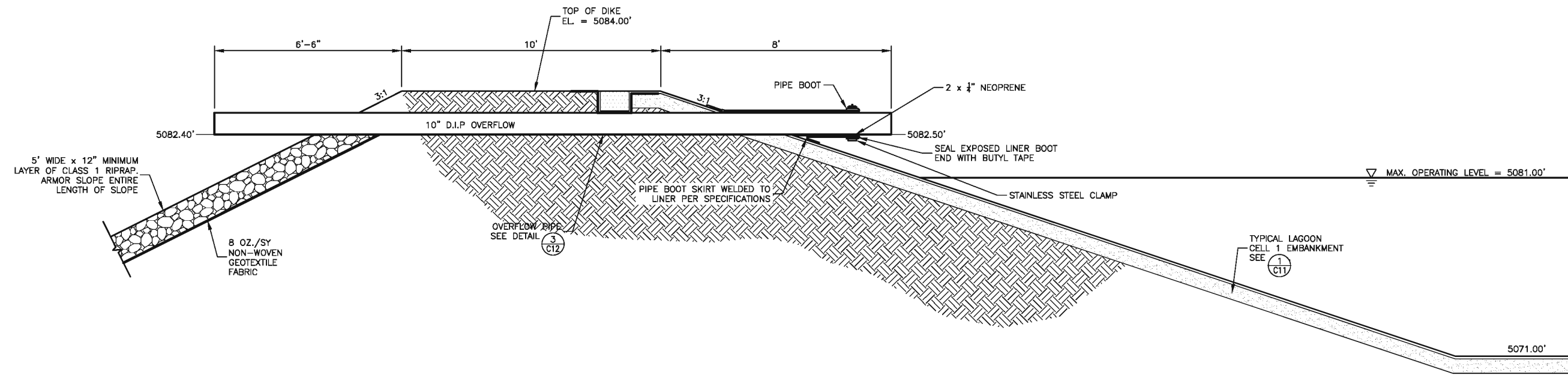
ENSURE AT LEAST 6" OF SUITABLE MATERIAL UNDERNEATH LINER SUBGRADE PER GEOTECHNICAL REPORT



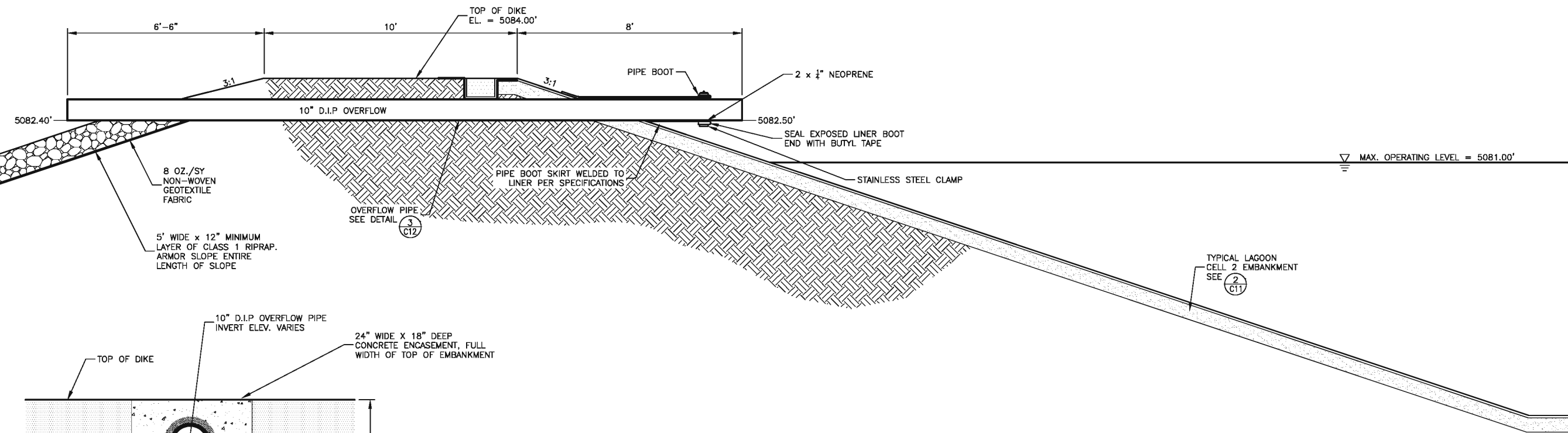
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
CELL EMBANKMENT DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Cell Embankment Details.dwg

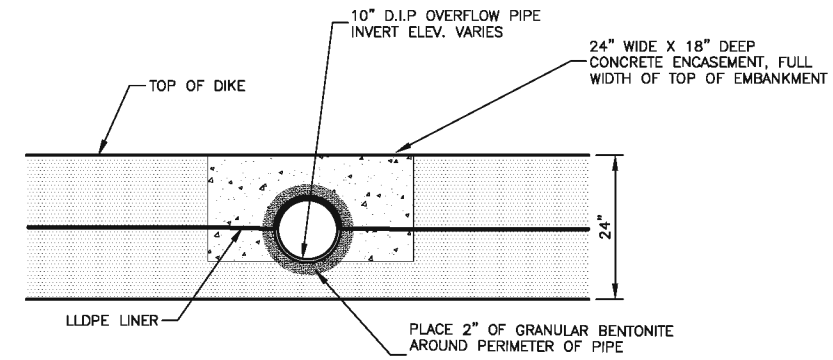
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-C12-Lagoon Overflow Details.dwg



1 LAGOON CELL 1 EMERGENCY OVERFLOW
C12 NOT TO SCALE



2 LAGOON CELL 2 EMERGENCY OVERFLOW
C12 NOT TO SCALE



3 LAGOON OVERFLOW ANCHOR TRENCH PENETRATION DETAIL
C12 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

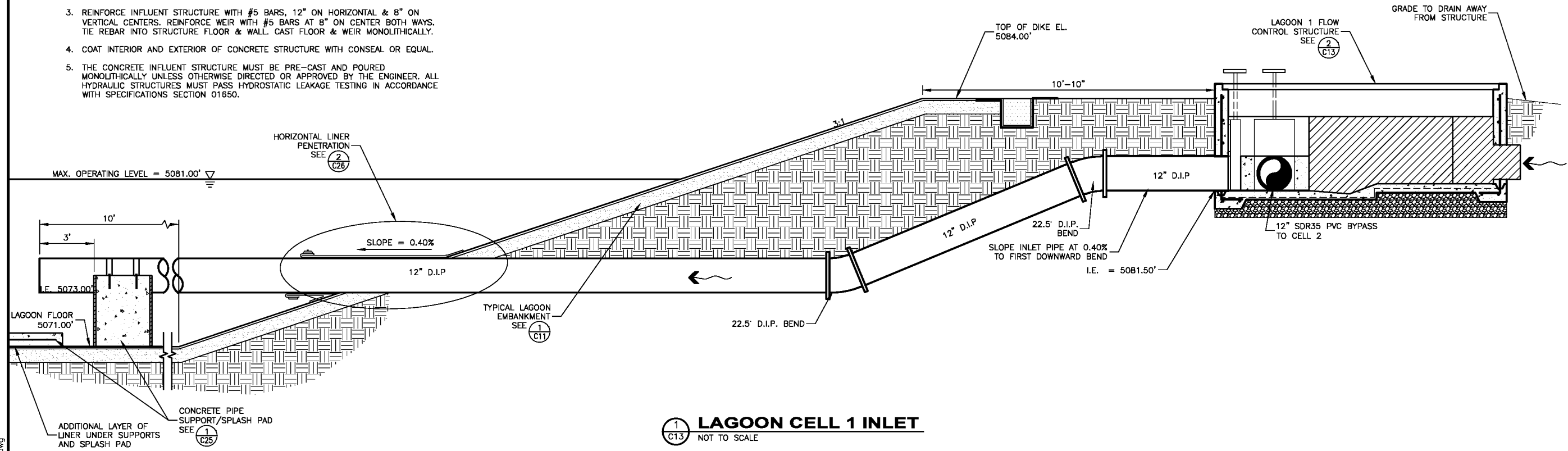
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



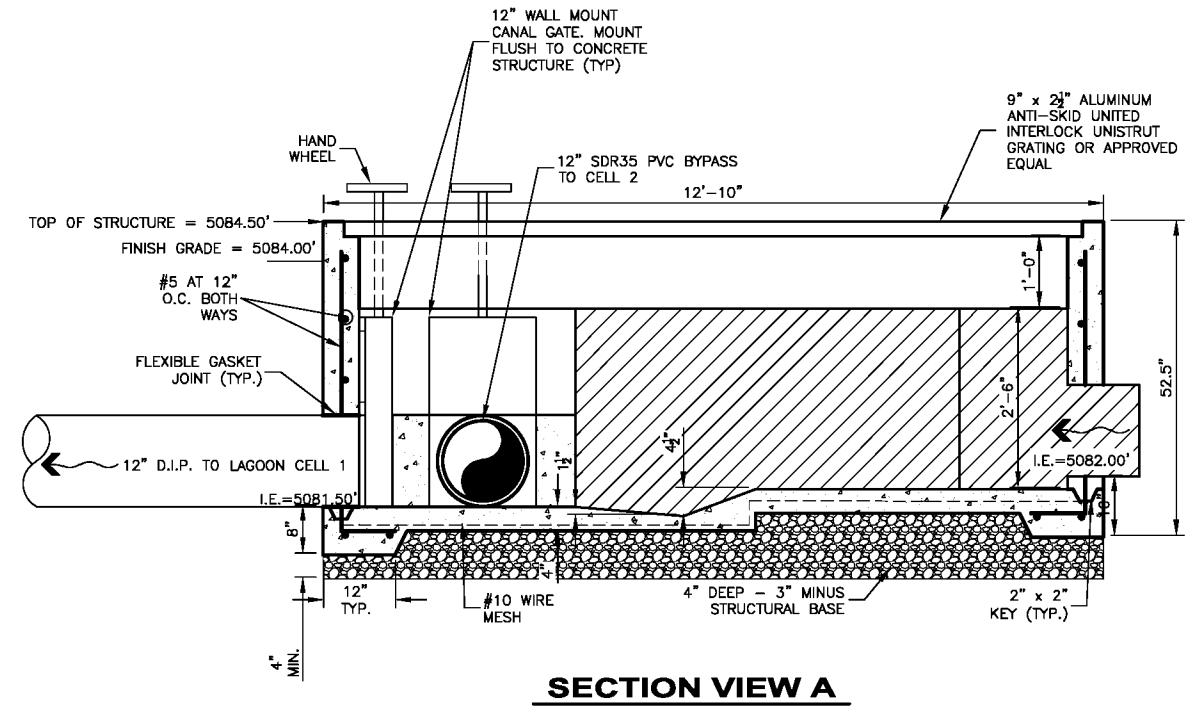
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 LAGOON OVERFLOW DETAILS

GENERAL NOTES:

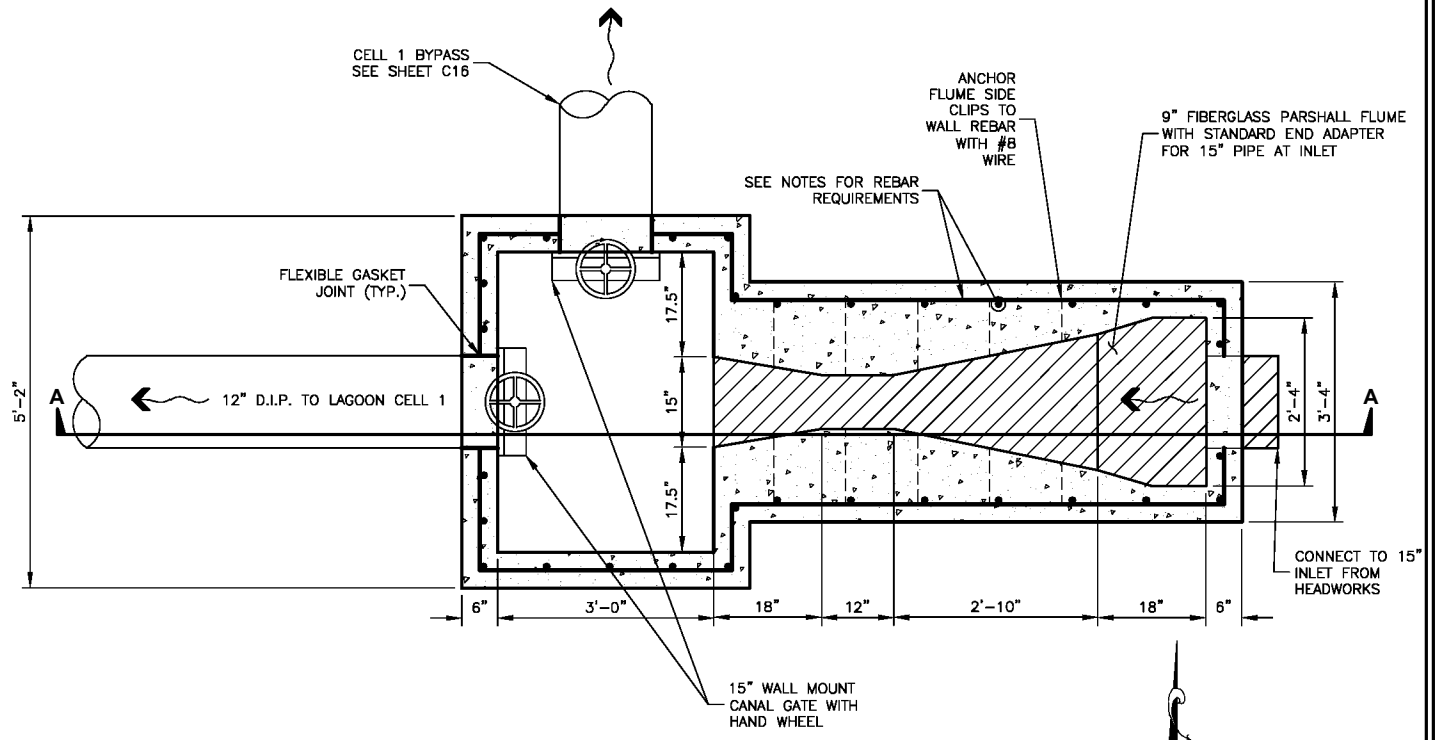
1. ALL UNDERGROUND DUCTILE IRON FITTINGS SHALL BE WRAPPED WITH 6 MIL POLY WRAP.
2. RESTRAINED JOINTS TO BE USED AT EACH BURIED FITTING JOINT.
3. REINFORCE INFLUENT STRUCTURE WITH #5 BARS, 12" ON HORIZONTAL & 8" ON VERTICAL CENTERS. REINFORCE WEIR WITH #5 BARS AT 8" ON CENTER BOTH WAYS. TIE REBAR INTO STRUCTURE FLOOR & WALL. CAST FLOOR & WEIR MONOLITHICALLY.
4. COAT INTERIOR AND EXTERIOR OF CONCRETE STRUCTURE WITH CONSEAL OR EQUAL.
5. THE CONCRETE INFLUENT STRUCTURE MUST BE PRE-CAST AND POURED MONOLITHICALLY UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER. ALL HYDRAULIC STRUCTURES MUST PASS HYDROSTATIC LEAKAGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SECTION 01650.



1 LAGOON CELL 1 INLET
NOT TO SCALE



SECTION VIEW A



PLAN VIEW

2 PARSHALL FLUME & CELL 1 FLOW CONTROL STRUCTURE
NOT TO SCALE

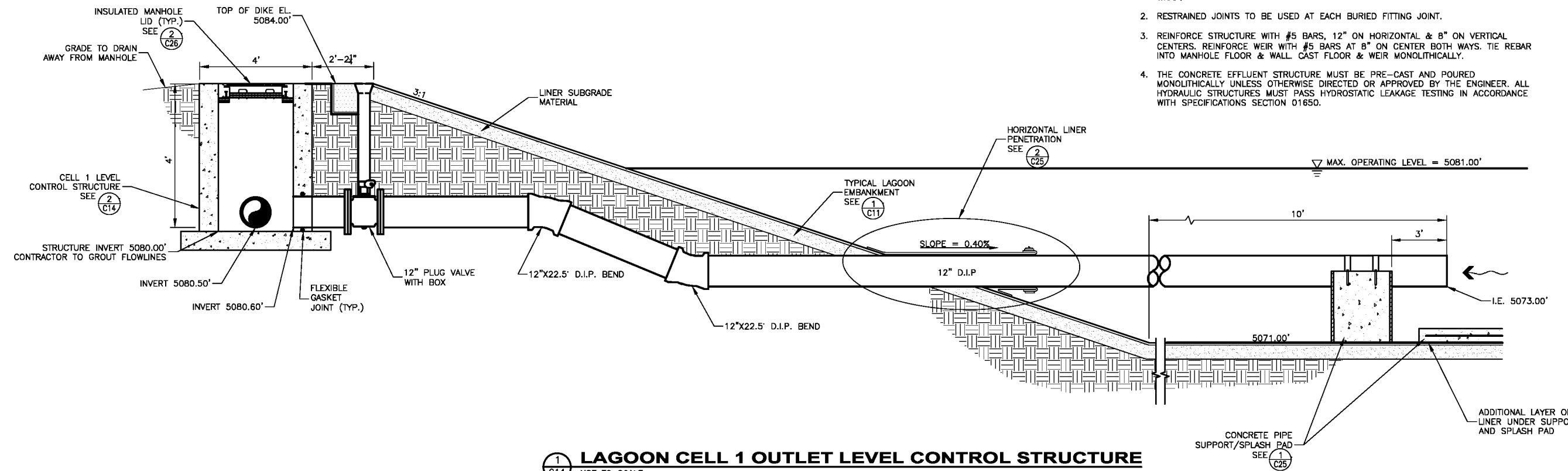
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



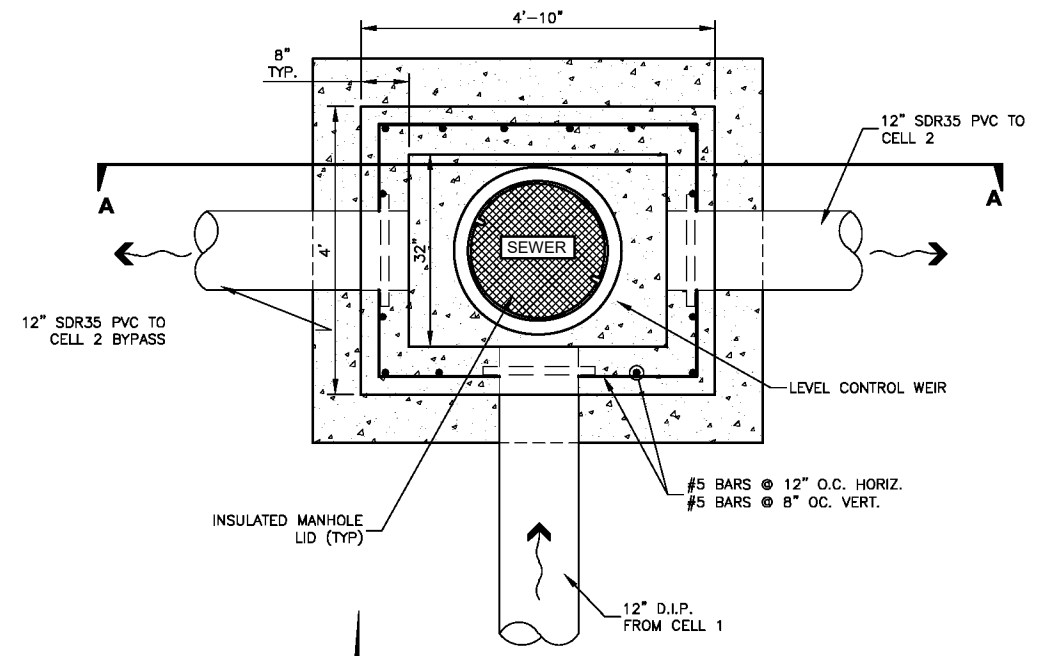
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 CELL 1 LAGOON INLET DETAILS

Y:\shared\Helena Projects\1-21313-Philpsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-C13-Cell 1 Lagoon Inlet Details.cwg

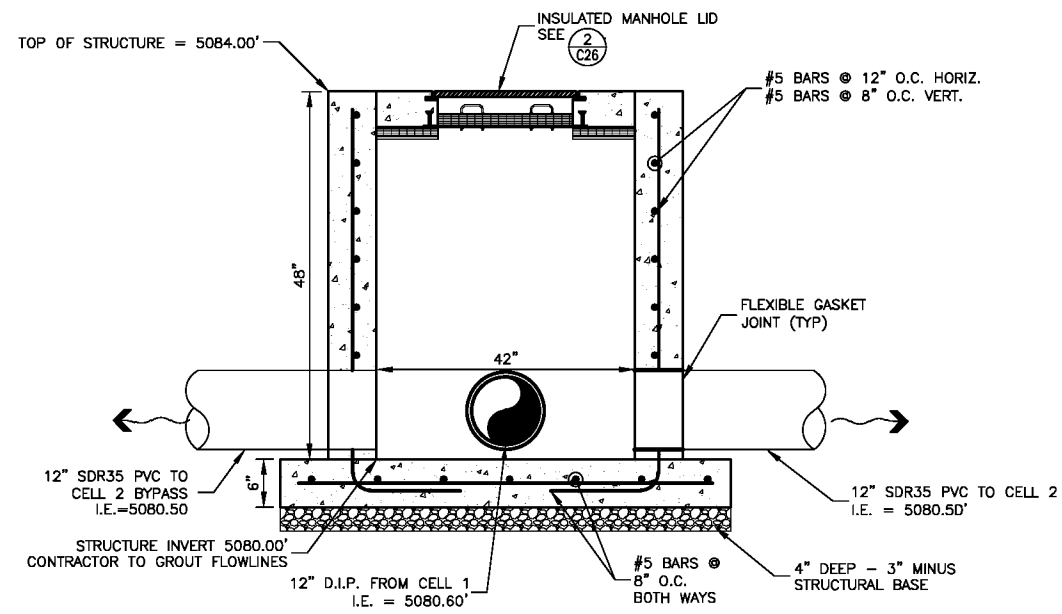


- GENERAL NOTES:
1. ALL UNDERGROUND DUCTILE IRON FITTINGS SHALL BE WRAPPED WITH 6 MIL POLY WRAP.
 2. RESTRAINED JOINTS TO BE USED AT EACH BURIED FITTING JOINT.
 3. REINFORCE STRUCTURE WITH #5 BARS, 12" ON HORIZONTAL & 8" ON VERTICAL CENTERS. REINFORCE WEIR WITH #5 BARS AT 8" ON CENTER BOTH WAYS. TIE REBAR INTO MANHOLE FLOOR & WALL. CAST FLOOR & WEIR MONOLITHICALLY.
 4. THE CONCRETE EFFLUENT STRUCTURE MUST BE PRE-CAST AND POURED MONOLITHICALLY UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER. ALL HYDRAULIC STRUCTURES MUST PASS HYDROSTATIC LEAKAGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SECTION 01650.

1 LAGOON CELL 1 OUTLET LEVEL CONTROL STRUCTURE
NOT TO SCALE



PLAN VIEW



SECTION VIEW A

2 CELL 1 LEVEL CONTROL STRUCTURE
NOT TO SCALE

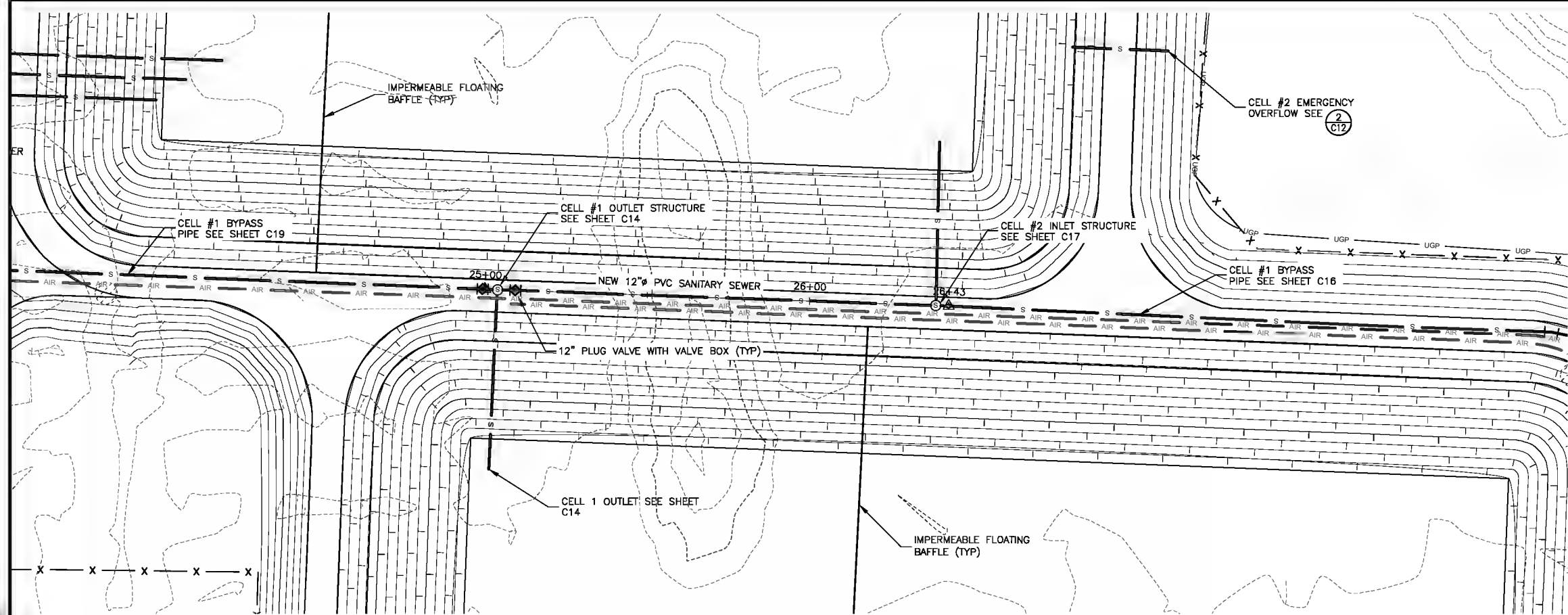
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023

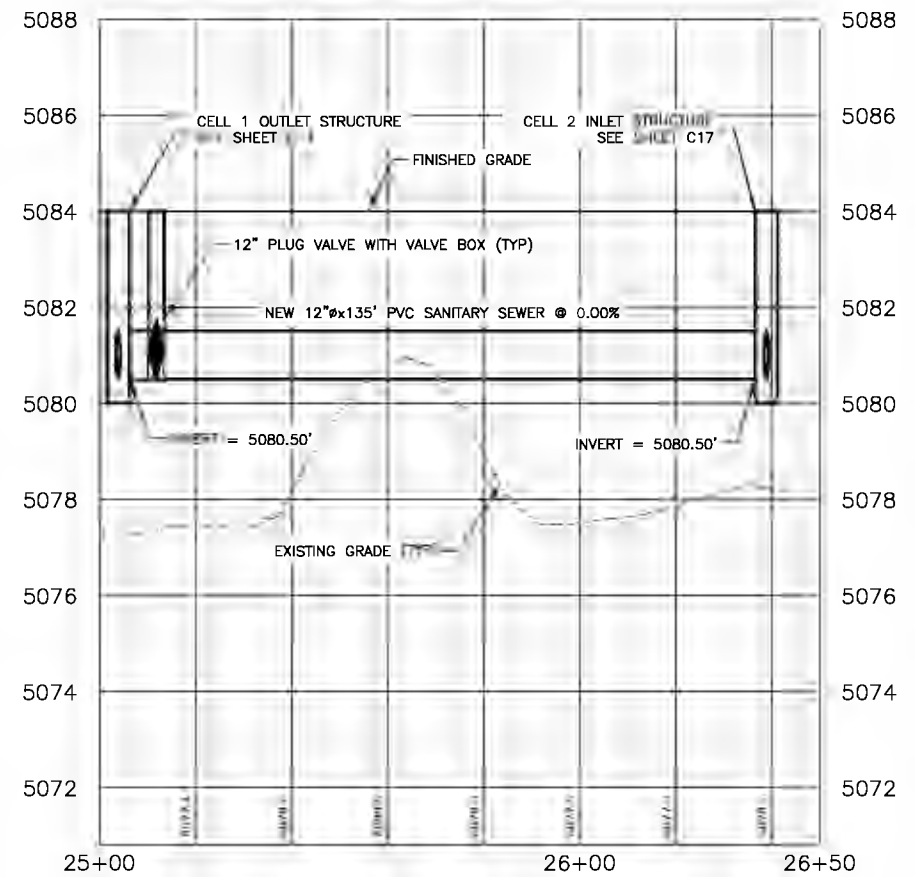
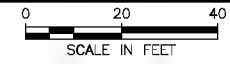


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 CELL 1 LAGOON OUTLET DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-C14-Cell 1 Lagoon Outlet Details.dwg



PLAN VIEW OF CELL 1 EFFLUENT



PROFILE VIEW OF CELL 1 EFFLUENT - STA. 25+00 TO STA. 26+50

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



1-2131 Wastewater 1-2131-Cell Effluent Plan &

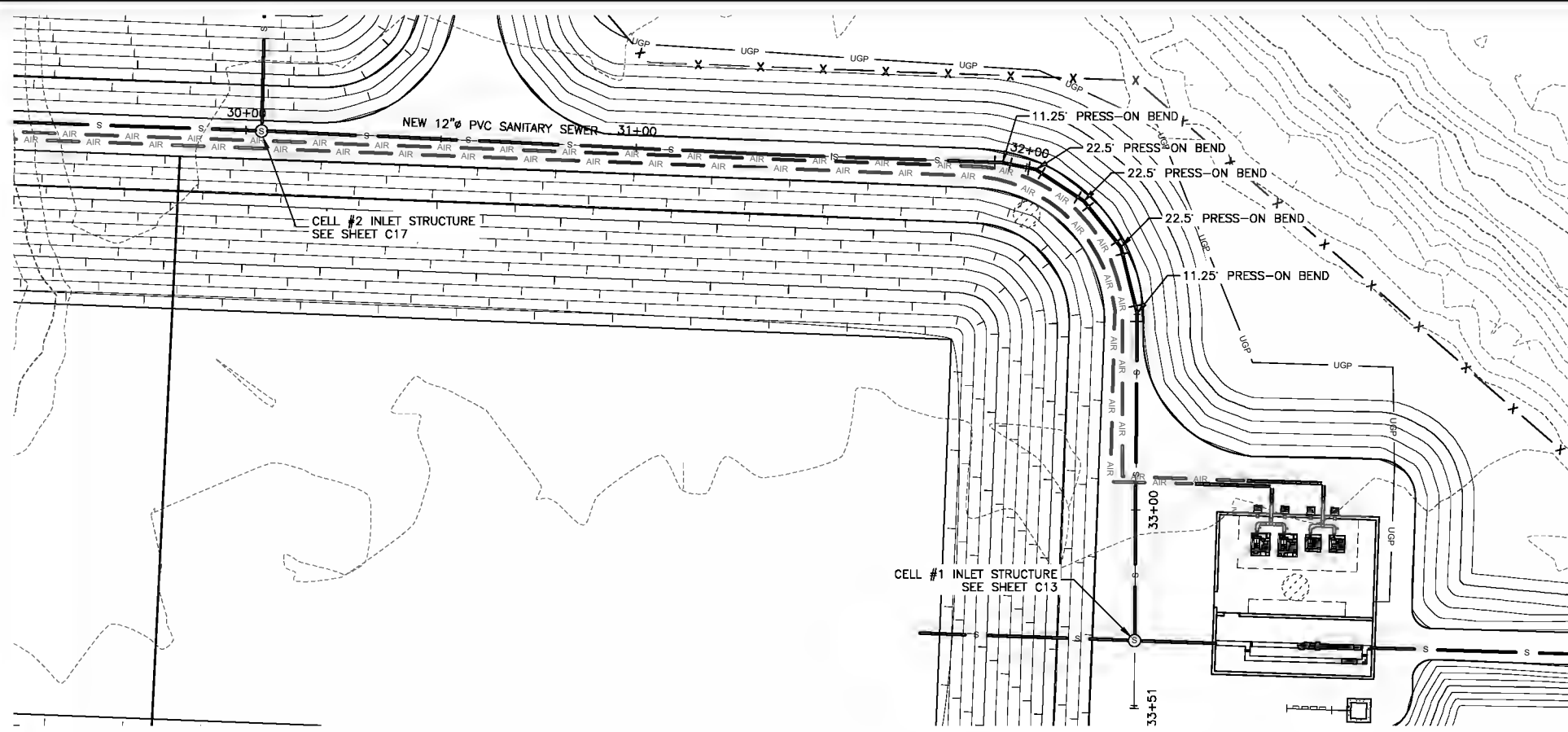
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023

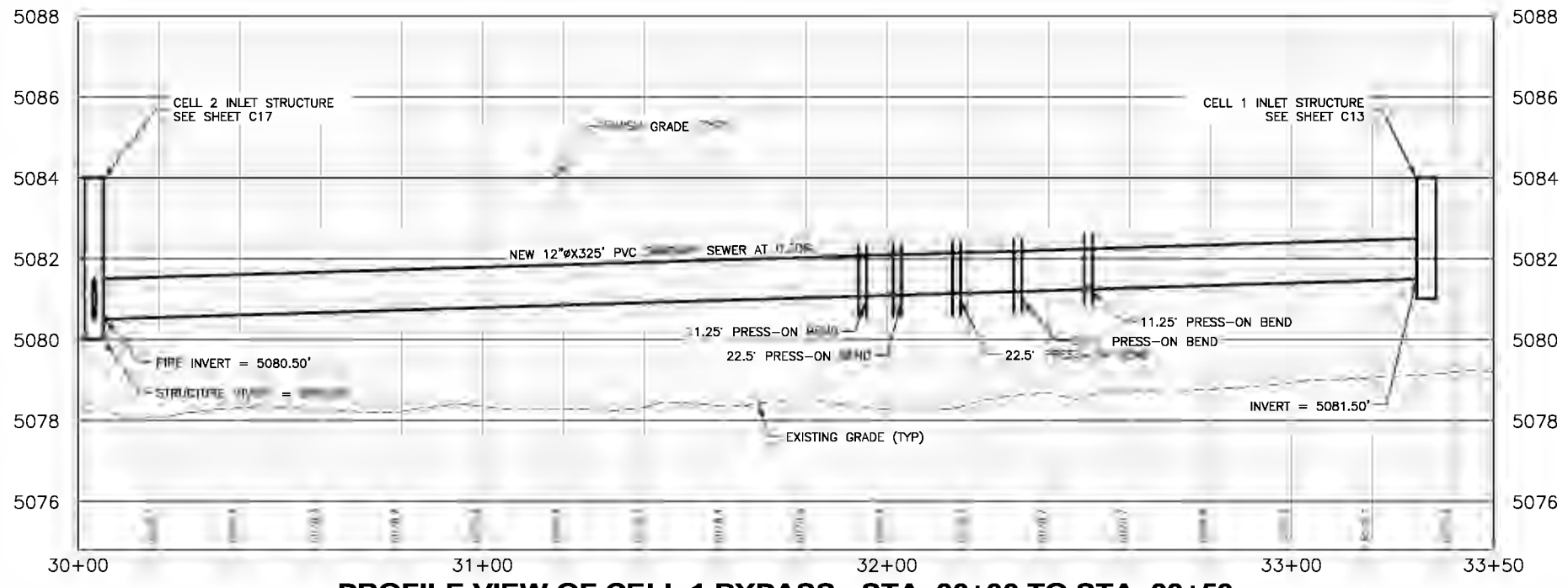


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 CELL 1 EFFLUENT PLAN & PROFILE

SHEET NO.
C15
 OF ----



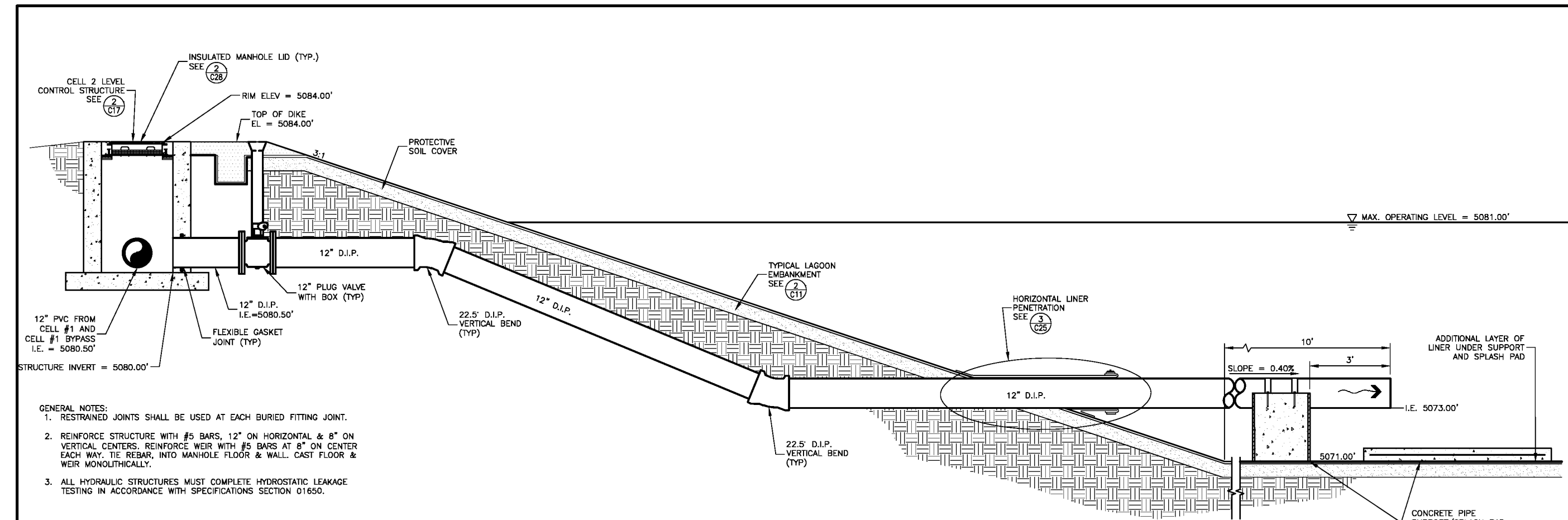
PLAN VIEW OF CELL 1 BYPASS
 0 20 40
 SCALE IN FEET



PROFILE VIEW OF CELL 1 BYPASS - STA. 30+00 TO STA. 33+50
 HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 4'

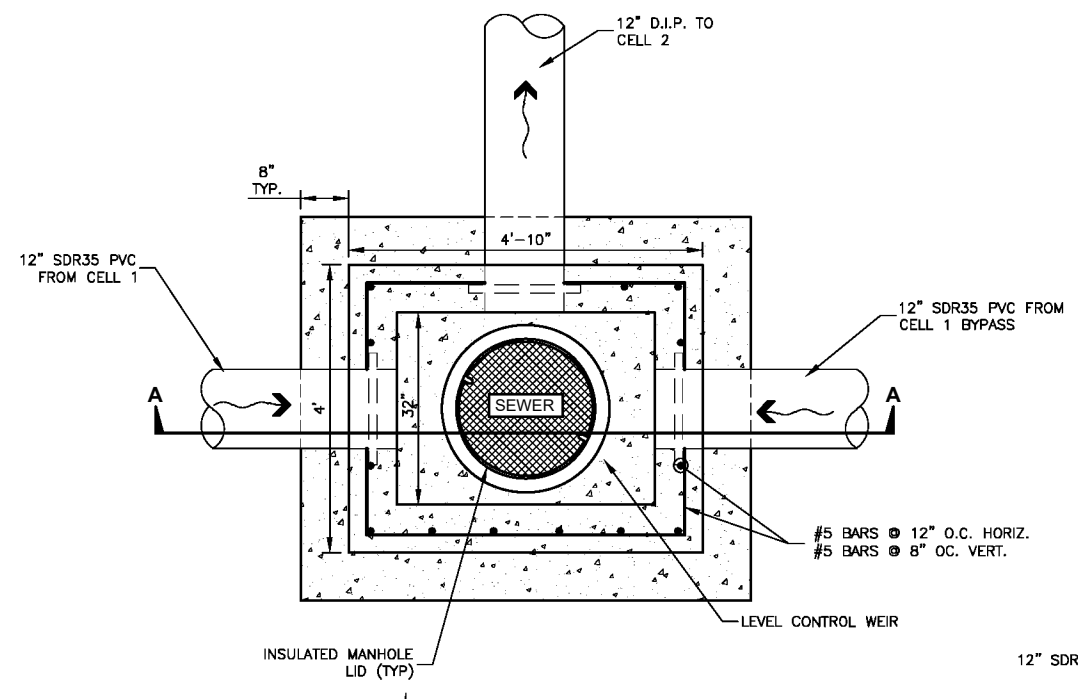
1-2131 Wastewater 1-21 1-21313-C16-Cell Plan &

PROJECT: 1-21313	DESIGNED: AHE	DRAWN: AR, AE	CHECKED: AMD	APPROVED: AHE	DATE: JANUARY 2023
<p>GreatWest ENGINEERING 260 BELT VIEW DRIVE HELENA, MT (406)449-8891</p>					
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS CELL 1 BYPASS PLAN & PROFILE					
SHEET NO. C16 OF ---					

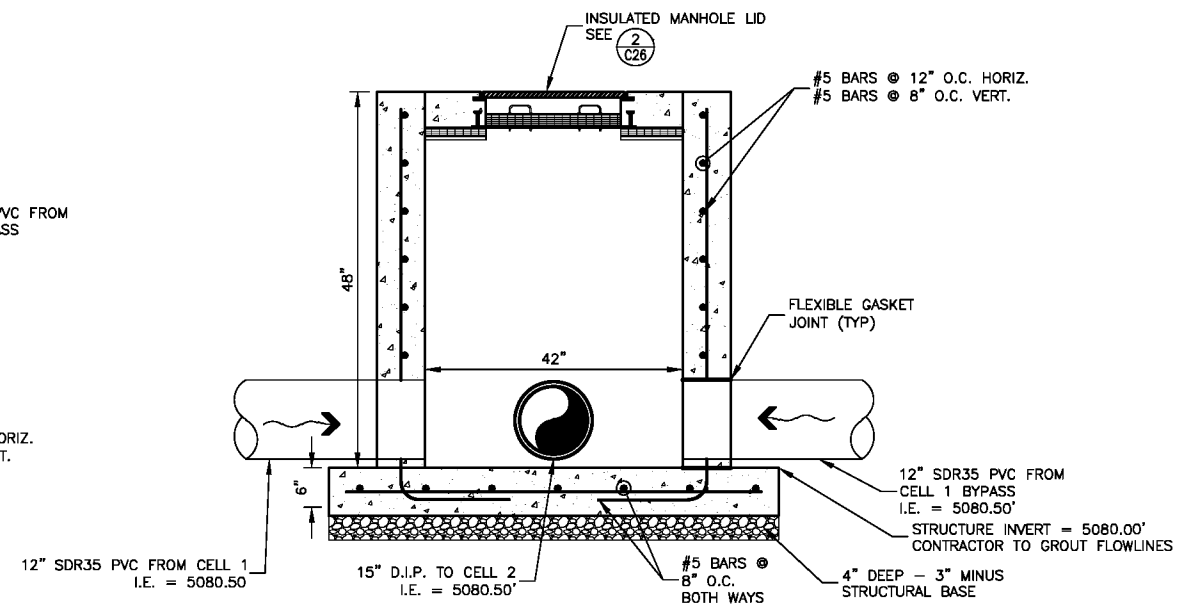


- GENERAL NOTES:
1. RESTRAINED JOINTS SHALL BE USED AT EACH BURIED FITTING JOINT.
 2. REINFORCE STRUCTURE WITH #5 BARS, 12" ON HORIZONTAL & 8" ON VERTICAL CENTERS. REINFORCE WEIR WITH #5 BARS AT 8" ON CENTER EACH WAY. TIE REBAR INTO MANHOLE FLOOR & WALL. CAST FLOOR & WEIR MONOLITHICALLY.
 3. ALL HYDRAULIC STRUCTURES MUST COMPLETE HYDROSTATIC LEAKAGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SECTION 01650.

1 C17 **LAGOON CELL 2 INLET**
NOT TO SCALE



PLAN VIEW



SECTION VIEW A

2 C17 **CELL 2 LEVEL CONTROL STRUCTURE**
NOT TO SCALE

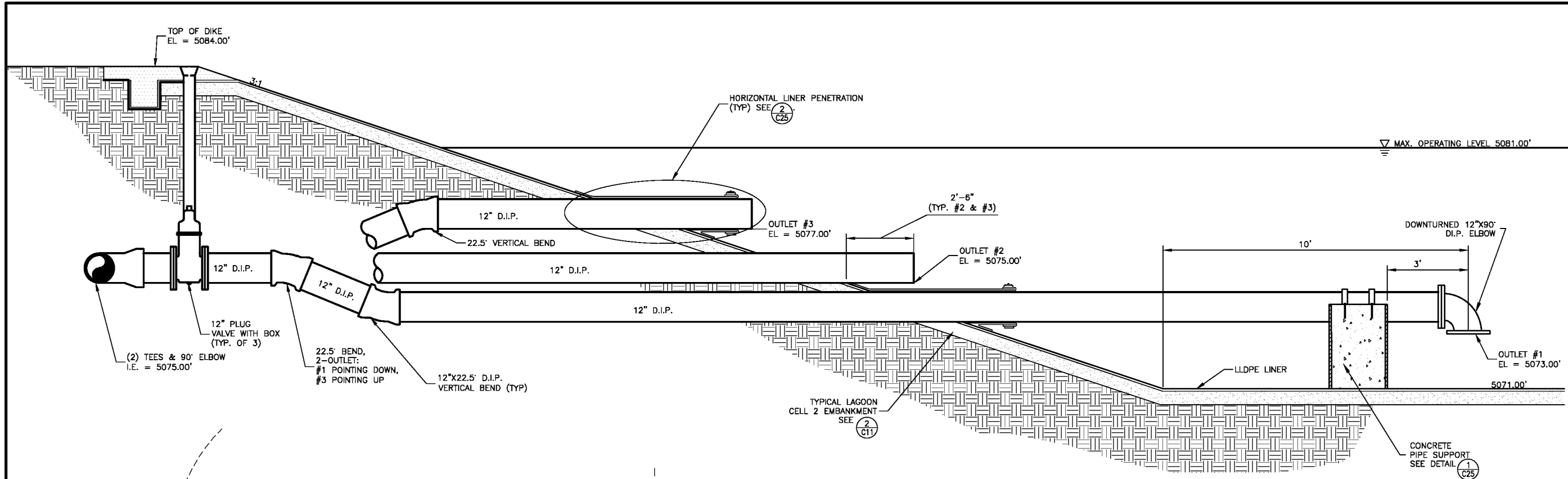
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



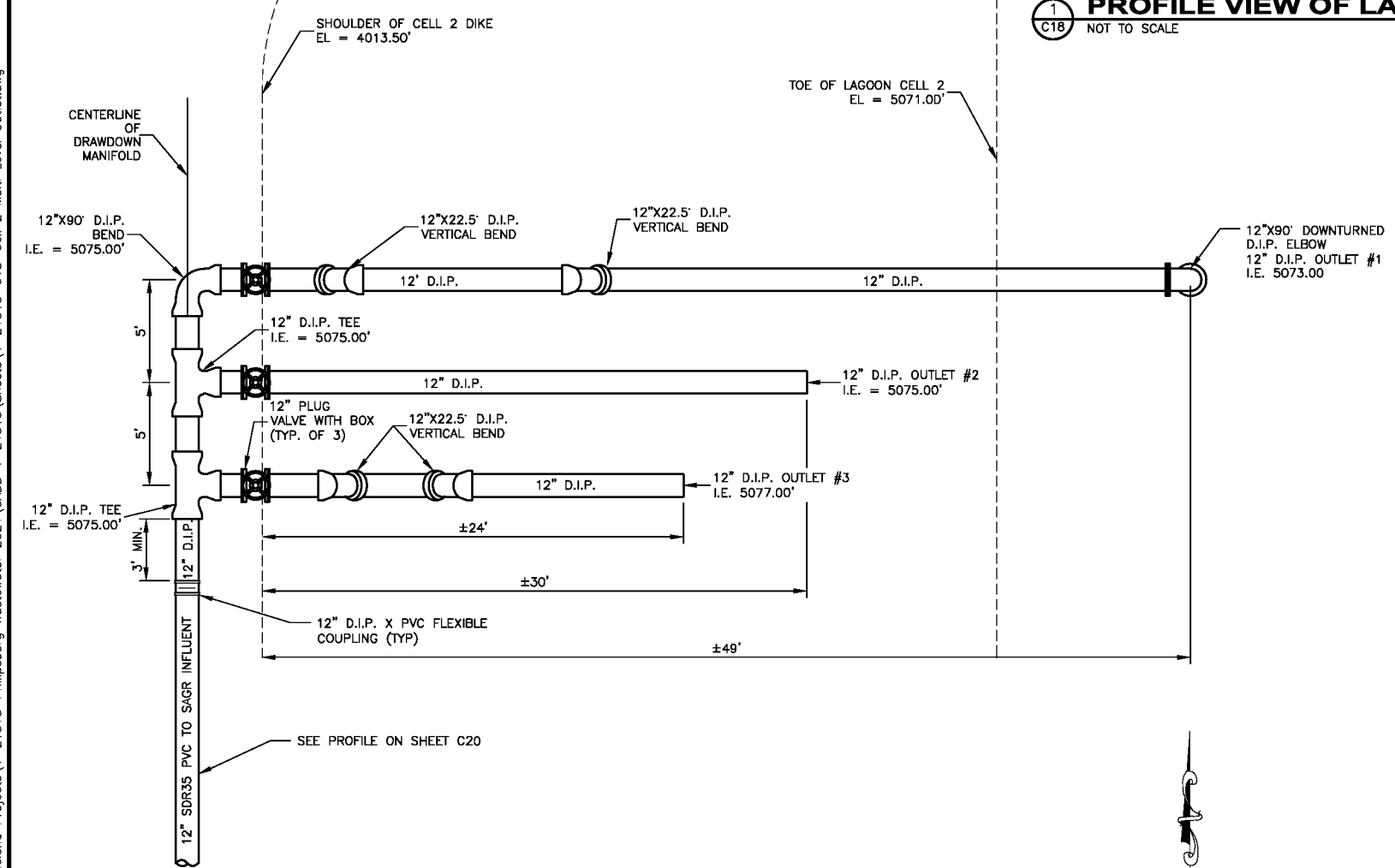
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 CELL 2 INFLUENT DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-C17-Cell 2 Influent Details.cwg



1 PROFILE VIEW OF LAGOON CELL 2 MULTI LEVEL OUTLET
 NOT TO SCALE

- GENERAL NOTES:
1. ALL UNDERGROUND DUCTILE IRON FITTINGS SHALL BE WRAPPED WITH 5 MIL POLY WRAP.
 2. RESTRAINED JOINTS TO BE USED AT EACH BURIED FITTING JOINT IF CONTRACTOR USES PIPE OTHER THAN HDPE.
 3. SEE DETAIL 2 ON THIS SHEET FOR PLAN VIEW OF DRAWDOWN STRUCTURE.
 4. REINFORCE STRUCTURE WITH #5 BARS, 12" ON HORIZONTAL & 8" ON VERTICAL CENTERS. REINFORCE WEIR WITH #5 BARS AT 8" CENTERS BOTH WAYS. TIE REBAR INTO STRUCTURE FLOOR AND WALL. CAST FLOOR & WEIR MONOLITHICALLY.



2 PLAN VIEW OF LAGOON CELL 2 MULTI LEVEL OUTLET
 NOT OT SCALE

NO.	REVISION DESCRIPTION	BY	DATE

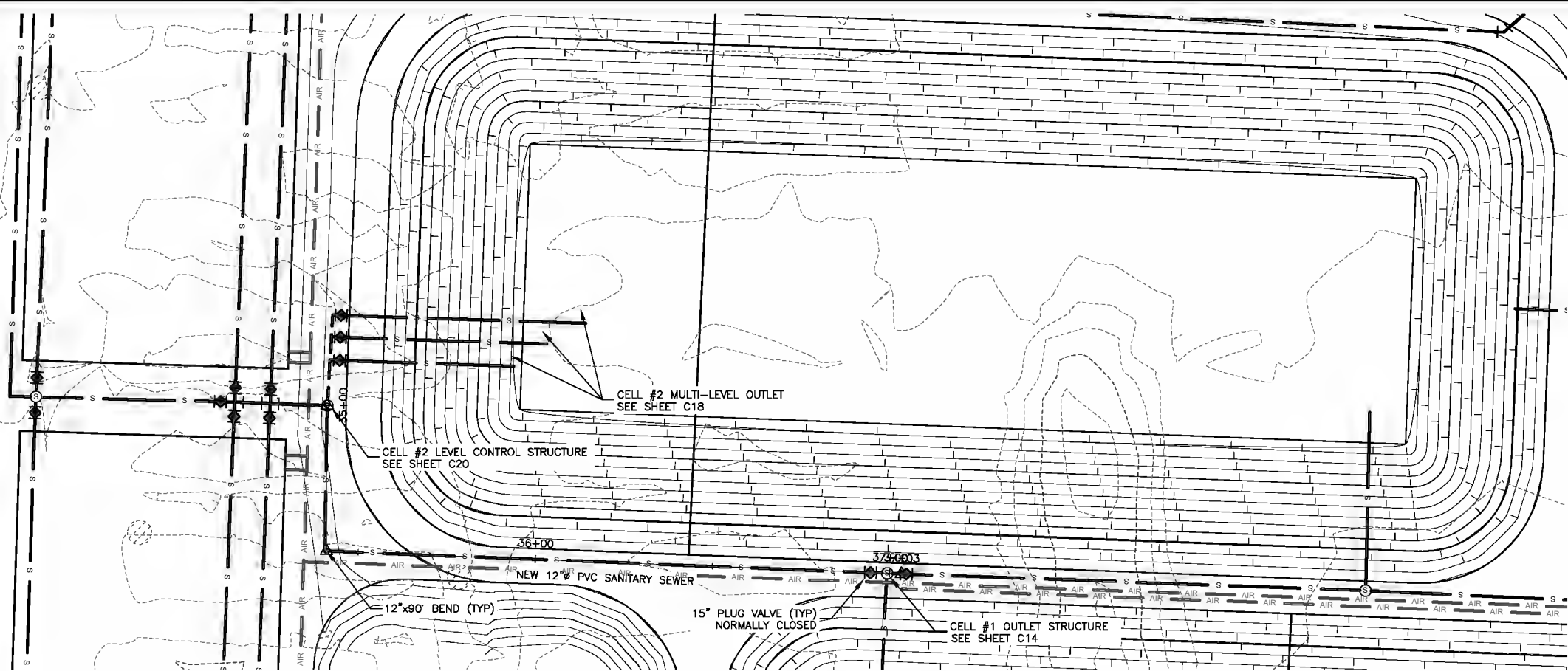
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



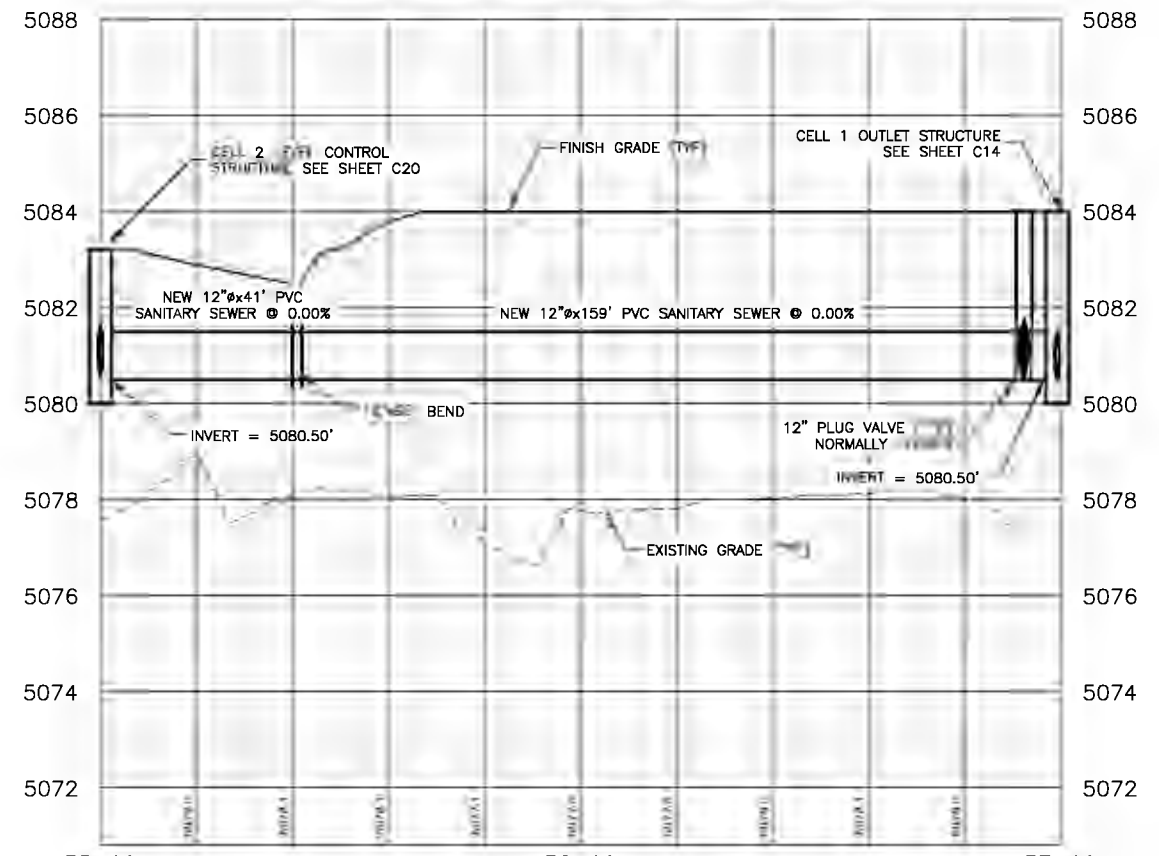
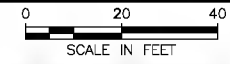
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 CELL 2 MULTI LEVEL OUTLET



Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-C18-Cell 2 Multi Level Outlet.dwg



PLAN VIEW OF CELL 2 BYPASS



PROFILE VIEW OF CELL 2 BYPASS - STA. 35+00 TO STA. 37+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



1-2131 Wastewater 1-2131-1-2131-C19-Cell 2 Plan &

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



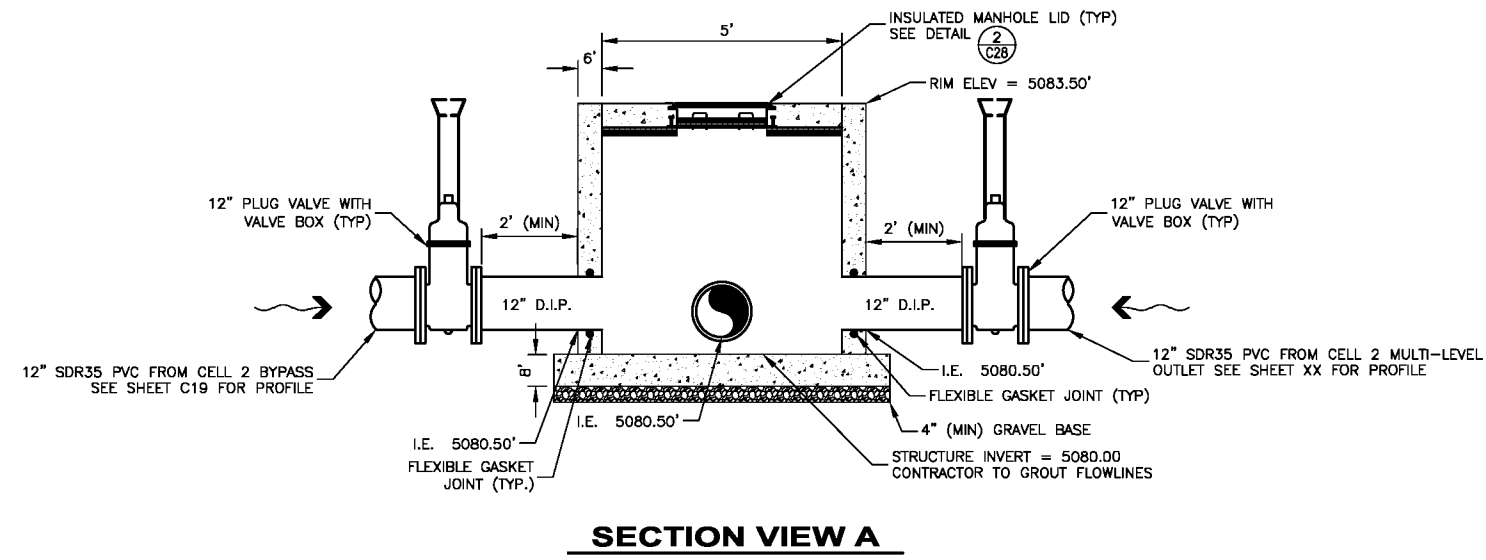
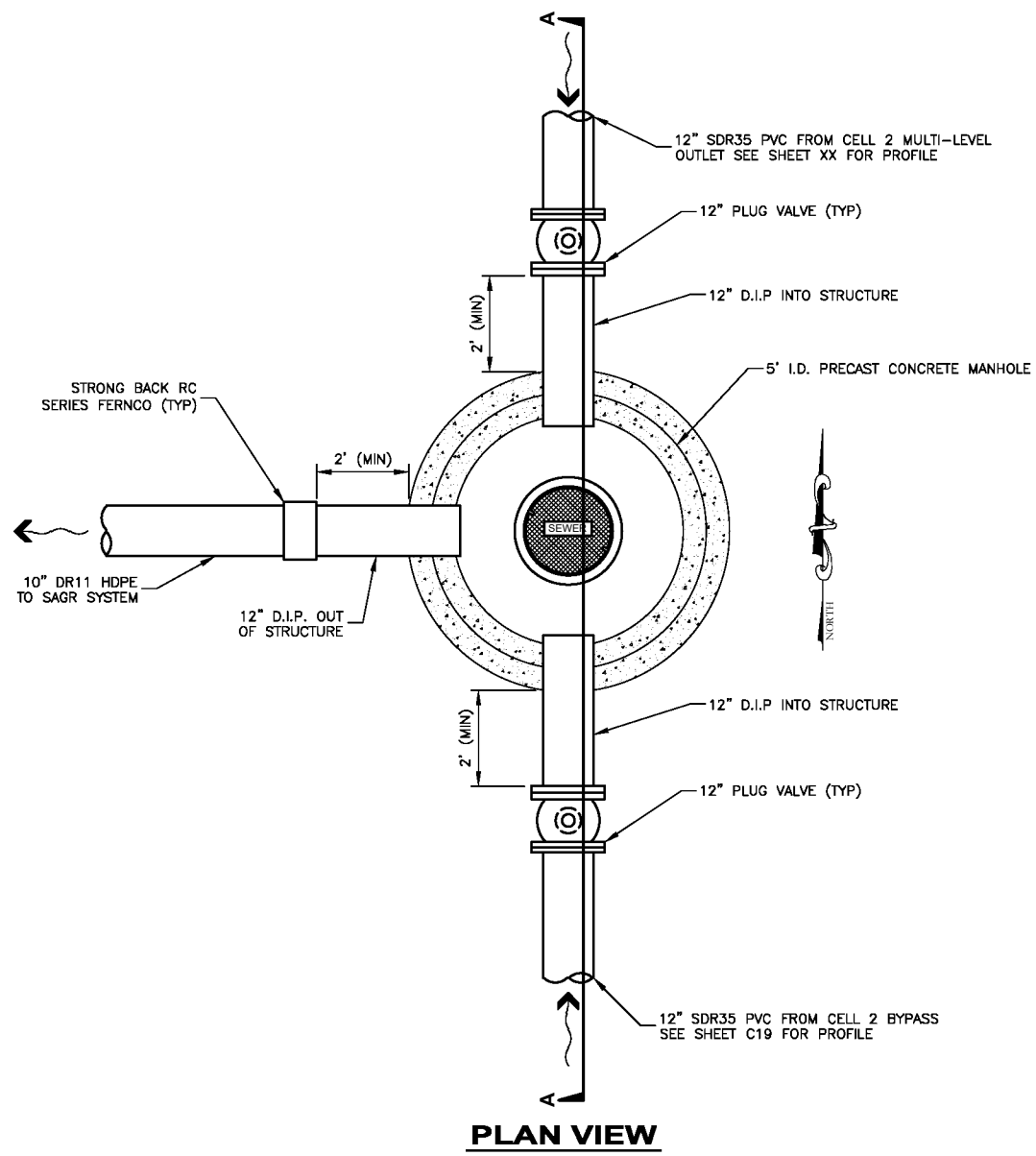
TOWN OF PHILIPSBURG

WASTEWATER SYSTEM IMPROVEMENTS

CELL 2 BYPASS PLAN & PROFILE

SHEET NO.
C19
OF ---

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-C20-SAGR Splitter and Level Control Detail.dwg



- NOTE:**
1. CONTRACTOR REQUIRED TO INSTALL 2' MINIMUM OF 12" D.I.P PIPE OUTSIDE OF THE SPLITTER STRUCTURE BEFORE TRANSITIONING TO THE APPROPRIATE PIPE IN EACH DIRECTION.
 2. CONTRACTOR SHALL GROUT THE FLOWLINE OF THE STRUCTURE.
 3. THE CONCRETE STRUCTURE MUST BE PRE-CAST UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER. CONCRETE STRUCTURE WILL BE REQUIRED TO PASS HYDROSTATIC LEAKAGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SECTION 01850.

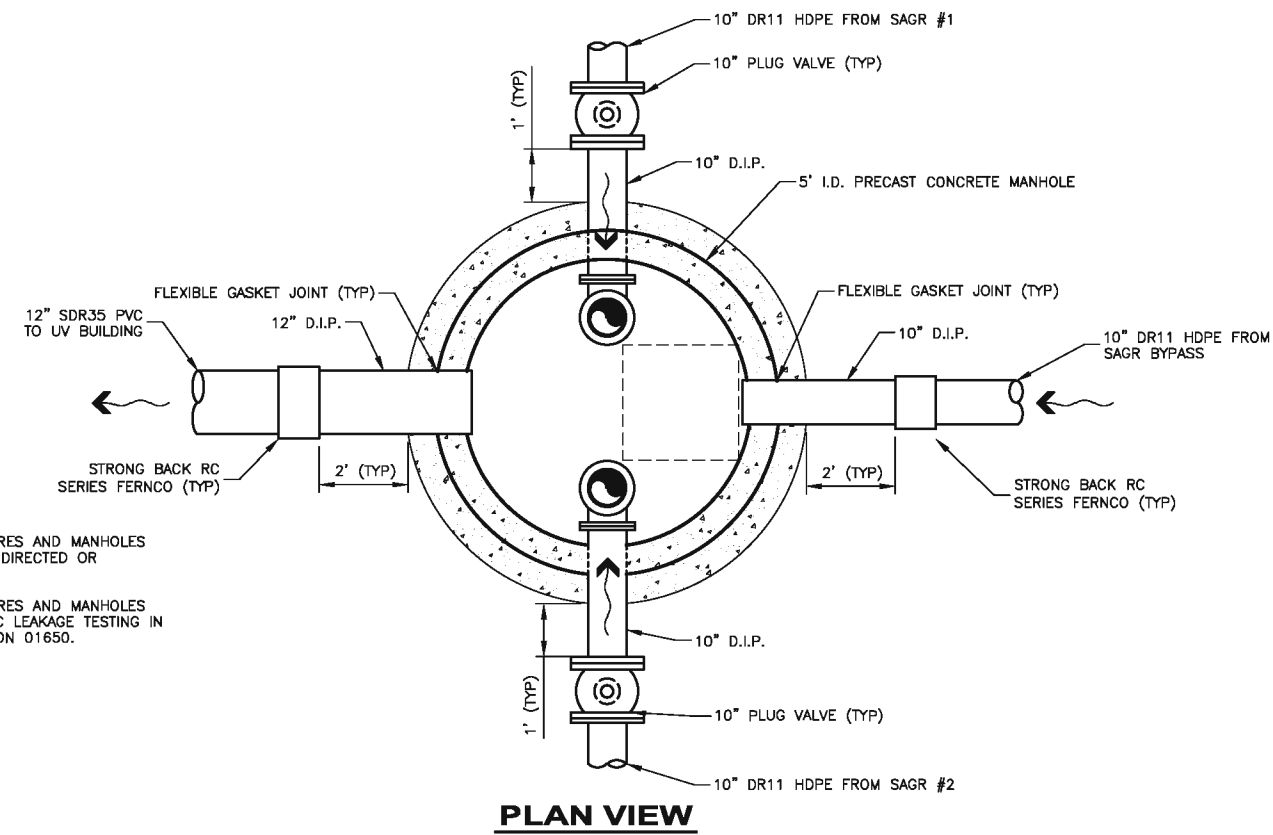
1 CELL 2 LEVEL CONTROL STRUCTURE
C20 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

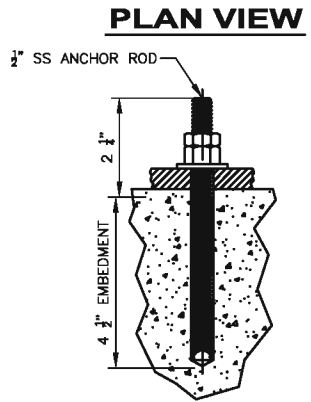
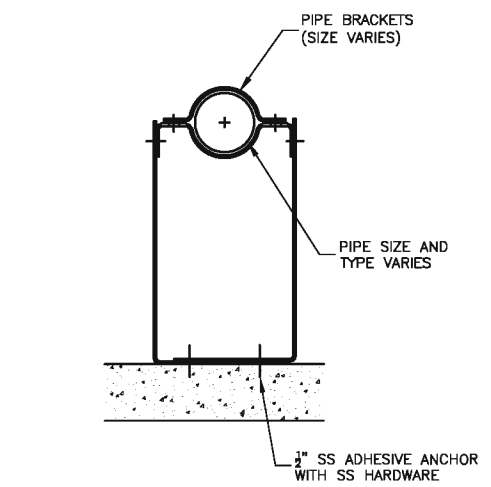
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



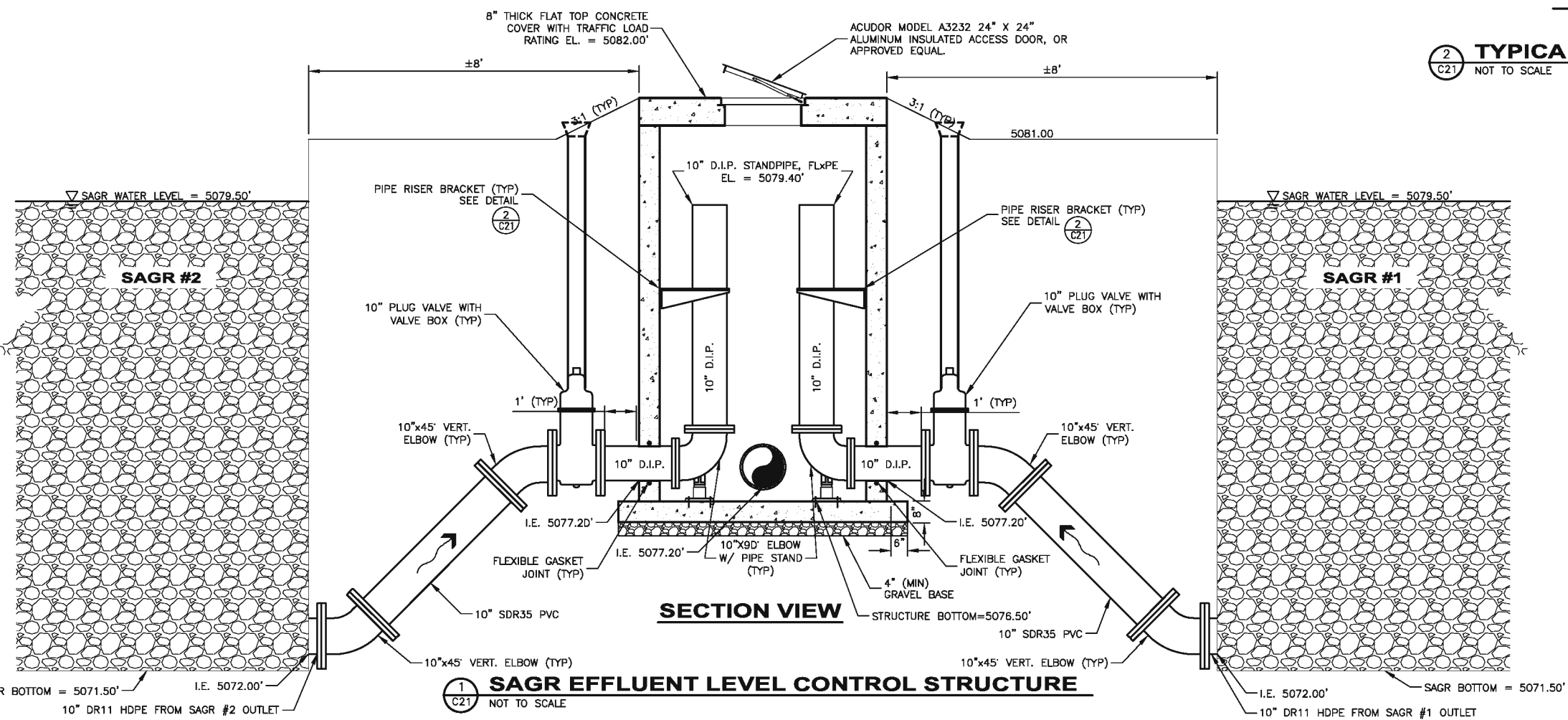
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SAGR SPLITTER AND LEVEL CONTROL DETAIL



NOTE:
 1. ALL CONCRETE SAGR EFFLUENT STRUCTURES AND MANHOLES MUST BE PRE-CAST UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER.
 2. ALL CONCRETE SAGR EFFLUENT STRUCTURES AND MANHOLES WILL BE REQUIRED TO PASS HYDROSTATIC LEAKAGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SECTION 01650.



2 TYPICAL VERTICAL PIPE BRACKET
 C21 NOT TO SCALE



1 SAGR EFFLUENT LEVEL CONTROL STRUCTURE
 C21 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

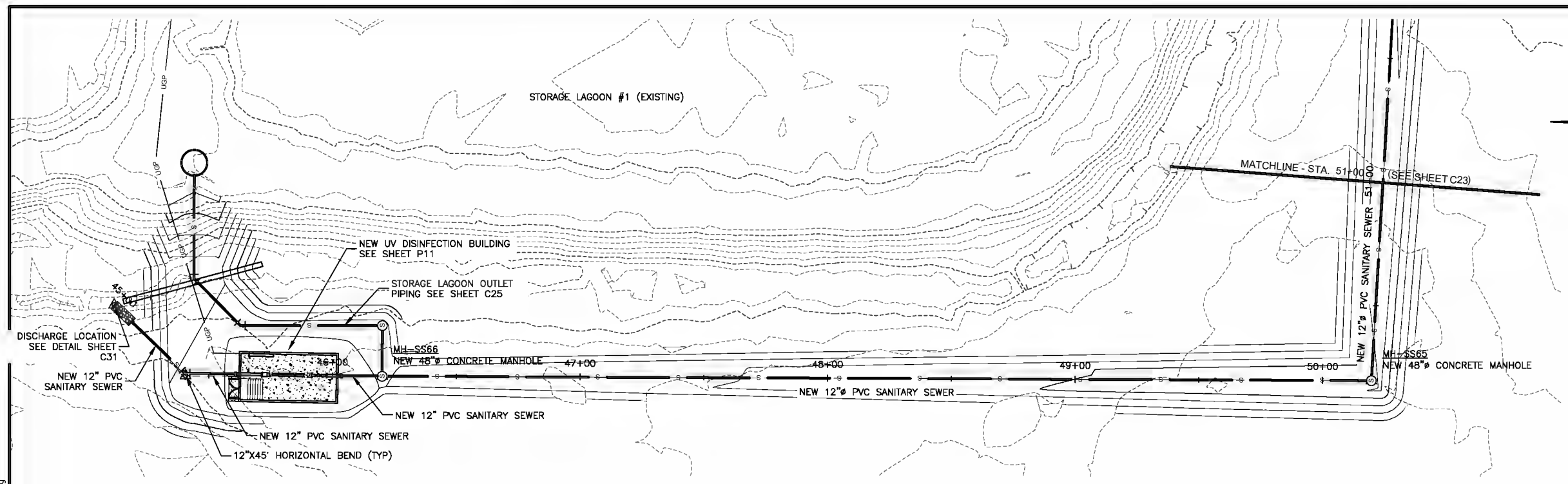
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



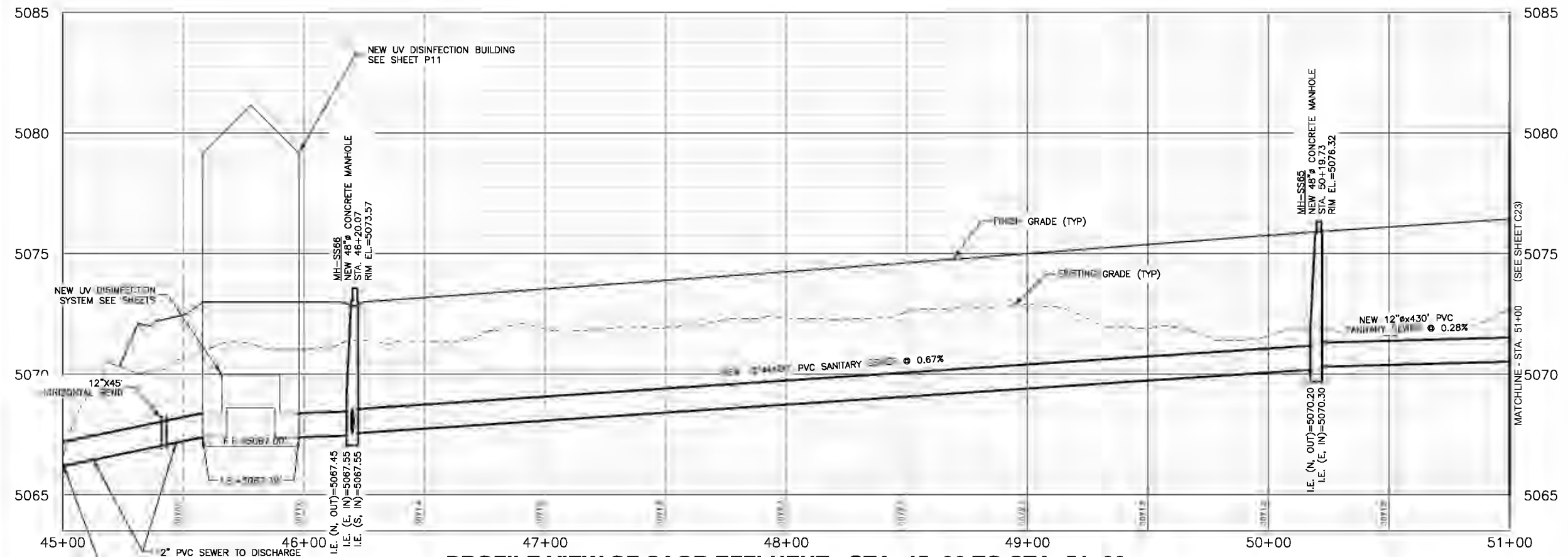
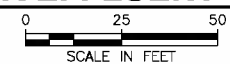
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SAGR EFFLUENT AND LEVEL CONTROL DETAIL

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Sheets\1-21313-C21-SAGR Effluent and Level Control Detail.dwg

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-C22-SAGR Effluent Plan & Profile STA. 45+00 to 51+00.dwg



PLAN VIEW OF SAGR EFFLUENT STA. 45+00 TO 51+00



PROFILE VIEW OF SAGR EFFLUENT - STA. 45+00 TO STA. 51+00

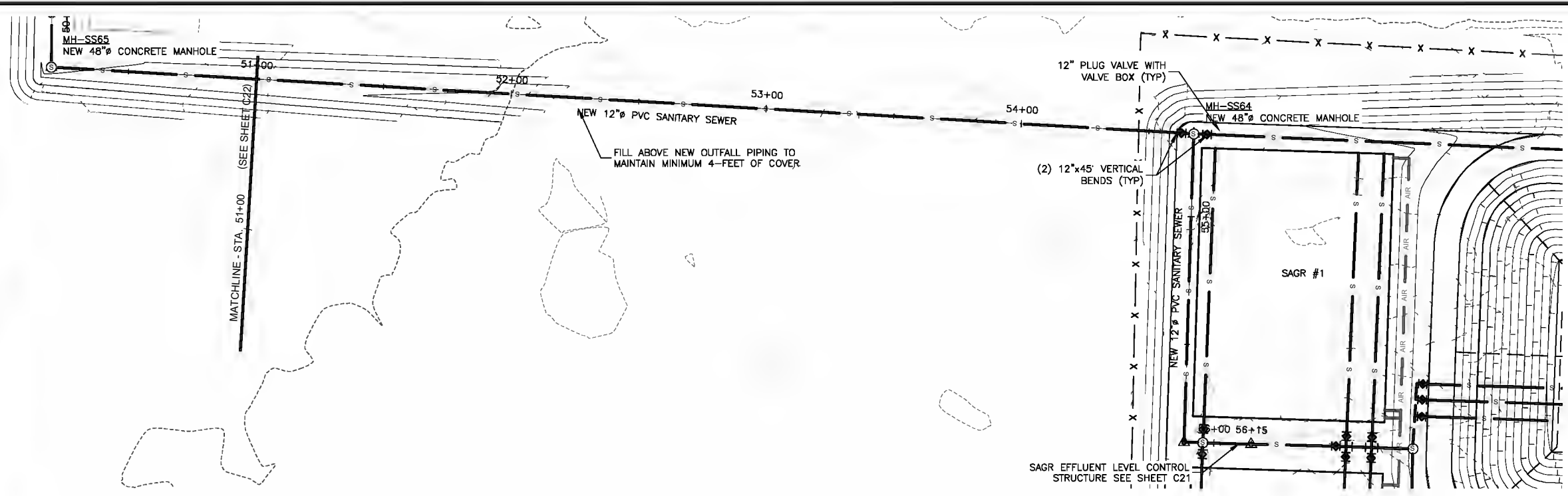
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

NO.	REVISION DESCRIPTION	BY	DATE

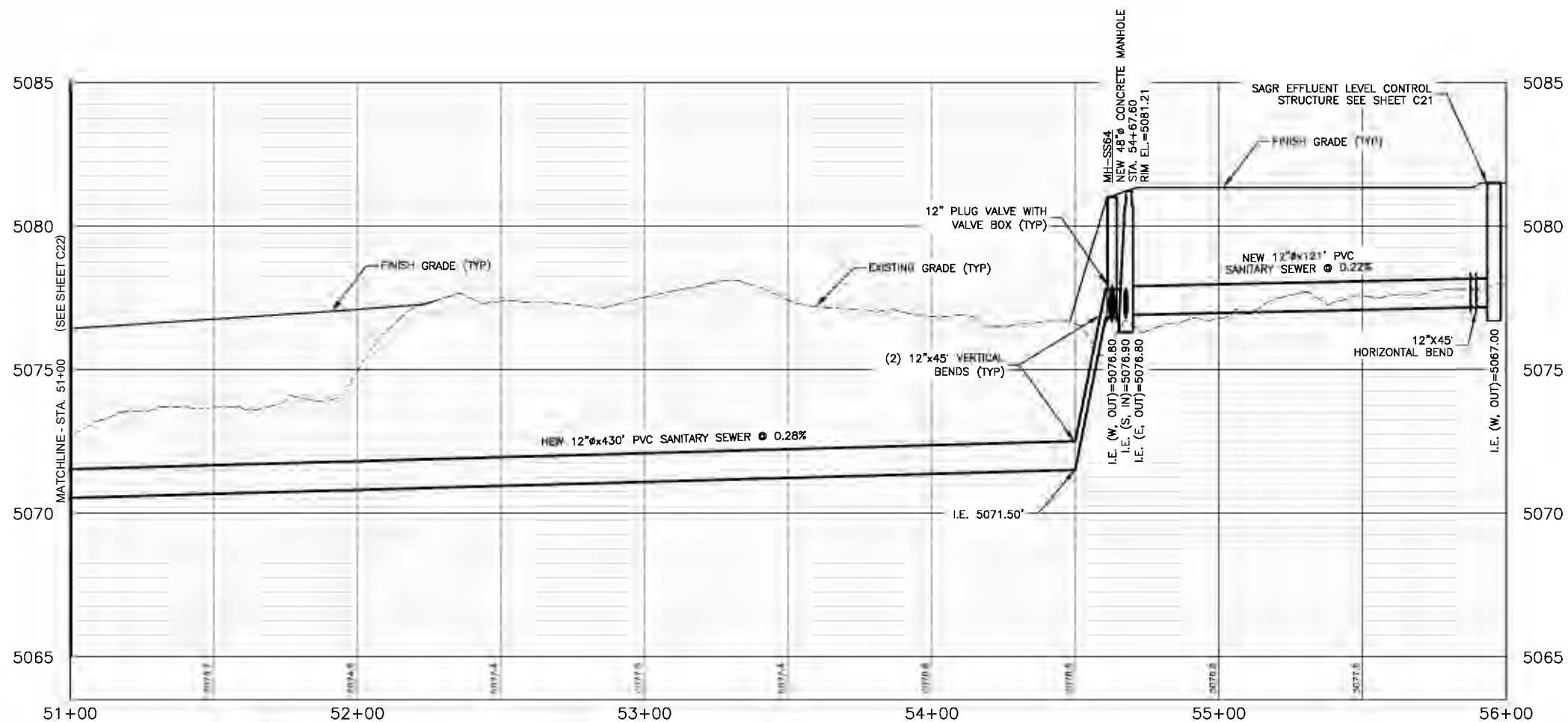
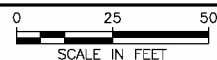
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
SAGR EFFLUENT PLAN & PROFILE STA. 45+00 TO 51+00



PLAN VIEW OF SAGR EFFLUENT PIPING STA. 51+00 TO 56+00



PROFILE VIEW OF SAGR EFFLUENT - STA. 51+00 TO STA. 56+00

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



NO.	REVISION DESCRIPTION	BY	DATE
△			
△			
△			
△			

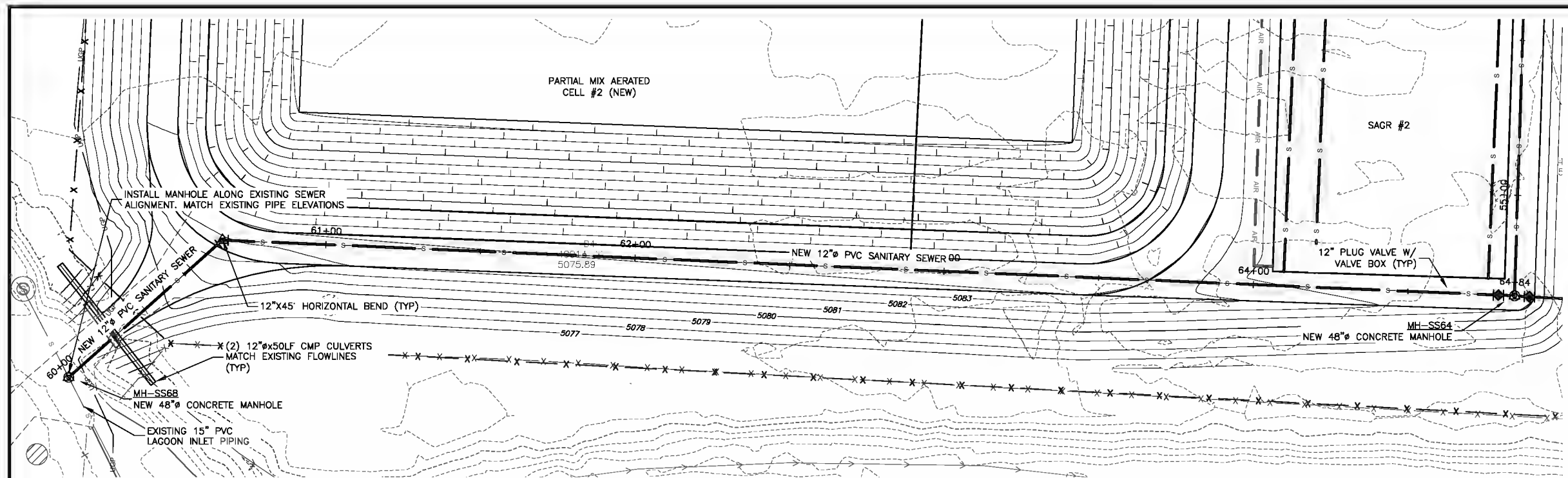
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



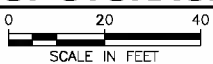
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SAGR EFFLUENT PLAN & PROFILE STA. 51+00 TO 56+00

SHEET NO.
C23
 OF ----

C:\Users\ar\AppData\Local\Temp\2023\1-21-23\1-21313\Drawings\1-21313-C23-SAGR Effluent Plan & Profile STA.51+00 to 56+00.dwg



PLAN VIEW OF STORAGE OUTFALL

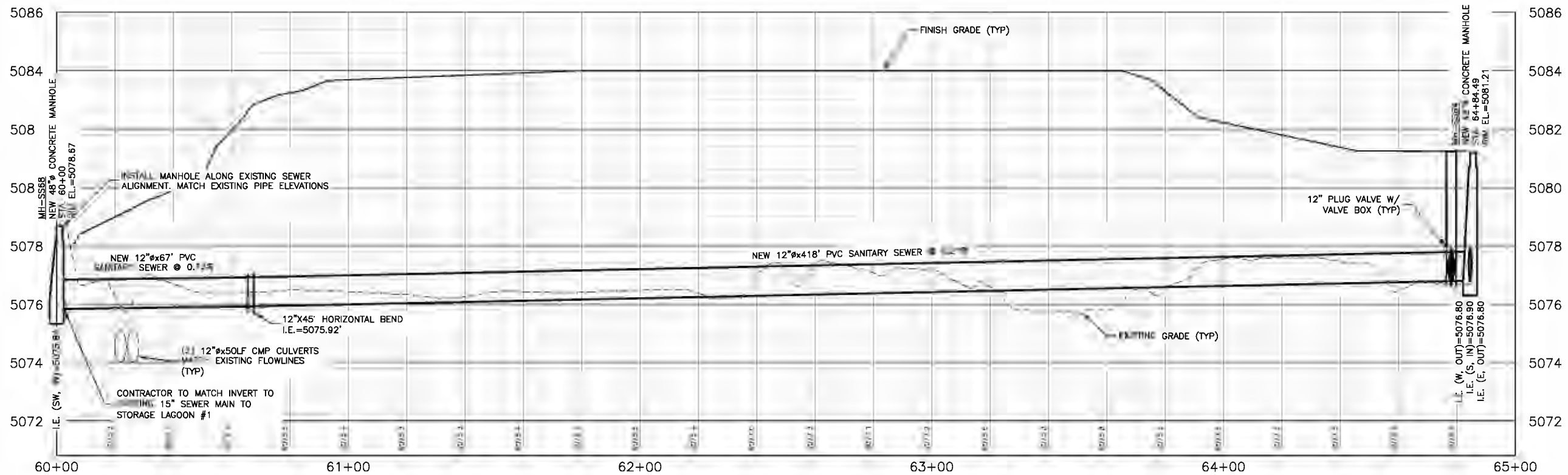


NOTES:
1. STORAGE OUTFALL TO BE USED IN SUMMER MONTHS. ALL SAGR EFFLUENT SHALL BE DIVERTED FROM THE UV BUILDING TO THE STORAGE SYSTEM.

Vertical Datum: Profile: 1-2131

Wastewater: 2021-07-14-2021-07-14

Influent Plan &



PROFILE VIEW OF STORAGE OUTFALL - STA. 60+00 TO STA. 65+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

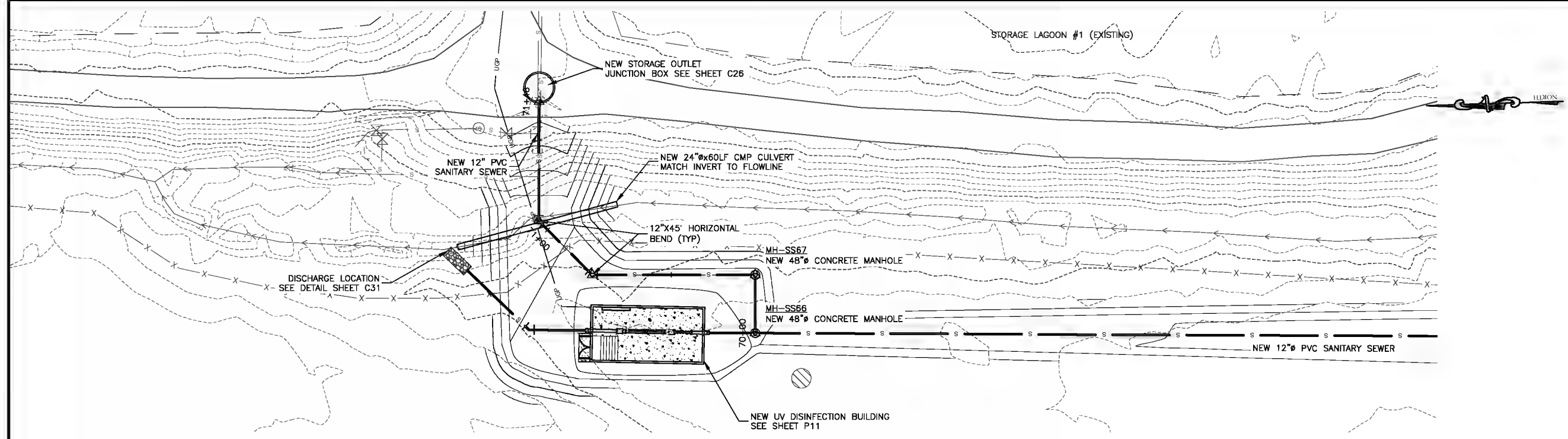
NO.	REVISION DESCRIPTION	BY	DATE
1			
2			
3			
4			

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023

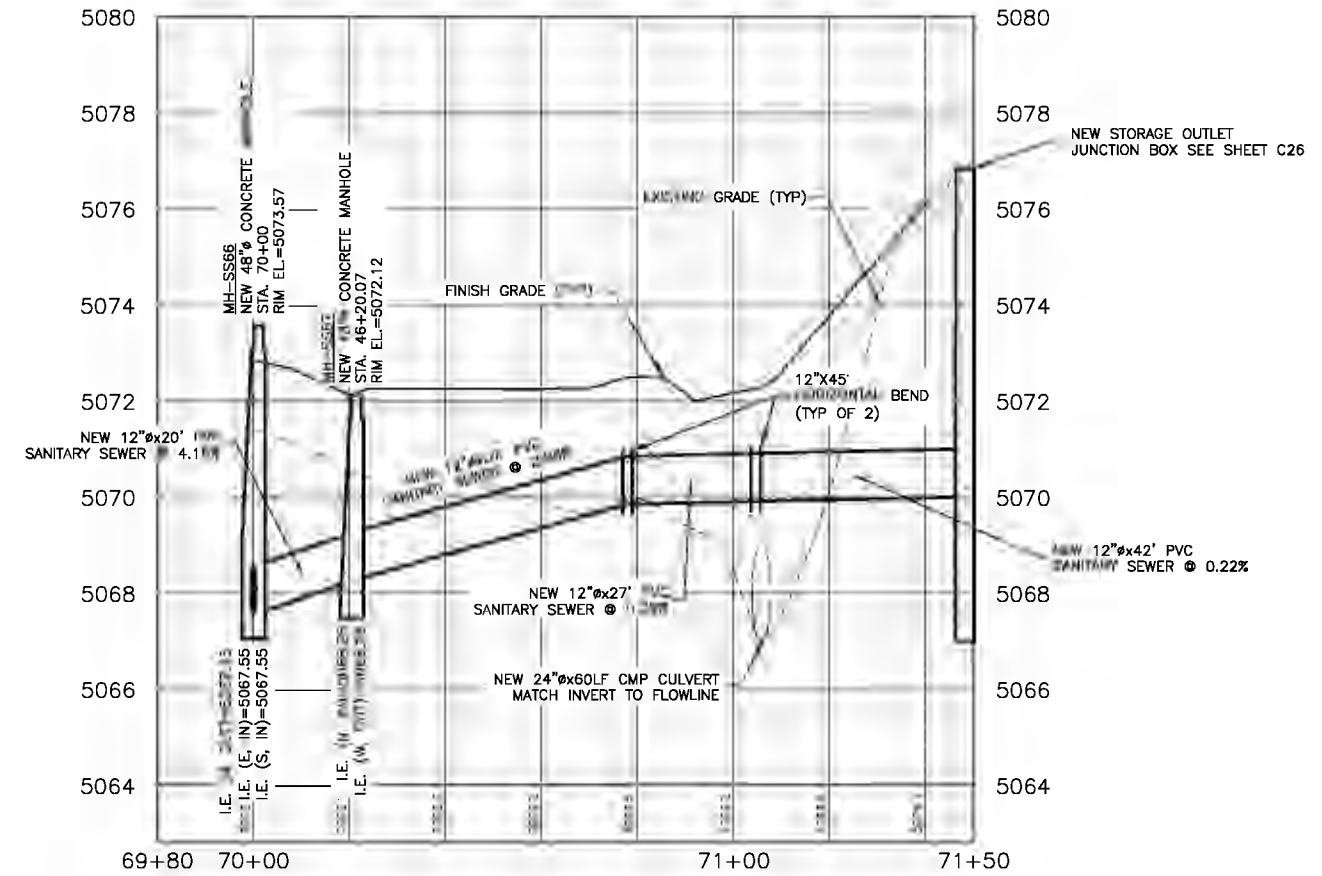
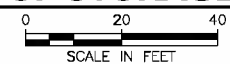


GreatWest
 ENGINEERING
 260 BELT VIEW DRIVE
 HELENA, MT
 (406)449-8991

TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 STORAGE OUTFALL PLAN & PROFILE



PLAN VIEW OF STORAGE EFFLUENT



PROFILE VIEW OF EXISTING LAGOON DISCHARGE - STA. 69+80 TO STA. 71+50

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

NO.	REVISION DESCRIPTION	BY	DATE

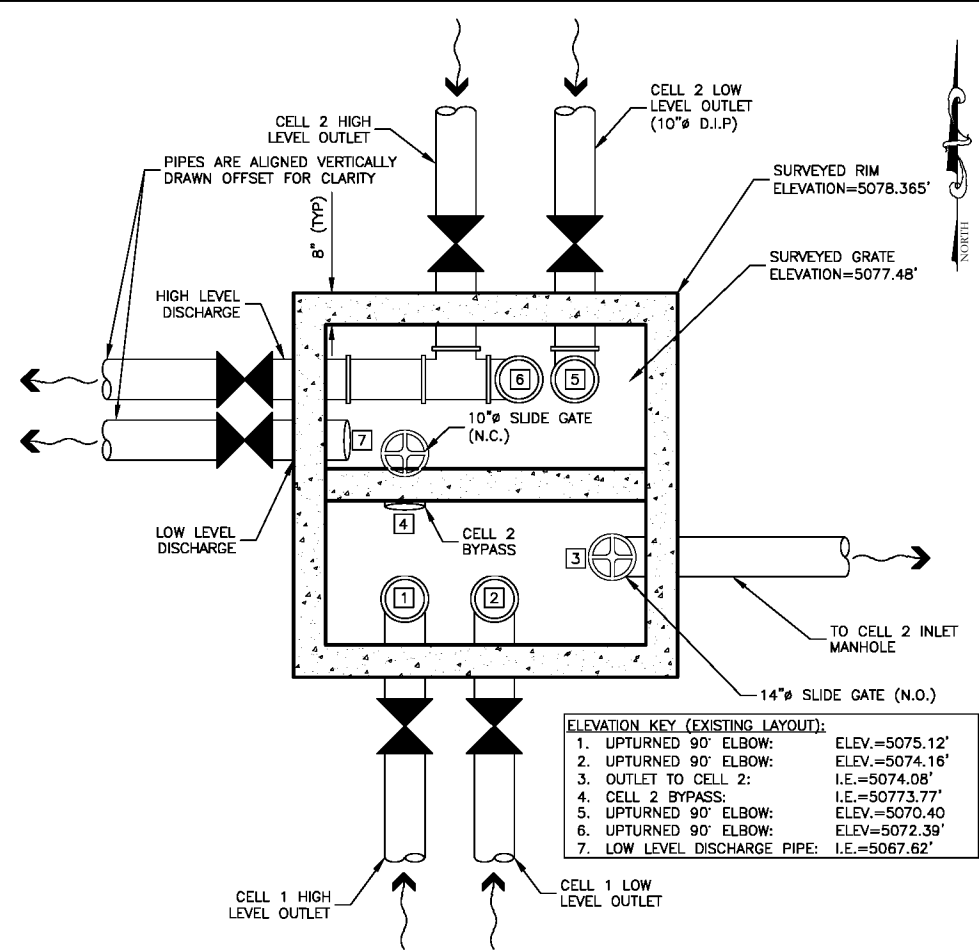
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



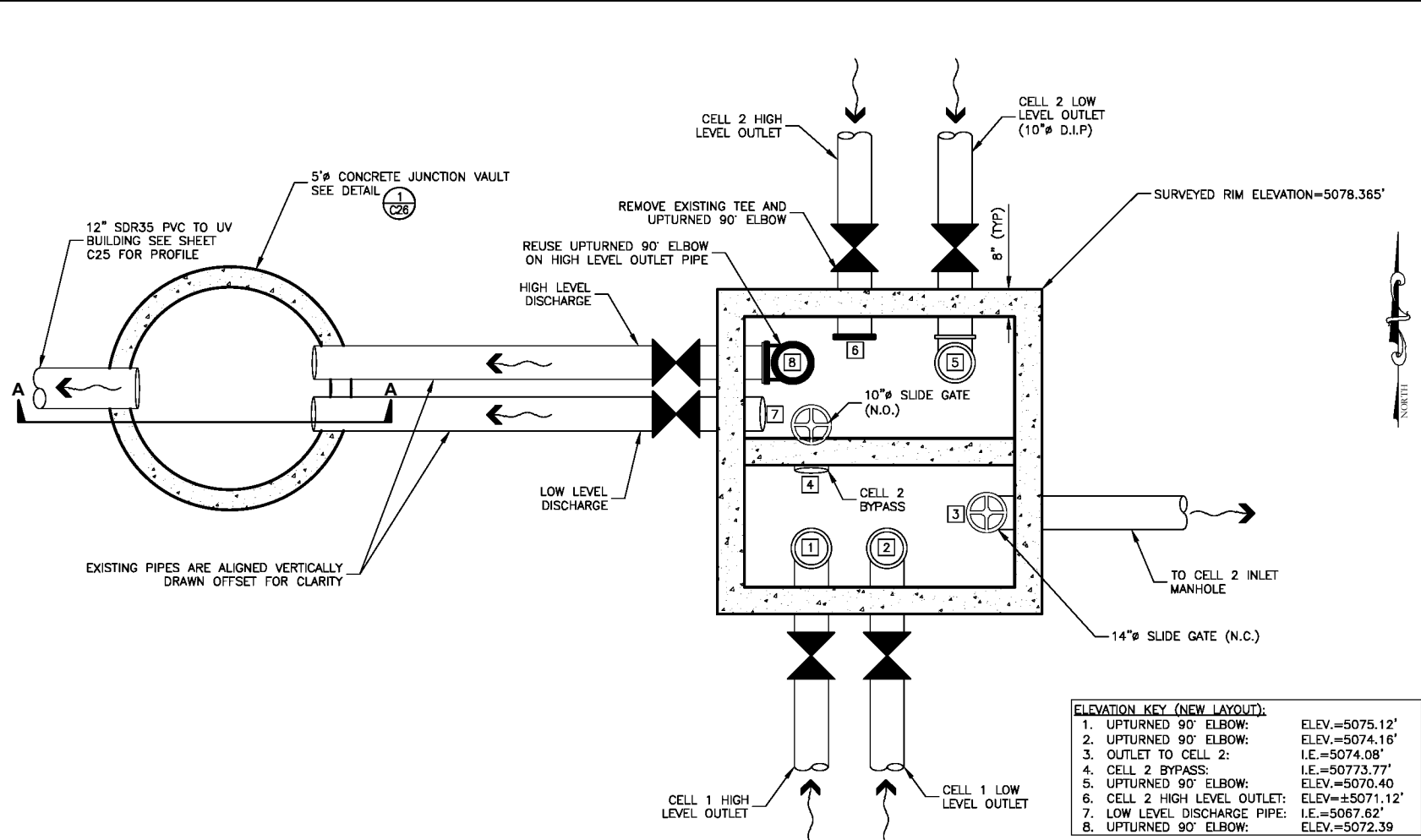
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
STORAGE EFFLUENT PLAN & PROFILE

1-2131 Wastewater 1-21 Effluent Plan &

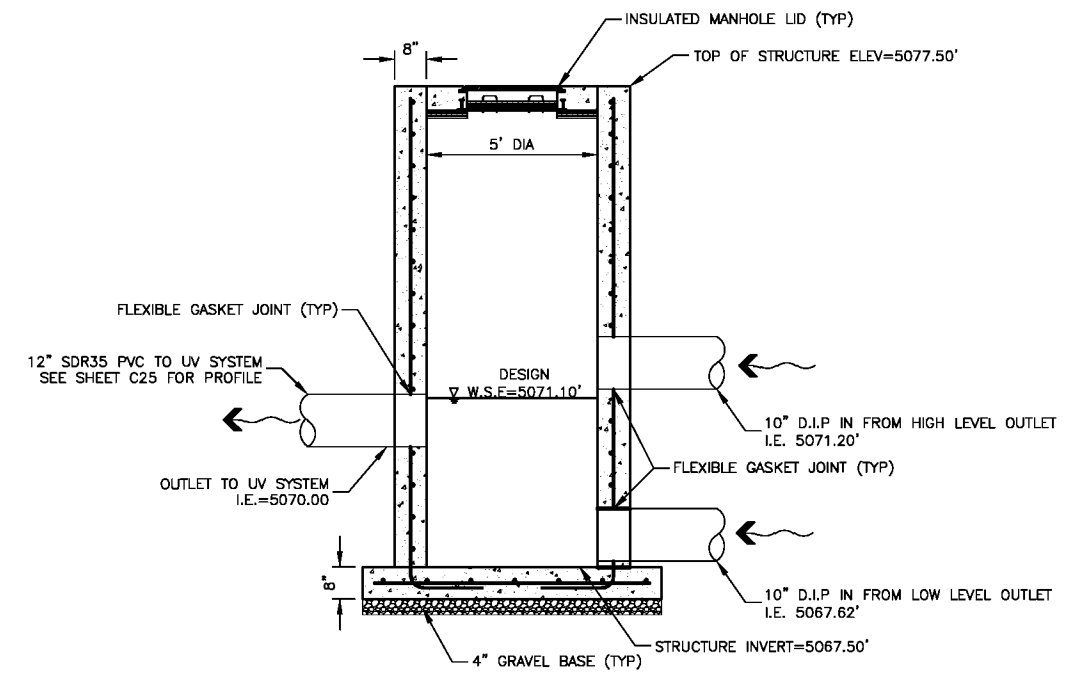
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-C26-Details (Existing Control Structure Changes).dwg



EXISTING CONTROL STRUCTURE LAYOUT
NOT TO SCALE



CONTROL STRUCTURE IMPROVEMENTS
NOT TO SCALE



STORAGE EFFLUENT JUNCTION BOX SECTION A
NOT TO SCALE

- NOTES:**
- OPERATOR TO USE HIGH AND/OR LOW LEVEL OUTLET PIPES BASED ON REQUIRED STORAGE AND LAGOON LEVELS.
 - SUMMER STORAGE OPERATION TO TAKE PLACE JULY THROUGH SEPTEMBER.
 - N.C. = NORMALLY CLOSED (DURING SUMMER OPERATION)
 - N.O. = NORMALLY OPEN (DURING SUMMER OPERATION)

BY	DATE
REVISION DESCRIPTION	
NO.	
PROJECT: 1-21313	DESIGNED: AHE
	DRAWN: AR, AE
	CHECKED: AMD
	APPROVED: AHE
	DATE: JANUARY 2023



260 BELT VIEW DRIVE
HELENA, MT
(406)449-8991

TOWN OF PHILIPSBURG

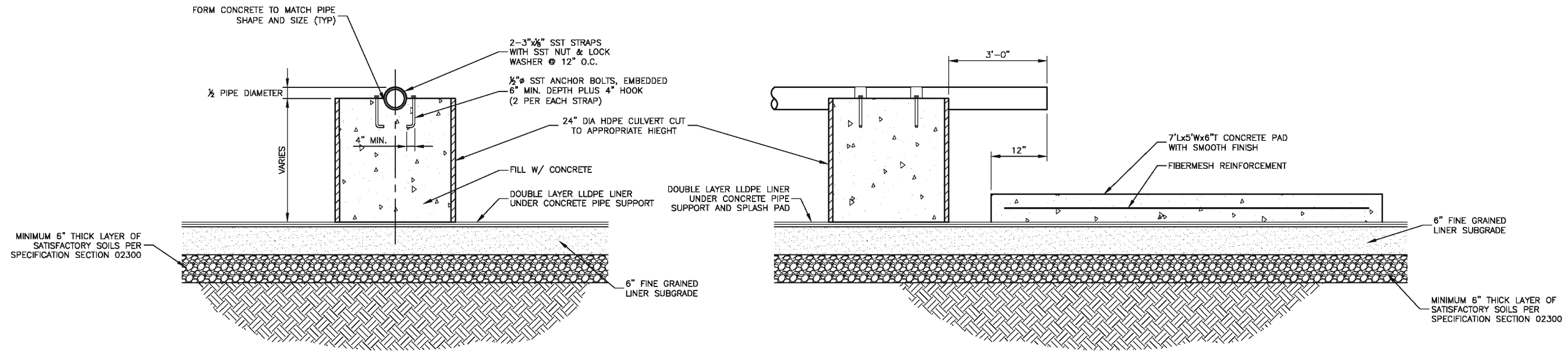
WASTEWATER SYSTEM IMPROVEMENTS

STORAGE EFFLUENT STRUCTURE DETAILS

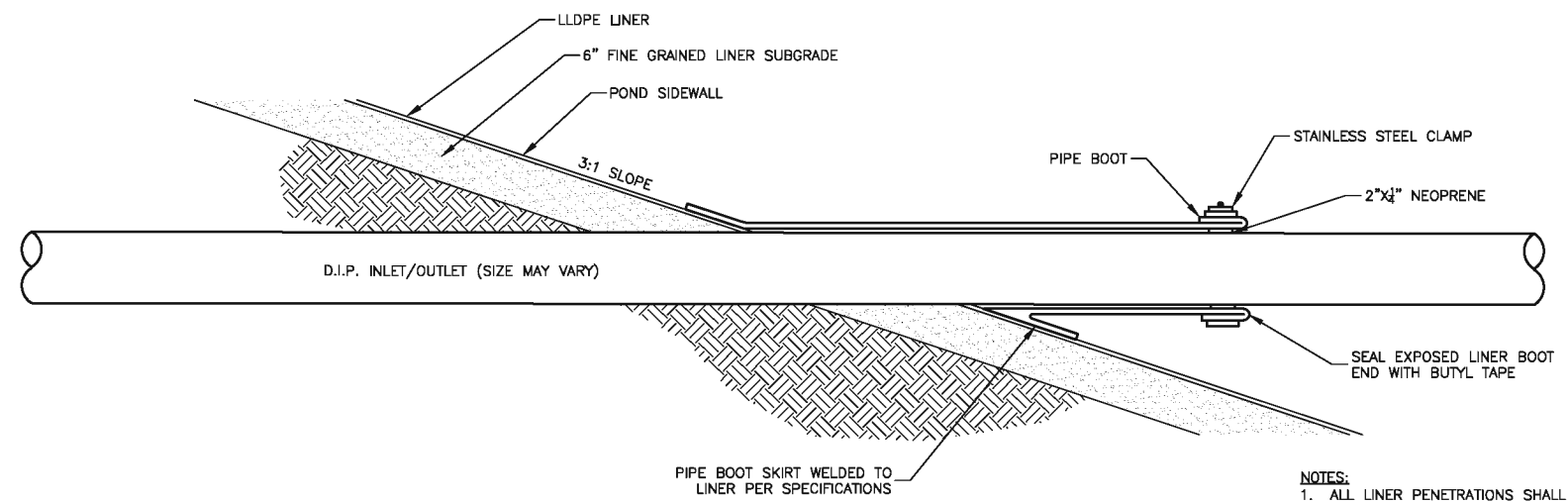
SHEET NO.

C26

OF ---



1 CONCRETE PIPE SUPPORT AND SPLASH PAD
NOT TO SCALE



2 TYPICAL HORIZONTAL LINER PENETRATION
NOT TO SCALE

- NOTES:**
1. ALL LINER PENETRATIONS SHALL BE PER MANUFACTURERS' RECOMMENDATIONS.
 2. PLEASE NOTE THAT THIS IS A TYPICAL LINER PENETRATION AND APPROPRIATE BOOTS AND OTHER MISCELLANEOUS MATERIALS MAY BE REQUIRED FOR OTHER PENETRATIONS, SUCH AS VERTICAL PENETRATIONS. ALL PROPOSED PIPE PENETRATIONS SHALL BE REVIEWED BY THE ENGINEER THROUGH THE SUBMITTAL PROCESS. SEE SPECIFICATIONS.

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313	DESIGNED: AHE	DRAWN: AR, AE	CHECKED: AMD	APPROVED: AHE	DATE: JANUARY 2023
------------------	---------------	---------------	--------------	---------------	--------------------

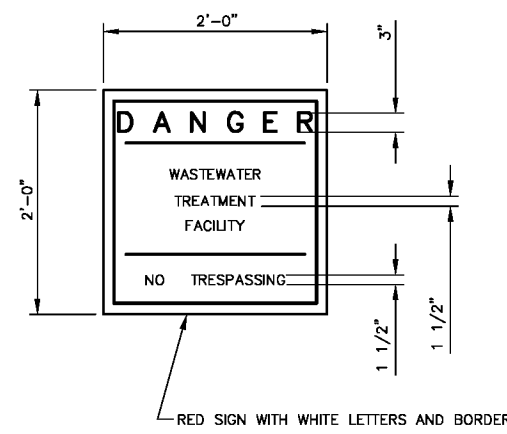


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
LAGOON DETAIL

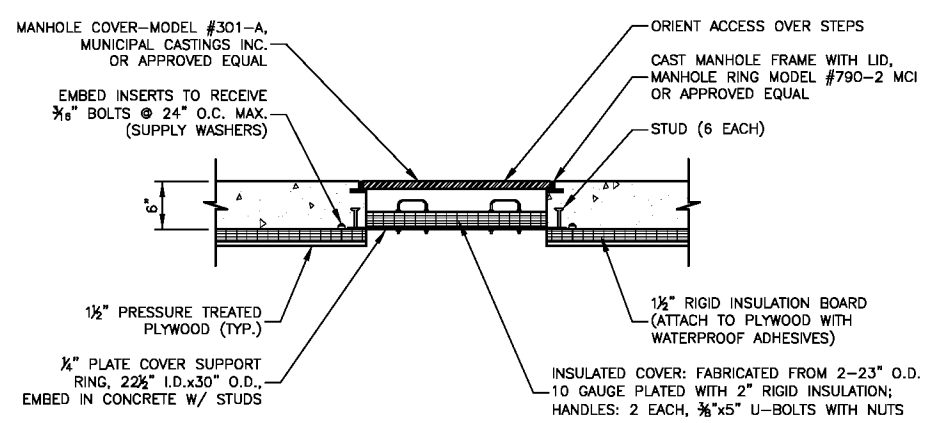
SHEET NO.
C27
OF ---

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-C27-Lagoon Detail.dwg

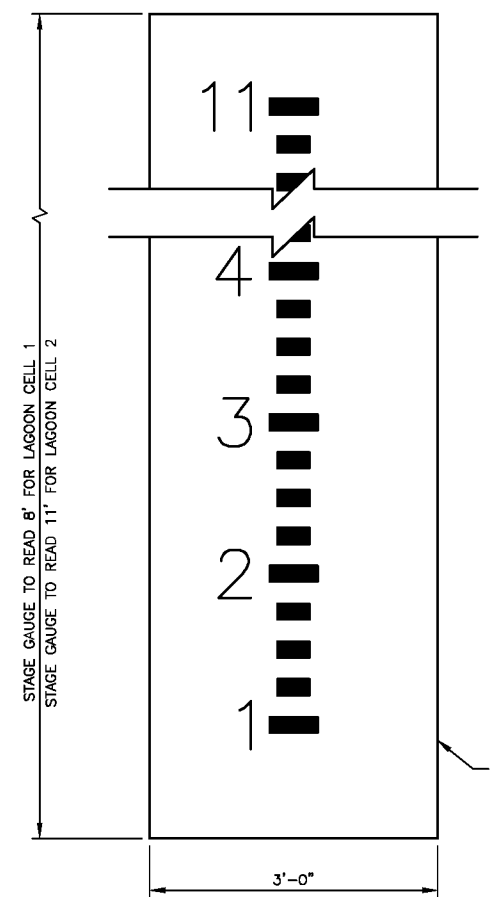
- SIGN SPECIFICATIONS:**
- ALL SIGNS, UNLESS OTHERWISE NOTED, SHALL BE CONSTRUCTED WITH 5005-H34 ALUMINUM FLAT SHEET WITH A MILL FINISH, THE GAUGE OF THE ALUMINUM SHALL BE .080.
 - ALL SIGNS SHALL BE COATED WITH REFLECTIVE SHEETING.
 - ALL SIGNS SHALL BE MOUNTED UTILIZING BOLTS, WASHERS AND NUTS AS RECOMMENDED BY THE SIGN MANUFACTURER.
 - SIGNS SHALL BE BOLTED THROUGH LAGOON FENCE POSTS.
 - SIGNS TO BE INSTALLED AT 500' MIN. INTERVALS AROUND PERIMETER OF THE PROPERTY FENCING.



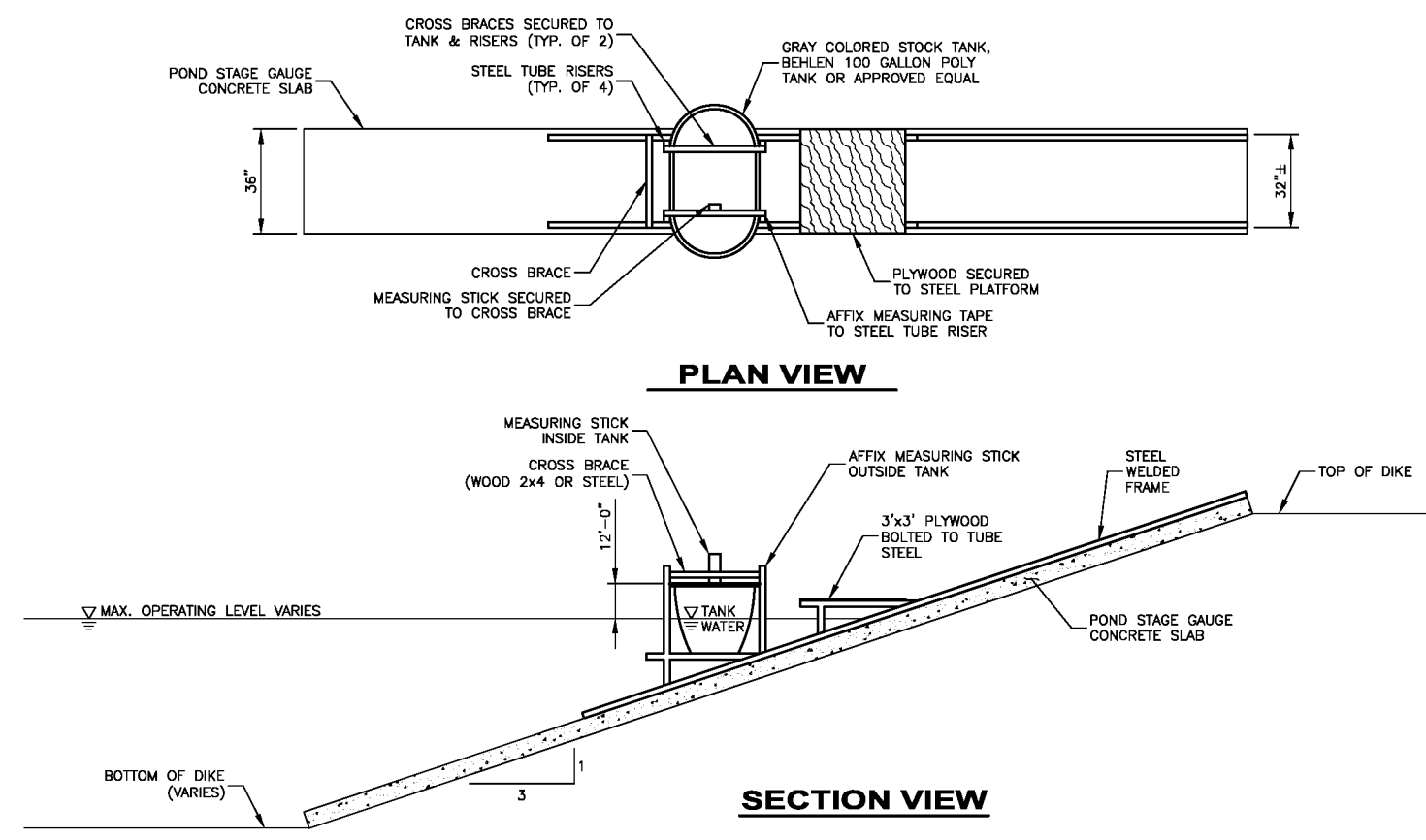
1 PERIMETER HAZARD SIGN
C28 NOT TO SCALE



2 INSULATED MANHOLE LID
C28 NOT TO SCALE



3 POND STAGE GAUGE
C28 NOT TO SCALE



4 LAGOON LEAK TEST
C28 NOT TO SCALE

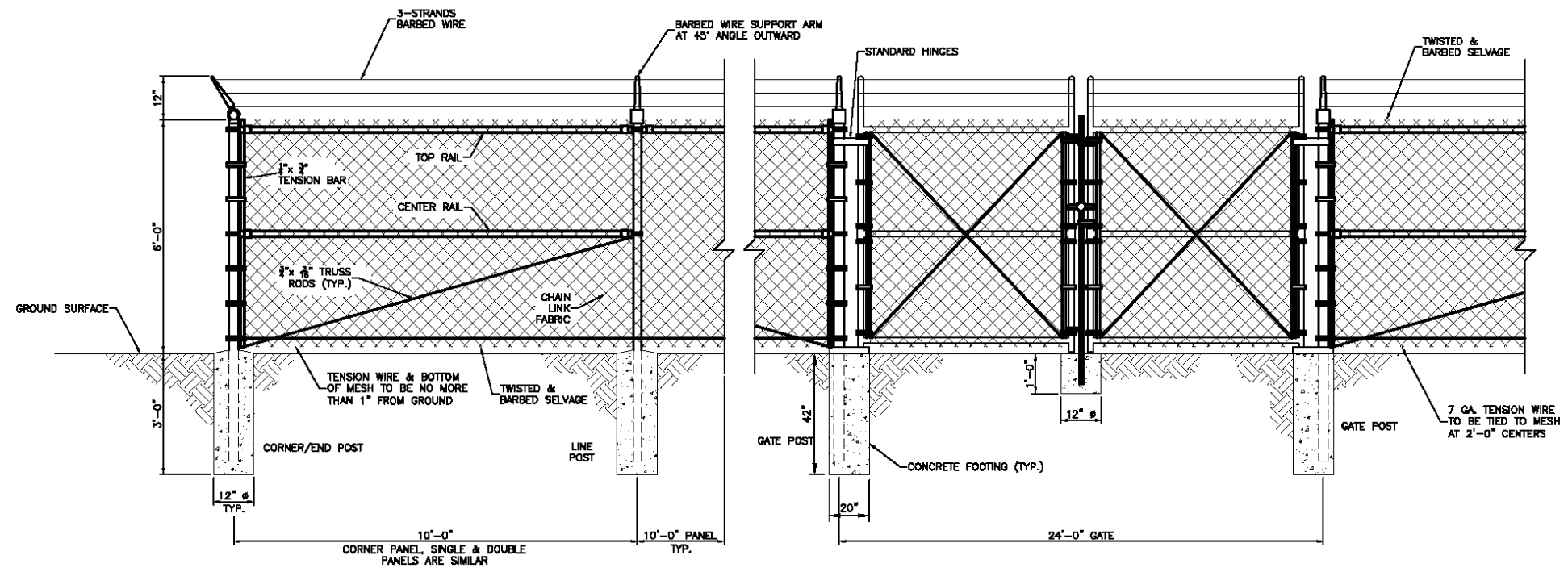
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 LAGOON DETAIL

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-C28-Lagoon Detail.dwg



FENCE MATERIALS:

1. TOP & CENTER RAILS TO BE 1 5/8" O.D.
2. FABRIC TO BE 9 GAUGE 2" MESH.
3. CORNER POSTS TO BE 2 7/8" O.D. x 0.180" WALL THICKNESS.
4. GATE POSTS TO BE 2 7/8" O.D. x 0.180" WALL THICKNESS.
5. LINE POSTS TO BE 1 7/8" x 2.28 LB./ FT. FORMED STL. SECTION.
6. POST SPACING NOT TO EXCEED 10'-0".

NOTES:

1. PULL POST BRACING SHALL BE SAME AS CORNER BRACING.
2. A DROP BAR LOCKING DEVICE IS REQUIRED FOR DOUBLE GATE. THE DROP BAR SHALL BE ABLE TO BE INSERTED INTO THE CONCRETE BLOCK AT LEAST 6 INCHES.
3. AT LEAST ONE POST WILL BE EXTENDED 3" INTO THE GROUND FOR LIGHTNING PROTECTION.
4. CHAIN LINK MESH TO BE TIED TO TOP & CENTER RAILS AT 2'-0" CENTERS.
5. GATE CHAIN LINK FABRIC SHALL MATCH FENCE CHAIN LINK FABRIC.
6. GATE FRAMES SHALL BE WELDED & BRACES FURNISHED AS REQUIRED.

1
C29 **CHAIN LINK FENCE DETAIL**
NOT TO SCALE



3
C29 **NON-POTABLE WATER SIGN**
NOT TO SCALE

NOTE:

1. PLACE NON POTABLE WATER SIGN AT 12" ABOVE ALL HOSE REEL, NON POTABLE WELLS, AND AND WALL HYDRANT LOCATIONS.
2. SIGN SHALL BE 14"x10" RUST FREE ALUMINUM, COATED BOTH SIDES

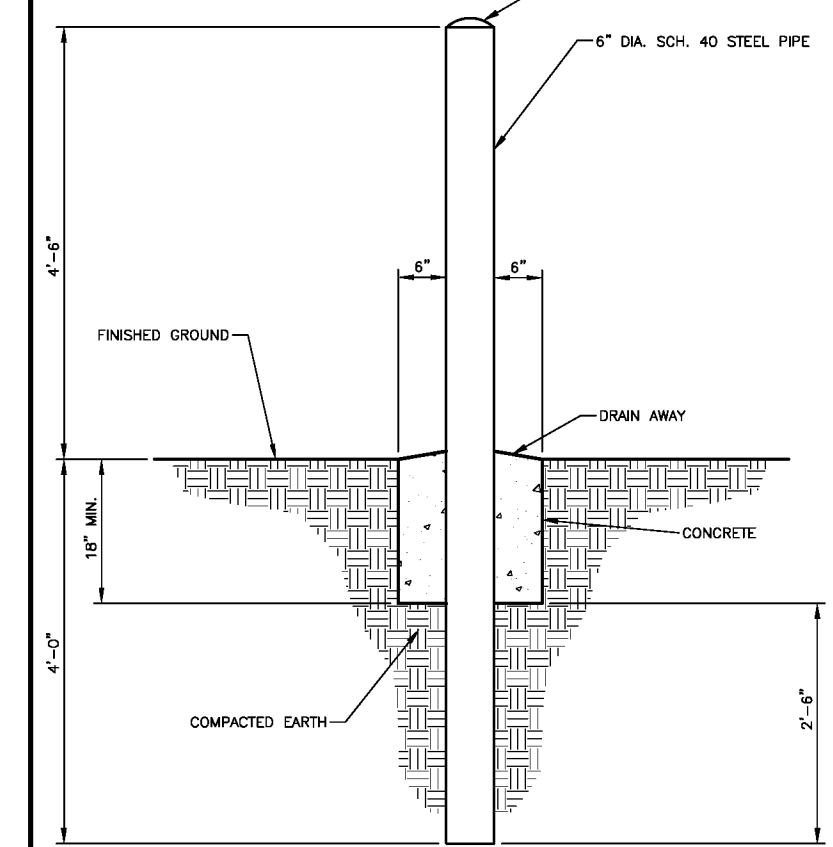
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



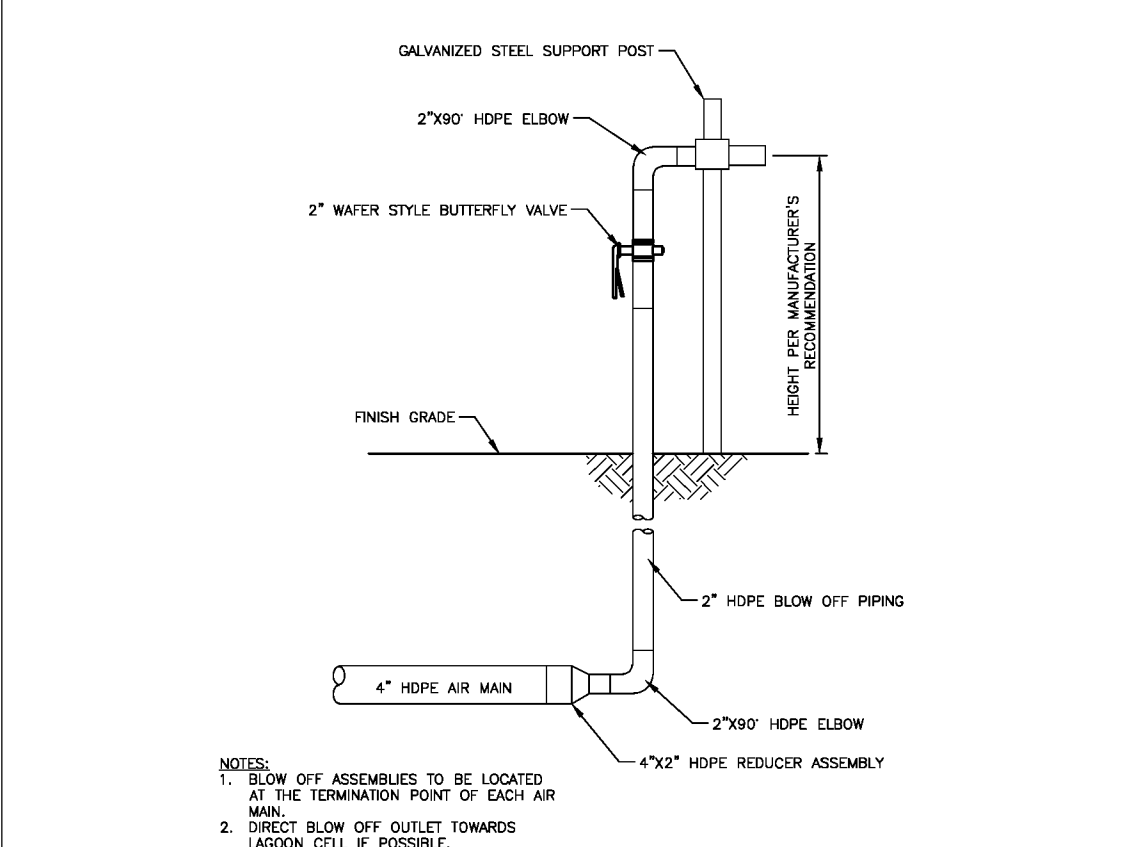
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
GENERAL DETAIL

SHEET NO.
C29
OF ---



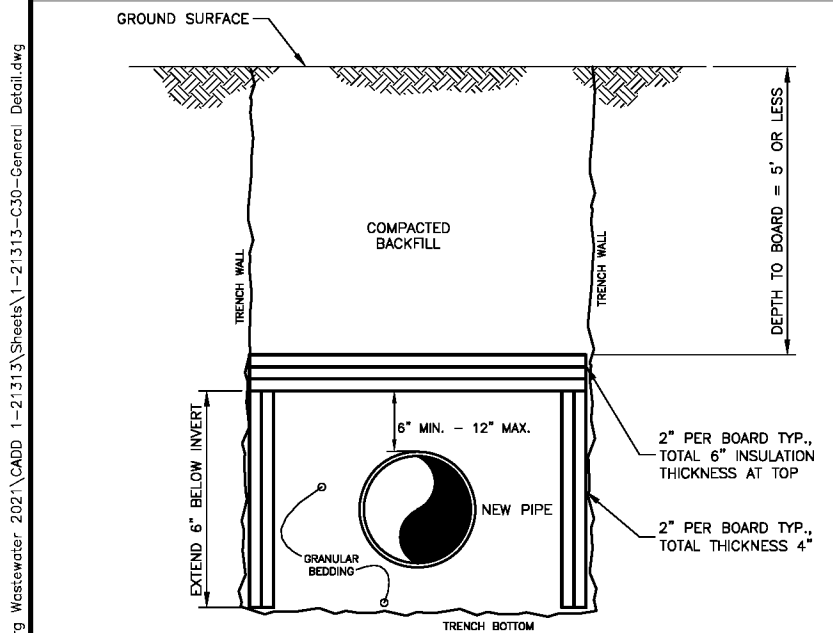
NOTE: PAINT ALL EXPOSED STEEL YELLOW PER SPEC.

1 TYPICAL BOLLARD
C30 NOT TO SCALE



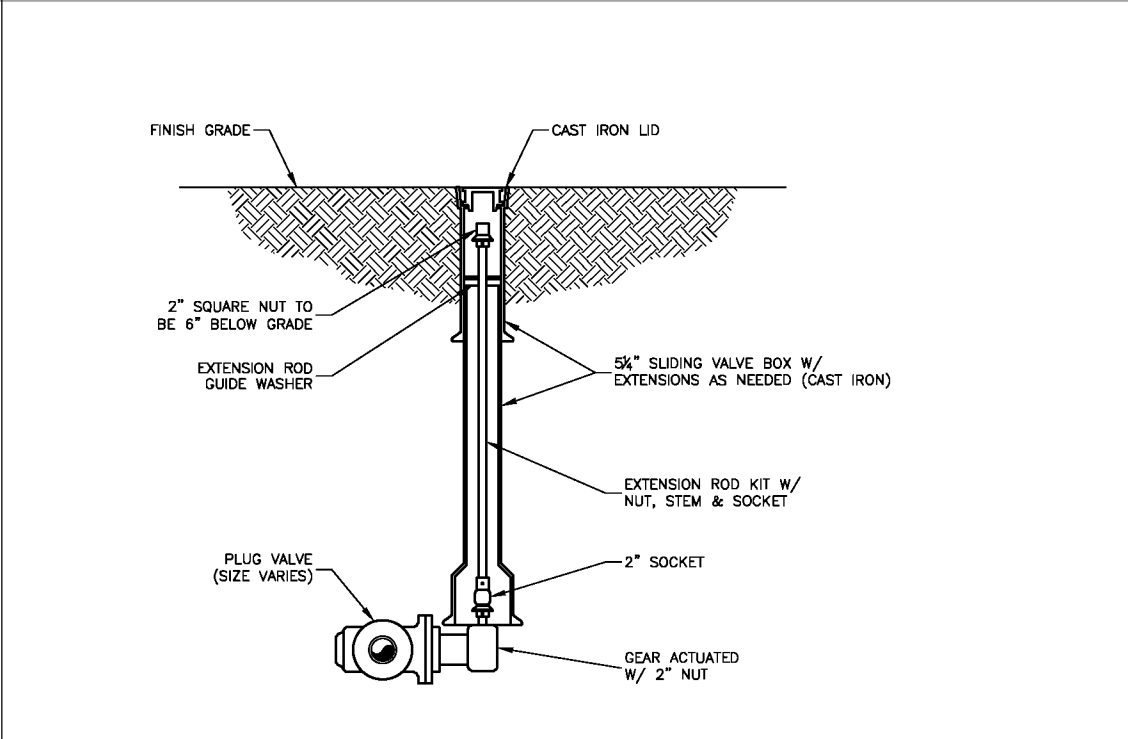
- NOTES:
1. BLOW OFF ASSEMBLIES TO BE LOCATED AT THE TERMINATION POINT OF EACH AIR MAIN.
2. DIRECT BLOW OFF OUTLET TOWARDS LAGOON CELL IF POSSIBLE.

3 AIR MAIN HEADER BLOW-OFF DETAIL
C30 NOT TO SCALE



- NOTES:
1. ANY PIPE WITH LESS THAN 6 FEET OF COVER BETWEEN THE TOP OF PIPE AND FINISH GRADE WILL REQUIRE INSULATION.
2. PROVIDE INSULATION BOARDS OF SP FORMULAR 250 EXTRUDED POLYSTYRENE FOAM INSULATION OR APPROVED EQUAL.
3. STAGGER LAYERS SO THAT EACH JOINT OF INSULATION BOARD IS COUNTERED BY AT LEAST 1 FOOT OF JOINT FREE BOARD EITHER ABOVE OR BELOW (IN FRONT OR BEHIND) THE JOINT IN EACH DIRECTION.

4 PIPE INSULATION DETAIL
C30 NOT TO SCALE



6 PLUG VALVE BOX
C30 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

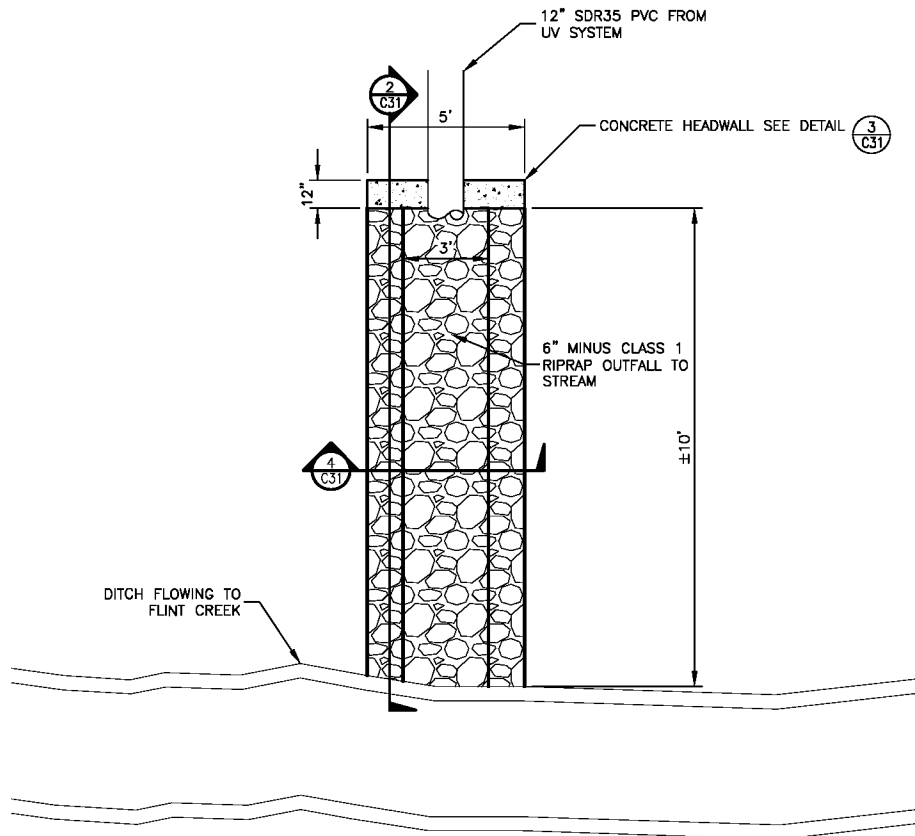
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



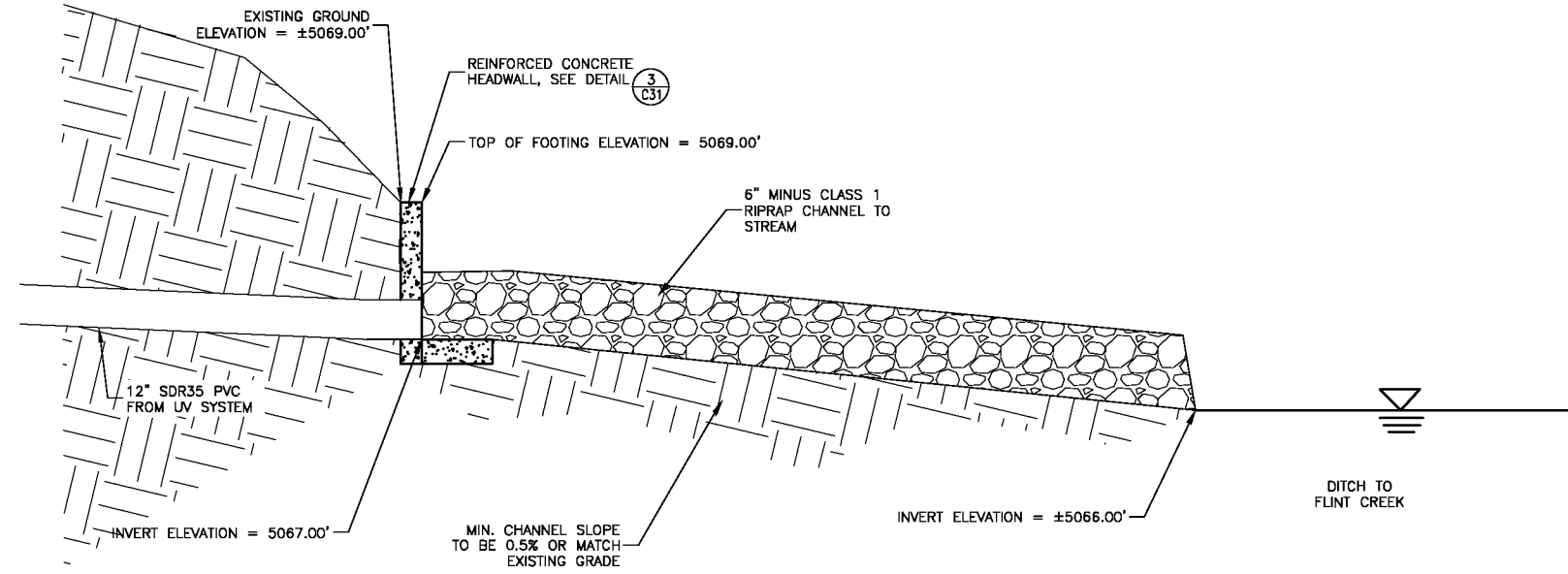
GreatWest
260 BELT VIEW DRIVE
HELENA, MT
(406)449-8891

TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
GENERAL DETAIL

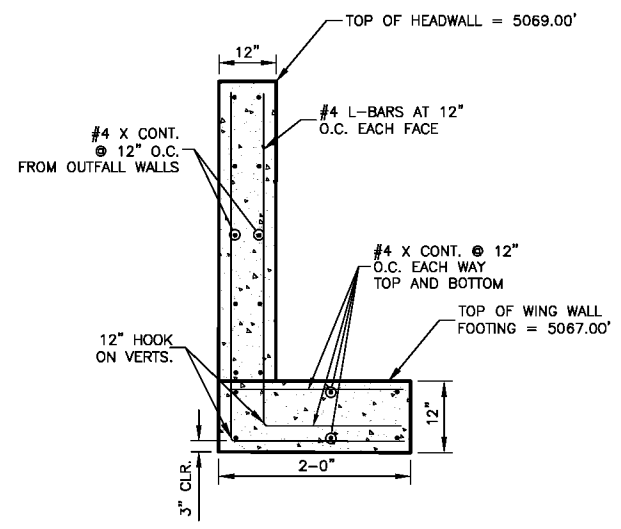
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-General Detail.dwg



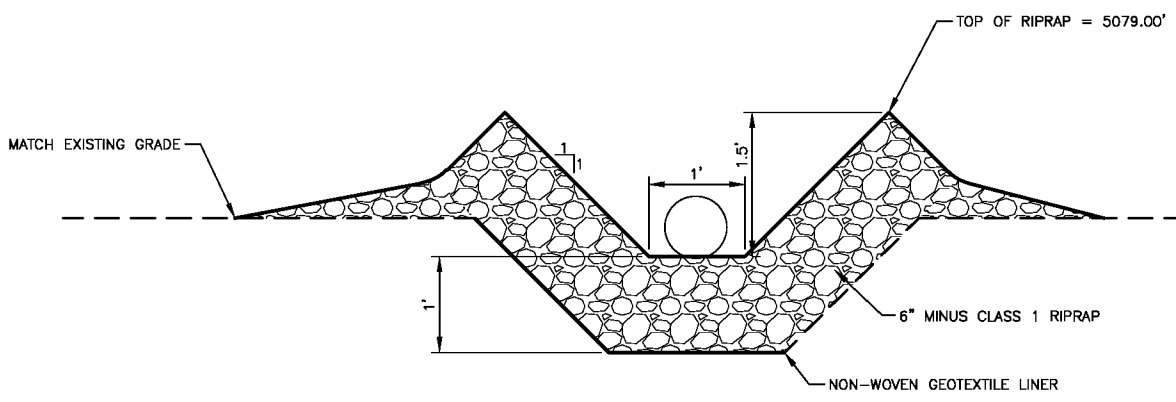
1 PLAN VIEW OF OUTFALL
NOT TO SCALE



2 PROFILE VIEW OF OUTFALL
NOT TO SCALE



3 CONCRETE WING WALL PROFILE
NOT TO SCALE



4 RIPRAP LINED CHANNEL PROFILE
NOT TO SCALE

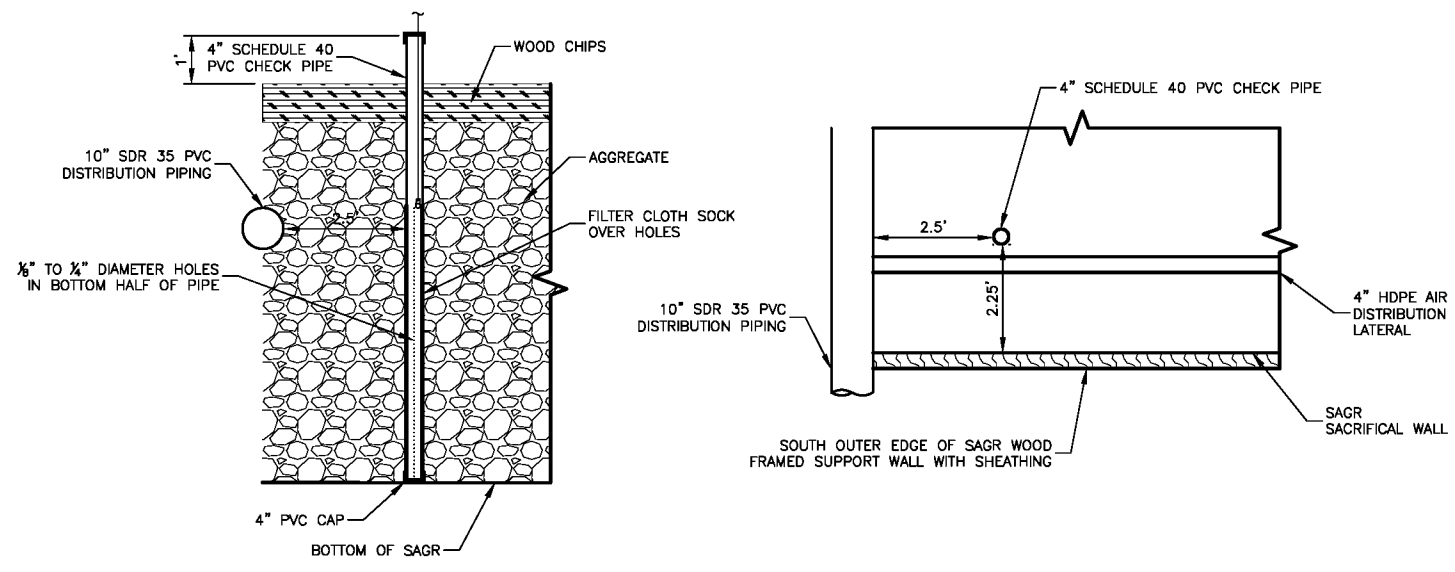
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



**TOWN OF PHILIPSBURG
 WASTEWATER SYSTEM IMPROVEMENTS
 GENERAL DETAILS**

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-C31-General Details.dwg



CROSS SECTIONAL VIEW

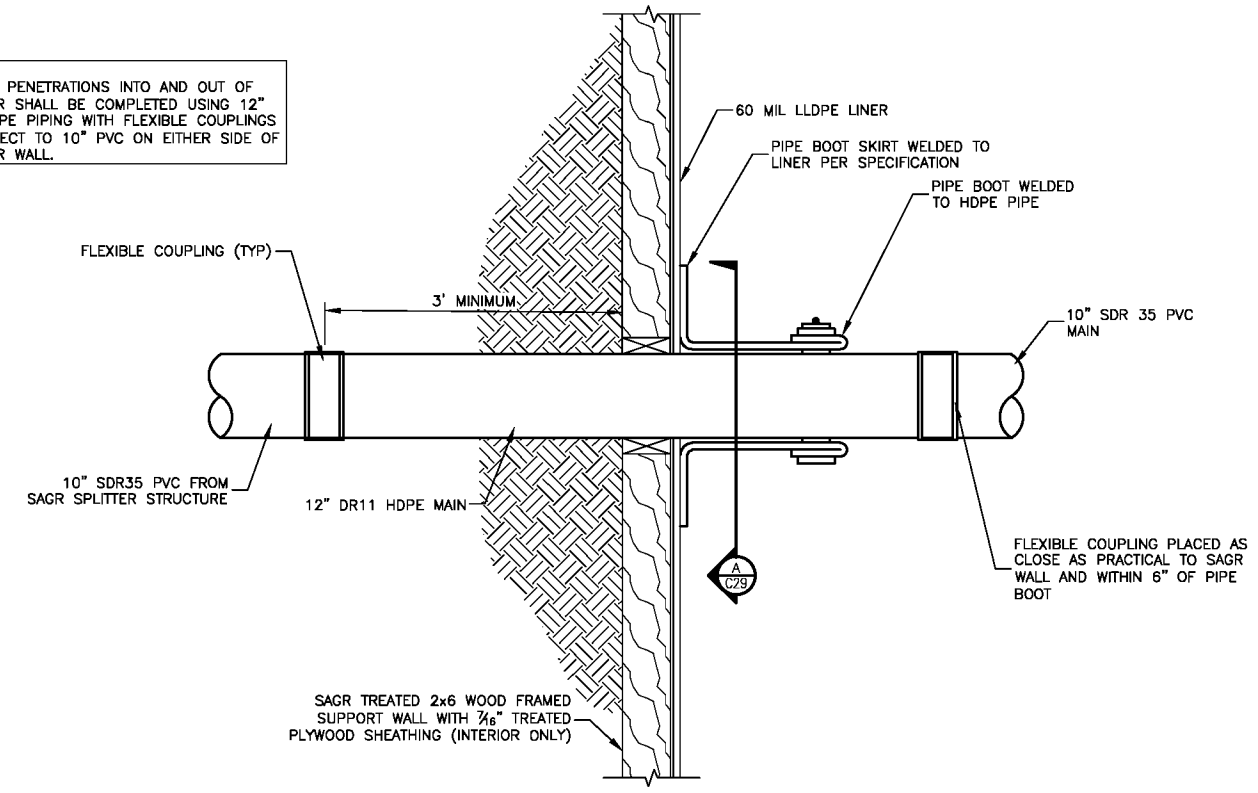
PLAN VIEW

GENERAL NOTES:

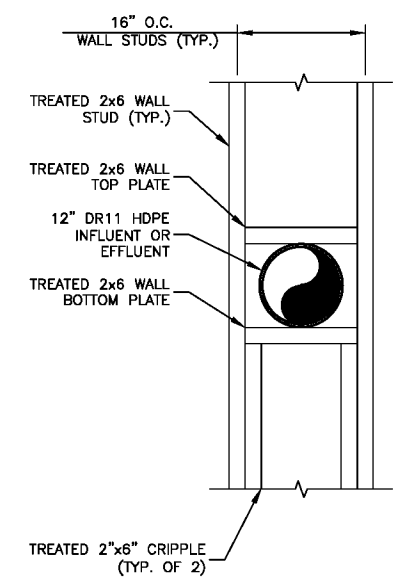
1. LOCATE CHECK PIPE SO THAT IT DOES NOT INTERFERE WITH DIFFUSERS OR ANY OTHER SAGR EQUIPMENT.
2. CHECK PIPE TO BE USED FOR SAGR LEAK TEST AND D.O. MONITORING

1 SAGR CHECK PIPE DETAILS
C32 SCALE: 3" = 1'-0"

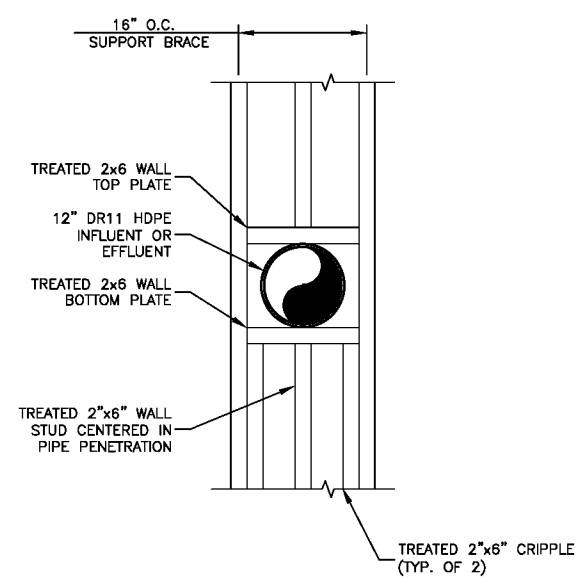
NOTE:
ALL PIPE PENETRATIONS INTO AND OUT OF THE SAGR SHALL BE COMPLETED USING 12" DR11 HDPE PIPING WITH FLEXIBLE COUPLINGS TO CONNECT TO 10" PVC ON EITHER SIDE OF THE SAGR WALL.



SECTION VIEW



SECTION A
(TYPICAL STUD SPACING)



SECTION A
(IF STUD IS CENTERED IN PIPE PENETRATION)

2 SAGR HORIZONTAL LINER PENETRATION
C32 NOT TO SCALE

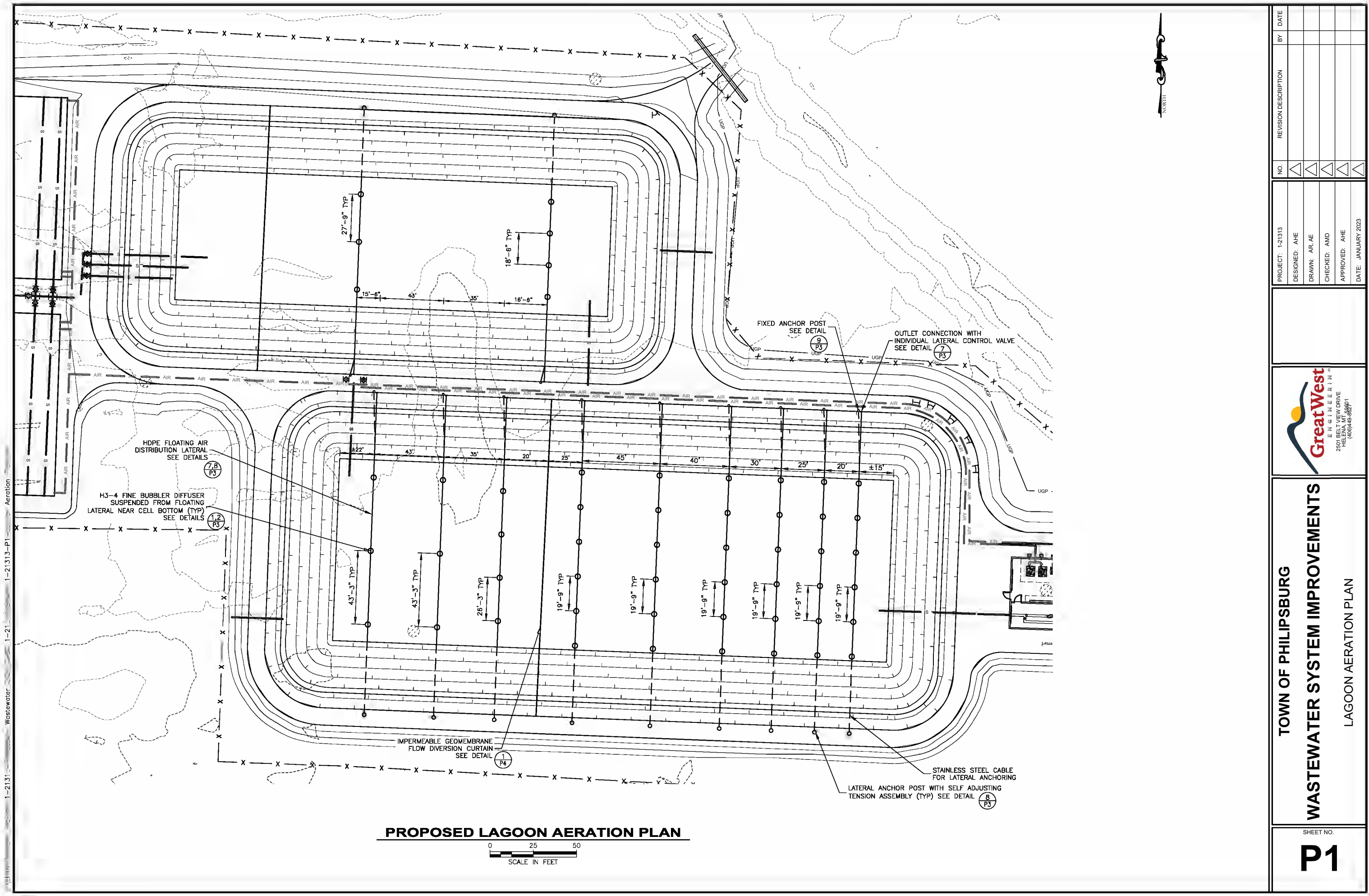
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

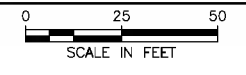


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
LAGOON & SAGR DETAIL

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Sheets\1-21313-C32-Lagoon & SAGR Detail.dwg

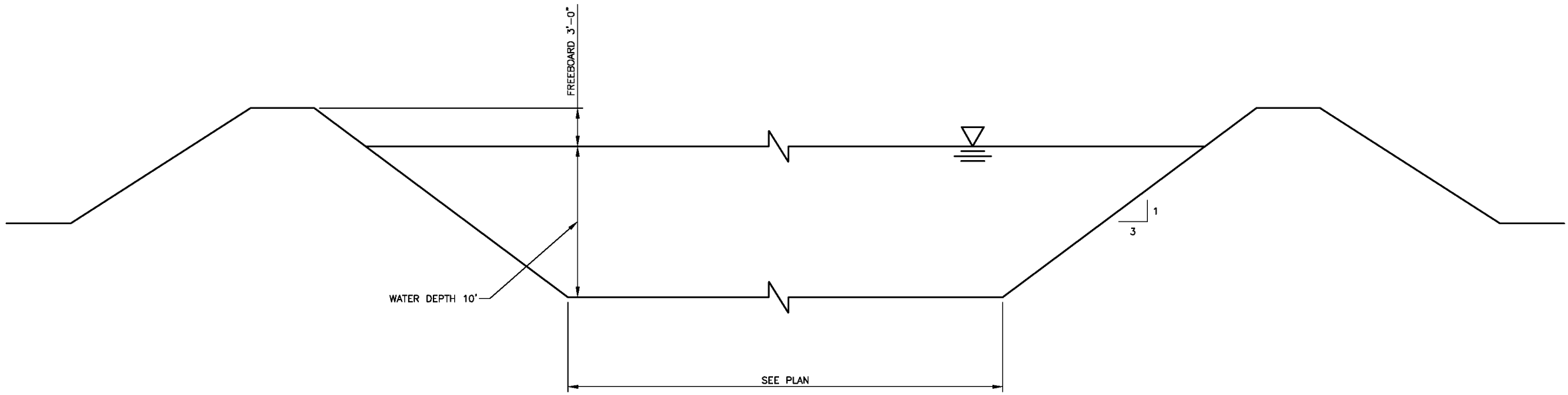


PROPOSED LAGOON AERATION PLAN

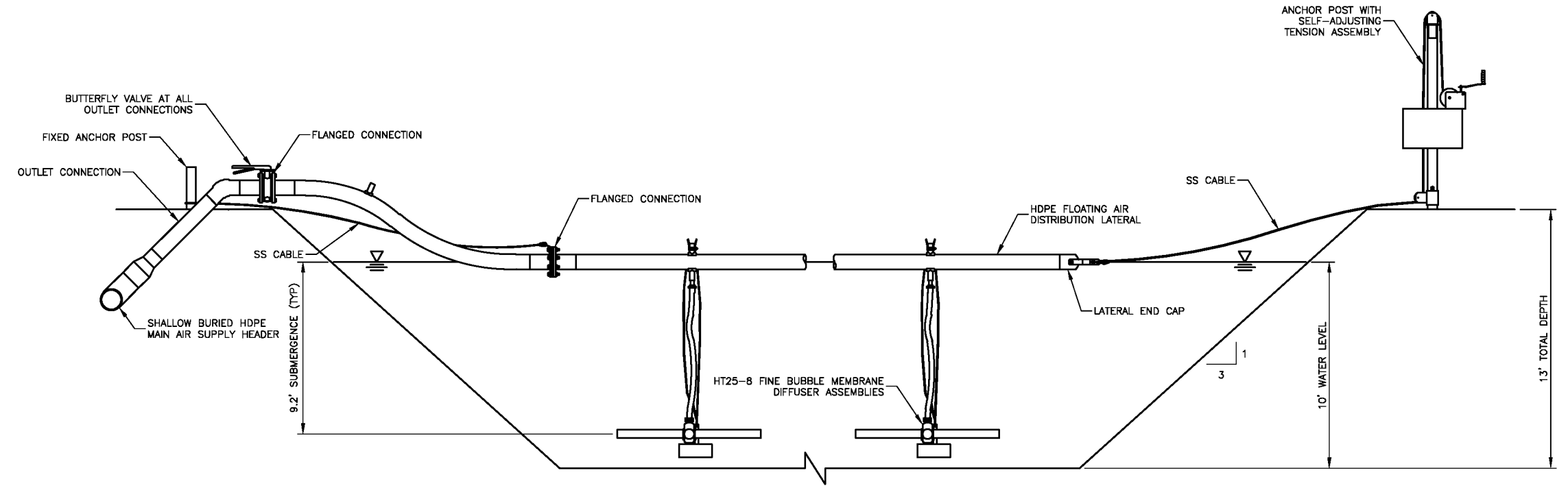


Wastewater 1-2131 Aeration 1-21313-P1

PROJECT: 1-21313	
DESIGNED: AHE	BY: DATE
DRAWN: AR, AE	REVISION DESCRIPTION
CHECKED: AMD	NO.
APPROVED: AHE	NO.
DATE: JANUARY 2023	NO.
 <p>260 BELT VIEW DRIVE HELENA, MT (406)449-6991</p>	
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS LAGOON AERATION PLAN	
SHEET NO.	
P1	



1 TYPICAL SECTION CELL #1
NOT TO SCALE



NOTES:
1. AERATION DESIGN BASIS, INSTALLATIONS AND MEASUREMENTS SHOWN ARE PER AN OPTAER WASTEWATER SYSTEMS, AS SPECIFIED.

2 AERATED LAGOON SECTION
NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

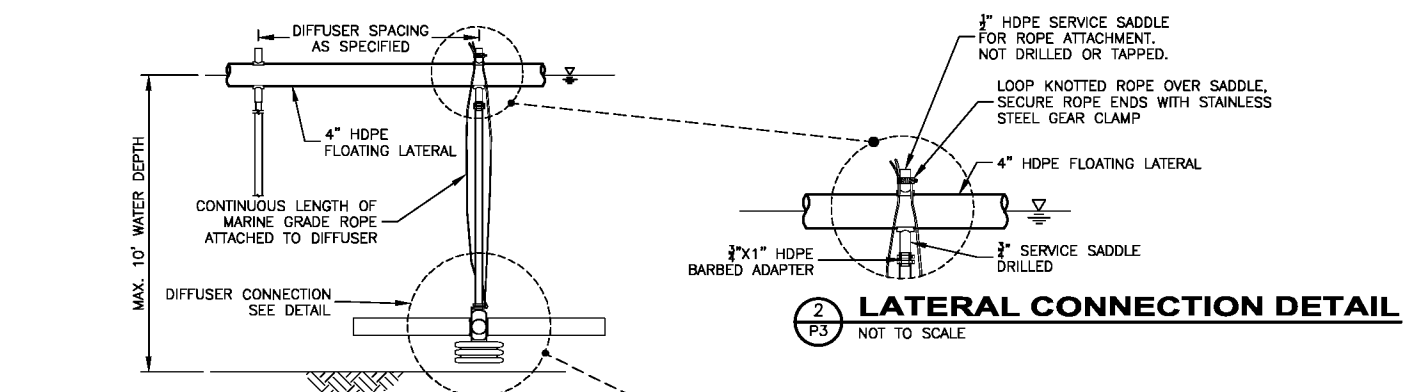
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



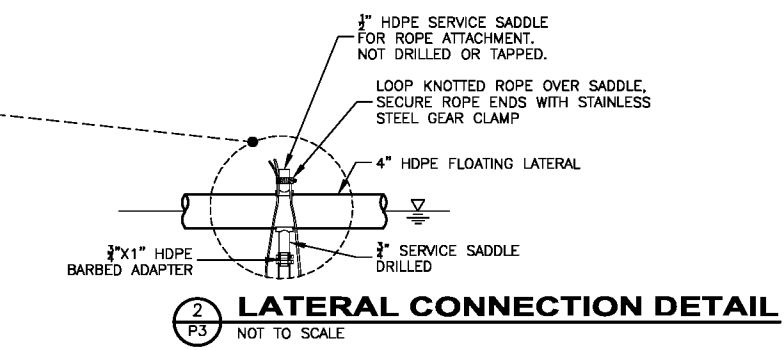
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
LAGOON AERATION DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-P2-Lagoon Aeration Details.dwg

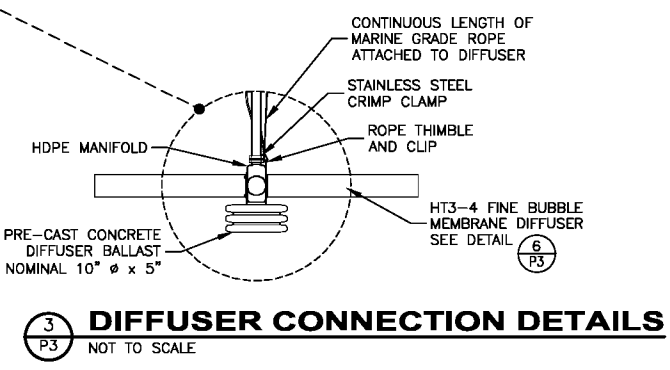
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-P3-Lagoon Aeration Details.dwg



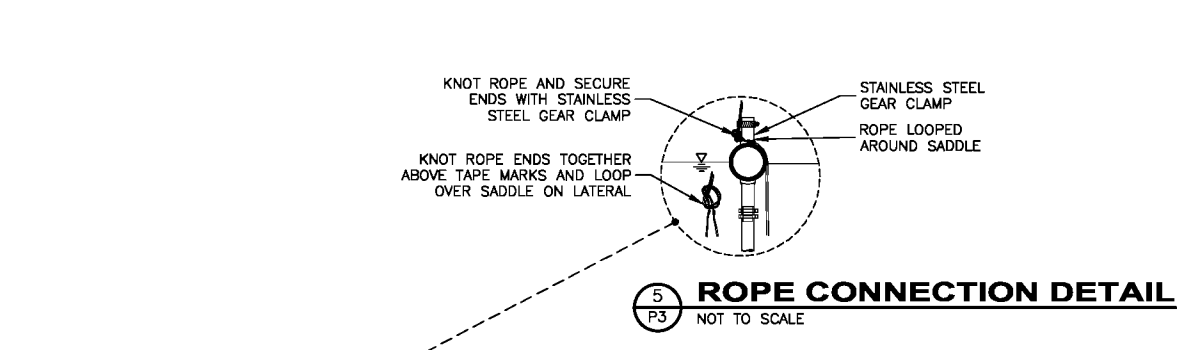
1 LATERAL DETAIL - ELEVATION
P3 NOT TO SCALE



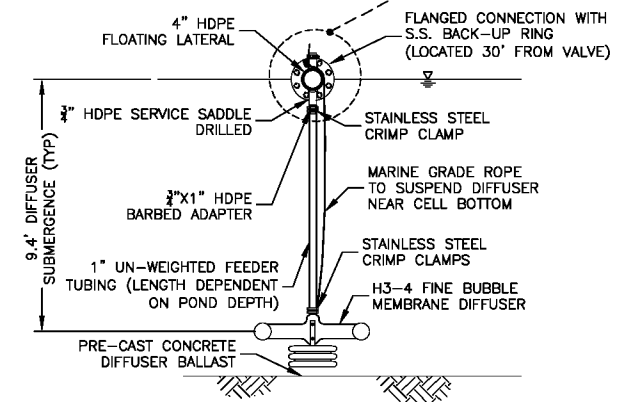
2 LATERAL CONNECTION DETAIL
P3 NOT TO SCALE



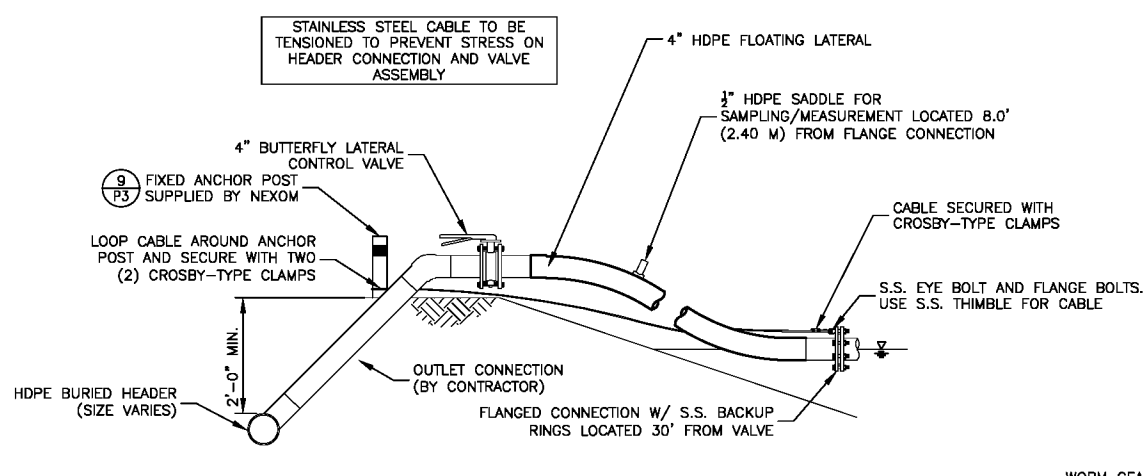
3 DIFFUSER CONNECTION DETAILS
P3 NOT TO SCALE



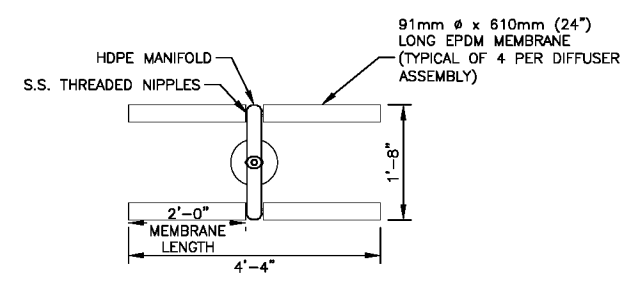
5 ROPE CONNECTION DETAIL
P3 NOT TO SCALE



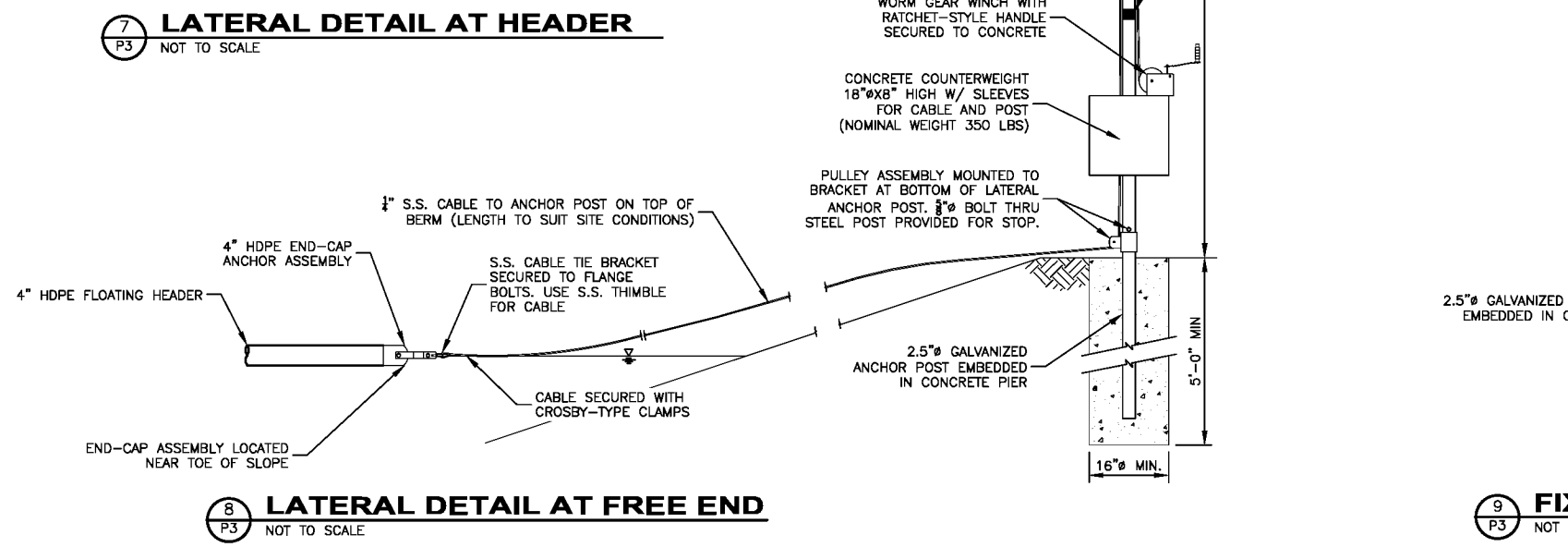
4 LATERAL DETAIL - SECTION
P3 NOT TO SCALE



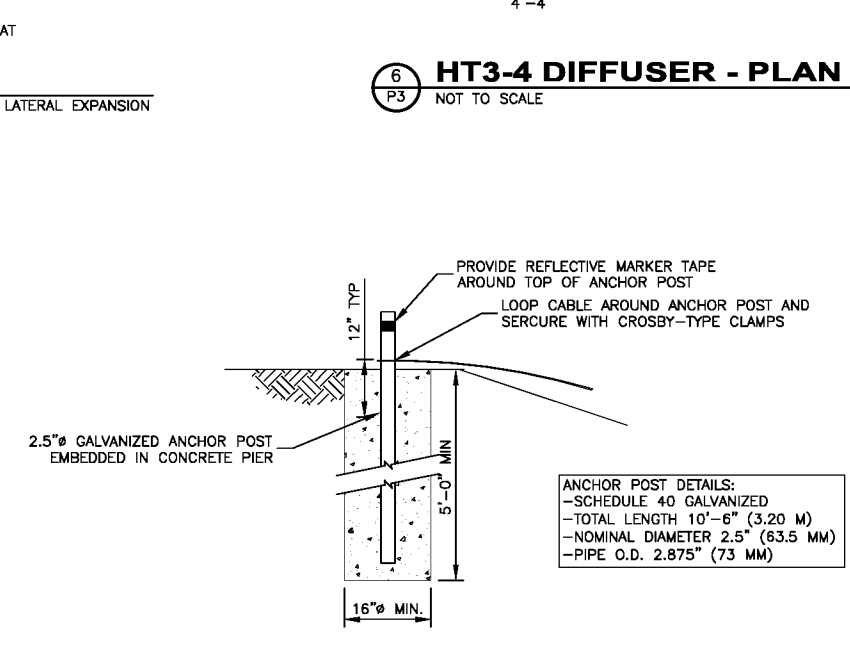
7 LATERAL DETAIL AT HEADER
P3 NOT TO SCALE



6 HT3-4 DIFFUSER - PLAN
P3 NOT TO SCALE



8 LATERAL DETAIL AT FREE END
P3 NOT TO SCALE



9 FIXED ANCHOR POST AT HEADER DETAIL
P3 NOT TO SCALE

ANCHOR POST DETAILS:
-SCHEDULE 40 GALVANIZED
-TOTAL LENGTH 10'-6" (3.20 M)
-NOMINAL DIAMETER 2.5" (63.5 MM)
-PIPE O.D. 2.875" (73 MM)

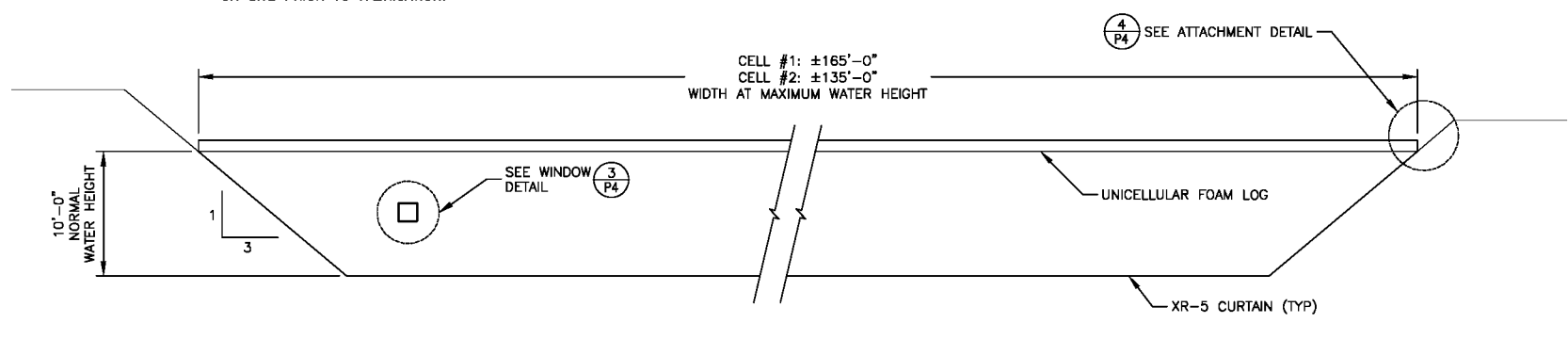
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

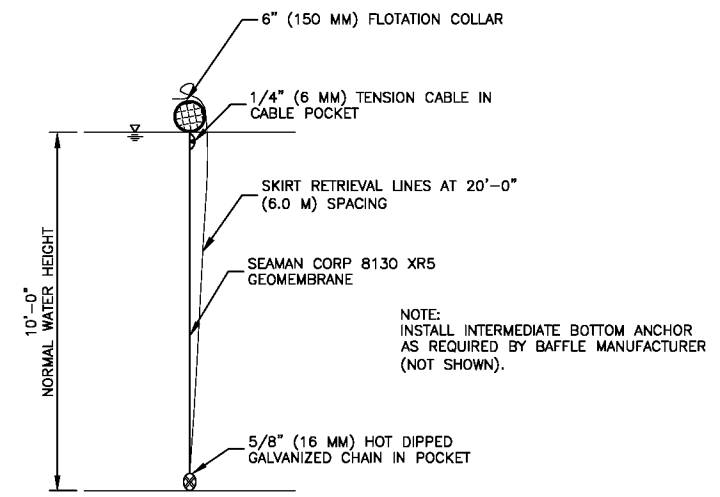


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
LAGOON AERATION DETAILS

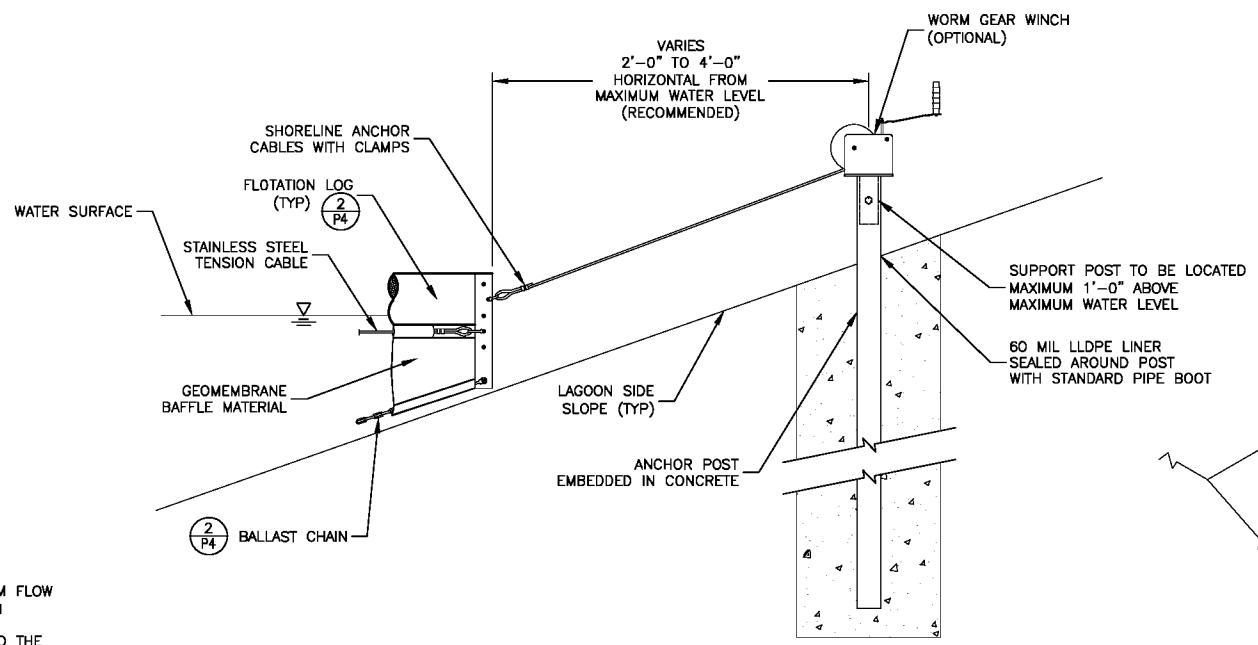
NOTES:
 1. BAFFLE CONSTRUCTION DETAILS MAY VARY BY BAFFLE MANUFACTURER.
 2. ALL BAFFLE DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO FABRICATION.



1 IMPERMEABLE CURTAIN DETAIL
 P4 NOT TO SCALE

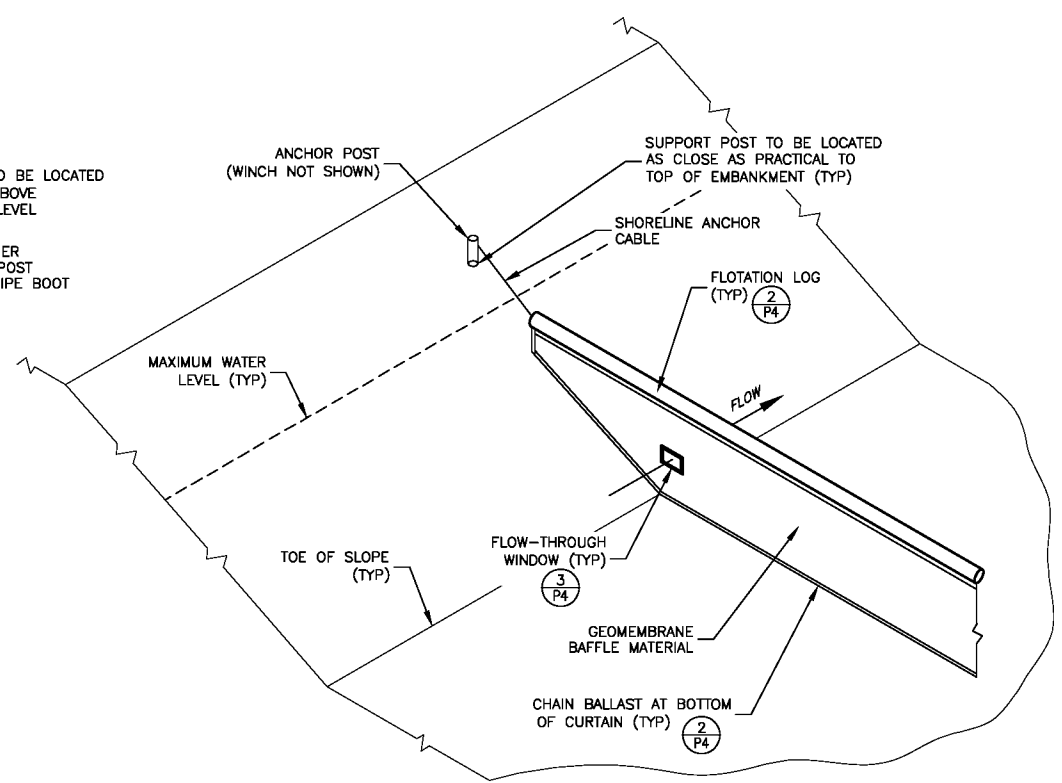


2 BAFFLE CURTAIN TYPICAL SECTION
 P4 NOT TO SCALE



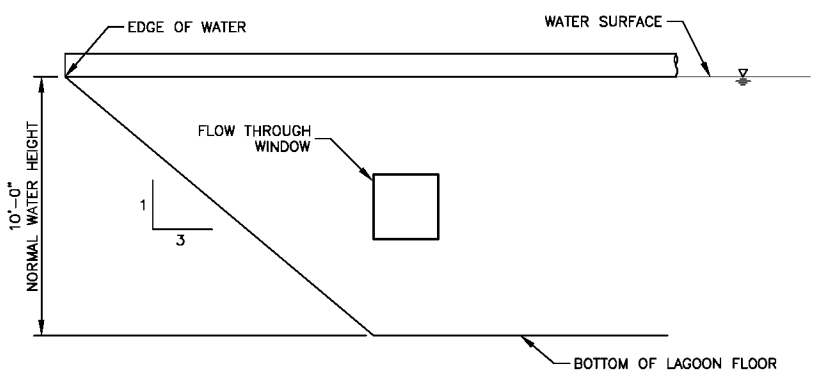
ANCHOR POST REQUIREMENTS:
 -SCHEDULE 40 GALVANIZED
 -TOTAL LENGTH: 5'-3" (1.60 M)
 -NOMINAL DIAMETER: 2.5" (63.5 MM)
 -PIPE OD: 2.875" (73.0 MM)

4 ATTACHMENT DETAILS - SECTION
 P4 NOT TO SCALE



5 IMPERMEABLE CURTAIN - ISOMETRIC (ALONG SLOPE)
 P4 NOT TO SCALE

NOTES:
 1. WINDOW SHALL BE SIZED FOR MAXIMUM FLOW OF 0.066 FT/S (0.020 M/S) THROUGH WINDOW AT DESIGN FLOW.
 2. WINDOW SHALL BE PLACED NEAREST TO THE WESTERMOST EMBANKMENT IN BOTH CELLS.
 3. SEE MANUFACTURER'S SHOP DRAWINGS FOR SIZING AND PLACEMENT OF EACH BAFFLE WINDOW.



3 WINDOW SIZE/LOCATION DETAIL
 P4 NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

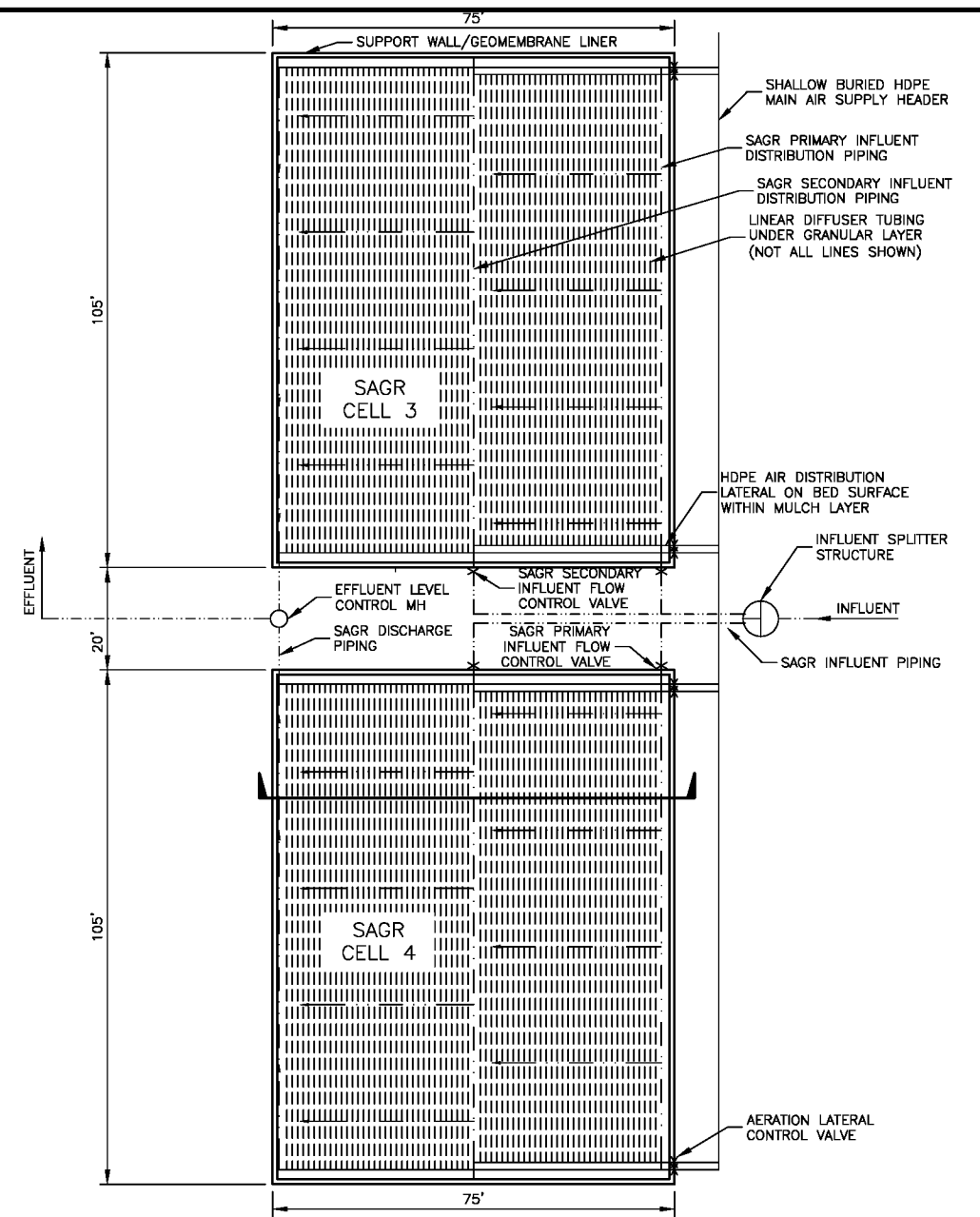
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



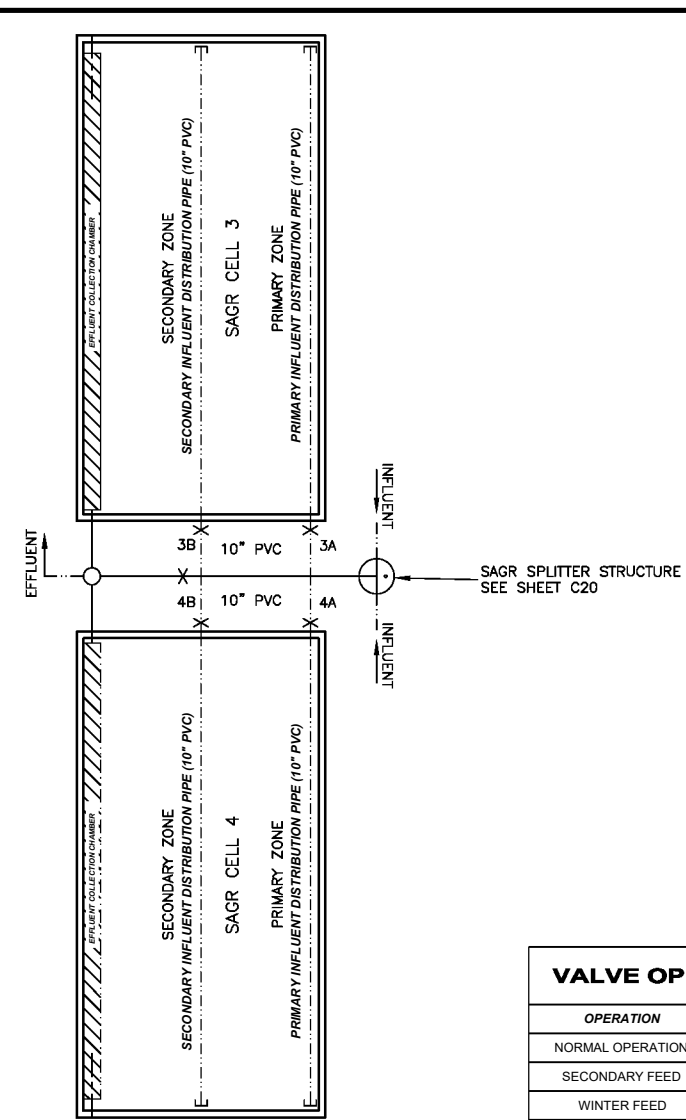
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 LAGOON BAFFLE DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-P4-Lagoon Baffle Details.dwg

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-P5-SAGR Overall Plan.dwg

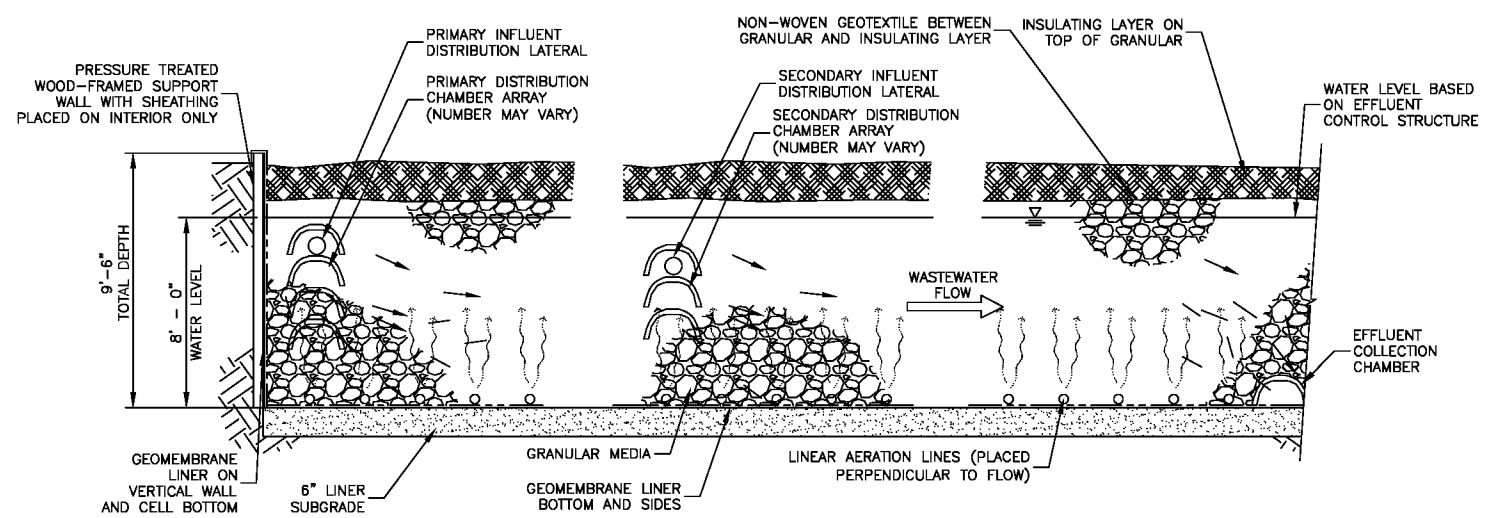


SAGR LAYOUT DETAILS
NOT TO SCALE



SAGR INFLUENT/EFFLUENT PIPING SCHEMATIC
NOT TO SCALE

VALVE OPERATION SCHEDULE		
OPERATION	VALVES OPEN	VALVES CLOSED
NORMAL OPERATION	3A, 4A	3B, 4B
SECONDARY FEED	3B, 4B	3A, 4A
WINTER FEED	ALL	NONE



HORIZONTAL FLOW SAGR - SECTION
NOT TO SCALE

NOTE FOR GRAVITY FEED SYSTEMS:
SAGR WATER LEVEL TO BE MINIMUM 12" LOWER THAN WATER LEVEL OF FINAL CELL.

NOTE: NON-WOVEN GEOTEXTILE BETWEEN GEOMEMBRANE LINER AND GRANULAR LAYER (BOTTOM AND SIDES) AND BETWEEN MULCH LAYER AND GRANULAR LAYER (TOP)

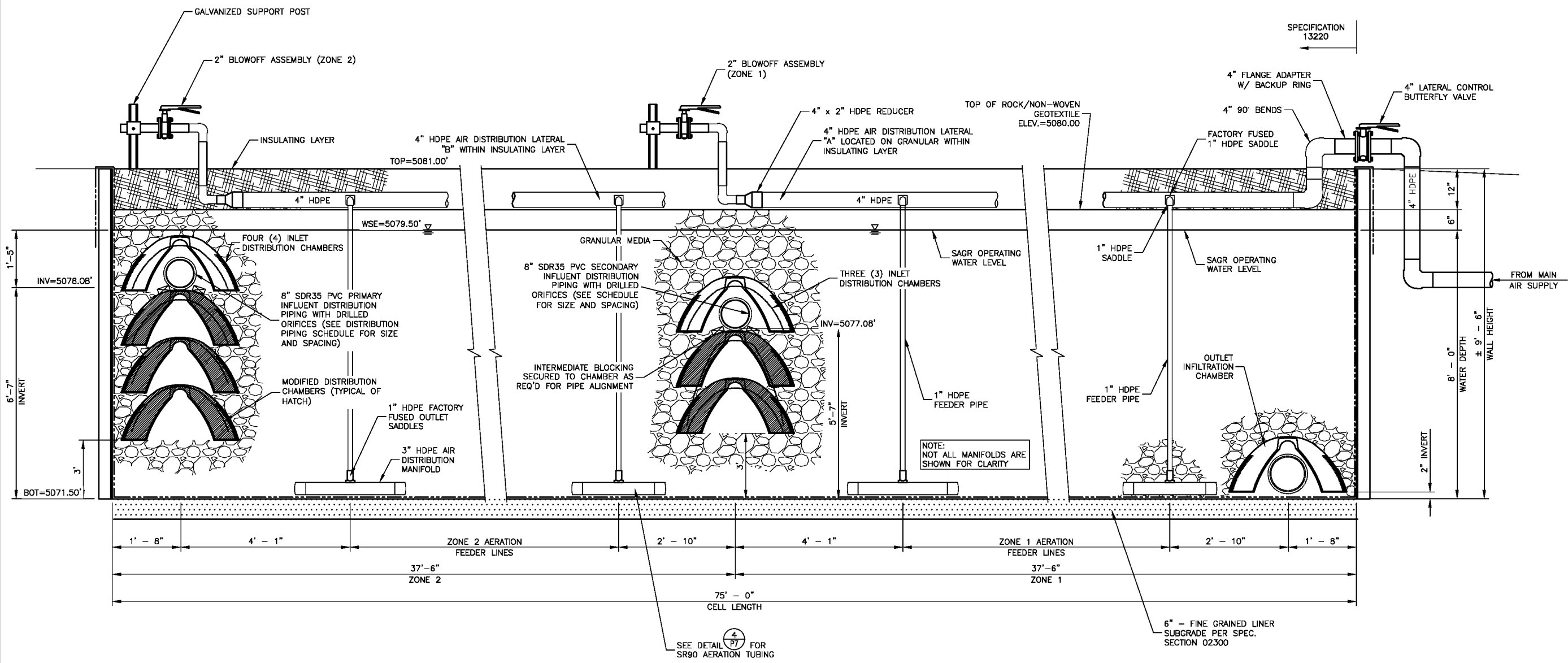
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
SAGR OVERALL PLAN

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-P6-SAGR Aeration and Flow Distribution Section.dwg



- NOTES:
- NON-WOVEN GEOTEXTILE BETWEEN GEOMEMBRANE LINER AND GRANULAR LAYER (BOTTOM AND SIDES) AND BETWEEN MULCH LAYER AND GRANULAR LAYER (TOP)
 - BLOW-OFF ASSEMBLY LOCATED AT END OF EACH LATERAL TOTAL OF FOUR (4) PER CELL
 - NOT ALL MANIFOLDS SHOWN

1 **SAGR AERATION/FLOW DISTRIBUTION - SECTION**
 P6 NOT TO SCALE

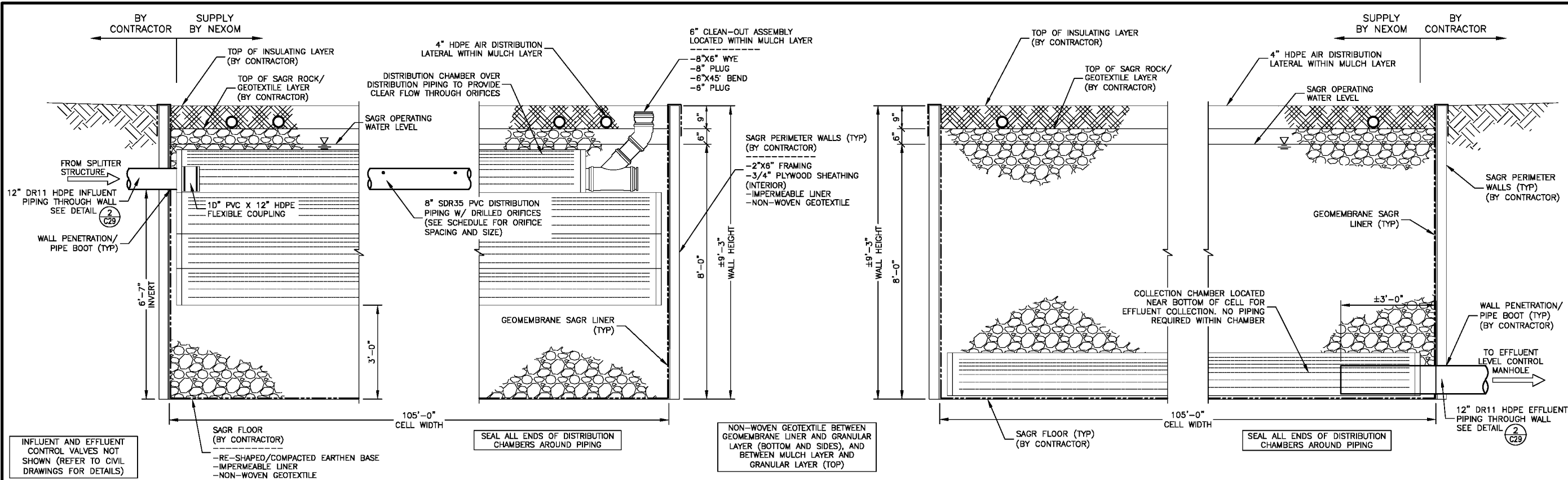
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 SAGR AERATION AND FLOW DISTRIBUTION SECTION

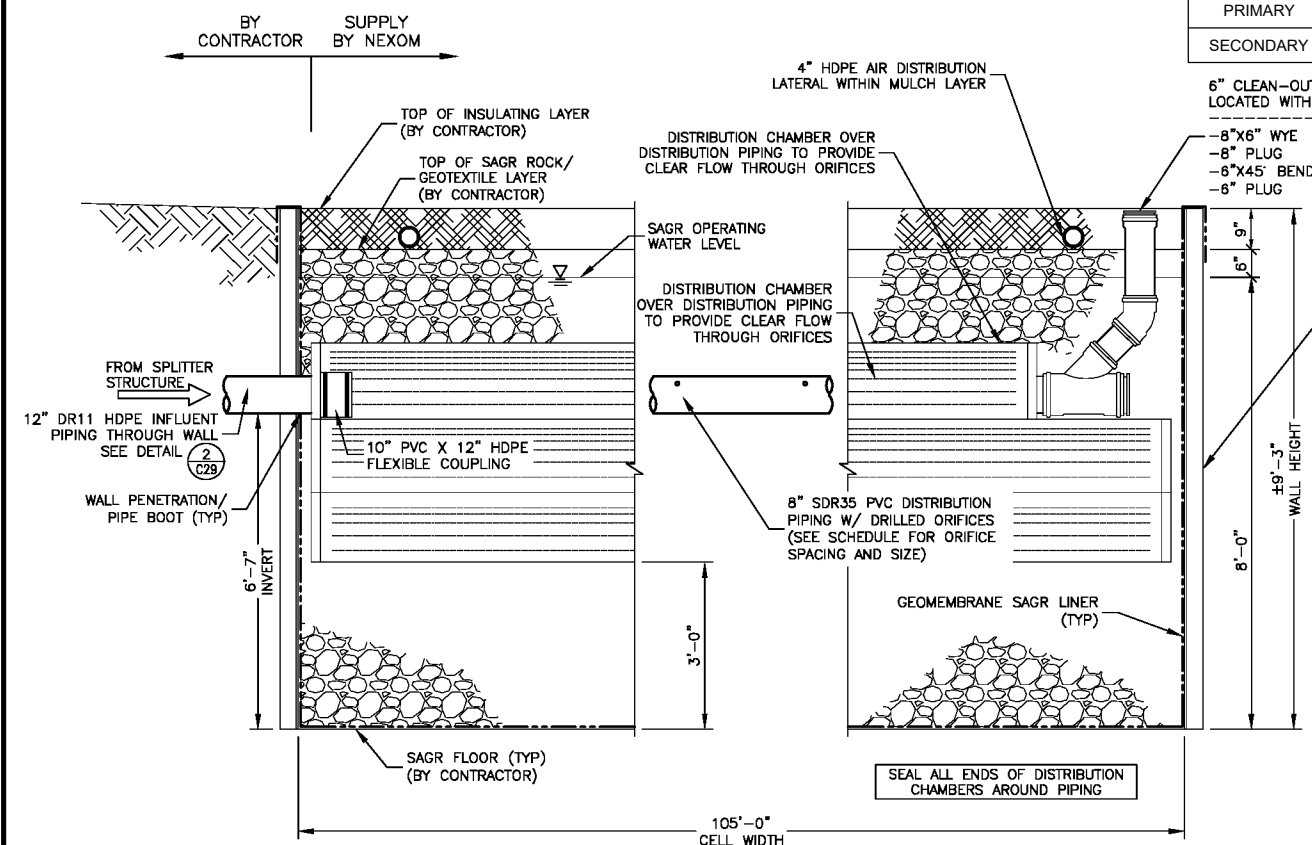
SHEET NO.
P6



1 SAGR IN-BASIN PRIMARY DISTRIBUTION
NOT TO SCALE

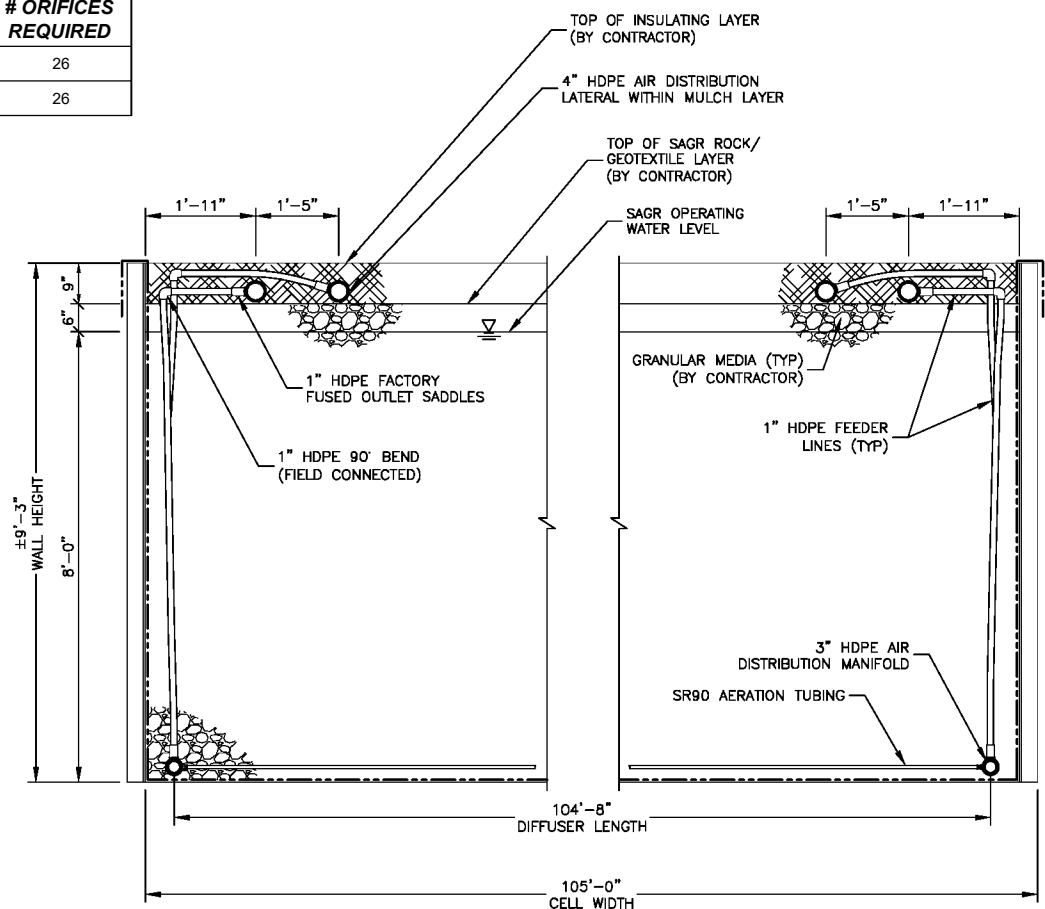
2 SAGR IN-BASIN COLLECTION
NOT TO SCALE

LINE	PIPE SIZE	ORIFICE SIZE	ORIFICE SPACING	# ORIFICES REQUIRED
PRIMARY	8"	3/4"	4'-0"	26
SECONDARY	8"	3/4"	4'-0"	26



3 SAGR IN-BASIN SECONDARY DISTRIBUTION
NOT TO SCALE

NOTES:
1. ALL PIPE PENETRATIONS INTO AND OUT OF THE SAGR BEDS SHALL BE CONSTRUCTED WITH 12" DR11 HDPE PIPING. PVC OR DUCTILE IRON PIPING WILL NOT BE ACCEPTED.
2. REFER TO NEXOM SHOP DRAWINGS FOR FINALIZED LAYOUT AND INSTALLATION INSTRUCTIONS.



4 SAGR AERATION - SECTION
NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

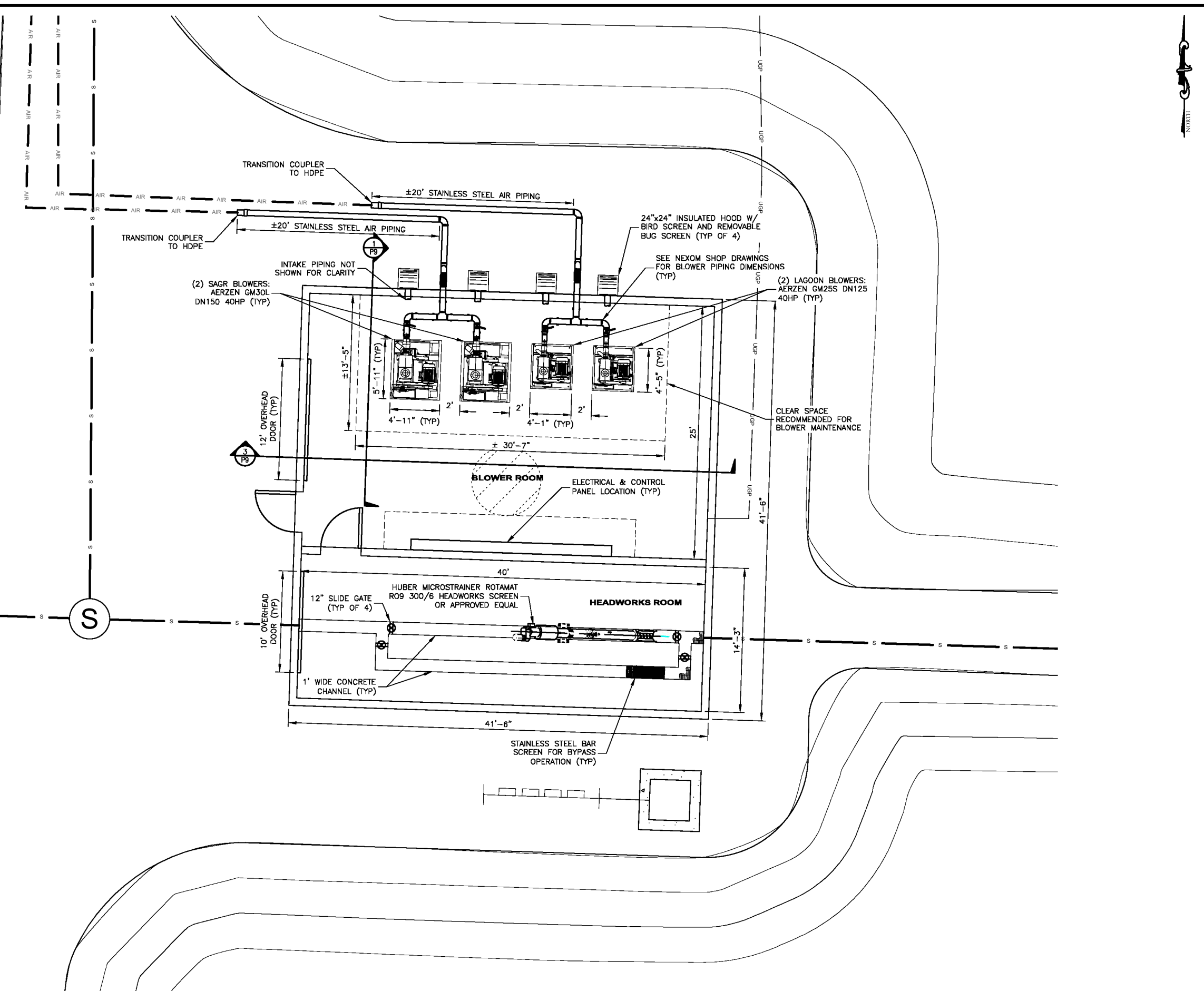
PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023



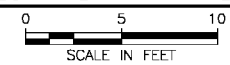
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
SAGR DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Sheets\1-21313-P7-SAGR Details.dwg

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313-Sheets\1-21313-P8-Blower Building Plan.dwg



HEADWORKS/BLOWER BUILDING PLAN



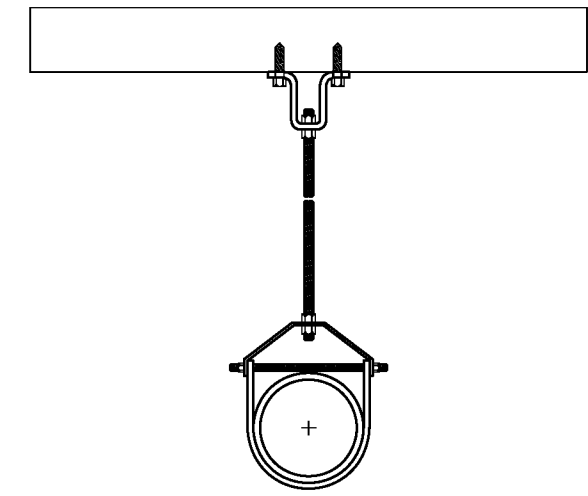
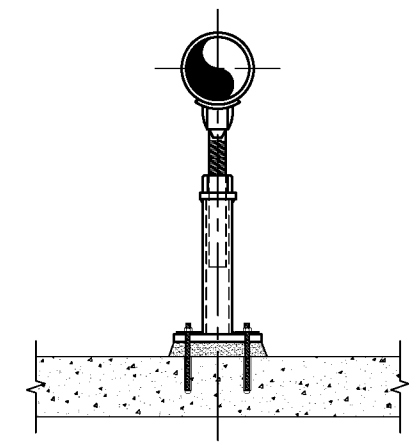
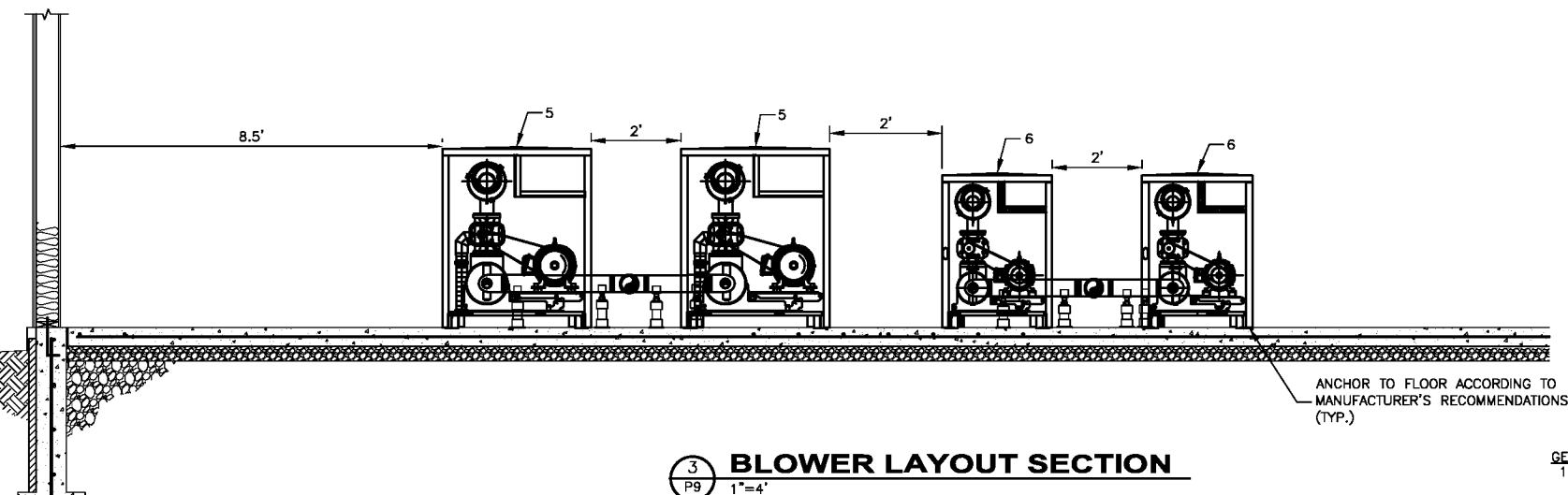
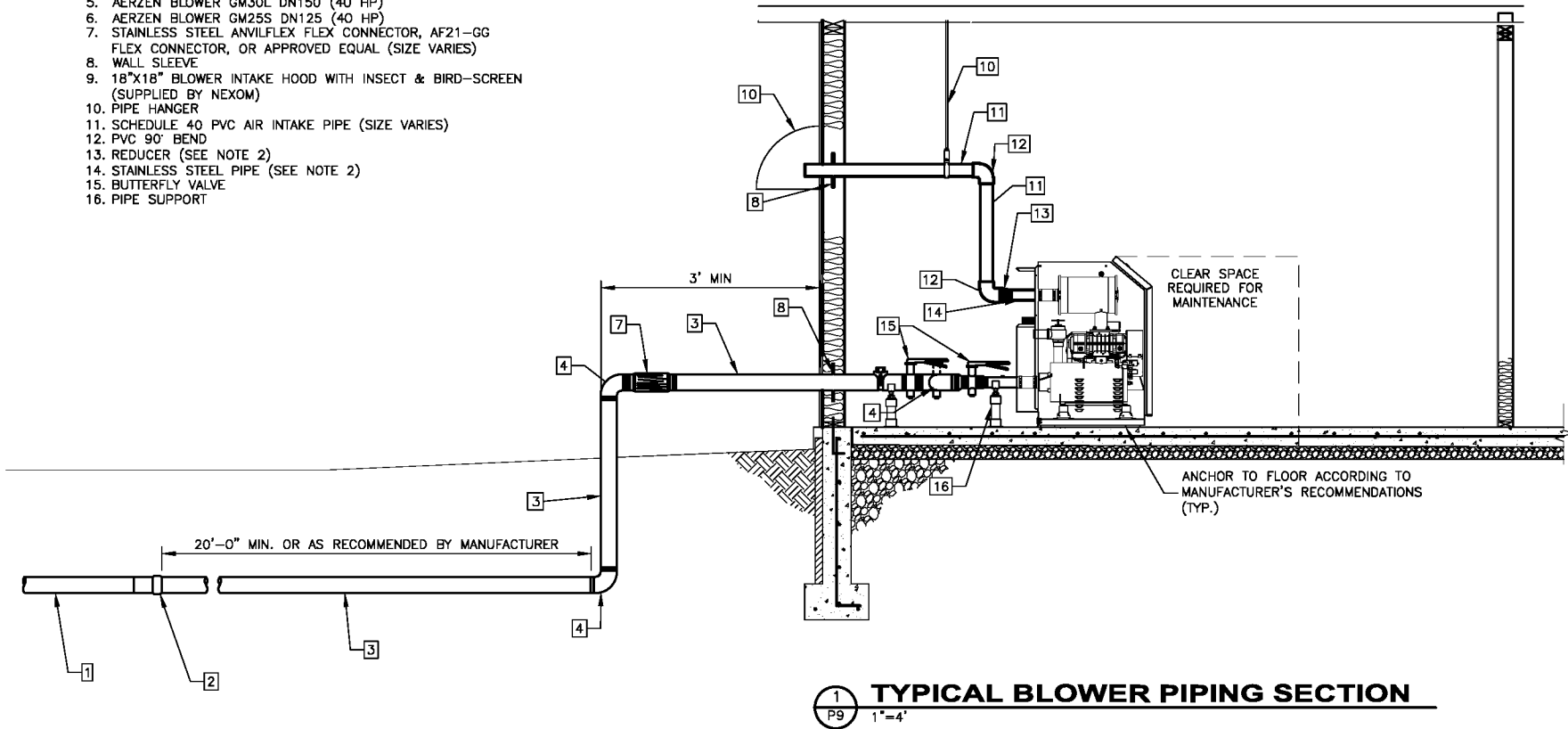
PROJECT: 1-21313		NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: AHE		△			
DRAWN: AR, AE		△			
CHECKED: AMD		△			
APPROVED: AHE		△			
DATE: JANUARY 2023					
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS BLOWER BUILDING PLAN					
SHEET NO. P8 OF ---					

GENERAL NOTES

- PIPE SUPPORT PLACEMENT LOCATIONS ARE SHOWN FOR ILLUSTRATION OF MINIMUM REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR A COMPLETE SYSTEM SUPPORTED AS NECESSARY. SEE SPECIFICATIONS FOR MORE PIPE SUPPORT INFORMATION.
- SEE PARTS TABLE ON SHEET P8 AND NEXOM SHOP DRAWINGS FOR SPECIFIC PART SIZES AS THEY CORRESPOND TO EACH BLOWER.

MATERIAL AND EQUIPMENT LIST

- HDPE AIR MAIN (SIZE VARIES, SEE NEXOM SCHEDULE)
- STAINLESS STEEL X HDPE TRANSITION FITTING
- STAINLESS STEEL AIR MAIN (SIZE VARIES)
- STAINLESS STEEL 90° BEND (SIZE VARIES)
- AERZEN BLOWER GW30L DN150 (40 HP)
- AERZEN BLOWER GW25S DN125 (40 HP)
- STAINLESS STEEL ANVILFLEX FLEX CONNECTOR, AF21-GG FLEX CONNECTOR, OR APPROVED EQUAL (SIZE VARIES)
- WALL SLEEVE
- 18"x18" BLOWER INTAKE HOOD WITH INSECT & BIRD-SCREEN (SUPPLIED BY NEXOM)
- PIPE HANGER
- SCHEDULE 40 PVC AIR INTAKE PIPE (SIZE VARIES)
- PVC 90° BEND
- REDUCER (SEE NOTE 2)
- STAINLESS STEEL PIPE (SEE NOTE 2)
- BUTTERFLY VALVE
- PIPE SUPPORT



GENERAL NOTES:

- SPACING SHALL BE AS INDICATED ON DRAWINGS.
- TOTAL LOADING ON EACH HANGER ROD ANCHOR SHALL NOT EXCEED MANUFACTURER'S RECOMMENDED LOADING.
- FOR INSULATED PIPES, USE GRINNEL FIG. 167 OR ELCCN FIG. 219 INSULATION PROTECTIONS SHIELD.

GENERAL NOTES:

- SEE SHEETS C3 & P1 FOR AIR PIPE ALIGNMENTS.
- PIPE SUPPORT LOCATIONS ARE SHOWN FOR ILLUSTRATION OF MINIMUM REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR A COMPLETE SYSTEM SUPPORTED AS NECESSARY. SEE SPECIFICATIONS FOR MORE PIPE SUPPORT INFORMATION.
- THIS IS A GENERAL DIAGRAM DETAILING THE HEADER PIPE FOR EACH BLOWER SYSTEM. SEE PLAN VIEW OF BLOWER ROOM, ABOVE, FOR PIPE SIZES AS THEY CORRESPOND TO EACH BLOWER SYSTEM.

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
DESIGNED: AHE
DRAWN: AR, AE
CHECKED: AMD
APPROVED: AHE
DATE: JANUARY 2023

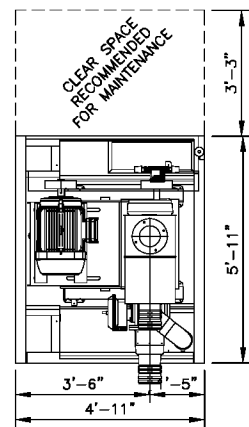


260 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8991

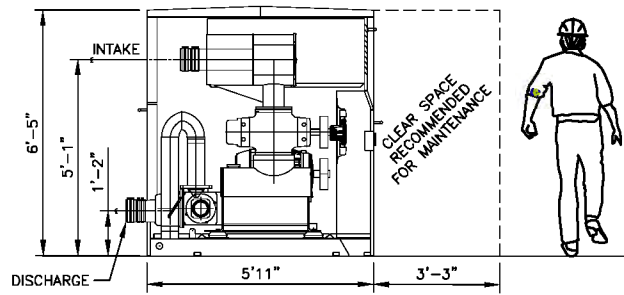
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
BLOWER PIPING SECTIONS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-P9-Blower Piping Sections.dwg

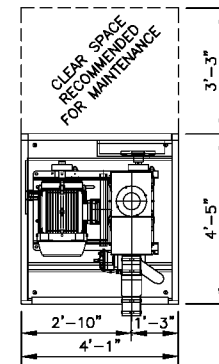
BLOWER SCHEDULE - LAGOON AND SAGR		
<i>DESCRIPTION</i>	<i>LAGOON</i>	<i>SAGR</i>
AERZEN BLOWER MODEL NO.	GM30L DN150	GM25S DN125
NOMINAL INLET SIZE (FLEXIBLE CONNECTOR)	6"	5"
NOMINAL OUTLET SIZE (FLEXIBLE CONNECTOR)	6"	5"
BLOWER MOTOR SIZE (HP)	40	40
OPERATING VOLTAGE/PHASE	460/3Ø	460/3Ø
# OF BLOWERS - TOTAL (INCLUDING STANDBY)	2	2
# OF BLOWERS - STANDARD OPERATION	1	1
AIRFLOW - DESIGN (SCFM)	583	481
PRESSURE - NORMAL/MAX OPERATION (PSI)	6.0 / 7.2	5.7 / 9.7



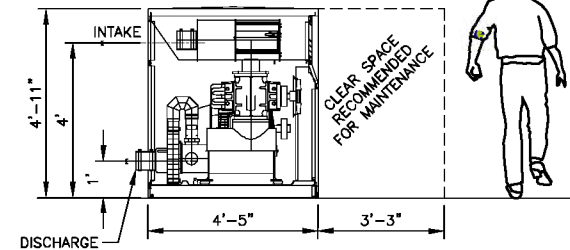
PLAN - GM30L DN150
NOT TO SCALE



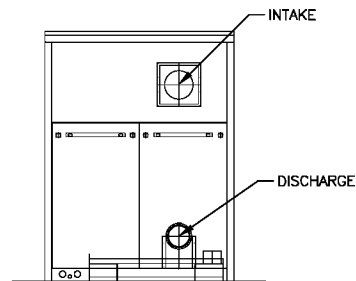
SECTION - GM30L DN150
NOT TO SCALE



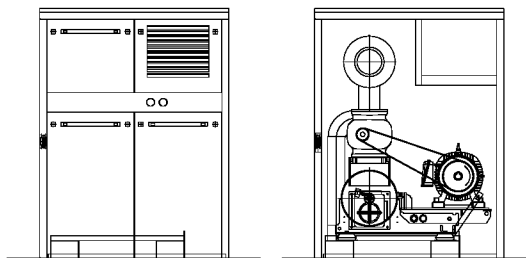
PLAN - GM25S DN125
NOT TO SCALE



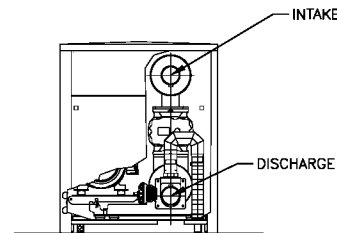
SECTION - GM25S DN125
NOT TO SCALE



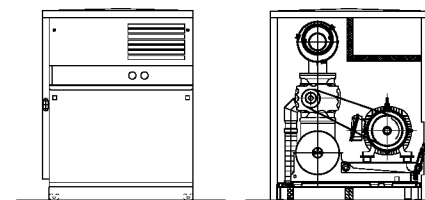
REAR ELEVATION - GM30L DN150
NOT TO SCALE



FRONT ELEVATION - GM30L DN150
NOT TO SCALE



REAR ELEVATION - GM25S DN125
NOT TO SCALE



FRONT ELEVATION - GM25S DN125
NOT TO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

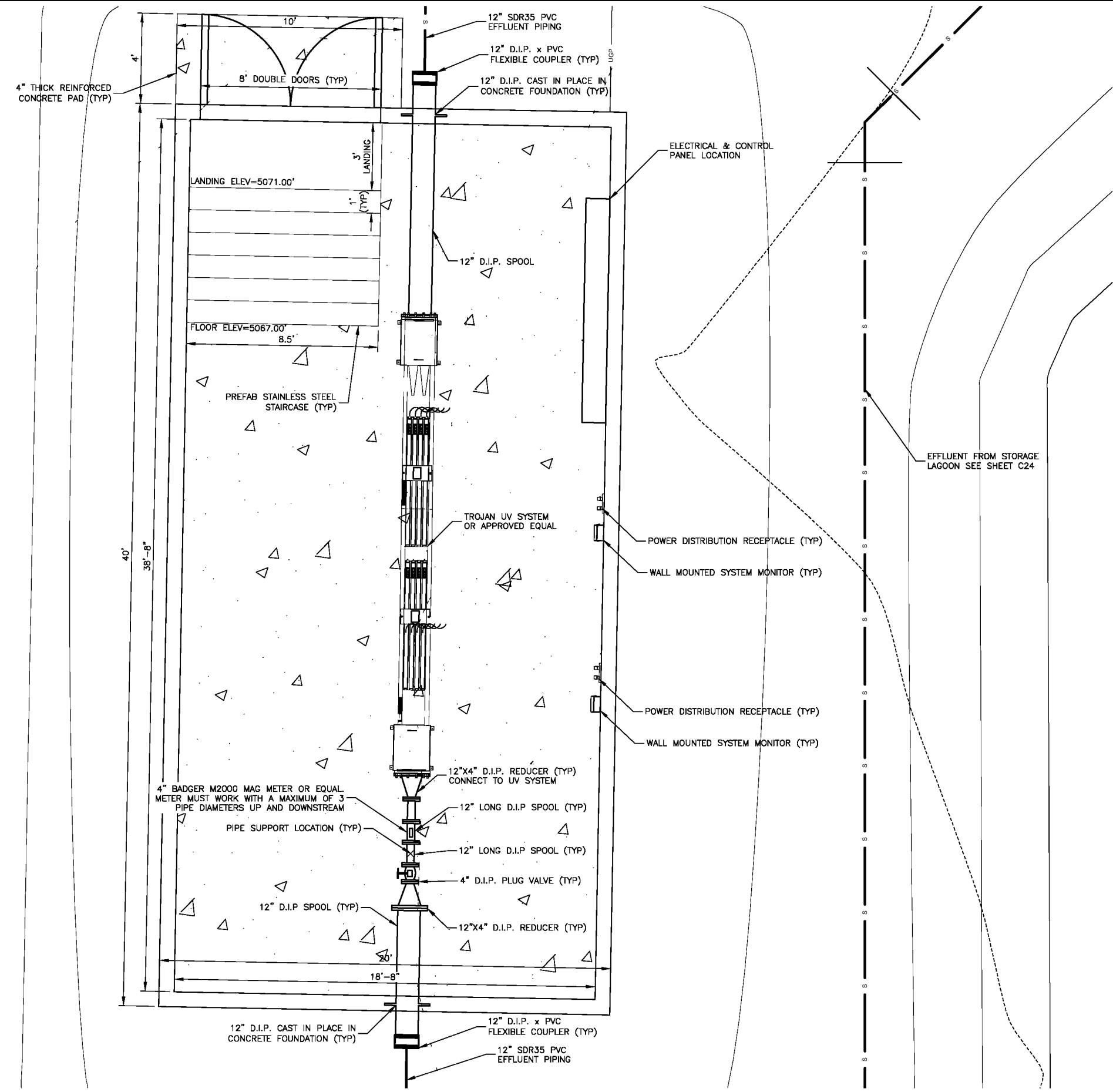
PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023



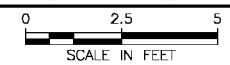
TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 BLOWER DETAILS

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-P10-Blower Details.dwg

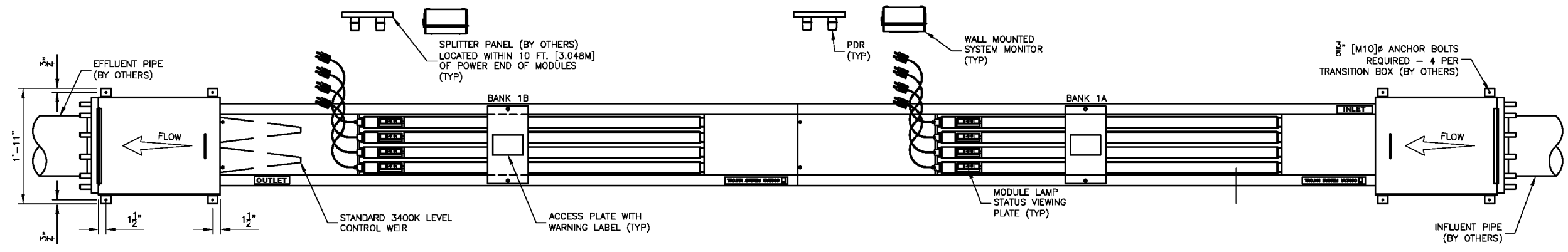
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD\1-21313\Sheets\1-21313-P11-UV Building Plan.dwg



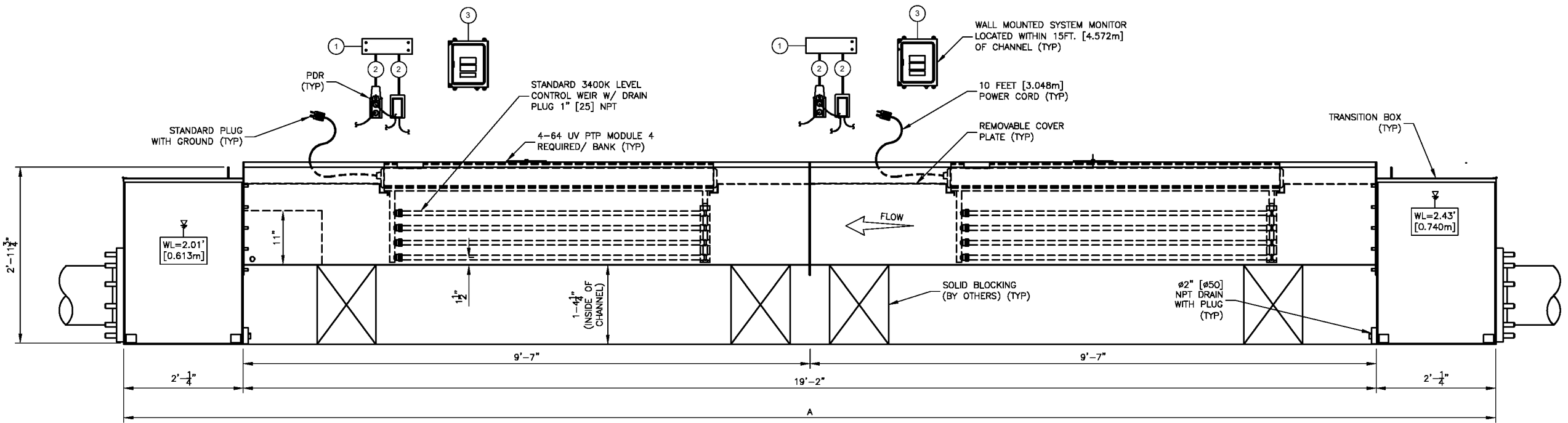
UV BUILDING PLAN



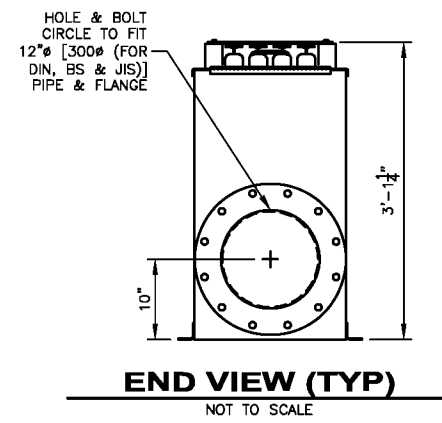
PROJECT: 1-21313		NO.	REVISION DESCRIPTION	BY	DATE
DESIGNED: AHE		△			
DRAWN: AR, AE		△			
CHECKED: AMD		△			
APPROVED: AHE		△			
DATE: JANUARY 2023					
					
TOWN OF PHILIPSBURG WASTEWATER SYSTEM IMPROVEMENTS UV BUILDING PLAN					
SHEET NO.					
P11					
OF ---					



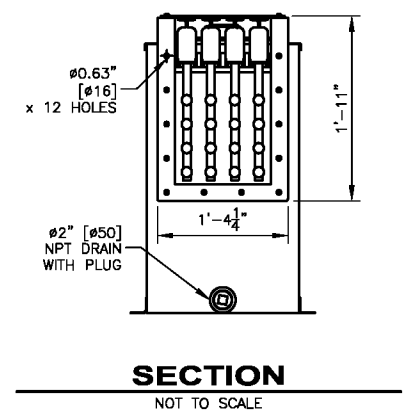
PLAN VIEW
NOT TO SCALE



FRONT VIEW
NOT TO SCALE



END VIEW (TYP)
NOT TO SCALE



SECTION
NOT TO SCALE

No.	DESCRIPTION	FROM	TO
1	SPLITTER PANEL POWER SUPPLY 120V, 1 PHASE, 2 WIRE, ACTUAL DRAW 12.7 AMPS / SPLITTER PANEL	DISTRIBUTION PANEL (DP) (NOT SHOWN) (BY OTHERS)	SPLITTER PANEL (BY OTHERS)
2	POWER DISTRIBUTION RECEPTACLE (PDR) POWER SUPPLY 120V, 1 PHASE, 2 WIRE, ACTUAL DRAW 6.3 AMPS / PDR	SPLITTER PANEL (BY OTHERS)	PDR
3	SYSTEM MONITOR POWER SUPPLY 120V, 1 PHASE, 2 WIRE, 5 AMPS	DP (NOT SHOWN) (BY OTHERS)	SYSTEM MONITOR

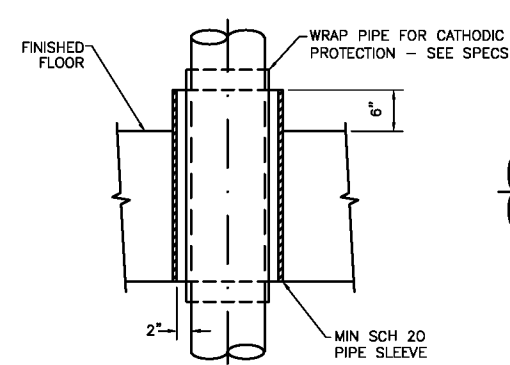
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313
 DESIGNED: AHE
 DRAWN: AR, AE
 CHECKED: AMD
 APPROVED: AHE
 DATE: JANUARY 2023

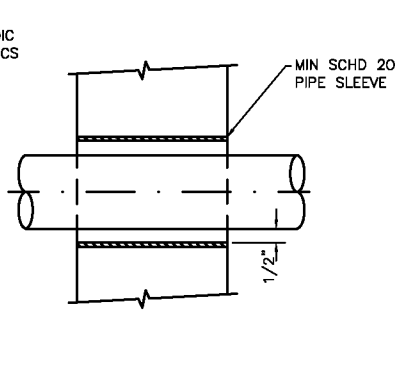


TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
 UV DETAILS

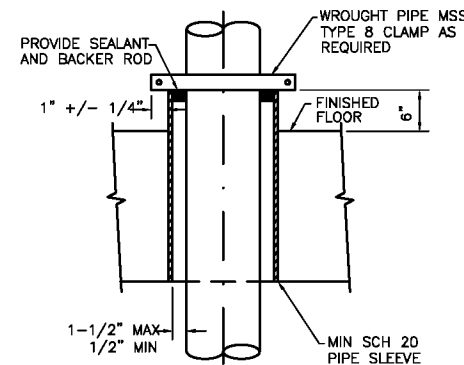
Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313\Sheets\1-21313-P12-UV Details.dwg



1
P17
TYPE A PIPE PENETRATION
FOR FLOORS

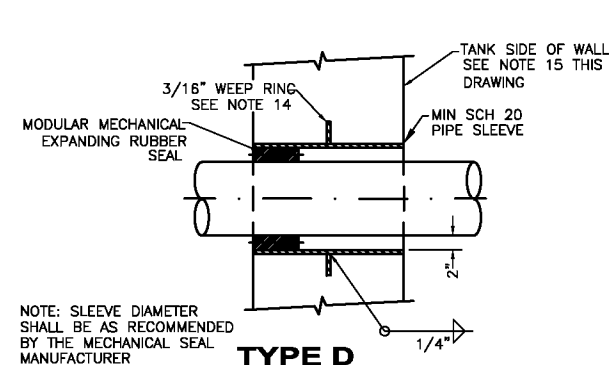


2
P17
TYPE B PIPE PENETRATION
FOR WALLS



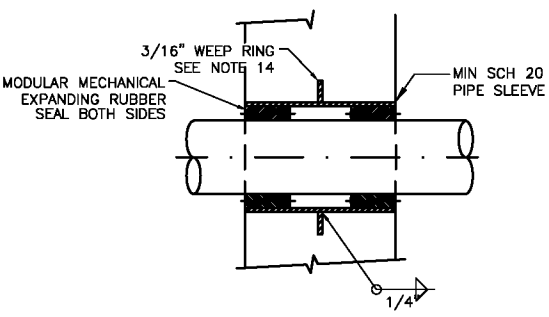
3

TYPE C PIPE PENETRATION
FOR FLOORS AND CEILINGS

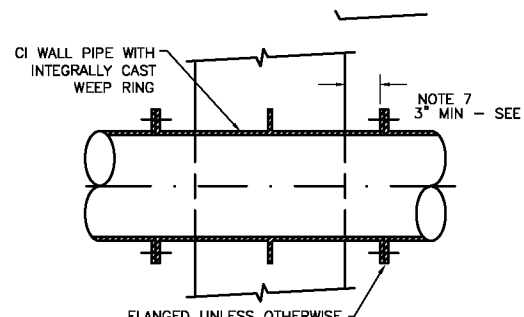


4

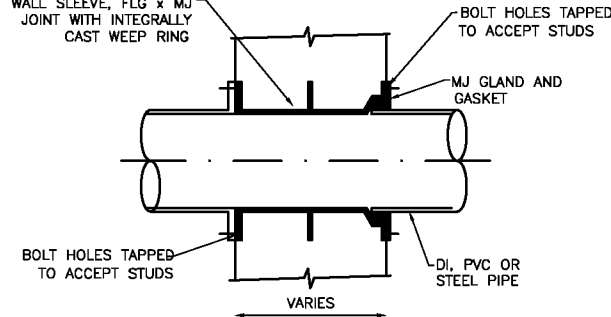
TYPE D PIPE PENETRATION
FOR WALLS



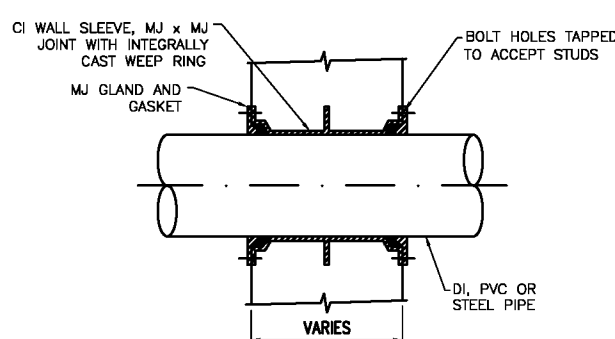
5
P17
TYPE E PIPE PENETRATION
FOR WALLS (LIQUID BOTH SIDES)



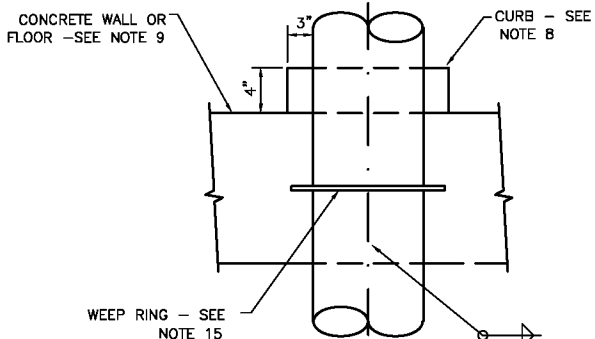
6
P17
TYPE F PIPE PENETRATION
FOR WALLS



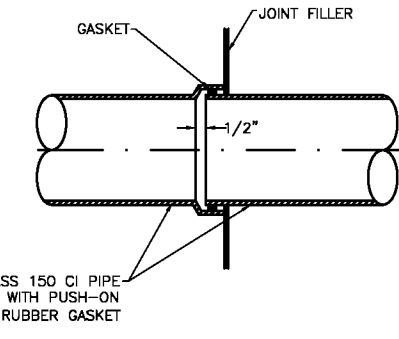
7
P17
TYPE G PIPE PENETRATION
FOR WALLS (FLG x MJ)



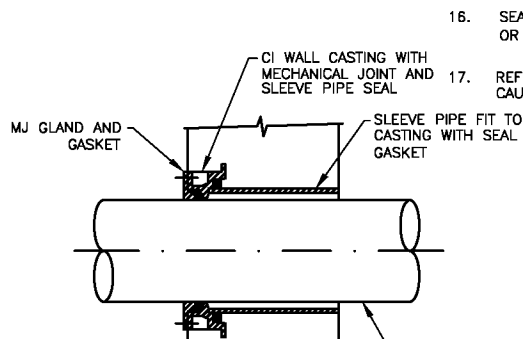
8
P17
TYPE J PIPE PENETRATION
FOR WALLS



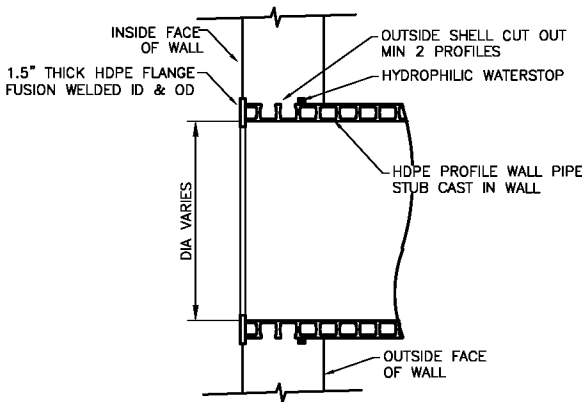
9
P17
TYPE K PIPE PENETRATION
FOR WALLS, FLOORS & CEILINGS



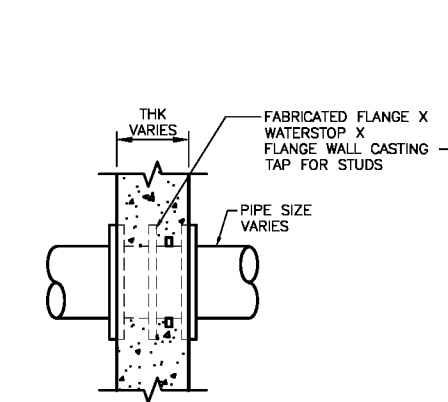
10
P17
TYPE L PIPE PENETRATION
FLEX JOINT ON DRAINAGE LINES AT STRUCT JOINTS



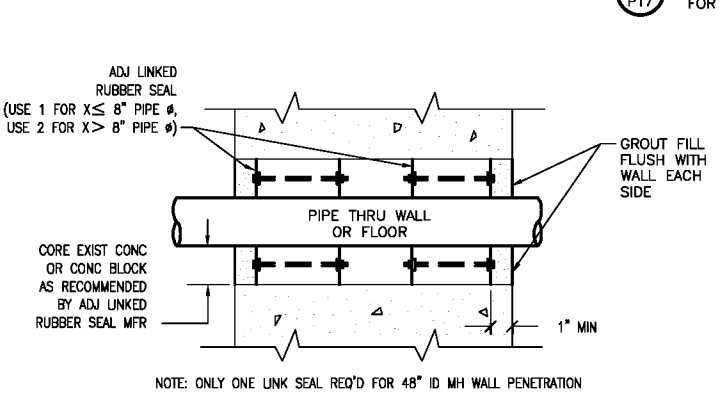
11
P17
TYPE M PIPE PENETRATION
FOR WALLS
NOTE: THIS PENETRATION SHALL BE AS MANUFACTURED BY OMNI-SLEEVE OR EQUAL



12
P17
TYPE N PIPE PENETRATION
FOR WALLS & FLOORS
NOTE: THIS PENETRATION IS FOR



13
P17
TYPE O PIPE PENETRATION
FOR WALLS (FLG x FLG)



14
P17
TYPE P PIPE PENETRATION DETAIL
NTS
NOTE: ONLY ONE LINK SEAL REQ'D FOR 48" ID MH WALL PENETRATION

PIPE PENETRATION NOTES:

- WHERE PIPES PASS THROUGH WALLS, FLOORS OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE, EXCEPT AS OTHERWISE SPECIFIED.
- IN TABLE, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID OR IN CONTACT WITH THE EARTH
- IN TABLE, "PASSAGE" SHALL MEAN ROOM, GALLERY, TUNNEL OR SIMILAR ENCLOSURE
- ALL STEEL SLEEVES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION
- IN CONDITION 5, TYPE D, E OR K SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE OR WHERE SPECIFIED
- SEAL FLANGES SHALL BE DRILLED TO 150 POUND STANDARD. EACH JOINT SHALL BE GASKETED
- WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS
- PROVIDE CURB WHERE PENETRATING FLOOR EXCEPT FOR PENETRATION TYPES A AND C. CURB SHALL BE 4" HIGH AND 3" WIDE
- PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS
- FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED
- RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE WITH AWWA MANUAL M11. FIGURES 19.15 AND 19.16 AND TABLE 19.17 SHALL BE UTILIZED
- INSULATION SHALL NOT EXTEND THROUGH SLEEVES UNLESS OTHERWISE SPECIFIED
- WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE TYPE "L" PIPE PENETRATION
- WEEP RINGS SHALL HAVE A MINIMUM DIAMETER EQUAL TO THE PIPE DIAMETER PLUS 3 INCHES
- "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH OR OUTSIDE ATMOSPHERE
- SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH OR AN EXPLOSION HAZARD AREA
- REFER TO STRUCTURAL SHEETS FOR ANY PIPE PENETRATIONS THAT CAUSE CONFLICTS WITH STRUCTURAL REBAR REINFORCEMENT.

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-21313	DESIGNED: AHE	DRAWN: AR, AE	CHECKED: AMD	APPROVED: AHE	DATE: JANUARY 2023
------------------	---------------	---------------	--------------	---------------	--------------------



TOWN OF PHILIPSBURG
WASTEWATER SYSTEM IMPROVEMENTS
PROCESS DETAILS

SHEET NO.
P13
OF ---

Y:\shared\Helena Projects\1-21313-Philipsburg Wastewater 2021\CADD 1-21313-Sheets\1-21313-P13-Process Details.dwg

Appendix E

US EPA EJScreen Report



EJScreen Report (Version 2.1)

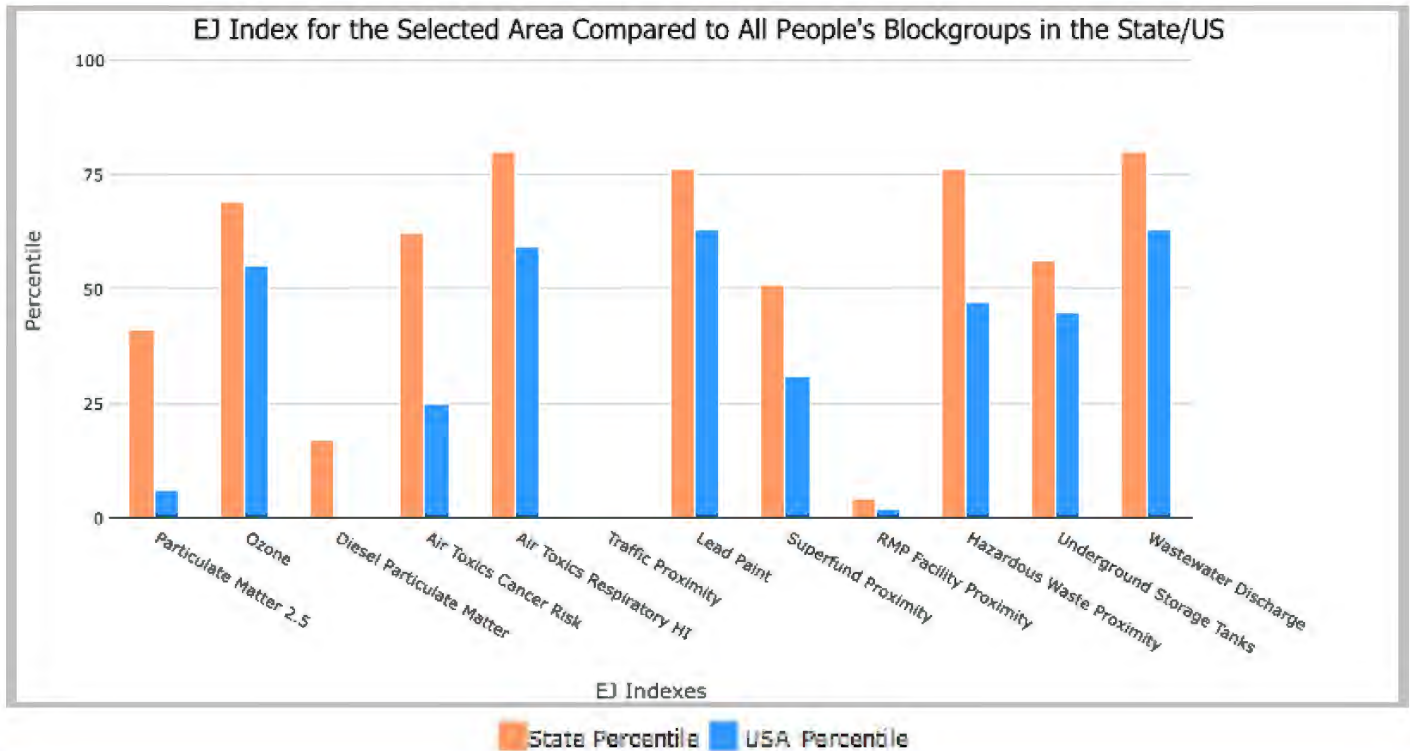


Blockgroup: 300399617021, MONTANA, EPA Region 8

Approximate Population: 1,003

Input Area (sq. miles): 6.14

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	41	6
EJ Index for Ozone	69	55
EJ Index for Diesel Particulate Matter*	17	0
EJ Index for Air Toxics Cancer Risk*	62	25
EJ Index for Air Toxics Respiratory HI*	80	59
EJ Index for Traffic Proximity	N/A	N/A
EJ Index for Lead Paint	76	63
EJ Index for Superfund Proximity	51	31
EJ Index for RMP Facility Proximity	4	2
EJ Index for Hazardous Waste Proximity	76	47
EJ Index for Underground Storage Tanks	56	45
EJ Index for Wastewater Discharge	80	63



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



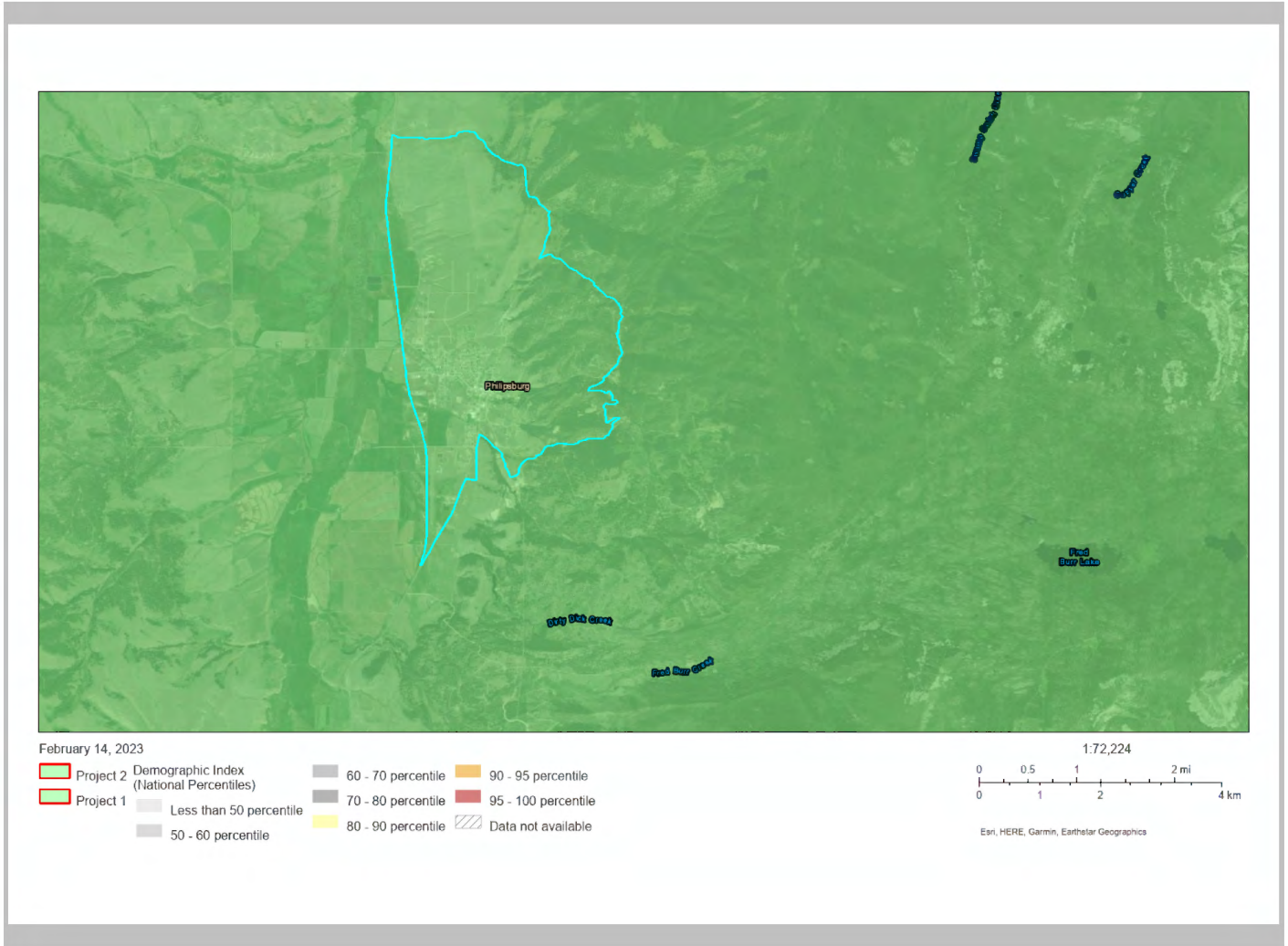
EJScreen Report (Version 2.1)



Blockgroup: 300399617021, MONTANA, EPA Region 8

Approximate Population: 1,003

Input Area (sq. miles): 6.14



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0



EJScreen Report (Version 2.1)



Blockgroup: 300399617021, MONTANA, EPA Region 8

Approximate Population: 1,003

Input Area (sq. miles): 6.14

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	5.76	6.84	30	8.67	3
Ozone (ppb)	42.7	42.2	55	42.5	54
Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$)	0.0157	0.0761	11	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	20	21	79	28	<50th
Air Toxics Respiratory HI*	0.5	0.32	94	0.36	95-100th
Traffic Proximity (daily traffic count/distance to road)	N/A	220	N/A	760	N/A
Lead Paint (% Pre-1960 Housing)	0.49	0.27	77	0.27	73
Superfund Proximity (site count/km distance)	0.026	0.15	35	0.13	25
RMP Facility Proximity (facility count/km distance)	0.016	0.49	3	0.77	1
Hazardous Waste Proximity (facility count/km distance)	0.61	0.74	67	2.2	47
Underground Storage Tanks (count/km ²)	0.42	5.1	45	3.9	38
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.019	2.2	76	12	74
Socioeconomic Indicators					
Demographic Index	24%	24%	62	35%	41
People of Color	8%	14%	43	40%	19
Low Income	40%	32%	71	30%	69
Unemployment Rate	9%	4%	85	5%	79
Limited English Speaking Households	0%	0%	0	5%	0
Less Than High School Education	10%	6%	78	12%	55
Under Age 5	7%	6%	67	6%	64
Over Age 64	32%	19%	87	16%	90

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.