ROXBOROUGH WATER AND SANITATION DISTRICT

The Roxborough Water & Sanitation District and Plum Valley Heights Subdistrict of the Roxborough Water & Sanitation District Regular Board meeting will be held in the Community Room at the West Metro Fire Station #15 located at 6222 N Roxborough Park Rd, Littleton, CO 80125

This meeting can also be accessed via video conference at **ZOOM Meeting ID 874 5981 8759**

Password: 694389

Date: Wednesday, June 21, 2023
Time 8:00 am

Board of Directors	**Term Expiration**
Christine Thomas, President	5/2025
Dave Bane, Vice President	5/2027
John Kim, Treasurer	5/2025
Keith Lehman, Secretary	5/2025
Loren McFall, Assistant Secretary	5/2027

I. Call to Order as the Roxborough Water and Sanitation District (RWSD) Board of Directors regular meeting.
II. Declaration of Quorum/Disclosure of Conflicts of Interest
III. Public Comment on items not on Agenda
IV. Presentation of the 2022 Audit by Jason Adams of The Adams Group

CONVENE AS THE BOARD OF THE PLUM VALLEY HEIGHTS (PVH) SUBDISTRICT OF THE RWSD

V. Consent Agenda
- a. Approve the Minutes of the Regular Meeting of the PVH Subdistrict which are contained in and part of the Minutes of the Roxborough Water & Sanitation District Minutes for the Regular Meeting on May 17, 2023.

VI. Staff Reports
- a. General Manager's Report
- b. Financial Reports

VII. **Board Action Items**
- a. **Approve the 2022 Audit as presented by The Adams Group**

ADJOURN AS THE PVH SUBDISTRICT OF RWSD AND CONVENE AS THE RWSD BOARD

VIII. Consent Agenda
- a. Approve the Minutes of the Regular Meeting of the RWSD Board on May 17, 2023.
- b. Ratify Payrolls for May 31 and June 15
- c. Ratify Payments since May 17, 2023: Checks –
- d. Approve Payments of Claims: Checks –
- e. Approve Pay App #16 for the WTP HSP Serving DWSD in the amount of $125,196.12
- f. Approve Change Order #8 for the Rampart Range Road Transmission Main Replacement Project for $0.00 and 28 days

IX. Staff Reports
- a. General Manager's Report
- b Legal Counsel Report
- c. Operation Director's Report
- d. Engineering Report/Water Use Graphs
- e. Financial Report

X. **Board Action Items:**
- **a. Approve the 2022 Audit as presented by The Adams Group**
- **b. Consideration of Amended and Restated Rules and Regulations**

XI. **Adjourn**

ROXBOROUGH WATER AND

SANITATION DISTRICT

FINANCIAL STATEMENTS

DECEMBER 31, 2022

TABLE OF C O N T E N T S

INDEPENDENT AUDITORS' REPORT

Board of Directors
Roxborough Water and Sanitation District
Littleton, Colorado

Opinions
We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of Roxborough Water & Sanitation District (District) as of and for the year ended December 31, 2022, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the District, as of December 31, 2022, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions
We conducted our audit in accordance with auditing standards generally accepted in the United States of America Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the District, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements
Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and budgetary comparison information be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context.

We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the District's basic financial statements. The individual fund statements and schedules are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, individual fund statements and schedules are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

REPORT DATE
Denver, Colorado

Management's Discussion and Analysis

As management of the Roxborough Water & Sanitation District (the District), we offer readers of the District's financial statements this narrative overview and analysis of the financial activities of the District for the fiscal year ended December 31, 2022.

Financial Highlights

- Assets exceeded liabilities and deferred inflows of resources by $116,079,882 at the close of the fiscal year.
- As of the close of the current fiscal year, the District's governmental funds reported combined ending fund balances of $9,876,097.
- Total net position increased by $4,490,482.
- Total cash and investments increased by $917,373 as compared to the prior year.
- At the end of the current fiscal year, unassigned fund balance for the general fund was $2,406,134 or 508.40% of total general fund expenditures.
- The district repaid $1,324,362 of long term debt during the year ended December 31, 2022. The district anticipates repayment of an additional $1,354,570 of long term debt in 2023.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the District's basic financial statements. The District's basic financial statements are comprised of three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Government-wide financial statements. The government-wide financial statements are designed to provide readers with a broad overview of the District's finances, in a manner similar to a private-sector business.

The statement of net position presents information on all of the District's assets and liabilities, with the difference between the two reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the District is improving or deteriorating.

The statement of activities presents information showing how the District's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods.

The government-wide financial statements distinguish functions of the District that are principally to be supported by ad valorem taxes (governmental activities) from other functions that are intended to recover all or a significant portion of their costs through user fees and charges (business-type activities). The governmental activities of the District include the financing, construction of, and maintenance of public infrastructure improvements constructed or acquired by the District. The business-type activities of the District include water and sewer facilities construction, maintenance and operations.

The government-wide financial statements can be found on pages 1-3 of this report.

Fund financial statements. A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The District, like other state and local governments, uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. All of the funds of the District can be divided into two categories – Governmental Funds and Proprietary Funds.

Governmental funds. Governmental funds are used to account for essentially the same functions reported as governmental activities in the government-wide financial statements. However, unlike the government-wide financial statements, governmental fund financial statements focus on near-term inflows and outflows of spendable resources, as well as on balances of spendable resources available at the end of the fiscal year. Such information may be useful in evaluating a government's near-term financing requirements. The governmental funds use the modified accrual basis of accounting.

Because the focus of governmental funds is narrower than that of the government-wide financial statements, it is useful to compare the information presented for governmental funds with similar information presented for governmental activities in the government-wide financial statements. By doing so, readers may better understand the long-term impact of the government's near-term financing decisions. Both the governmental fund balance sheet and the governmental fund statement of revenues, expenditures, and changes in fund balances provide a reconciliation to facilitate this comparison between governmental funds and governmental activities.

The District maintains four individual governmental funds. Information is presented separately in the governmental fund balance sheet and in the governmental fund statement of revenues, expenditures, and changes in fund balances for each of the funds - general fund, debt service fund, capital projects fund, and plum valley heights fund - all of which are considered to be major funds except for the capital projects fund in 2022.

The basic governmental fund financial statements can be found on pages 4-6 of this report.

Proprietary Funds. The District maintains one type of proprietary fund. Enterprise funds are used to report the same functions presented as business-type activities in the government-wide financial statements. The District uses enterprise funds to account for its water and sewer operations. These services are reported as business-type activities in the government-wide financial statements.

Proprietary funds provide the same type of information as the government-wide financial statements, only in more detail. The proprietary fund financial statements provide separate information for the water and sewer operations, which are considered to be major funds of the District.

The proprietary fund financial statements can be found on pages 8-11 of this report.

Notes to financial statements. The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to financial statements can be found on pages 12-25 of this report.

Required Supplementary Information. The District adopts an annual appropriated budget for its general fund and the plum valley heights special revenue fund. The budgetary comparison statements for these funds have been provided as required supplementary information to demonstrate compliance with these budgets. The budget statements and notes are found on pages 26-28 of this report.

Other information. The report includes individual fund schedules. The budgetary comparison statement has been provided in this section for the debt service fund, the capital projects fund, the water fund, and the sewer fund to demonstrate compliance with these budgets. The budget statements are found on pages 29-34 of this report.

Government-wide Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of a government's financial position. The District's assets exceeded liabilities and deferred inflows of resources by $116,079,882 at the close of the most recent fiscal year.

Statement of Net Assets

	2022			2021		
	Governmental Activities	Business-type Activities	Total	Governmental Activities	Business-type Activities	Total
Current Assets	$ 12,867,815	$ 25,198,773	$ 38,066,588	$ 12,210,798	$ 26,105,593	$ 38,316,391
Capital Assets, net	5,137,584	106,592,741	111,730,325	5,303,718	103,002,683	108,306,401
Total Assets	18,005,399	131,791,514	149,796,913	17,514,516	129,108,276	146,622,792
Current Liabilities	440,699	5,802,143	6,242,842	1,600,196	5,667,956	7,268,152
Long-Term Obligations	24,584,507	110,724	24,695,231	24,617,953	69,038	24,686,991
Total Liabilities	25,025,206	5,912,867	30,938,073	26,218,149	5,736,994	31,955,143
Deferred Inflows of Resources Unavailable revenue - property taxes	2,778,958	0	2,778,958	3,078,249	0	3,078,249
Net Investment in Capital Assets	5,072,087	106,447,229	111,519,316	5,303,718	102,959,706	108,263,424
Restricted Net Position	7,214,732	0	7,214,732	6,648,646		6,648,646
Unrestricted Net Position	(22,085,584)	19,431,418	(2,654,166)	(23,734,246)	20,411,576	(3,322,670)
Total Net Position	$ (9,798,765)	$ 125,878,647	$116,079,882	$ (11,781,882)	$ 123,371,282	$111,589,400

	Statements of Activities					
	2022			2021		
	Governmental Activities	Business Type Activities	Total	Governmental Activities	Business Type Activities	Total
Revenue						
Program Revenue						
Charges for Services		$ 7,948,623	$ 7,948,623		$ 8,487,824	$ 8,487,824
Operating Grants		$ 122,458	$ 122,458		$ 168,781	$ 168,781
Contributions		$ 3,702,245	$ 3,702,245		$ 3,811,822	$ 3,811,822
General Revenue						
Property Taxes	$ 3,085,613		$ 3,085,613	$ 2,644,182		$ 2,644,182
Specific Ownership Taxes	$ 254,044		$ 254,044	$ 245,788		$ 245,788
Investment Income	$ 49,573	$ 299,334	$ 348,907	$ 1,168	$ 5,934	$ 7,102
Other	$ (34)	$ 34	$ -	$ 200,090		$ 200,090
Total Revenue	$ 3,389,196	$ 12,072,694	$ 15,461,890	$ 3,091,228	$ 12,474,361	$ 15,565,589
Expenses						
General Government	$ 635,907		$ 635,907	$ 695,448		$ 695,448
Interest on Long-Term Debt	$ 770,172		$ 770,172	$ 853,954		$ 853,954
Water/Sewer Facilities		$ 9,565,329	$ 9,565,329		$ 8,626,190	$ 8,626,190
Total Expenses	$ 1,406,079	$ 9,565,329	$ 10,971,408	$ 1,549,402	$ 8,626,190	$ 10,175,592
Total Primary Government	$ 1,983,117	$ 2,507,365	$ 4,490,482	$ 1,541,826	$ 3,848,171	$ 5,389,997
Transfers				$ 571,427	$ (571,427)	$ -
Change in Net Position	$ 1,983,117	$ 2,507,371	$ 4,490,482	$ 2,113,253	$ 3,276,744	$ 5,389,997
Net Position Beginning	$ (11,781,882)	$ 123,371,282	$ 111,589,400	$ (13,895,135)	$ 120,094,538	$ 106,199,403
Net Position Ending	$ (9,798,765)	$ 125,878,647	$ 116,079,882	$ (11,781,882)	$ 123,371,282	$ 111,589,400

Governmental activities. Governmental activities increased the District's net position by $1,983,117, several highlights are as follows:

- Property taxes increased by $441,431 or 16.69% over the prior year due to increased assessed valuations.
- Specific ownership taxes increased by $8,256 or 3.36%.
- Investment Income increased by $48,405 due to higher interest rates.

Business-type activities. Business-type activities increased the District's net position by $2,507,365. Some of the key elements of the change in net position are as follows:

- Service charges decreased from $8,487,824 to $7,948,623, a decrease of $539,201 or 6.35%.
- Total operating expenses increased $939,139 or 10.89% mainly due to increased personnel and operating costs.

Financial Analysis of the Government's Funds

As noted earlier, the District uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Governmental funds. The focus of the District's governmental funds is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the District's financing requirements. In particular, unassigned fund balance may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

As of the end of the current fiscal year, the District's governmental funds reported combined ending fund balances of $9,876,097 of which $2,406,134 constitutes unassigned fund balance, which is available for spending at the government's discretion within the parameters established for each fund.

The general fund is the chief operating fund of the District. At the end of the current fiscal year, unassigned fund balance of the general fund was $2,406,134 out of a total fund balance of $2,490,597. In compliance with an amendment to the State Constitution, Article X, Section 20, the district has established an emergency reserve representing 3% of qualifying expenditures. At December 31, 2022, the emergency reserve was $58,255.

The debt service fund has a total fund balance of $6,956,087 all of which is restricted for the repayment of long-term indebtedness. The long-term loans payable as of December 31, 2022 is $24,577,561.

The capital projects fund has a total balance of $1,084.

The Plum Valley Heights Fund has a total balance of $428,329.

Proprietary funds. The District's proprietary funds provide the same type of information found in the government-wide financial statements, but in more detail.

Unrestricted net position of the proprietary funds at the end of the year amounted to $19,431,418. The total net position of the District's proprietary funds as of December 31, 2022 are $125,878,647. Other factors concerning the finances of this fund have already been addressed in the discussion of the District's business-type activities.

General Fund Budgetary Highlights

The District's total expenditures and transfers for 2022 did not exceed the final budgeted appropriation. The difference between the final budgeted revenue of $1,912,187 and the actual revenue of $1,941,826 was $29,639. The difference between the final budgeted expenditures and transfers of $1,281,000 and the actual expenditures of $1,173,274 was $107,726.

Capital Assets

The District has invested $111,730,325 in capital assets (net of accumulated depreciation) for its governmental and business-type activities as of December 31, 2022. This investment in capital assets includes water and sewer facilities, water rights and vehicles and equipment.

The capital assets are recorded at cost less estimated accumulated depreciation on the financial statement. The district believes the book value of these capital assets is substantially less than the actual replacement costs of these assets. The district uses an estimated replacement cost when calculating and setting their customer billing rates in an effort to provide reserves for future asset replacements. The district maintains a responsibility to provide water and sewer services to their customers and these reserves are necessary to be able to repair and replace these capital assets as needed. The District's engineering consultants estimate the replacement costs for the water system currently would be approximately $285,000,000 and the estimated replacement costs for the sewer system currently would be $275,000,000. Should these reserves be insufficient to provide these repairs or replacements, additional rate increases or borrowings would be required by the district.

Additional information on the District's capital assets can be found in note 4 beginning on page 19 of this report.

Long-Term Debt

At the end of the current fiscal year, the District had total outstanding governmental long-term debt of $24,584,507 as follows:

1. $15,181,911 was related to the Water Enterprise Fund acquisition of a permanent water supply from the City of Aurora. This loan is through the Colorado Water Conservation Board. Payments are annually through December 2044 at an interest rate of 3.25%

2. $2,340,000 is related to the District's 2005 Clean Water Revenue Bonds through the Colorado Water Resources and Power Development Authority (2005 CWRPDA) which are due annually through 2026 and pay interest rates of 3.35% semi-annually on February 1 and August 1.

3. Accrued compensated absences accounts for $6,946 of this amount.

4. $3,596,271 was related to the 2015 CWRPDA Loan. This loan provided financing for the Plum Valley Heights Subdistrict and was used to secure financing for a pipeline to allow customers to discontinue their use of private wells and non-renewable water. This debt is repaid through mill levies assessed to property owners within the subdistrict. Payments are semi-annually through August 2036 at an interest rate of 2.07%.

5. $1,999,415 was related to a CWCB Loan related to the purchase of renewable Raw Water for the Subdistrict. Payments are annually through February 2047 at an interest rate of 3.05%.

6. $1,390,291 was related to a CWCB Loan related to the Ravenna Development Water Infrastructure. Payments are due annually through February 2047 at an interest rate of 3.15%.

The Business Type activities had long-term debt of $110,724 related to compensated absences.

Additional information on the District's long-term debt can be found in note 5 beginning on page 21 of this report.

Next Year's Budgets and Rates

Government funds:

Property Taxes. The District's assessed value is projected to decrease slightly (1%) in 2023, which will result in a decrease in General Fund property tax revenues. The General Fund Mill Levy was maintained at the current 6.208, and revenues not needed for operations will be transferred to reserves. For 2022, the Debt Service Mill Levy will be reduced from 2.9 mills to 2.0 to avoid generating more revenue than necessary for debt service payments.

General Fund. The General Fund budget is projected to increase 33% from $581,000 to $773,500 for 2023, but the 2023 budget is 17% higher than 2022 actual expenses. While many general fund expenses will remain unchanged or be reduced slightly for 2023, several large increases in three areas are driving the overall increase. Payroll, taxes, and benefits will increase 18% reflecting the need to provide staff with cost-of-living salary increases. Capital Outlays will increase 84% over 2022 budget, but 2023 expenses are projected to be 50% less than 2022 actual expenses. The 2022 Capital Outlays budget was impacted by unplanned replacement costs for various equipment; for 2023 we have developed an inventory of equipment and a detailed plan for replacement. Finally, the Repairs and Maintenance budget is increasing 100% in 2023 driven by the need to upgrade computer hardware and cybersecurity systems.

Debt Service Fund. As stated previously, the debt service mill levy will be reduced.

Capital Projects Fund. The Capital Projects Fund will be used to track projects either partially or entirely funded by Dominion under the terms of the Wastewater Conveyance Agreement or the Water Treatment Agreement; the replacement of the Rampart Pump Station with Ravenna bond proceeds per the Ravenna Inclusion Agreement; and by the Valley View Christian Church for the water line needed to connect the church to the Subdistrict's system.

Proprietary funds:

Water Fund. Water Fund revenues are not projected to change in 2023 except for one-time capital contributions to the water fund from the Ravenna bond proceeds and Valley View Christian Church. Funds from Ravenna and the Church will be transferred from the Water Fund to the Capital Projects Fund for projects. Water Fund expenses are projected to decrease 2%, because the large capital projects planned will be accounted for in the Capital Projects budget. This is despite a 9.5% increase in payroll expenses, a 5.6% increase in utilities, and a 28% increase in water costs (4% Aurora rate increase + Aurora drought surcharge + increased use due to hotter, drier summers).

Sewer Fund. Sewer Fund revenues are projected to increase 21% in 2023 because of a 5% increase in Littleton treatment charges that required a 5% increase in sewer charges, and continued growth in Dominion wastewater conveyance fees. Sewer Fund expenses are expected to increase 11% for 2023 versus 2022 because of increased payroll expenses, increased engineering fees due to the number of projects planned, and increased service fees to Littleton.

Plum Valley Heights Subdistrict of Roxborough Water and Sanitation District
The District develops a separate budget for the Subdistrict, but we are only using the Debt Service Fund to track the outstanding debt to the Colorado Water Resources and Power Development Authority and the Colorado Water Conservation Board, for NWDC Project construction costs, water, and miscellaneous expenses such as legal and engineering related only to the Subdistrict. All administrative and operating expenses for the Subdistrict are included in the District's budget.

We are limited to collecting no more than $450,000 in property taxes to service the debt in the Subdistrict Debt Service Fund. The Assessed Value for the Subdistrict did not change significantly for 2023, so no adjustment to the Debt Service Mill Levy will be needed.

BASIC FINANCIAL STATEMENTS

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF NET POSITION
DECEMBER 31, 2022

	Governmental Activities	Business-Type Activities	Total
Assets			
Cash and investments	$ 8,676,080	$ 24,015,955	$ 32,692,035
Restricted cash	1,386,569	0	1,386,569
Accounts receivable	0	1,104,194	1,104,194
Property taxes receivable	2,778,958	0	2,778,958
Prepaid expenses	26,208	78,624	104,832
Capital assets not being depreciated	18,440	37,106,442	37,124,882
Capital assets, net of accumulated depreciation	5,119,144	69,486,299	74,605,443
Total Assets	18,005,399	131,791,514	149,796,913
Liabilities			
Accounts payable	147,263	520,002	667,265
Unearned revenue	0	5,136,629	5,136,629
Accrued interest payable	227,939	0	227,939
Retainage payable	65,497	145,512	211,009
Noncurrent liabilities			
Due within one year	1,355,728	18,450	1,374,178
Due in more than one year	23,228,779	92,274	23,321,053
Total Liabilities	25,025,206	5,912,867	30,938,073
Deferred Inflows of Resources			
Unavailable revenue-property taxes	2,778,958	0	2,778,958
Net Position			
Net investment in capital assets	5,072,087	106,447,229	111,519,316
Restricted	7,214,732	0	7,214,732
Unrestricted	(22,085,584)	19,431,418	(2,654,166)
Total Net Position (Deficit)	$ (9,798,765)	$ 125,878,647	$ 116,079,882

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED DECEMBER 31, 2022

		Program Revenues		
	Expenses	Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
Function/Programs				
Governmental Activities				
General Government	$ 635,907	$ 0	$ 0	$ 0
Interest on long-term debt	770,172	0	0	0
Total Governmental Activities	1,406,079	0	0	0
Business-Type Activities				
Water	6,509,033	5,538,701	92,060	2,576,479
Sewer	3,056,296	2,409,922	30,398	1,125,766
Total Business-Type Activities	9,565,329	7,948,623	122,458	3,702,245
Total Primary Government	$ 10,971,408	$ 7,948,623	$ 122,458	$ 3,702,245

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF ACTIVITIES (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2022

	Net (Expense) Revenues and Changes in Net Position		
	Primary Government		
	Govern-mental Activities	Business-Type Activities	Total
Function/Programs			
Governmental Activities			
General Government	$ (635,907)	$ 0	$ (635,907)
Interest on long-term debt	(770,172)	0	(770,172)
Total Governmental Activities	(1,406,079)	0	(1,406,079)
Business-Type Activities			
Water	0	1,698,207	1,698,207
Sewer	0	509,790	509,790
Total Business-Type Activities	0	2,207,997	2,207,997
Total Primary Government	(1,406,079)	2,207,997	801,918
General Revenues			
Property taxes	3,085,613	0	3,085,613
Specific ownership taxes	254,044	0	254,044
Investment income	49,573	299,334	348,907
Transfers	(34)	34	0
Total General Revenues and Transfers	3,389,196	299,368	3,688,564
Change in Net Position	1,983,117	2,507,365	4,490,482
Net Position (Deficit), Beginning	(11,781,882)	123,371,282	111,589,400
Net Position (Deficit), Ending	$ (9,798,765)	$ 125,878,647	$ 116,079,882

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
BALANCE SHEET
GOVERNMENTAL FUNDS
DECEMBER 31, 2022

	General	Debt Service	Plum Valley Heights	(Nonmajor) Capital Projects	Total
Assets					
Cash and investments	$ 2,483,811	$ 5,569,518	$ 430,437	$ 192,314	$ 8,676,080
Restricted cash	0	1,386,569	0	0	1,386,569
Property taxes receivable	1,761,246	567,412	450,300	0	2,778,958
Prepaid items	26,208	0	0	0	26,208
Total Assets	$ 4,271,265	$ 7,523,499	$ 880,737	$ 192,314	$ 12,867,815
Liabilities					
Accounts payable	$ 19,422	$ 0	$ 2,108	$ 125,733	$ 147,263
Retainage payable	0	0	0	65,497	65,497
Total Liabilities	19,422	0	2,108	191,230	212,760
Deferred Inflows of Resources					
Unavailable revenue-property taxes	1,761,246	567,412	450,300	0	2,778,958
Fund Balances					
Nonspendable:					
Prepaid items	26,208	0	0	0	26,208
Restricted for:					
Emergencies	58,255	0	0	0	58,255
Debt service	0	6,956,087	0	0	6,956,087
Special revenue fund	0	0	428,329	0	428,329
Assigned - capital projects	0	0	0	1,084	1,084
Unassigned	2,406,134	0	0	0	2,406,134
Total Fund Balances	2,490,597	6,956,087	428,329	1,084	9,876,097
Total Liabilities, Deferred Inflows of Resources and Fund Balances	$ 4,271,265	$ 7,523,499	$ 880,737	$ 192,314	$ 12,867,815

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
RECONCILIATION OF THE BALANCE SHEET OF
GOVERNMENTAL FUNDS TO THE STATEMENT OF NET POSITION
DECEMBER 31, 2022

Amounts reported for governmental activities in the statement of net position are different because:

Total fund balances of governmental funds	$	9,876,097
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds. This amount is net of accumulated depreciation of $1,139,156.		5,137,584
Accrued interest payable.		(227,939)
Long-term liabilities, including related items, including loans payable ($24,507,618), loan premium ($69,943) accrued compensated absences ($6,946), are not due and payable in the current year and, therefore, are not reported in the funds.		(24,584,507)
Total Net Position (Deficit) of Governmental Activities	$	(9,798,765)

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF REVENUES, EXPENDITURES
AND CHANGES IN FUND BALANCES
GOVERNMENTAL FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2022

	General	Debt Service	Plum Valley Heights	(Nonmajor) Capital Projects	Total
Revenues					
Property taxes	$ 1,764,610	$ 869,798	$ 451,205	$ 0	$ 3,085,613
Specific ownership taxes	142,651	70,314	41,079	0	254,044
Investment income	34,565	10,378	4,630	0	49,573
Total Revenues	1,941,826	950,490	496,914	0	3,389,230
Expenditures					
General government	473,274	13,041	20,357	0	506,672
Debt Service					
Principal	0	1,040,471	283,891	0	1,324,362
Interest and fiscal charges	0	644,558	135,471	0	780,029
Total Expenditures	473,274	1,698,070	439,719	0	2,611,063
Revenues Over (Under) Expenditures	1,468,552	(747,580)	57,195	0	778,167
Other Financing Sources (Uses)					
Transfers In	0	1,242,198	0	1,140,000	2,382,198
Transfers Out	(700,000)	0	0	(1,682,232)	(2,382,232)
Total Other Financing Sources (Uses)	(700,000)	1,242,198	0	(542,232)	(34)
Net Change in Fund Balances	768,552	494,618	57,195	(542,232)	778,133
Fund Balances, Beginning	1,722,045	6,461,469	371,134	543,316	9,097,964
Fund Balances, Ending	$ 2,490,597	$ 6,956,087	$ 428,329	$ 1,084	$ 9,876,097

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
RECONCILIATION OF THE STATEMENT OF REVENUE, EXPENDITURES
AND CHANGES IN FUND BALANCES OF GOVERNMENTAL FUNDS
TO THE STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Amounts reported for governmental activities in the statements of activities are different because:

Net change in fund balances, total governmental funds	$	778,133
Capital outlays to purchase or build capital assets are reported in governmental funds as expenditures. However, for governmental activities those costs are shown in the statement of net position and allocated over their estimated useful lives as annual depreciation expense in the statement of activities. This amount represents depreciation expense in excess of capital outlay in the current year.		(166,134)
This amount is the net effect of these differences in the treatment of long-term debt and related items: amortization of loan premium $23,133, change in accrued interest payable $9,857, and change in compensated absences $13,766.		46,756
Payments of principal are expenditures in the governmental funds, but they change long-term liabilities in the statement of net position and do not affect the statement of activities.		1,324,362
Change in Net Position of Governmental Activities	$	1,983,117

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
DECEMBER 31, 2022

	Water	Sewer	Total
Assets			
Current Assets			
Cash and investments	$ 11,409,895	$ 12,606,060	$ 24,015,955
Accounts receivable	626,268	477,926	1,104,194
Prepaid expenses	52,416	26,208	78,624
Total Current Assets	12,088,579	13,110,194	25,198,773
Noncurrent Assets			
Capital assets not being depreciated	31,820,446	5,285,996	37,106,442
Capital assets, net	56,801,748	12,684,551	69,486,299
Total Noncurrent Assets	88,622,194	17,970,547	106,592,741
Total Assets	100,710,773	31,080,741	131,791,514
Liabilities			
Current liabilities			
Accounts payable	402,497	117,505	520,002
Unearned revenue	3,211,597	1,925,032	5,136,629
Retainage payable	145,512	0	145,512
Total Current Liabilities	3,759,606	2,042,537	5,802,143
Noncurrent Liabilities			
Compensated absences - current	12,398	6,052	18,450
Compensated absences - long-term	62,017	30,257	92,274
Total Noncurrent Liabilities	74,415	36,309	110,724
Total Liabilities	3,834,021	2,078,846	5,912,867
Net Position			
Net investment in capital assets	88,476,682	17,970,547	106,447,229
Unrestricted	8,400,070	11,031,348	19,431,418
Total Net Position	$ 96,876,752	$ 29,001,895	$ 125,878,647

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF REVENUES, EXPENSES AND
CHANGES IN FUND NET POSITION
PROPRIETARY FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2022

	Water	Sewer	Total
Operating Revenues			
Charges for services	$ 4,833,993	$ 2,234,945	$ 7,068,938
Dominion capital lease O-line	0	200,000	200,000
Permit fees	23,925	23,925	47,850
Outside treatment	553,928	0	553,928
Inclusion fees	68,557	0	68,557
Miscellaneous income (loss)	58,298	(48,948)	9,350
Total Operating Revenues	5,538,701	2,409,922	7,948,623
Operating Expenses			
Personnel services	992,619	438,297	1,430,916
Operations	3,661,903	1,803,127	5,465,030
Depreciation	1,854,511	814,872	2,669,383
Total Operating Expenses	6,509,033	3,056,296	9,565,329
Operating Income (Loss)	(970,332)	(646,374)	(1,616,706)
Nonoperating Revenues			
Investment Income	150,539	148,795	299,334
Availability Charges	92,060	30,398	122,458
Total Nonoperating Revenue	242,599	179,193	421,792
Net Income (Loss) Before Transfers and Capital Contributions	(727,733)	(467,181)	(1,194,914)
Transfer in	5,632,977	202,905	5,835,882
Transfer out	(5,805,260)	(30,588)	(5,835,848)
Capital contributions	2,576,479	1,125,766	3,702,245
Change in Net Position	1,676,463	830,902	2,507,365
Net Position, beginning	95,200,289	28,170,993	123,371,282
Net Position, ending	$ 96,876,752	$ 29,001,895	$ 125,878,647

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2022

	Water	Sewer	Total
Cash Flows from Operating Activities			
Cash received from customers	$ 5,830,172	$ 3,117,350	$ 8,947,522
Cash payments to suppliers	(3,506,107)	(1,749,386)	(5,255,493)
Cash payments to employees	(974,126)	(428,914)	(1,403,040)
Other cash received (paid)	58,298	(48,948)	9,350
Net Cash Provided by Operating Activities	1,408,237	890,102	2,298,339
Cash Flows from Noncapital Financing Activities			
Transfers from other funds	5,632,977	202,905	5,835,882
Transfers to other funds	(5,805,260)	(30,588)	(5,835,848)
Net Cash Provided by (Used in) Noncapital Financing Activities	(172,283)	172,317	34
Cash Flows from Capital and Related Financing Activities			
Acquisition and construction of capital assets	(5,686,072)	(573,369)	(6,259,441)
Capital charges received	2,576,479	1,050,798	3,627,277
Net Cash Provided (Used) by Capital and Related Financing Activities	(3,109,593)	477,429	(2,632,164)
Cash Flows from Investing Activities			
Investment income	150,539	148,795	299,334
Net Cash Provided by Investing Activities	150,539	148,795	299,334
Net increase in cash and investments	(1,723,100)	1,688,643	(34,457)
Cash and investments, beginning	13,132,995	10,917,417	24,050,412
Cash and investments, ending	$ 11,409,895	$ 12,606,060	$ 24,015,955

The accompanying notes are an integral part of these financial statements.

ROXBOROUGH WATER AND SANITATION DISTRICT
STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2022

	Water	Sewer	Total
Reconciliation of Operating Loss to Net Cash Provided by Operating Activities			
Operating gain (loss)	$ (970,332)	$ (646,374)	$ (1,616,706)
Adjustments to reconcile operating loss to net cash provided by operating activities			
Depreciation	1,854,511	814,872	2,669,383
Receipt of system availability charges	92,060	30,398	122,458
Changes in assets and liabilities			
Accounts receivable	257,709	628,082	885,791
Prepaid Expenses	(8,956)	(4,472)	(13,428)
Accounts payable	164,752	58,213	222,965
Accrued compensated absences	18,493	9,383	27,876
Net Cash Provided by Operating Activities	$ 1,408,237	$ 890,102	$ 2,298,339

The accompanying notes are an integral part of these financial statements.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Roxborough Water and Sanitation District (the "District"), previously the Roxborough Park Metropolitan District, was formed on January 12, 1972, to provide water, sewer and fire protection services within its boundaries. Effective July 1, 1999, the District's fire protection services were merged into the West Metro Fire Protection District (the "WMFP"). By intergovernmental agreement, the District conveyed ownership of the fire station and all fire equipment to the WMFP, along with property tax revenues related to these services. The District is governed by a five-member Board of Directors elected by the residents.

The accounting policies of the District conform to generally accepted accounting principles. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. Following is a summary of the more significant policies.

Reporting Entity

The financial reporting entity consists of the District and organizations for which the District is financially accountable. All funds, organizations, institutions, agencies, departments and offices that are not legally separate are reported as part of the District. In addition, any legally separate organizations for which the District is financially accountable are considered part of the reporting entity. Financial accountability exists if the District appoints a voting majority of the organization's governing board and is able to impose its will on the organization, or if the organization provides benefits to, or imposes financial burdens on the District. Blended component units are, in substance, part of the primary government's operations, even though they are legally separate entities. Thus, blended component units are appropriately presented as funds of the District.

Based upon the application of this criteria, the District reports Plum Valley Heights as a blended component unit. Colorado State Statutes allow for the formation of subdistricts. Under the statute, subdistricts are independent quasi-municipal corporations, for whom the District's Board of Directors constitutes the Plum Valley Heights Board of Directors. In addition, management of the District is also management of the subdistrict. Plum Valley Heights does not prepare separate financial statements.

As a result of an election in November 2016, the water activities of Ravenna Metropolitan District were absorbed by the District. This has resulted in additional properties and customers receiving water services from the District.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Government-wide and Fund Financial Statements

The government-wide financial statements (i.e., the statement of net position and the statement of activities) report information on all of the activities of the District. The effect of interfund activity has been removed from these statements. *Governmental activities,* which normally are supported by taxes and intergovernmental revenues, are reported separately from *business-type activities,* which rely to a significant extent on fees and charges for support.

The statement of activities demonstrates the degree to which the direct expenses of the given function or segments are offset by program revenues. *Direct expenses* are those that are clearly identifiable with a specific function or segment. *Program revenues* include 1) charges to customers or applicants who purchase, use, or directly benefit from goods, services, or privileges provided by a given function or segment and 2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment.

Taxes and other items not properly included among program revenues are reported instead as *general revenues*. Internally dedicated resources are reported as general revenues rather than as program revenues.

Measurement Focus, Basis of Accounting, and Financial Statement Presentation

Separate financial statements are provided for governmental and proprietary funds. Major individual funds are reported as separate columns in the fund financial statements.

The government-wide financial statements are reported using the *economic resources measurement focus* and the *accrual basis of accounting*, as are the proprietary fund financial statements. Revenues are recorded when earned and expenses are recorded when incurred, regardless of the timing of related cash flows. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Governmental fund financial statements are reported using the *current financial resources measurement focus* and the *modified accrual basis of accounting*. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be *available* when they are collected within the current year or soon enough thereafter to pay liabilities of the current year. For this purpose, the District considers revenues to be available if they are collected within 60 days of the end of the current fiscal year.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Measurement Focus, Basis of Accounting, and Financial Statement Presentation (Continued)

Proprietary funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a fund's principal ongoing operations. Operating expenses for enterprise funds include the cost of sales and services, administrative expenses, and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

When both restricted and unrestricted resources are available for use, it is the District's practice to use restricted resources first, then unrestricted resources as they are needed.

In the fund financial statements, the District reports the following major governmental funds.

The *General Fund* is the District's primary operating fund. It accounts for all financial resources of the District, except those required to be accounted for in another fund.

The *Debt Service Fund* accounts for resources accumulated for, and payments made on, long-term obligations of the District.

The *Plum Valley Heights Fund* accounts for the activity in the subdistrict of Plum Valley Heights. This fund is reported as a special revenue fund, as the revenues derived from this subdistrict are used to support its operations.

Additionally, the District reports the following major proprietary funds.

The *Water Fund* accounts for the activities associated with the provision of water services.

The *Sewer Fund* accounts for the activities associated with the provision of sewer services.

Cash and Cash Equivalents – For purposes of the statement of cash flows, cash and cash equivalents are defined as investments with original maturities of three months or less. Pooled cash and investments are categorized as cash equivalents.

Receivables – All receivables are reported at their gross values and, where appropriate, are reduced by the estimated portion that is expected to be uncollectible. At December 31, 2022, the District expects to collect all accounts receivable balances.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Assets, Deferred Outflows of Resources, Liabilities, Deferred Inflows of Resources, and Net Position/Fund Balances

Capital Assets – Capital assets, which include property, plant, equipment, and infrastructure, are reported in the applicable governmental or business-type activities columns in the government-wide financial statements and for the proprietary funds in the fund financial statements. Capital assets are defined by the District as assets with an initial, individual cost of more than $5,000 and an estimated useful life in excess of one year. Such assets are recorded at cost or estimated cost if purchased or constructed. Donated capital assets are recorded at estimated acquisition value at the date of donation. The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend asset lives are not capitalized.

Capital assets of the District are depreciated using the straight-line method over the following estimated useful lives.

Collection and Distribution Systems	30-60 years
Vehicles and Equipment	3-15 years

Deferred Outflows/Inflows of Resources – In addition to assets, the statement of financial position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources,* represents an acquisition of net position that applies to a future period(s) and so will *not* be recognized as an inflow of resources (revenue) until that time.

Accordingly, the item, *unavailable revenue,* is reported for property taxes levied in the current year but collected for use in the next fiscal period.

Compensated Absences – Employees of the District are allowed to accumulate unused vacation and sick time. Employees are limited to 960 hours of accrued sick time and are not allowed to carry more than 100 hours of accrued vacation to the following year. Upon termination of employment from the District, an employee will be compensated for all accrued vacation time and 50% of accrued sick time. Accrued sick time in excess of 960 hours at year end is paid out at 50%. A liability for these compensated absences is accrued when incurred in the government-wide and proprietary fund financial statements.

Long-Term Debt – In the government-wide financial statements, and for the proprietary funds in the fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or proprietary fund statement of net position. Premiums and discounts are deferred and amortized over the life of the debt using the straight-line method.

In the fund financial statements, governmental funds recognize debt premiums and discounts during the current year. The face amount of debt issued is reported as other financing sources.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Fund Balance

In the governmental fund financial statements, fund balance is composed of five classifications designed to disclose the hierarchy of constraints placed on how fund balance can be spent.

The governmental fund types classify fund balances as follows:

Nonspendable – Amounts that cannot be spent either because they are in nonspendable form or because they are legally or contractually required to be maintained intact.

Restricted – Amounts that can be spent only for specific purposes because of constitutional provisions or enabling legislation, or because of constraints that are externally imposed by creditors, grantors, contributors, or the laws or regulations of other governments.

Committed – Amounts that can be used only for specific purposes, determined by a formal action of the Board of Directors. The Board of Directors is the highest level of decision-making body for the District. Commitments may be established, modified, or rescinded only through ordinances or resolutions approved by the Board.

Assigned – Amounts that do not meet the criteria to be classified as restricted or committed but that are intended to be used for specific purposes. Only the Board of Directors may assign fund balances for specific purposes.

Unassigned – All other spendable amounts.

When an expenditure is incurred for purposes for which both restricted and unrestricted fund balance is available, the District considers restricted funds to have been spent first. When an expenditure is incurred for which committed, assigned or unassigned fund balance is available, the District considers amounts to have been spent first out of committed funds, then assigned funds, and finally unassigned funds, as needed, unless the District has provided otherwise in its commitment or assignment actions.

Net Position

Net position in the government-wide Statement of Net Position is reported as restricted when there are limitations imposed on its use either through enabling legislation or through external restrictions imposed by creditors, grantors or laws or regulators of other governments. At December 31, 2022, the net position of the governmental activities is a deficit of $9,978,765. This is the result of the governmental funds being responsible for the repayment of loans that were used to finance construction of capital assets which were then transferred to the enterprise funds. As revenues are collected for debt service payments management believes the net position will become positive.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Property Taxes

Property taxes attach as an enforceable lien on property on January 1 and are levied the following January 1. Taxes are payable in full on April 30 or in two installments on February 28 and June 15. The County Treasurer's office collects property taxes and remits them to the District on a monthly basis.

Current Year GASB Pronouncement

For the year ended December 31, 2022, the District adopted the provision of GASB Statement No. 87, *Leases*, which is effective for periods beginning after June 15, 2021. GASB Statement No. 87 establishes a single model for lease accounting based on the foundational principle that the leases are refinancings of the right to use the underlying asset. For the year ended December 31, 2022, the implementation of the new standard had no material impact on the District.

NOTE 2 - CASH AND INVESTMENTS

At December 31, 2022, cash and investments consisted of the following:

Deposits	$	13,314,582
Restricted cash		1,386,569
Investments		19,377,453
Total	$	34,078,604

Restricted cash is comprised of debt service reserves required by the lender.

Deposits

The Colorado Public Deposit Protection Act (PDPA) requires that all units of local government deposit cash in eligible public depositories. Eligibility is determined by state regulations. Amounts on deposit in excess of Federal Deposit Insurance Corporation (FDIC) levels must be collateralized by eligible collateral as determined by the PDPA. PDPA allows the financial institution to create a single collateral pool for all public funds held. The pool is to be maintained by another institution, or held in trust for all the uninsured public deposits as a group. The market value of the collateral must be at least equal to 102% of the uninsured deposits.

At December 31, 2022, the District had bank deposits, with a book balance of $14,701,151, comprised of $250,000 which was covered by FDIC insurance and the remaining covered by PDPA.

Investments

The District is required to comply with State statutes which specify instruments meeting defined rating, maturity and concentration risk criteria in which local governments may invest. State statutes do not address custodial risk.

NOTE 2 - CASH AND INVESTMENTS (CONTINUED)

Investments (continued)
The District's investment policy follows State statutes and allows the following investments.

- Obligations of the United States, certain U.S. Agency securities, and the World Bank
- Certain international agency securities
- General obligation and revenue bonds of U.S. local government entities
- Bankers' acceptances of certain banks
- Commercial paper
- Local government investment pools
- Written repurchase agreements collateralized by certain authorized securities
- Certain money market funds
- Guaranteed investment contracts

Interest Rate Risk – State statutes limit investments in U.S. Agency securities to an original maturity of five years unless the governing board authorizes the investment for a period in excess of five years.

The District has interest rate risk related only to the investment in the Colorado Local Government Liquid Asset Trust (COLOTRUST). At December 31, 2022, COLOTRUST'S Plus+ portfolio had a weighted average maturity of 44 days to reset and 71 days to maturity.

Credit Risk – State statutes limit investments in U.S. Agency securities to the highest rating issued by two or more nationally recognized statistical rating organizations (NRSROs). State statutes also limit investments in money market funds to those that maintain a constant share price, with a maximum remaining maturity in accordance with Rule 2a-7, and either have assets of one billion dollars or the highest rating issued by a NRSRO.

Local Government Investment Pools – At December 31, 2022, the District had $19,377,453 invested in COLOTRUST, an investment vehicle established by State statute for local government entities in Colorado to pool surplus funds. The State Securities Commissioner administers and enforces the requirements of creating and operating COLOTRUST. COLOTRUST operate similarly to a money market fund and each share is equal in value to $1.00. Investments of COLOTRUST are limited to those allowed by State statutes.

NOTE 2 - CASH AND INVESTMENTS (CONTINUED)

Investments (continued)

A designated custodial bank provides safekeeping and depository services in connection with the direct investment and withdrawal functions. The custodian's internal records identify the investments owned by the participating governments. COLOTRUST are rated AAAm by Standard and Poor's and is measured at net asset value (NAV). There are no unfunded commitments, the redemption frequency is daily, and there is no redemption notice period.

NOTE 3 - INTERFUND BALANCES AND TRANSACTIONS

Transfer out	Amount	Transfer in	Amount
General Fund	$ 700,000	Debt Service Fund	$ 1,242,198
Capital Projects Fund	1,682,232	Capital Projects Fund	1,140,000
Water Fund	5,805,260	Water Fund	5,632,977
Sewer Fund	30,588	Sewer Fund	202,905
	$ 8,218,080		$ 8,218,080

Availability charges collected by the Water and Sewer Funds are required by State statue to be used for debt service and are transferred to the Debt Service Fund. The transfers from the General Fund to the Water and Sewer Funds were determined during the budget process. Transfers from the Debt Service Fund to Plum Valley Heights relate to debt service payments.

NOTE 4 - CAPITAL ASSETS

	Balance 12/31/21	Additions	Deletions	Balance 12/31/22
Governmental-Type Activities				
Capital assets, not being depreciated:				
Easements	$ 18,440	$ 0	$ 0	$ 18,440
Capital assets, being depreciated:				
Infrastructure	6,074,963	0	0	6,074,963
Furniture and equipment	131,432	51,905	0	183,337
Total being depreciated	6,206,395	51,905	0	6,258,300
Less accumulated depreciation:	(921,117)	(218,039)	0	(1,139,156)
Total being depreciated, net	5,285,278	(166,134)	0	5,119,144
Governmental-Type Activities Capital Assets, Net	$ 5,303,718	$ (166,134)	$ 0	$ 5,137,584

NOTE 4 - CAPITAL ASSETS (CONTINUED)

	Balance 12/31/21	Additions	Deletions	Balance 12/31/22
Business-Type Activities				
Capital assets, not being depreciated:				
Land	$ 204,511	$ 0	$ 0	$ 204,511
Tap fees	29,883,804	0	0	29,883,804
Water rights	4,252,360	0	0	4,252,360
Construction in progress	0	2,765,767	0	2,765,767
Total not being depreciated	34,340,675	2,765,767	0	37,106,442
Capital assets, being depreciated:				
Land improvements	5,514	0	0	5,514
Collections and distribution	100,126,202	3,386,047	0	103,512,249
Vehicles and equipment	696,730	107,627	0	804,357
Total being depreciated	100,828,446	3,493,674	0	104,322,120
Less accumulated depreciation:				
Land improvements	(5,514)	0	0	(5,514)
Collections and distribution	(31,521,462)	(2,627,451)	0	(34,148,913)
Vehicles and equipment	(639,462)	(41,932)	0	(681,394)
Total accumulated depreciation	(32,166,438)	(2,669,383)	0	(34,835,821)
Total capital assets, being depreciated, net	68,662,008	824,291	0	69,486,299
Business-Type Activities Capital Assets, Net	$ 103,002,683	$ 3,590,058	$ 0	$ 106,592,741

Depreciation expense was charged to programs of the District as follows during the year ended December 31, 2022:

Governmental activities	
General Government	$ 218,039
Business-type activities	
Water	$ 1,854,511
Sewer	814,872
Total	$ 2,669,383

NOTE 5 - LONG-TERM DEBT

Governmental Activities

Following is a summary of long-term debt transactions of the governmental activities for the year ended December 31, 2022:

	Balance 12/31/21	Additions	Payments	Balance 12/31/22	Due Within One Year
Governmental-Type Activities:					
2005 CWRPDA Loan	$ 2,875,000	$ 0	$ 535,000	$ 2,340,000	$ 545,000
Loan Premium	93,076	0	23,133	69,943	0
2014 CWCB Loan	15,649,931	0	468,020	15,181,911	483,231
2015 CWCB-Raw Water Loan	2,052,005	0	52,860	1,999,145	54,473
2015 CWRPDA Loan	3,827,302	0	231,031	3,596,271	233,235
2019 CWCB Loan	1,427,742	0	37,451	1,390,291	38,631
Compensated absences	20,712	5,616	19,382	6,946	1,158
Total	$25,945,768	$ 5,616	$ 1,366,877	$24,584,507	$1,355,728

Compensated absences are expected to be liquidated primarily with revenues of the General Fund.

2005 Clean Water Revenue Bonds were issued by the Colorado Water Resources and Power Development Authority and proceeds were loaned to the District to finance a sewer pipeline and two pump stations. Principal and interest payments are due semi-annually on February 1 and August 1, through 2026. Interest accrues at the rate of 3.35% per annum.

2014 Colorado Water Conservation Board Note was entered into in November 2014. The loan proceeds were used to purchase a permanent water supply from the City of Aurora by the enterprise funds. Principal and interest payments are due annually on December 1 through 2044. Interest accrues at the rate of 3.25% per annum.

During 2015, the District entered into a loan agreement with the Colorado Water Conservation Board for the Raw Water Supply Project to obtain a renewable subdistrict water supply and allow customers to discontinue their current use of private wells and non-renewable water. The total loan amount is $2,248,260 payable over 30 years at an interest rate of 3.05%. Interest and loan fees are due when the project is completed. The loan matures February 2047.

2015 Clean Water Revenue Bonds were issued by the Colorado Water Resources and Power Development Authority and proceeds were loaned to the District to finance the Plum Valley Heights water pipeline. Principal and interest payments are due semi-annually on February 1 and August 1, through 2036. Interest accrues at the rate of 2.07% per annum.

NOTE 5 - LONG-TERM DEBT (CONTINUED)

2019 Colorado Water Conservation Board Note was entered into in January 2019. The loan proceeds received were used for the Ravenna development interconnect. Principal and interest payments are due annually on February 1 through 2047. Interest accrues at the rate of 3.15% per annum.

Future payments for the outstanding debt, which has a maturity schedule, are as follows:

Year Ended December 31,	Principal	Interest	Total
2023	$ 1,354,570	$ 811,127	$ 2,165,697
2024	1,391,092	716,811	2,107,903
2025	1,448,217	720,276	2,168,493
2026	1,510,953	653,396	2,164,349
2027	895,802	584,810	1,480,612
2028-2032	4,869,465	2,536,357	7,405,822
2033-2037	5,363,557	1,726,182	7,089,739
2038-2042	4,947,697	924,877	5,872,574
2043-2047	2,726,265	170,146	2,896,411
Total	$24,507,618	$ 8,843,982	$33,351,600

Business-Type Activities

Following are the long-term debt transactions of the business-type activities for the year ended December 31, 2022:

	Balance 12/31/21	Additions	Payments	Balance 12/31/22	Due Within One Year
Business-Type Activities					
Accrued compensated absences	$ 82,848	$ 77,830	$ 49,954	$ 110,724	$ 18,450

NOTE 6 - PUBLIC ENTITY RISK POOL

The District is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees; and natural disasters. For these risks of loss, the District is a member of the Colorado Special Districts Property and Liability Pool (the Pool). The Pool is an organization created by intergovernmental agreement to provide property, liability, public officials' liability, boiler and machinery and workers compensation coverage to its members. The District pays annual premiums to the Pool for liability, property, and public officials' liability coverage.

NOTE 6 - PUBLIC ENTITY RISK POOL (CONTINUED)

In the event aggregated losses incurred by the Pool exceeded amounts recoverable from reinsurance contracts and funds accumulated by the Pool, the Pool may require additional contributions from the Pool members. Any excess funds which the Pool determines are not needed for purposes of the Pool may be returned to the members pursuant to a distribution formula.

The purposes of the Pool are to provide members defined liability, property, and workers compensation coverages and to assist members in preventing and reducing losses and injuries to property and to persons or property which might result in claims being made against members of the Pool, their employees and officers.

It is the intent of the members of the Pool to create an entity in perpetuity which will administer and use funds contributed by the members to defend and indemnify, in accordance with the bylaws, any member of the Pool against stated liability of loss, to the limit of the financial resources of the Pool.

It is also the intent of the members to have the Pool provide continuing stability and availability of needed coverages at reasonable costs. All income and assets of the Pool shall be at all times dedicated to the exclusive benefit of its members. The Pool is a separate legal entity and the District does not approve budgets nor does it have the ability to significantly affect the operations of the Pool. Settled claims have not exceeded coverage in any of the past three fiscal years.

NOTE 7 - RETIREMENT COMMITMENTS

Profit Sharing Plan

The District has established a profit sharing pension plan on behalf of all District employees. The contribution requirements of plan participants and the District are established and may be amended by the Board of Directors. All employees are eligible to participate in the plan upon employment, and become fully vested after five years of service. Forfeitures are used to offset current contributions. There were no forfeitures during 2022.

The District may contribute up to 15% of each participating employee's compensation. During the year ended December 31, 2022, the District contributed $148,137 to the Plan. All contributions are deposited to the individual employee's self-directed accounts and the District has no further fiduciary responsibility for the plan assets.

NOTE 7 - RETIREMENT COMMITMENTS (CONTINUED)

Deferred Compensation Plan

The District offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The plan is available to all District employees and permits them to defer a portion of their salary until future years. All plan investments are held in trust for the exclusive benefit of the employees. The deferred compensation is not available to employees until termination, retirement, death, or unforeseeable emergency.

NOTE 8 - COMMITMENTS AND CONTINGENCIES

Tabor Amendment

Colorado voters passed an amendment to the State Constitution, Article X, Section 20 (the "Amendment") which has several limitations, including revenue raising, spending abilities, and other specific requirements of state and local government. The Amendment is complex and subject to judicial interpretation. The District believes it is in compliance with the requirements of the Amendment.

In November 2001, the District electors allowed the District to spend the full proceeds of any taxes, fees, charges, grants, rates, tolls or any other revenues collected in fiscal year 2000 and in all subsequent fiscal years without regard to any limitation contained in the Amendment. In November 2014, the Subdistrict electors also allowed Plum Valley Heights to spend the full proceeds of any taxes, fees, charges, grants, rates, tolls or any other revenues collected in fiscal year 2014 and in all subsequent fiscal years without regard to any limitation contained in the Amendment.

The District has established an emergency reserve, representing 3% of qualifying expenditures, as required by the Amendment. At December 31, 2022, the emergency reserve of $58,255 was reported as a restriction of fund balances and in the government wide statements.

Other Commitments and Contingencies

The District has entered into a contract to purchase sewer treatment services from the City of Littleton, Colorado. This City is treating all wastewater of the District. The contract is irrevocable by the District as long as bonds to finance the City's treatment plant are still outstanding.

NOTE 8 - COMMITMENTS AND CONTINGENCIES (CONTINUED)

Other Commitments and Contingencies (continued)

During 2020, the District entered into an intergovernmental agreement (IGA) with Dominion Water and Sanitation District (Dominion) for the temporary use of and acquisition of capacity in the District's wastewater conveyance system. Pursuant to the IGA, Dominion is required to pay the District (1) an annual payment of $150,000 and up to $400,000 dependent on the number of Dominion equivalent residential unit (EQR) connections, (2) an operations fee of twenty dollars per month per EQR connection, and (3) an annual capital improvements fee of $1,000,000 through the year ended December 31, 2021 and an additional $1,000,000 depending on the number of EQR connections, up to a total of $5,000,000. During the year ended December 31, 2022, Dominion paid the District $1,000,000 in capital improvements fees. Total capital improvement payments received since inception of the IGA through December 31, 2022 was $2,000,000 and is included in unearned revenue until the District incurs construction costs pursuant to the IGA. During the year ended December 31, 2022, the District recognized Dominion revenue of $200,000, which is included in accounts receivable as of December 31, 2022. The IGA is effective until December 31, 2028.

NOTE 9 - SUBSEQUENT EVENT

Effective in March 2023, the District entered into an agreement with Castle Rock Water Enterprise for the sale of easement, water rights, storage capacity, and other infrastructure for a purchase price of $2,273,000.

REQUIRED SUPPLEMENTARY INFORMATION

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE
GENERAL FUND
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
Property taxes	$ 1,790,437	$ 1,764,610	$ (25,827)
Specific ownership taxes	120,000	142,651	22,651
Investment income	750	34,565	33,815
Miscellaneous income	1,000	0	(1,000)
Total Revenues	1,912,187	1,941,826	29,639
Expenditures			
Salaries and benefits	110,000	113,118	(3,118)
Accounting and audit	60,000	59,982	18
Contract labor	20,000	5,310	14,690
Director fees	8,000	8,000	0
Election Expense	30,000	27,303	2,697
Education	30,000	12,301	17,699
Engineering	50,000	32,839	17,161
Insurance	30,000	24,104	5,896
Legal fees	30,000	20,727	9,273
Miscellaneous	20,000	12,808	7,192
Office expense	40,000	42,259	(2,259)
Permits, dues and subscriptions	5,000	25,775	(20,775)
Rent	5,000	2,694	2,306
Repairs and maintenance	100,000	2,259	97,741
Treasurer fees	20,000	26,457	(6,457)
Utilities	5,000	1,756	3,244
Vehicle expense	6,000	2,149	3,851
Bank Charges	0	1,528	(1,528)
Capital outlay	12,000	51,905	(39,905)
Total Expenditures	581,000	473,274	107,726
Excess of Revenues Over Expenditures	1,331,187	1,468,552	137,365
Other Financing Sources (Uses)			
Transfers out	(700,000)	(700,000)	0
Net Change in Fund Balances	$ 631,187	768,552	$ 137,365
Fund Balances, Beginning		1,722,045	
Fund Balances, Ending		$ 2,490,597	

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE
PLUM VALLEY HEIGHTS
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
Property taxes	$ 451,429	$ 451,205	$ (224)
Specific ownership taxes	50,000	41,079	(8,921)
Investment income	85	4,630	4,545
Total Revenues	501,514	496,914	(4,600)
Expenditures			
Accounting and audit	12,000	12,000	0
Bank service charges	0	300	(300)
Education	1,000	0	1,000
Engineering	2,500	0	2,500
Legal fees	1,000	1,296	(296)
Treasurer fees	9,000	6,761	2,239
Debt Service			
Principal	283,891	283,891	0
Interest	135,473	135,471	2
Total Expenditures	444,864	439,719	5,145
Excess of Revenues Over (Under) Expenditures	56,650	57,195	545
Net Change in Fund Balances	$ 56,650	57,195	$ 545
Fund Balances, Beginning		371,134	
Fund Balances, Ending		$ 428,329	

NOTE 1 - STEWARDSHIP, COMPLIANCE, AND ACCOUNTABILITY

Budgets

Budgets are legally adopted for all funds of the District. Budgets for the General and Debt Service Funds, Capital Projects, and Plum Valley Heights are adopted on a basis consistent with generally accepted accounting principles (GAAP). Budgetary comparisons for the proprietary funds are presented on a non-GAAP budgetary basis. Capital outlay and debt principal are budgeted as expenditures, and depreciation is not budgeted.

The District follows these procedures in establishing the budgetary data reflected in the financial statements.

- In October, District management submits to the Board of Directors a proposed operating budget for the fiscal year commencing the following January 1. The operating budget includes proposed expenditures and the means of financing them.
- Public hearings are conducted in November to obtain taxpayer comments.
- Prior to December 31, the budget is legally enacted through passage of a resolution.
- District management is authorized to transfer budgeted amounts between departments within any fund. However, any revisions that alter the total expenditures of any fund must be approved by the Board of Directors.
- All appropriations lapse at year end. Colorado governments may not exceed budgeted appropriations at the fund level.

INDIVIDUAL FUND FINANCIAL STATEMENTS AND SCHEDULES

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE
CAPITAL PROJECTS FUND
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
System capacity improvements	$ 0	$ 0	$ 0
Total Revenues	0	0	0
Expenditures			
Capital Outlay	2,360,000	0	2,360,000
Total Expenditures	2,360,000	0	2,360,000
Excess of Revenues Over Expenditures	(2,360,000)	0	2,360,000
Other Financing Sources (Uses)			
Transfers in	2,360,000	1,140,000	(1,220,000)
Transfers out	0	(1,682,232)	(1,682,232)
Total other financing sources	2,360,000	(542,232)	(2,902,232)
Net Change in Fund Balances	$ 0	(542,232)	$ (542,232)
Fund Balances, Beginning		543,316	
Fund Balances, Ending		$ 1,084	

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE
DEBT SERVICE FUND
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
Property taxes	$ 836,383	$ 869,798	$ 33,415
Specific ownership taxes	80,000	70,314	(9,686)
Investment income	30,000	10,378	(19,622)
Total Revenues	946,383	950,490	4,107
Expenditures			
Treasurers fees	15,000	13,041	1,959
Debt Service			
Principal	949,973	1,040,471	(90,498)
Interest	795,678	644,558	151,120
Total Expenditures	1,760,651	1,698,070	62,581
Excess of Revenues Over (Under) Expenditures	(814,268)	(747,580)	66,688
Other Financing Sources (Uses)			
Transfers in	1,252,000	1,242,198	(9,802)
Total other financing sources (uses)	1,252,000	1,242,198	(9,802)
Net Change in Fund Balances	$ 437,732	494,618	$ 56,886
Fund Balances, Beginning		6,461,469	
Fund Balances, Ending		$ 6,956,087	

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE NON GAAP BASIS
WATER FUND
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
Charges for services	$ 3,200,000	$ 4,833,993	$ 1,633,993
Permit fees	1,200	23,925	22,725
Other water sales	330,000	553,928	223,928
Miscellaneous	77,200	58,298	(18,902)
Capital charges	1,116,808	1,261,830	145,022
Dominion distribution operations	600,000	806,148	206,148
Inclusion fees	100,000	68,557	(31,443)
Reimbursements	20,000	86,756	66,756
System development charges	525,000	421,745	(103,255)
Investment income	50,000	150,539	100,539
Availability charges	120,000	92,060	(27,940)
Transfers in	500,000	5,632,977	5,132,977
Total Revenues	6,640,208	13,990,756	7,350,548
Expenditures			
Accounting and audit	65,000	59,371	5,629
Permits, dues and subscriptions	8,000	10,559	(2,559)
Contract labor	55,000	37,501	17,499
Education	30,000	18,639	11,361
Engineering	250,000	260,238	(10,238)
GPS/GIS	25,000	25,048	(48)
Insurance	40,000	48,208	(8,208)
Lab and test fees	29,000	14,074	14,926
Legal fees	75,000	33,462	41,538
Meter expense	125,000	225,841	(100,841)
Miscellaneous	20,000	7,661	12,339
Office expense	40,000	24,201	15,799
Operating supplies	124,000	153,873	(29,873)
Payroll, taxes and benefits	990,000	992,619	(2,619)
Repairs and maintenance	450,000	420,128	29,872
Safety Equipment	7,000	0	7,000
Utilities	265,000	342,809	(77,809)
Vehicle expense	22,000	6,409	15,591
Dominion	80,000	0	80,000
Water cost	1,630,000	1,968,038	(338,038)
Capital outlay	5,685,000	5,670,531	14,469
Conservation rebates	2,500	1,225	1,275
Water rights capital	100,000	4,618	95,382
Transfers out	2,956,808	5,805,260	(2,848,452)
Total Expenditures	13,074,308	16,130,313	(3,056,005)
Change in Net Position, Budgetary Basis	$ (6,434,100)	(2,139,557)	$ 10,406,553

See the accompanying Independent Auditors' Report.

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE NON GAAP BASIS
WATER FUND (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2022

Reconciliation to GAAP Basis	
Capital outlay	$ 5,670,531
Depreciation	(1,854,511)
Change in net position, GAAP Basis	1,676,463
Net position, beginning	95,200,289
Net position, ending	$ 96,876,752

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE NON GAAP BASIS
SEWER FUND
FOR THE YEAR ENDED DECEMBER 31, 2022

	Original and Final Budget	Actual	Variance Positive (Negative)
Revenues			
Charges for services	$ 1,600,000	$ 1,891,619	$ 291,619
Charges for services-Lockheed Martin Agreement	300,000	343,326	43,326
Dominion capital lease O-line	200,000	200,000	-
Dominion sewer conveyance	0	387,940	387,940
Permit fees	5,000	23,925	18,925
Miscellaneous income (loss)	30,000	(48,948)	(78,948)
Investment income	50,000	148,795	98,795
Availability charges	40,000	30,398	(9,602)
System development charges	50,000	334,873	284,873
Dominion sewer services	290,000	245,237	(44,763)
Capital - surcharges	100,000	157,716	57,716
Transfer in	200,000	202,905	2,905
Total Revenues	2,865,000	3,917,786	1,052,786
Expenditures			
Accounting and audit	30,000	30,875	(875)
Contract labor	40,000	36,523	3,477
Dominion expense	50,000	0	50,000
Education	30,000	18,280	11,720
Engineering	100,000	86,354	13,646
GPS/GIS	50,000	19,660	30,340
Insurance	28,000	24,110	3,890
Lab and test fees	1,000	918	82
Legal fees	35,000	11,969	23,031
Miscellaneous	8,000	5,853	2,147
Littleton service fees	950,000	1,062,878	(112,878)
Office expense	20,000	13,673	6,327
Operating supplies	80,000	129,452	(49,452)
Permits, dues and subscriptions	3,000	2,763	237
Payroll, taxes and benefits	325,000	438,297	(113,297)
Repairs and maintenance	200,000	252,249	(52,249)
Safety Equipment	2,000	0	2,000
Utilities	110,000	104,530	5,470
Vehicle expense	8,000	3,040	4,960
Capital outlay	2,000,000	573,369	1,426,631
Transfer out	600,000	30,588	569,412
Total Expenditures	4,670,000	2,845,381	1,824,619
Change in Net Position, Budgetary Basis	$ (1,805,000)	1,072,405	$ 2,877,405

See the accompanying Independent Auditors' Report.

ROXBOROUGH WATER AND SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE NON GAAP BASIS
SEWER FUND (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2022

Reconciliation to GAAP Basis		
Capital outlay	$	573,369
Depreciation		(814,872)
Change in net position, GAAP Basis		830,902
Net position, beginning		28,170,993
Net position, ending	$	29,001,895

MINUTES OF THE REGULAR MEETING
OF THE BOARD OF DIRECTORS OF THE ROXBOROUGH WATER AND SANITATION DISTRICT AND THE BOARD OF DIRECTORS OF THE PLUM VALLEY HEIGHTS SUBDISTRICT OF ROXBOROUGH WATER AND SANITATION DISTRICT HELD
May 17, 2023

A regular meeting of the Board of Directors of the Roxborough Water and Sanitation District and the Board of Directors of the Plum Valley Heights Subdistrict was held on May 17, 2022, at 8:00 a.m. The meeting was conducted in person and via Zoom meeting. Notice of the meeting and the Zoom ID and Password were duly posted at the District's Administrative Offices and on the District's website, as required by State law.

ATTENDANCE:

Directors:	Christine Thomas	President
	Dave Bane	Vice President
	Keith Lehmann	Secretary
	John Kim	Treasurer
	Loren McFall	Assistant Secretary
Consultants:	Bill Goetz, TST Infrastructure, LLC	
	Ted Snailum, TWS Financial	
	Alan Pogue, Icenogle Seaver Pogue, PC (via zoom)	
	Kim Seter, Attorney for Ravenna Metro District	
RWSD Staff:	Barbara Biggs	
	Mike Marcum	
	Lisa Hoover	
	Lucie Taylor	
	Dorice Vidger	
Residents:	Stephen Throneberry (via zoom)	

CALL TO ORDER:
The meeting was called to order at 8:00a.m. by Director Bane, it was established that a quorum was in attendance and there were no conflicts of interest to disclose.

I. Election of Officers – Dave Bane, as a newly re-elected Director, and Loren McFall, as a newly elected Director, took the Oath of Office before a notary public in advance of the meeting. Director Bane opened the floor for nomination of officers. Upon a motion by Director McFall, second by Director Lehman, and unanimous vote, the Board approved the following officers:

Christine Thomas, President
Dave Bane, Vice President
John Kim, Treasurer
Keith Lehman, Secretary
Loren McFall, Assistant Secretary

II. Public Comment on items not on Agenda. There was no public comment on items not on the Agenda.

III. **Board Action Items:**

a. Upon a motion by Director Bane, second by Director Lehmann, and unanimous vote, the Board approved Amendment 2 to the Ravenna Inclusion Agreement and authorized the General Manager to execute it.

b. Upon a motion by Director Bane, second by Director Lehmann, and unanimous vote, the Board approved the Encroachment Agreement with Ravenna Metro District and River Canyon Real Estate Investments, LLC., and authorized the General Manager to execute it.

PLUM VALLEY HEIGHTS SUBDISTRICT:
Upon a motion by Director Lehmann, second by Director Bane, and unanimous vote, the Board convened as the Board of the Plum Valley Heights Subdistrict of Roxborough Water and Sanitation District.

CONSENT AGENDA:
Upon a motion by Director Bane, second by Director Lehmann, and unanimous vote, the Board approved

the Consent Agenda which consisted of:

a. Approved the Minutes of the Regular Meeting of the PVH Subdistrict which are contained in and part of the Minutes of the Roxborough Water & Sanitation District Minutes for the Regular Meeting on April 19, 2023.

GENERAL MANAGER'S REPORT:
Ms. Biggs provided a report on recent activities in the Plum Valley Heights Subdistrict. A copy of Ms. Biggs' report is attached to these minutes.

FINANCIAL PVH:
Ted Snailum of TWS Financial presented the March 2023 Financial Recap for Plum Valley Heights. Upon a motion from Director Bane, second by Director Lehman, and unanimous vote, the Board approved the March 2023 financial reports for Plum Valley Heights.

ADJOURN AS THE PVH SUBDISTRICT OF RWSD AND RECONVENE AS THE ROXBOROUGH WATER AND SANITATION DISTRICT BOARD:
Upon a motion by Director Bane, second by Director Lehman, and unanimous vote, the Board adjourned as the Subdistrict Board and reconvened as the Roxborough Water and Sanitation District Board (RWSD).

CONSENT AGENDA:
Upon a motion from Director Lehmann, second by Director Thomas, and unanimous vote, the Board approved the Consent Agenda which consisted of:

Consent Agenda

a. Approved the Minutes of the Regular Meeting of the RWSD Board on April 19, 2023.
b. Ratified Payrolls for April 30 and May 15
c. Ratified Payments since April 19, 2023: Checks – 102493-102528, 102530-102533
d. Approved Payments of Claims: Checks – 102529, 102534-102570
e. Approved Pay App #15 for the WTP HSP Serving DWSD in the amount of $74,612.08
f. Approved Pay App #12 for the Rampart Range Road Transmission Main Replacement Project in the amount of $10,450.00
g. Approved Change Order #7 for the Rampart Range Road Transmission Main Replacement Project for $0.00 and 35 days

GENERAL MANAGER'S REPORT:
Ms. Biggs provided the General Manager's Report. A copy of Ms. Biggs' report is attached to these minutes.

LEGAL COUNSEL REPORT:
Mr. Pogue reported on a few legislative initiatives. He will provide detailed legislative report at a future meeting.

OPERATIONS:
Mr. Marcum provided the Operations Report, and a copy is attached to these minutes.

ENGINEERING:
Mr. Goetz, of TST Infrastructure, provided the engineering status report to the Board. A copy of Mr. Goetz's report is attached to these minutes.

FINANCIAL RWSD:
Ted Snailum, of TWS Financial, presented the March 2023 RWSD Financial Statements to the Board. Upon a motion by Director McFall, second by Director Bane, and unanimous vote by the Board, the March 2023 financial reports were approved.

ADJOURN:
Upon a motion by Director Bane, second by Director Lehman, and unanimous vote, the meeting was adjourned at 9:16 a.m.

Secretary of the meeting: _____

General Manager's Report

Plum Valley Heights Subdistrict of Roxborough Water and Sanitation District

June 21, 2023

Valley View Christian Church:

- We received the permanent and temporary construction easements from the Chatfield East Property Owners Association (POA).
- We prepared a summary of the anticipated work on the two private lots and the District's specifications for revegetation, but I believe on-site meetings with both property owners will be necessary.
- We are still working through issues concerning fire protection with the church representatives and South Metro Fire Rescue. District staff and TST have a meeting with representatives of the church and South Metro Fire and Rescue to discuss South Metro's comments on the proposed fire protection.

Titan Road Industrial Park:

- Construction continues on the luxury cardominiums.

McMakin Property:

- Nothing new to report.

Centennial Water and Sanitation District (CWSD) Agreement

- At the beginning of each month, CWSD notifies RWSD of the water use in the Subdistrict, and RWSD works with Aurora to make the releases to CWSD to replace that water. For May, CWSD hasn't been able to accept the replacement water due to a lack of storage in all its water storage facilities.
- We were also notified by CWSD that someone accessed one of the master meters and turned the power off. The Operations team did a site visit and will add locks to prevent future tampering.

Roxborough Water and Sanitation - PVH
Financial Recap
April 30, 2023

General Fund

1. Property taxes collected for the month total $ 55,178
2. Specific ownership taxes collected for the month total $ 3,630
3. Paid $ 1000 for monthly accounting fees.

ROXBOROUGH WATER AND SANITATION DISTRICT

The Roxborough Water & Sanitation District and Plum Valley Heights Subdistrict of the Roxborough Water & Sanitation District Regular Board meeting will be held in the Community Room at the West Metro Fire Station #15 located at 6222 N Roxborough Park Rd, Littleton, CO 80125

This meeting can also be accessed via video conference at **ZOOM Meeting ID 874 5981 8759**

Password: 694389

Date: Wednesday, June 21, 2023
Time 8:00 am

Board of Directors	**Term Expiration**
Christine Thomas, President	5/2025
Dave Bane, Vice President	5/2027
John Kim, Treasurer	5/2025
Keith Lehman, Secretary	5/2025
Loren McFall, Assistant Secretary	5/2027

I. Call to Order as the Roxborough Water and Sanitation District (RWSD) Board of Directors regular meeting.
II. Declaration of Quorum/Disclosure of Conflicts of Interest
III. Public Comment on items not on Agenda
IV. Presentation of the 2022 Audit by Jason Adams of The Adams Group

CONVENE AS THE BOARD OF THE PLUM VALLEY HEIGHTS (PVH) SUBDISTRICT OF THE RWSD

V. Consent Agenda
- a. Approve the Minutes of the Regular Meeting of the PVH Subdistrict which are contained in and part of the Minutes of the Roxborough Water & Sanitation District Minutes for the Regular Meeting on May 17, 2023.

VI. Staff Reports
- a. General Manager's Report
- b. Financial Reports

VII. **Board Action Items**
- a. **Approve the 2022 Audit as presented by The Adams Group**

ADJOURN AS THE PVH SUBDISTRICT OF RWSD AND CONVENE AS THE RWSD BOARD

VIII. Consent Agenda
- a. Approve the Minutes of the Regular Meeting of the RWSD Board on May 17, 2023.
- b. Ratify Payrolls for May 31 and June 15
- c. Ratify Payments since May 17, 2023: Checks –
- d. Approve Payments of Claims: Checks –
- e. Approve Pay App #16 for the WTP HSP Serving DWSD in the amount of $125,196.12
- f. Approve Change Order #8 for the Rampart Range Road Transmission Main Replacement Project for $0.00 and 28 days

IX. Staff Reports
- a. General Manager's Report
- b Legal Counsel Report
- c. Operation Director's Report
- d. Engineering Report/Water Use Graphs
- e. Financial Report

X. **Board Action Items:**
- **a. Approve the 2022 Audit as presented by The Adams Group**
- **b. Consideration of Amended and Restated Rules and Regulations**

XI. **Adjourn**

Contractor's Application for Payment No. 16

	Application Period: 5-1-2023 to 5-31-2023	Application Date: 5/31/2023
To (Owner): Roxborough Water and Sanitation District	From (Contractor): Moltz Construction Inc.	Via (Engineer): TST Infrastructure, LLC
Project: WTP High Service Pump Addition Serving DWSD	Contract: WTP High Service Pump Addition Serving DWSD	
Owner's Contract No.: n/a	Contractor's Project No.: 21-70	Engineer's Project No.: 001.383.02

Application For Payment
Change Order Summary

Approved Change Orders

Number	Additions	Deductions
No. 1-2	$49,163.22	
No. 3	$17,580.00	
No. A.1-A.2	$339,338.07	
No. B.1	$49,735.00	
No. A.3	$1,171,676.00	
TOTALS	$1,627,492.29	
NET CHANGE BY CHANGE ORDERS	**$1,627,492.29**	

1. **ORIGINAL CONTRACT PRICE**	$	**$474,145.00**
2. **Net change by Change Orders**	$	**$1,627,492.29**
3. **Current Contract Price (Line 1 ± 2)**	$	**$2,101,637.29**
4. **TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)**	$	**$2,084,767.53**
5. **RETAINAGE:**		
a. 5% X $2,084,767.53 **Work Completed**	$	**$104,238.38**
b. 5% X **Stored Material**	$	
c. **Total Retainage (Line 5.a + Line 5.b)**	$	**$104,238.38**
6. **AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)**	$	**$1,980,529.15**
7. **LESS PREVIOUS PAYMENTS (Line 6 from prior Application)**	$	**$1,855,333.03**
8. **AMOUNT DUE THIS APPLICATION**	$	**$125,196.12**
9. **BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)**	$	**$121,108.14**

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By: Adam Duran	Date: 5/31/2023

Payment of: $ 125,196.12
(Line 8 or other - attach explanation of the other amount)

is recommended by: DocuSigned by: AB35BE8777B24A9... June 9, 2023 | 8:25:18 A
(Date)

Payment of: $ 125,196.12
(Line 8 or other - attach explanation of the other amount)

is approved by: DocuSigned by: 1A8855CAD7E241B... (Owner) June 9, 2023 | 10:09:49
(Date)

Approved by: _____ _____
Funding or Financing Entity (if applicable) (Date)

Progress Estimate **Contractor's Application**

For (Contract):	WTP High Service Pump Addition Serving DWSD	Application Number:	16
Application Period:	5-1-2023 - 5-31-2023	Application Date:	5/31/2023

A		B		C		D		(C + D)		E				F		G
Item		Contract Information				Work Completed				Stored Materials (Not in C or D)			Total Completed and Stored This Period (D + E)	Total Completed and Stored to Date	%	Balance to Finish
Item No.	Description	Item Quantity	Units	Unit Price	Bid Item Value ($)	Quantity Installed Prev. Period	Quantity Value Prev. Period	Quantity Installed This Period	Quantity Value This Period	Total Esimtaed Quantity	Value of Work Installed to Date	From Prev Period	This Period	Total Stored Materials		(C + D + E)	(F / B)	(B - F)
1	015000 Mobilization and Equipment	1	LS	8,440.00	$8,440.00	1	$8,440.00			1	$8,440.00					$8,440.00	100.0%	
2	015000 Pre-Construction and Engineering Management	1	LS	8,550.00	$8,550.00	1	$8,550.00			1	$8,550.00					$8,550.00	100.0%	
3	015000 Project Management and Supervision	1	LS	8,920.00	$8,920.00	0.95	$8,474.00	0.05	$446.00	1	$8,920.00				$446.00	$8,920.00	100.0%	
4	015000 General Requirements and Safety	1	LS	8,285.00	$8,285.00	1	$8,285.00			1	$8,285.00					$8,285.00	100.0%	
5	015000 Bonds and Insurance	1	LS	7,190.00	$7,190.00	1	$7,190.00			1	$7,190.00					$7,190.00	100.0%	
6	024100 Pipe Demolition	1	LS	5,376.00	$5,376.00	1	$5,376.00			1	$5,376.00					$5,376.00	100.0%	
7	024100 Scaffold, GPR, Pick Points for Demolition/ Install	1	LS	5,837.00	$5,837.00	1	$5,837.00			1	$5,837.00					$5,837.00	100.0%	
8	024100 P3 - 2x4 Protective Stud Wall, plywood sheeting, w/3 access d	1	LS	3,210.00	$3,210.00	1	$3,210.00			1	$3,210.00					$3,210.00	100.0%	
9	024100 Remove/ Relocate HSP0605-Piping, Valves and Instruments	1	LS	4,495.00	$4,495.00	1	$4,495.00			1	$4,495.00					$4,495.00	100.0%	
10	024100 Relocate Pump HSPS0605 WTG sub	1	LS	6,821.00	$6,821.00	1	$6,821.00			1	$6,821.00					$6,821.00	100.0%	
11	033000 Concrete Pipe Support @ 24" Tee P8	1	LS	1,199.00	$1,199.00	1	$1,199.00			1	$1,199.00					$1,199.00	100.0%	
12	033000 Equipment Pad Concrete (mci)- Electric Eq. Pads E2.0	1	LS	737.00	$737.00	1	$737.00			1	$737.00					$737.00	100.0%	
13	221123 Pipe and Conduit Paint / Pipe ID	1	LS	14,718.00	$14,718.00	1	$14,718.00			1	$14,718.00					$14,718.00	100.0%	
14	260000 Electrical, Instrumentation and Control - See Electrical SOV	1	LS	175,320.00	$175,320.00	0.95	$166,554.00	0.05	$8,766.00	1	$175,320.00				$8,766.00	$175,320.00	100.0%	
15	400506 Drawing P6 Modification Notes and ARV/Pump Drains	1	LS	6,434.00	$6,434.00	1	$6,434.00			1	$6,434.00					$6,434.00	100.0%	
16	400507 Supply Steel Pipe Support Package	1	LS	13,474.00	$13,474.00	1	$13,474.00			1	$13,474.00					$13,474.00	100.0%	
17	400507 Install Pipe Supports	1	LS	4,935.00	$4,935.00	1	$4,935.00			1	$4,935.00					$4,935.00	100.0%	
18	400556 Valve Procurement	1	LS	85,479.00	$85,479.00	1	$85,479.00			1	$85,479.00					$85,479.00	100.0%	
19	402323 Supply Steel Pipe Package	1	LS	70,886.00	$70,886.00	1	$70,886.00			1	$70,886.00					$70,886.00	100.0%	
20	402323 Install Steel Pipe, Valves and Fittings	1	LS	33,839.00	$33,839.00	1	$33,839.00			1	$33,839.00					$33,839.00	100.0%	
21																		
22																		
	Totals w/o Change Orders				**$474,145.00**		**$464,933.00**		**$9,212.00**		**$474,145.00**				**$9,212.00**	**$474,145.00**	**100.0%**	
	Original Contract Change Orders																	
	Change Order No. 1 Additional Steel Pipe	1	LS	45,424.00	$45,424.00	1	$45,424.00			1	$45,424.00					$45,424.00	100.0%	
	Change Order 2 Additional Caps	1	LS	3,739.22	$3,739.22	1	$3,739.22			1	$3,739.22					$3,739.22	100.0%	
	Change Order 3 Temporary VFD	1	LS	17,580.00	$17,580.00	1	$17,580.00			1	$17,580.00					$17,580.00	100.0%	
	Totals Original Contract Change Orders				**$66,743.22**		**$66,743.22**				**$66,743.22**					**$66,743.22**	**100.0%**	
	Change Orders A																	
	Change Order No. A.1 Bathroom Addition	1	LS	96,780.00	$96,780.00													
	CO A.1 General Conditions				$12,960.00	1	$12,960.00			1	$12,960.00					$12,960.00	100.0%	
	CO A.1 OHP, Labor Burden and B&I				$14,064.00	1	$14,064.00			1	$14,064.00					$14,064.00	100.0%	
	CO A.1 HM Door, Frame and Hardware				$2,816.00	1	$2,816.00			1	$2,816.00					$2,816.00	100.0%	
	CO A.1 Drywall, Insulation, Base (concrete curb), Signage				$5,498.00	1	$5,498.00			1	$5,498.00					$5,498.00	100.0%	
	CO A.1 Framing Materials and Labor				$8,119.00	1	$8,119.00			1	$8,119.00					$8,119.00	100.0%	
	CO A.1 Paint				$960.00	1	$960.00			1	$960.00					$960.00	100.0%	
	CO A.1 Accessories and Vanity				$2,714.00	1	$2,714.00			1	$2,714.00					$2,714.00	100.0%	
	CO A.1 Plumbing				$31,571.00	1	$31,571.00			1	$31,571.00					$31,571.00	100.0%	
	CO A.1 HVAC				$4,696.00	1	$4,696.00			1	$4,696.00					$4,696.00	100.0%	
	CO A.1 Fire Protection Sprinkler				$8,220.00	1	$8,220.00			1	$8,220.00					$8,220.00	100.0%	
	CO A.1 Electrical				$5,162.00	1	$5,162.00			1	$5,162.00					$5,162.00	100.0%	
	Totals A.1 Bathroom Addition				**$96,780.00**		**$96,780.00**				**$96,780.00**					**$96,780.00**	**100.0%**	
	Change Orders A.2																	
	Change Order No. A.2 Sodium Hypo Piping	1	LS	16,822.00	$16,822.00													
	CO A.2 General Conditions				$4,845.00	1	$4,845.00			1	$4,845.00					$4,845.00	100.0%	
	CO A.2 PVC Labor and Material				$10,591.00	1	$10,591.00			1	$10,591.00					$10,591.00	100.0%	
	CO A.2 Procure Circuit Breaker				$1,386.00	1	$1,386.00			1	$1,386.00					$1,386.00	100.0%	
	Totals A.2 Hypo Ppiping				**$16,822.00**		**$16,822.00**				**$16,822.00**					**$16,822.00**	**100.0%**	
	Change Order A.2 Sodium Hypo Electrical	1	LS	15,284.00	$15,284.00													
	CO A.2 Sodium Hypo MCI				$2,391.00	1	$2,391.00			1	$2,391.00					$2,391.00	100.0%	
	CO A.2 Sodium Hypo SVE				$12,893.00	1	$12,893.00			1	$12,893.00					$12,893.00	100.0%	
	Totals A.2 Hypo Electrical				**$15,284.00**		**$15,284.00**				**$15,284.00**					**$15,284.00**	**100.0%**	
	Change Order A.2 Waterton Access	1	LS	210,452.07	$210,452.07													
	CO A.2 Waterton Access GCs, Burden, OHP and Ins.				$82,054.07	0.95	$77,951.37	0.05	$4,102.70	1	$82,054.07				$4,102.70	$82,054.07	100.0%	
	CO A.2 Waterton Access Demolition				$4,452.00	1	$4,452.00			1	$4,452.00					$4,452.00	100.0%	
	CO A.2 Waterton Access Excavation and Backfill				$36,326.00	1	$36,326.00			1	$36,326.00					$36,326.00	100.0%	
	CO A.2 Waterton Access Seeding / GESC				$3,873.00	0.3	$1,161.90	0.7	$2,711.10	1	$3,873.00				$2,711.10	$3,873.00	100.0%	
	CO A.2 Waterton Access Electrical				$31,675.00	1	$31,675.00			1	$31,675.00					$31,675.00	100.0%	
	CO A.2 Waterton Access Asphalt Paving				$17,396.00	1	$17,396.00			1	$17,396.00					$17,396.00	100.0%	
	CO A.2 Waterton Access Concrete				$34,676.00	1	$34,676.00			1	$34,676.00					$34,676.00	100.0%	
	Totals A.2 Waterton Access				**$210,452.07**		**$203,638.27**		**$6,813.80**		**$210,452.07**				**$6,813.80**	**$210,452.07**	**100.0%**	
	Totals Change Orders A.2				**$242,558.07**		**$235,744.27**		**$6,813.80**		**$242,558.07**				**$6,813.80**	**$242,558.07**	**100.0%**	
	Change Orders A.3																	
	Change Order A.3 Backwash Pond Phase 2	1	LS	1,164,736.00	$1,164,736.00													
	CO A.3 Project Management/ Engineering/ Potholing/ GCs				$129,520.09	0.9	$116,568.08	0.1	$12,952.01	1	$129,520.09				$12,952.01	$129,520.09	100.0%	
	CO A.3 GESC / Grading				$71,502.36	1	$71,502.36			1	$71,502.36					$71,502.36	100.0%	
	CO A.3 Potable Water Yard				$88,813.32	1	$88,813.32			1	$88,813.32					$88,813.32	100.0%	
	CO A.3 Overflow and Manholes				$143,272.53	1	$143,272.53			1	$143,272.53					$143,272.53	100.0%	
	CO A.3 Backwash Return Yard				$26,929.04	1	$26,929.04			1	$26,929.04					$26,929.04	100.0%	
	CO A.3 Remove / Replace Fence				$9,710.04	1	$9,710.04			1	$9,710.04					$9,710.04	100.0%	
	CO A.3 Landscape and Irrigation				$36,420.70	0.2	$7,284.14	0.8	$29,136.56	1	$36,420.70				$29,136.56	$36,420.70	100.0%	
	CO A.3 Electrical Pad				$5,128.58	1	$5,128.58			1	$5,128.58					$5,128.58	100.0%	
	CO A.3 Pipe Bollards				$10,035.32	0.8	$8,028.26	0.2	$2,007.06	1	$10,035.32				$2,007.06	$10,035.32	100.0%	
	CO A.3 Submersible Pump and Acc				$41,211.36	1	$41,211.36			1	$41,211.36					$41,211.36	100.0%	
	CO A.3 MCI Site Electrical				$36,917.24	1	$36,917.24			1	$36,917.24					$36,917.24	100.0%	
	CO A.3 SVE Electrical Sub				$337,395.20	0.8	$269,916.16	0.15	$50,609.28	0.95	$320,525.44				$50,609.28	$320,525.44	95.0%	$16,869.76
	CO A.3 Paint				$17,559.22	0.65	$11,413.49	0.35	$6,145.73	1	$17,559.22				$6,145.73	$17,559.22	100.0%	
	CO A.3 Interior Overflow Piping and Supports				$109,069.00	0.98	$106,887.62	0.02	$2,181.38	1	$109,069.00				$2,181.38	$109,069.00	100.0%	
	CO A.3 Interior Backwash Piping and Supports				$51,399.54	1	$51,399.54			1	$51,399.54					$51,399.54	100.0%	
	CO A.3 Valves				$30,857.66	0.68	$20,983.21	0.32	$9,874.45	1	$30,857.66				$9,874.45	$30,857.66	100.0%	
	CO A.3 Sludge Mixing Pipe				$2,899.90			1	$2,899.90	1	$2,899.90				$2,899.90	$2,899.90	100.0%	
	CO A.3 6" Pond Drain				$16,094.90	1	$16,094.90			1	$16,094.90					$16,094.90	100.0%	
	Totals A.3 Backwash Pond Phase 2				**$1,164,736.00**		**$1,032,059.87**		**$115,806.37**		**$1,147,866.24**				**$115,806.37**	**$1,147,866.24**	**98.6%**	**$16,869.76**

Progress Estimate **Contractor's Application**

For (Contract):	WTP High Service Pump Addition Serving DWSD	Application Number:	16
Application Period:	5-1-2023 - 5-31-2023	Application Date:	5/31/2023

A					B	C		D		(C + D)	E				F		G
Item		Contract Information				Work Completed					Stored Materials (Not in C or D)				Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)
Item No.	Description	Item Quantity	Units	Unit Price	Bid Item Value ($)	Quantity Installed Prev. Period	Quantity Value Prev. Period	Quantity Installed This Period	Quantity Value This Period	Total Esimtaed Quantity	Value of Work Installed to Date	From Prev Period	This Period	Total Stored Materials			
	Change Order A.3 WCD #10 Bathroom Fire Alarm	1	LS	6,940.00	$6,940.00												
	Change Order A.3 WCD #10 Fire Alarm Electrical				$3,469.00	1	$3,469.00			1	$3,469.00					$3,469.00	100.0%	
	Change Order A.3 WCD #10 Fire Alarm Strobe and Permit				$3,471.00	1	$3,471.00			1	$3,471.00					$3,471.00	100.0%	
	Totals WCD #10 Bathroom Fire Alarm				**$6,940.00**		**$6,940.00**				**$6,940.00**					**$6,940.00**	**100.0%**	
	Totals Change Orders A.3				**$1,171,676.00**		**$1,038,999.87**		**$115,806.37**		**$1,154,806.24**				**$115,806.37**	**$1,154,806.24**		**$16,869.76**
	Totals Change Orders A				**$1,511,014.07**		**$1,371,524.14**		**$122,620.17**		**$1,494,144.31**				**$122,620.17**	**$1,494,144.31**	**98.9%**	**$16,869.76**
	Change Orders B																	
	Change Order No. B.1 Office Addition	1	LS	49,735.00	$49,735.00													
	CO B.1 General Conditions				$20,636.00	1	$20,636.00			1	$20,636.00					$20,636.00	100.0%	
	CO B.1 Demolition/ Remove/ Replace Ceiling Grid				$2,112.00	1	$2,112.00			1	$2,112.00					$2,112.00	100.0%	
	CO B.1 Storefront				$11,854.00	1	$11,854.00			1	$11,854.00					$11,854.00	100.0%	
	CO B.1 Framing Drywall Materials and Labor				$5,261.00	1	$5,261.00			1	$5,261.00					$5,261.00	100.0%	
	CO B.1 Base and Carpet Tile				$2,878.00	1	$2,878.00			1	$2,878.00					$2,878.00	100.0%	
	CO B.1 Paint				$420.00	1	$420.00			1	$420.00					$420.00	100.0%	
	CO B.1 Signage				$200.00	1	$200.00			1	$200.00					$200.00	100.0%	
	CO B.1 HVAC				$2,195.00	1	$2,195.00			1	$2,195.00					$2,195.00	100.0%	
	CO B.1 Electrical				$4,179.00	1	$4,179.00			1	$4,179.00					$4,179.00	100.0%	
	Totals Change Orders B				**$49,735.00**		**$49,735.00**				**$49,735.00**					**$49,735.00**	**100.0%**	
	Totals with Change Orders				**$2,101,637.29**		**$1,952,935.36**		**$131,832.17**		**$2,084,767.53**				**$131,832.17**	**$2,084,767.53**	**99.2%**	**$16,869.76**

TST

Change Order No. 8

Date of Issuance: 06/21/2023		Effective Date: 06/21/2023	
Owner:	Roxborough Water and Sanitation District	Owner's Contract No.:	N/A
Contractor:	American West Construction, LLC	Contractor's Project No.:	
Engineer:	TST Infrastructure, LLC	Engineer's Project No.:	001.379.03
Project:	Rampart Range Road Transmission Main Replacement	Contract Name:	Rampart Range Road Transmission Main Replacement

The Contract is modified as follows upon execution of this Change Order:

Description:

1.	Increase contract times by 28 days to provide sufficient time to complete the remaining full depth asphalt patch at the Village Circle East / West and Rampart Range Rd intersection as well as striping work once conflicts with Xcel's construction in the area are no longer present.	Add $0.00 Add 28 days to the date of Final Payment
	Total Change Order No. 8:	Add $0.00 Add 28 days to the date of Final Payment.

Attachments: *None*

TST

Change Order No. 8

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: $ 2,856,515.50	Original Contract Times: Milestone 1: 4/1/2022 Milestone 2: 8/26/2022 Substantial Completion: 11/6/2022 (270 days) Ready for Final Payment: 12/6/2022 (300 days) days or dates
Increase from previously approved Change Orders No. 1 to No. 7: $ 205,263.11	Increase from previously approved Change Orders No. 1 to No. 7: Milestone 1: N/A Milestone 2: 41 days Substantial Completion: 314 days Ready for Final Payment: 499 days days or dates
Contract Price prior to this Change Order: $ 3,061,778.61	Contract Times prior to this Change Order: Milestone 1: 4/1/2022 Milestone 2: 10/6/2022 Substantial Completion: 12/20/2022 (314 days) Ready for Final Payment: 6/23/2023 (499 days) days or dates
Increase of this Change Order: $ 0.00	Increase of this Change Order: Milestone 1: 0 days Milestone 2: 0 days Substantial Completion: 0 days Ready for Final Payment: 28 days days or dates
Contract Price incorporating this Change Order: $ 3,061,778.61	Contract Times with all approved Change Orders: Milestone 1: 4/1/2022 Milestone 2: 10/6/2022 Substantial Completion: 12/20/2022 (314 days) Ready for Final Payment: 7/21/2023 (527 days) days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: DocuSigned by: AB35BE9777B24A9...	By: DocuSigned by: 1A8855CAD7E241B...	By: DocuSigned by: 9633D45C3B824C3...
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: District Engineer	Title Director of Operations	Title Project Manager
Date: June 9, 2023 | 8:26:02 AM MDT	Date June 8, 2023 | 4:45:27 PM MDT	Date June 9, 2023 | 7:51:39 AM PDT

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

ROXBOROUGH WATER AND SANITATION DISTRICT

General Manager's Report
June 21, 2023

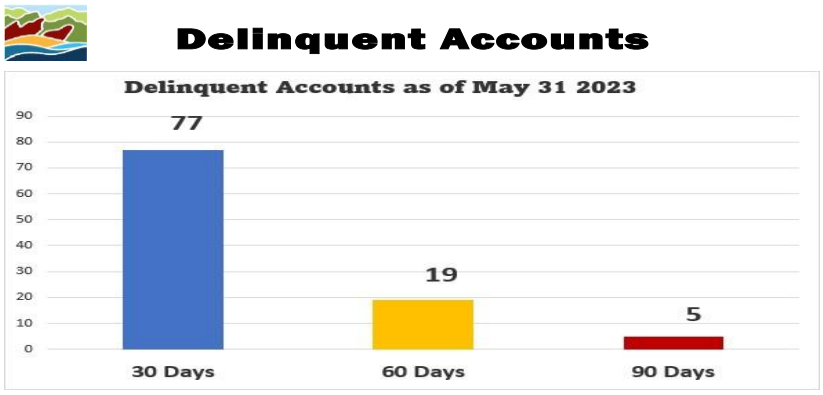
Information Only

General Information:

- The District's request for Congressionally Designated Spending to replace the distribution system pump stations was not successful.
- We've moved our primary account with Wells Fargo to a Government Money Market that is fully collateralized in compliance with Colorado's Public Deposit Protection Act as a sweep account that is currently earning 5% interest. This will result in the District paying $290 per month in fees on the primary checking account, but the interest earnings will more than offset those fees.
- We will be tracking revenue from the excessive use surcharge added to the Tier 4 and 5 rates for water use and evaluate that revenue for a potential turf replacement program during the 2024 rate study. South Metro Water Supply Authority received grants from the State and Douglas County to develop a model turf replacement program for members use.

Past Due Accounts:

- As of May 31, we had 5 accounts with a past due balance of $4,301, compared to 4 accounts with a past due balance of $3,783 as of April 30.
- We have reached out to the owner of a lot in Ravenna that has a significant past due account explaining that since the SDC was paid, base monthly charges and the Ravenna extended system development charge is due monthly and failure to keep the account current may result in a lien being filed on the property.
- We had 11 properties on the shut off list at the end of May, and 1 was shut off and service was restored within a day when payment was received.



Total Amount Past Due 30 days
$11,304

Total Amount Past Due 60 days
$2,734

Total Amount Past Due 90 days
$4,301

May 2023

Dominion Water and Sanitation District/Sterling Ranch:

- Temporary service to Sterling Ranch via the PVH water line was closed on May 9.
- No change in the status of Dominion's addition of chemicals to control odors at the Titan Road Lift Station. There continue to be issues obtaining a building permit.

- We are currently pilot testing an air scrubber that will capture and treat air from the lift station that causes odors at the site and in Ravenna.
- We have submitted comments on the scope of work for the engineer designing the new Castle Rock/Dominion water reclamation facility. The most significant issue that will need to be resolved in design is the size of the emergency containment basin that provides emergency storage in the event of a failure of the Roxborough Lift Station or force main.
- There were an additional 32 Certificates of Occupancy (CO) issued in Sterling Ranch in January bringing the total number of COs that have been issued in Sterling Ranch to 2,073 for a monthly Wastewater Operations Charge of $41,460.
- Year to date development summary:

- We have received the $1M Capacity Improvements fee due from Dominion. The total Capacity Improvement funds paid to date is $3M of the $5M required under the Wastewater Conveyance Agreement.
- Design of the replacement of the approximately 800 feet of the O-Line interceptor near the entrance to Ravenna to ensure adequate capacity is progressing. Dominion is responsible for 60% of the cost of this pipeline replacement project.
- Under the Purchase and Sale Agreement for the Wastewater Treatment Plant, RWSD tracks new building permits issued in Sterling Ranch. Dominion is invoiced $300 for each residential equivalent building permit in the prior year.

ROXBOROUGH WATER AND SANITATION DISTRICT

Projects:

- Final asphalt repairs in the southbound lanes of Rampart Range Road at Village Circle West will occur on June 22 and should be complete in a day. Douglas County has requested RWSD contribute the cost of the remaining asphalt repairs to the County to offset a portion of the cost for mill and overlay for the entire road. RWSD and TST will be meeting with the County to discuss.
- The project to add additional valves to the distribution system in Roxborough Park to improve the District's ability to operate the system has not gone smoothly thus far. The contractor has been directed to change the procedure for the work on each valve and submit a revised schedule to the District. We have been providing weekly updates on planned work and water service interruptions on the website, social media, and with the Roxborough Park Foundation.
- We continue to work with the Haberer family to relocate the Rampart pump station to their property.

Public Outreach/Opportunities:

- I mentioned previously that we had received complaints from a resident of Roxborough Park regarding air emissions from the sewer lining project we recently did. There was also an article in USA Today recently that highlighted the health impacts of these air emissions. The reality is there is no cost-effective way to deal with the aging sewer system in the District except to line the pipes. Removing and replacing the old sewers would be cost prohibitive and disruptive. In response to the complaint received, we have changed our procedures to provide notice to residents that we will be doing a sewer lining project near their home and suggesting they make sure all sinks and floor drains have recently had water poured down to ensure gases from the sewer cannot migrate into the home. If all sinks and drains have water in the P trap, there should not be a way for the gases to get into the home. We will also suggest they try to be out while the work is being completed. Note that the cloud you see around the truck during lining operations is just steam from the boiler; hot water is pumped into the liner in the sewer pipe, so it expands and adheres to the walls of the pipe.
- I continue to work with the Ramparts at Roxborough HOA on the grant we received for turf replacement at the complex.
- Douglas County solicited volunteers from local water providers to serve on a Technical Advisory Committee to advise the yet to be named Water Commission, and I have volunteered.
- I serve on the Chatfield Storage Reallocation Project Technical Advisory Committee (TAC). The TAC met last Friday and received a report on the impact of the May storms and the continued wet weather. For the first time since completion of the mitigation for the reallocated storage, the entire reallocated storage pool of 22,600 acre feet is currently full.
- Here is a link to the recording of the Drought Summit convened by the CWCB on May 31-June 1, including the panel discussion I moderated on the impact of drought on water quality/quantity: https://engagecwcb.org/drought-summit

Water Plant

The water treatment plant has been running smoothly. In May, the plant was operational for **28** days with an average plant production of **1.4** MGD and a max day of **2.7** MGD.

The original High Zone Pump contract is nearly complete, minor punch list items remain.

The Backwash Pond Phase 2 project is nearly complete, minor punch list items remain.

Raw water quality has been very inconsistent lately, the operators are fine tuning the plant to adjust for it. The changes are in PH and turbidity, the PH is down, and the turbidity is up as well as the TOC. Once this stabilizes, we will begin the chlorine oxidation pilot.

May production was **39** million gallons of treated water, **13.6** million gallons of that was for Sterling Ranch.

Lift Stations

The lift stations are running smoothly.

We have received an extension on the odor scrubber pilot to gather more data since we had major infiltration with all the rain, and it skewed our numbers a bit.

May saw **35** million gallons of sewage pumped to Littleton-Englewood. Approximately **4.8** million was conveyed for Sterling Ranch.

Field

The field had **267** locates for the month of May.

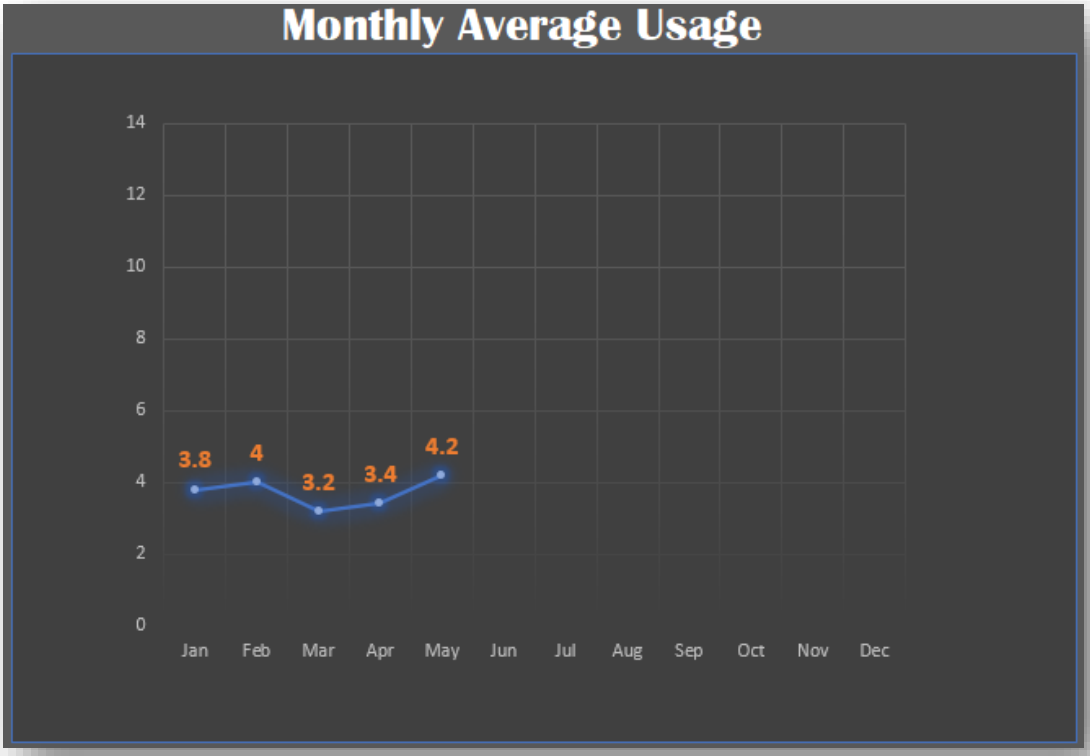
The guys are still busy with locates related to the gas lines in Ravenna.

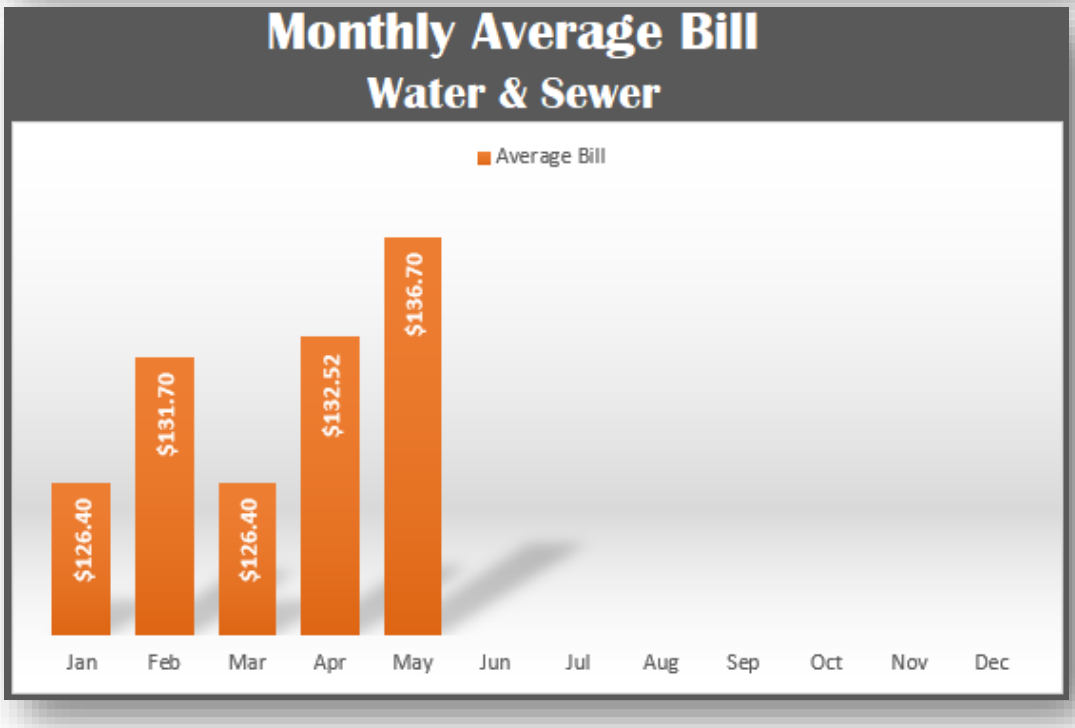
Douglas County is planning to repave Rampart Range Road next year so they ask us for the funds we would have used to be used towards their project. The only piece we will be required to pave is a patch in Rampart at Village Circle West that was only patched back due to weather.

The valve project in the Park has started, it got off to a slow start due to missing locates and other utilities but is getting better. The intent is to get a valve a day with only short outages for the install and wrap up in early July. We believe this will all be completed prior to the big paving effort in Roxborough Park.

Summer help has started, they will be performing grounds maintenance at all the facilities and fire hydrant maintenance throughout the District.

Monthly Averages





TST Infrastructure
CONSULTING ENGINEERS

MEMORANDUM

TO: Roxborough Water and Sanitation District
Board of Directors

FROM: TST Infrastructure, LLC
Bill Goetz

SUBJECT: Engineering Status Report

DATE: June 15, 2023

I. DEVELOPMENT PROJECTS

Berkeley Homes – Construction of water and sewer lines has not started, and no projected start date has been received from the developer. (No Change)

Valley View Christian Church – Easement documents for the Chatfield East Property Owners Association have been signed by the District. VVCC submitted an application to South Metro Fire Department to obtain the required approval for the proposed fire protection system. South Metro disapproved the application and requested a meeting with the District to clarify the capabilities of the District's system.

Sherwin Williams Store – Plans have been approved. Construction is expected to start towards the end of June.

Titan Road Vehicle Storage (Luxury Cardominiums) – Installation of water line has continued slowly. Completion of the water line is dependent upon timing of other construction at the site. (No Change)

McDonald's – A second drawing submittal has been reviewed and comments have been sent to the developer. (No Change)

Valvoline Instant Oil Change – A fourth drawing submittal has been submitted and is under review.

Christian Brothers Automotive – The third drawing submittal was received and plans have been approved.

Starbuck's - A third drawing submittal has been reviewed and comments have been sent to the developer. (No Change)

II. RAMPART WATER LINE REPLACEMENT

Revegetation is largely complete. Asphalt replacement at the north intersection of Village Circle East and Rampart Range Road, and at other Rampart Range Road crossings remains. Douglas County has suggested that the majority of the remaining paving be accomplished by the County rather than the contractor. A meeting between RWSD and the County is required to determine the details.

III. RAMPART PUMP STATION RELOCATION

Development of an agreement with the landowner is in progress. Survey of the site is scheduled for the week of June 12. The geotechnical investigation has been postponed due to wet conditions and will be rescheduled when ground conditions enable the work to be performed without undue damage to the pasture.

IV. WTP HIGH ZONE PUMP FOR DWSD

Work is complete except for punch list items.

V. WATER TREATMENT PLANT OVERFLOW POND (PHASE 2)

Work is complete except for punch list items.

VI. TRANSITION VAULT DRAINAGE IMPROVEMENTS

CDOT installation of curb to divert roadway drainage away from the site is complete. A plan has been developed for cleanup of the existing site.

VII. GIS

District mapping will be updated pending completion of sewer lining and receipt of as-built information.

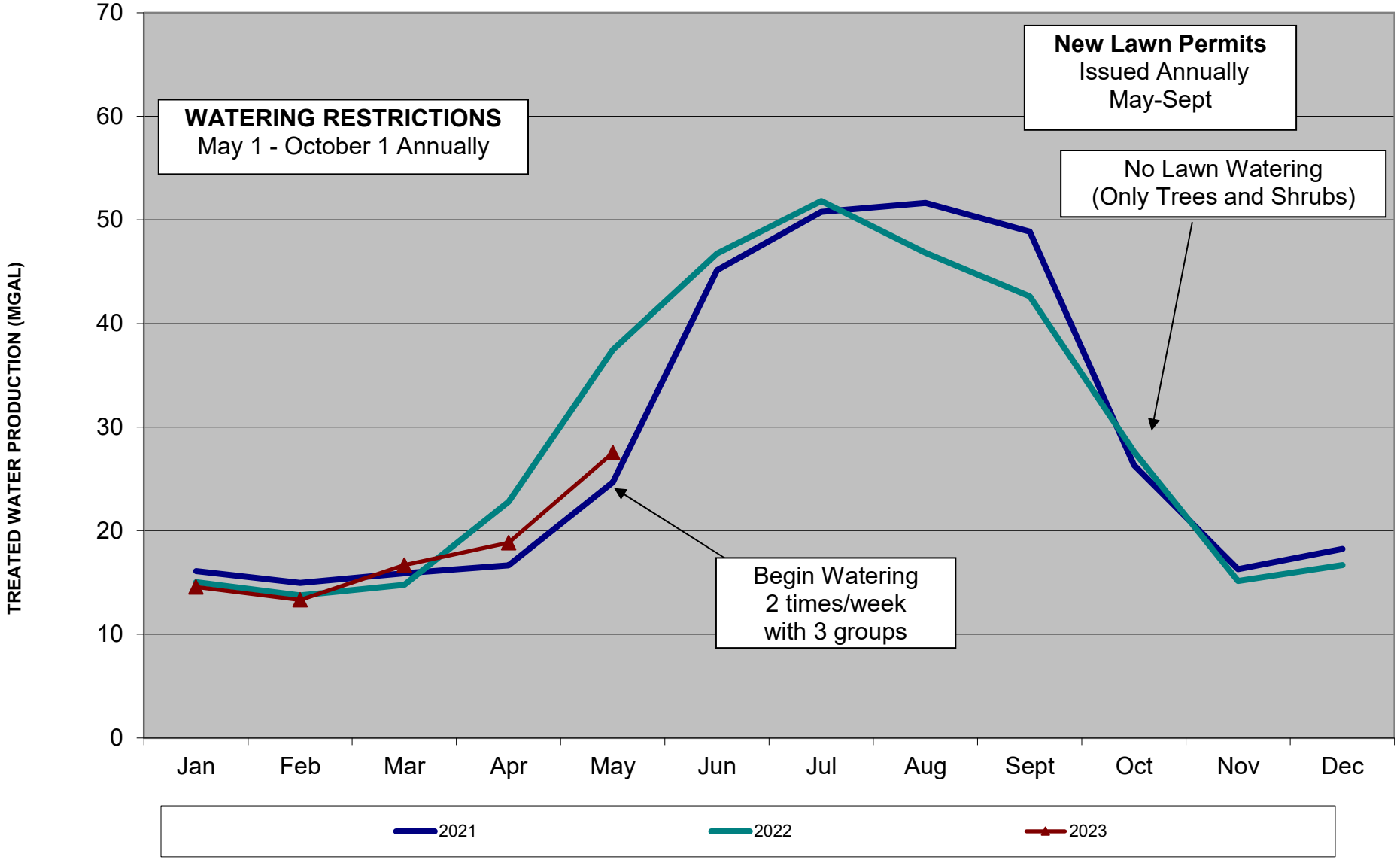
VIII. REPLACE O-LINE O-2 TO O-5

Field survey work has been completed and work on the Preliminary Engineering Report is in progress. Pipe alignment drawings are in progress.

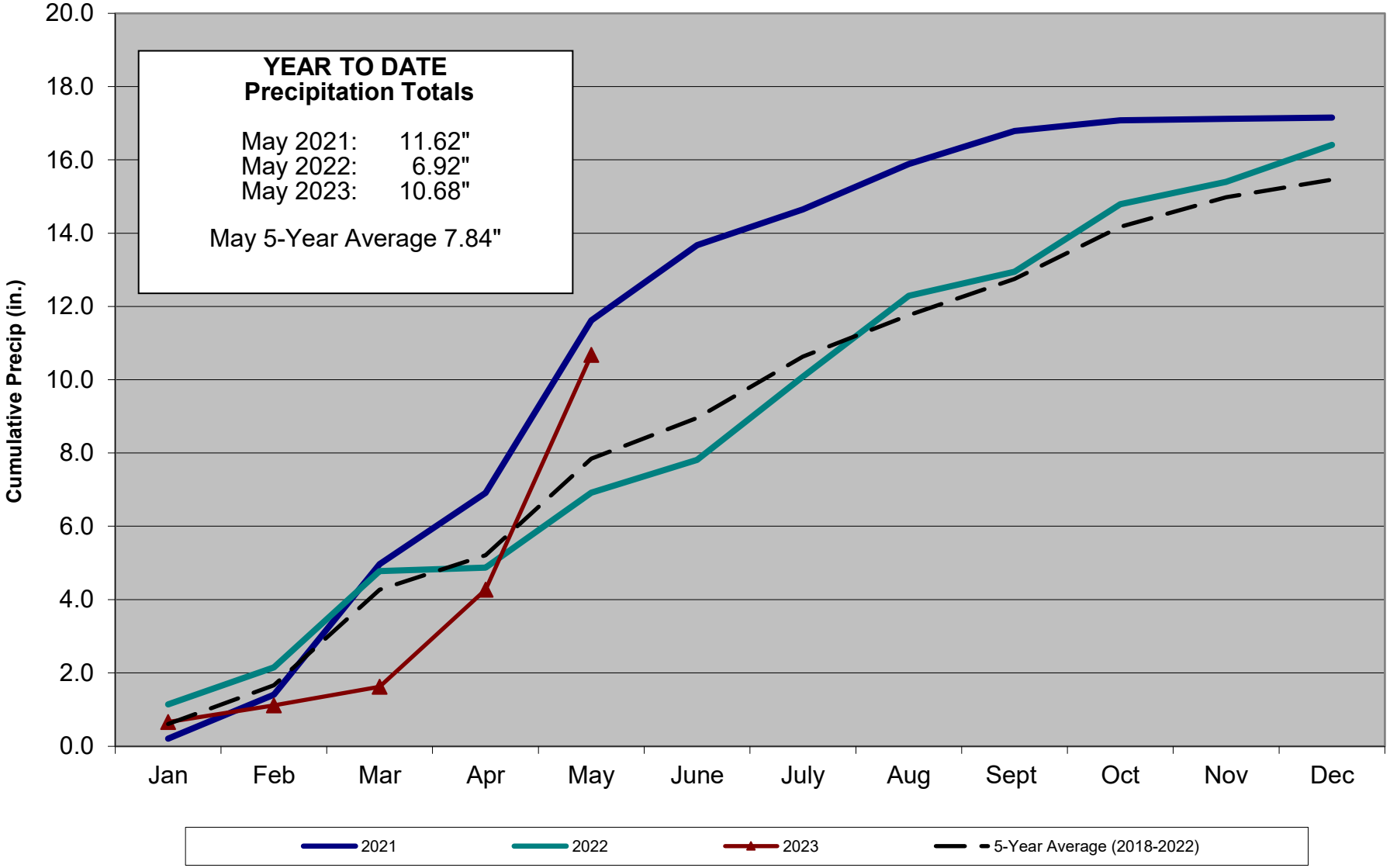
IX. WATER PUMP STATION UPGRADES

Preliminary design is in progress.

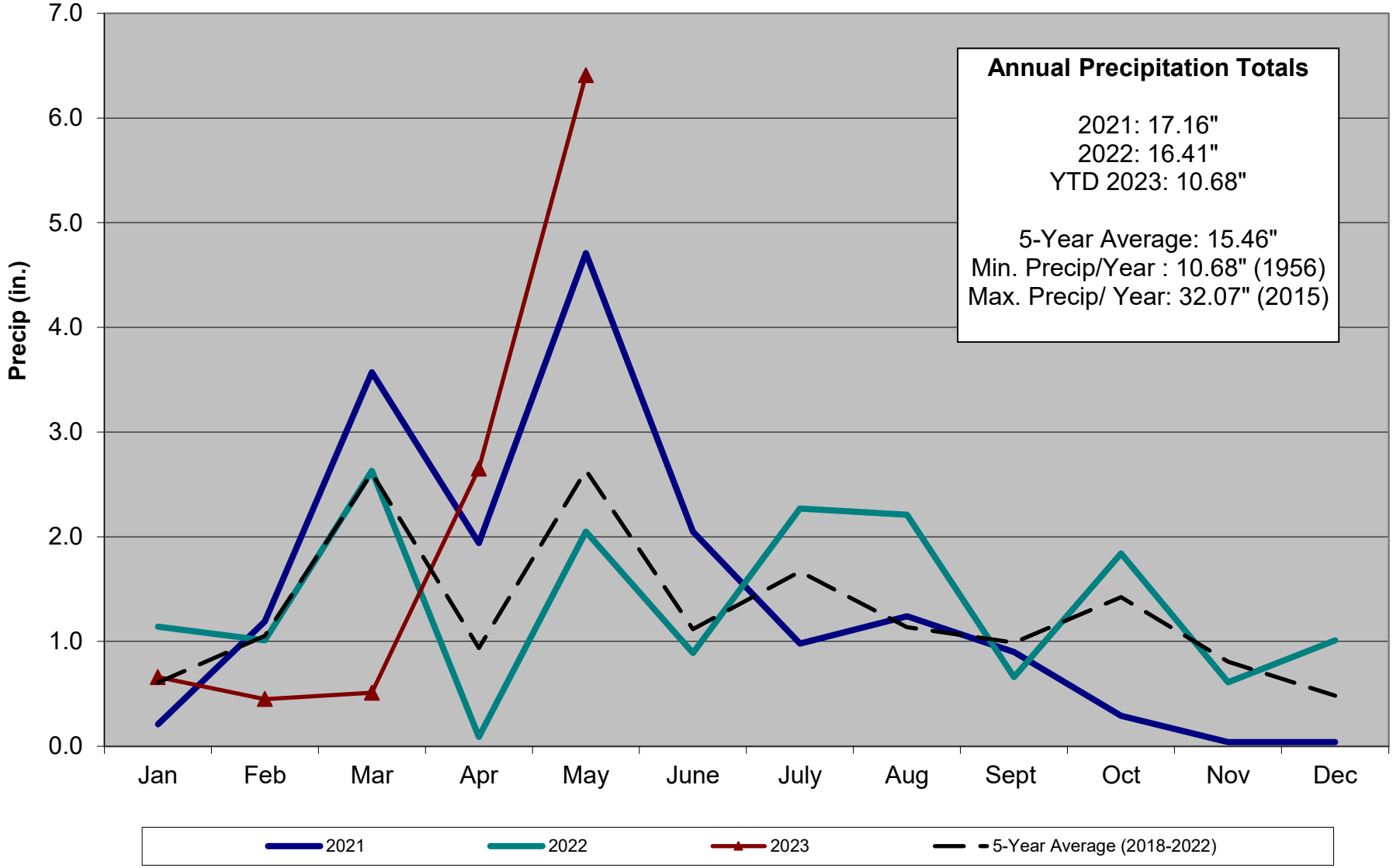
ROXBOROUGH WATER AND SANITATION DISTRICT
TREATED WATER PRODUCTION
2021-2023



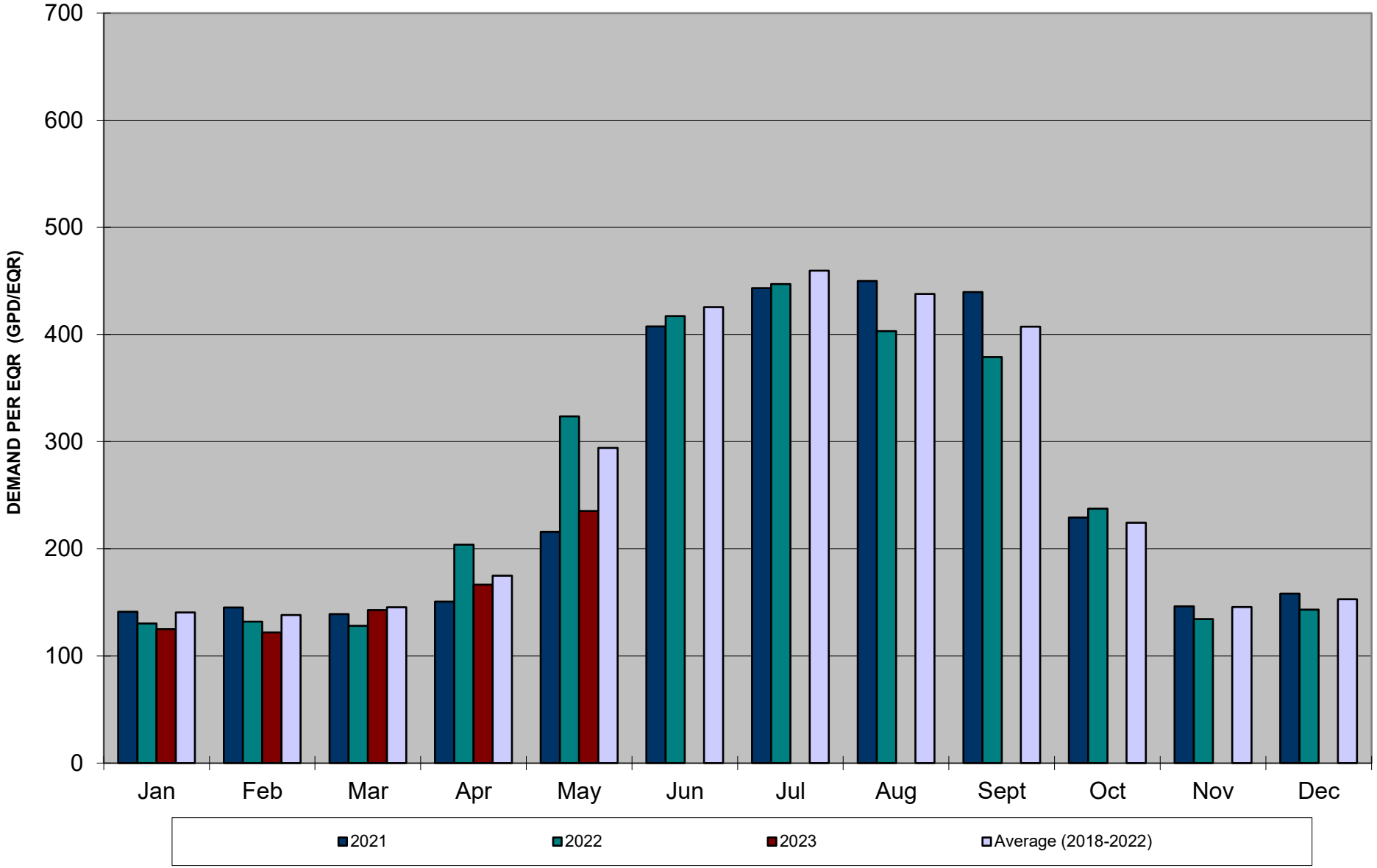
ROXBOROUGH WATER AND SANITATION DISTRICT
CUMULATIVE PRECIPITATION
2021-2023



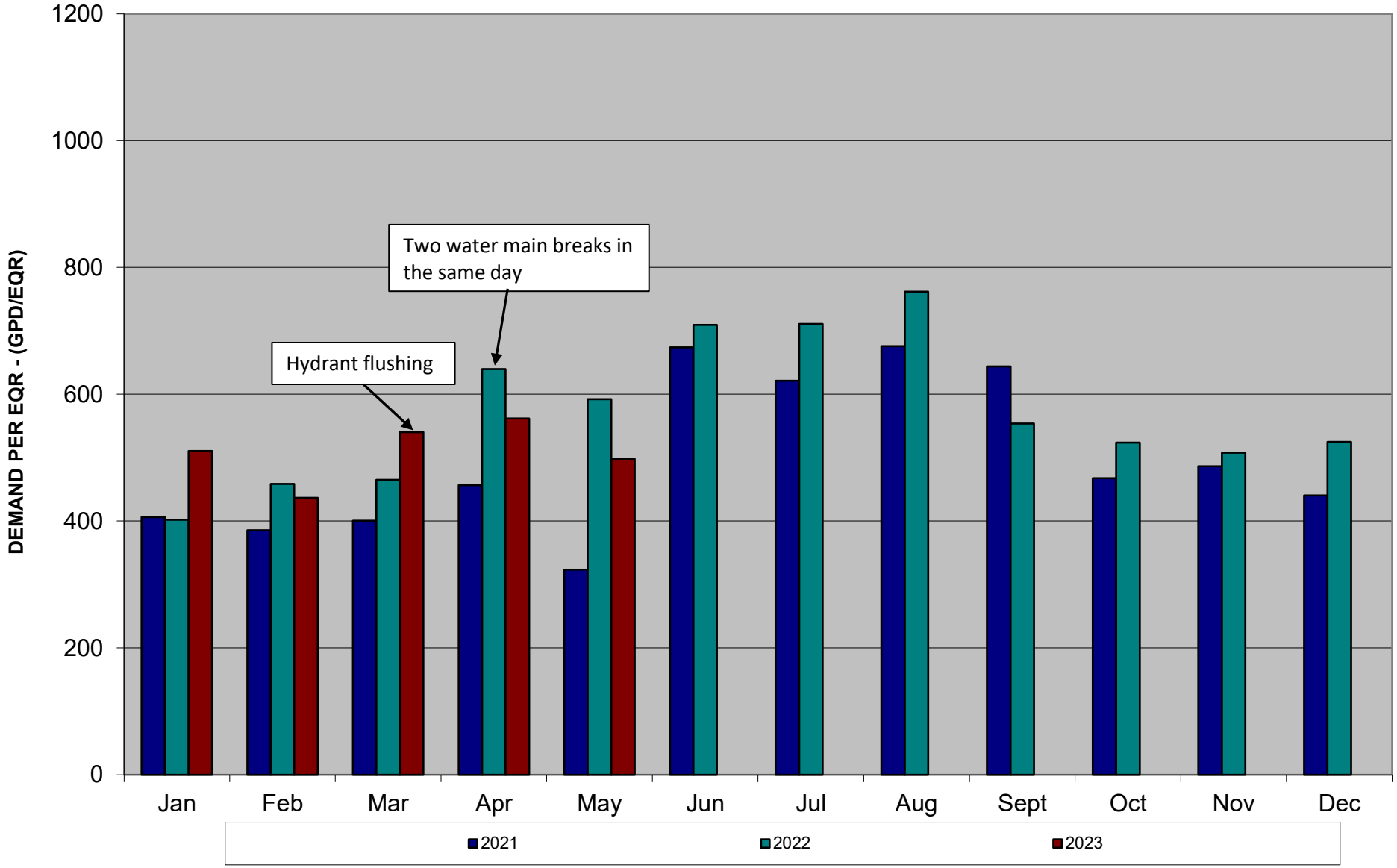
ROXBOROUGH WATER AND SANITATION DISTRICT
PRECIPITATION
2021-2023



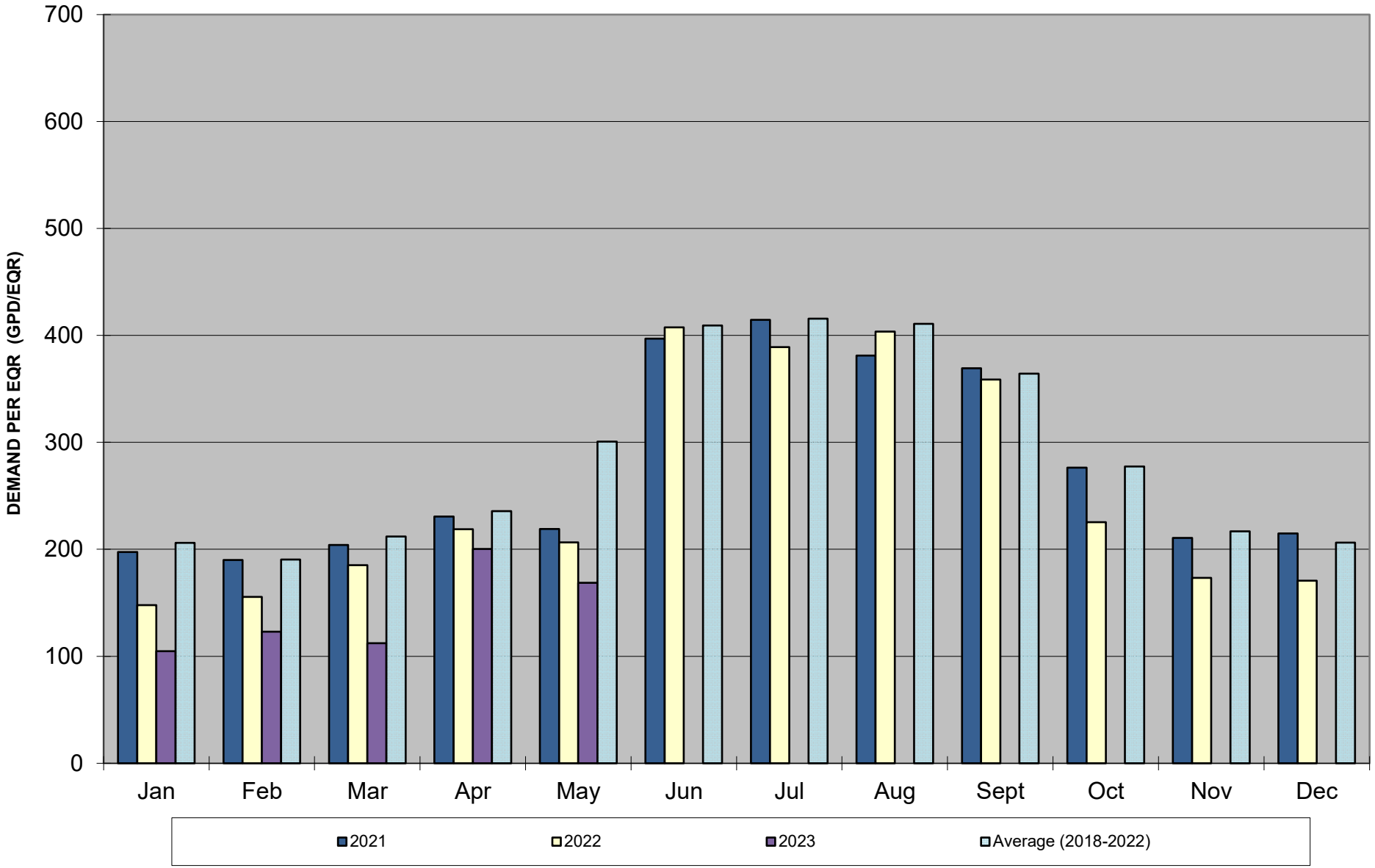
ROXBOROUGH WATER AND SANITATION DISTRICT
AVERAGE DEMAND PER EQR



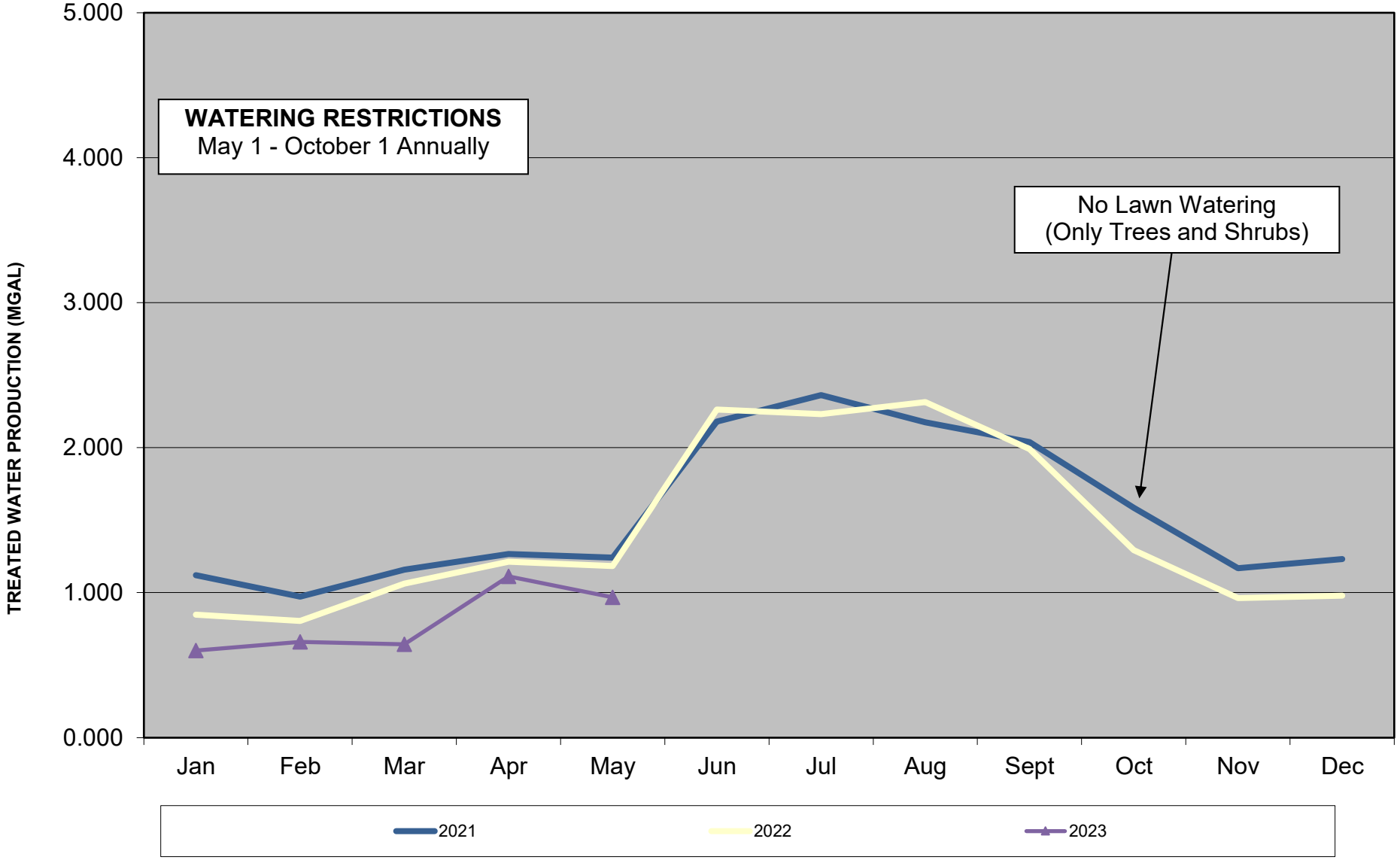
ROXBOROUGH WATER AND SANITATION DISTRICT
MAX DAY DEMAND PER EQR



ROXBOROUGH NW DOUGLAS COUNTY
AVERAGE DEMAND PER EQR



ROXBOROUGH NW DOUGLAS COUNTY
TREATED WATER PRODUCTION
2021-2023



Roxborough Water and Sanitation
Financial Recap
April 30, 2023

General Fund

1. Property taxes collected for the month total $ 54,497
2. Specific ownership taxes collected for the month total $ 13,113
3. Election Expenses $ 19,501
4. Capital Projects includes $ 17,580 to Groove Toyota

Debt Service Fund

1. Property taxes collected for the month total $ 17,557
2. Specific ownership taxes collected for the month total $ 4,224
3. Transfers in for Debt Surcharge in the amount $ 93,707

Water Fund Treatment

1. Service charges billed for the month were $ 230,524
2. Dominion WTP Operations income of $ 57,833 for the month.
3. Irrigation Water $ 25,371 for the month.
4. Collected $ 93,707 in capital surcharges for the WTP
5. Ravenna monthly SDC totaled $ 28,447

Water Fund -Distribution

1. Water Costs for the month $ 103,366
2. Capital projects includes $ 17,580 to Groove Toyota

Sewer Fund

1. Service charges for the month totaled $ 165,374
2. Lockheed Martin service charges totaled $ 31,246 for the month.
3. Dominion Sewer Conveyance income of $ 40,820
4. Paid Littleton Sewer Service Fees in the amount of $ 61,471
5. Capital Expenses for the month includes $ 17,580 to Groove Toyota

Capital Fund

1. Capital Expenses related to Valley View Church $ 7,586
2. Paid $ 306,675 for Dominion WTP Pump

ROXBOROUGH WATER & SANITATION DISTRICT
FINANCIAL STATEMENTS

April 30, 2023

TABLE OF CONTENTS

Roxborough Water and Sanitation District
Balance Sheet by Class

As of April 30, 2023

	1-General Fund	2-Debt Service	3-Water-Treatment	4-Sewer	5-Capital Fund	6-Water- Distribution	7-Plum Valley Heights	Unclassified	TOTAL
ASSETS									
Current Assets									
Checking/Savings									
1105 Wells Fargo Checking	1,365,496.24	4,966,765.10	25,757,024.83	2,894,697.44	-250,461.55	-25,431,765.26	-1,220,385.33	0.00	8,081,371.47
1111- WF Bond Redemption	0.00	1,663,115.10	0.00	0.00	0.00	0.00	0.00	0.00	1,663,115.10
1125-Wells Fargo Savings	0.00	0.00	0.00	0.00	0.00	0.00	1,727,997.20	0.00	1,727,997.20
1139 -WF Ravenna	0.00	0.00	3,196,997.18	0.00	0.00	0.00	0.00	0.00	3,196,997.18
1150-Investment in Colotrust	1,514,607.61	391,883.92	7,708,262.71	8,240,299.61	0.00	0.00	0.00	0.00	17,855,053.85
1155- Colotrust Bond Fund	0.00	0.00	370,173.56	513,837.04	0.00	0.00	0.00	0.00	884,010.60
1160 -System Develop Colo Trust	0.00	0.00	0.00	1,017,165.24	0.00	0.00	0.00	0.00	1,017,165.24
Total Checking/Savings	2,880,103.85	7,021,764.12	37,032,458.28	12,665,999.33	-250,461.55	-25,431,765.26	507,611.87	0.00	34,425,710.64
Other Current Assets									
1300-A/R Service	0.00	0.00	558,394.35	289,546.36	0.00	0.00	0.00	0.00	847,940.71
1310-A/R Availabilty	0.00	0.00	28,342.10	10,040.76	0.00	0.00	0.00	0.00	38,382.86
1350- A/R Taxes	1,761,246.00	567,412.00	0.00	0.00	0.00	0.00	450,300.00	0.00	2,778,958.00
1356-Due From NWDC Inclusion	0.00	0.00	7,886.37	-25.48	0.00	0.00	0.00	0.00	7,860.89
1370- Due From Others	0.00	0.00	12,340.04	0.00	0.00	0.00	0.00	0.00	12,340.04
1390- Due from Dominion	0.00	0.00	0.00	1,000,000.00	0.00	0.00	0.00	0.00	1,000,000.00
1400- Prepaid Insurance	17,471.50	0.00	17,471.50	17,471.50	0.00	17,471.50	0.00	0.00	69,886.00
Total Other Current Assets	1,778,717.50	567,412.00	624,434.36	1,317,033.14	0.00	17,471.50	450,300.00	0.00	4,755,368.50
Total Current Assets	4,658,821.35	7,589,176.12	37,656,892.64	13,983,032.47	-250,461.55	-25,414,293.76	957,911.87	0.00	39,181,079.14
Fixed Assets									
1500- Capital Assets	0.00	0.00	82,276,122.32	17,120,627.43	0.00	0.00	0.00	0.00	99,396,749.75
Total Fixed Assets	0.00	0.00	82,276,122.32	17,120,627.43	0.00	0.00	0.00	0.00	99,396,749.75
TOTAL ASSETS	**4,658,821.35**	**7,589,176.12**	**119,933,014.96**	**31,103,659.90**	**-250,461.55**	**-25,414,293.76**	**957,911.87**	**0.00**	**138,577,828.89**
LIABILITIES & EQUITY									
Liabilities									
Current Liabilities									
Accounts Payable									
2000- Accounts Payable	23,979.89	0.00	16,698.48	17,048.13	39,585.26	132,769.63	1,000.00	0.00	231,081.39
Total Accounts Payable	23,979.89	0.00	16,698.48	17,048.13	39,585.26	132,769.63	1,000.00	0.00	231,081.39
Other Current Liabilities									
2015 Accrued Vac/ Sick Leave	6,945.77	0.00	44,294.38	36,309.38	0.00	30,120.97	0.00	0.00	117,670.50
2052 - Deferred Rental Income	0.00	0.00	14,599.98	0.00	0.00	0.00	0.00	0.00	14,599.98
2055- Ravenna Costs Advanced	0.00	0.00	3,196,997.18	0.00	0.00	0.00	0.00	0.00	3,196,997.18
2060 - Deffered Taxes	1,761,246.00	567,412.00	0.00	0.00	0.00	0.00	450,300.00	0.00	2,778,958.00
Accrued Payroll	1,349.65	0.00	7,425.41	5,594.22	0.00	4,704.93	0.00	0.00	19,074.21
Deferred Income	0.00	0.00	0.00	3,000,000.00	0.00	0.00	0.00	0.00	3,000,000.00
Retainage Payable	0.00	0.00	0.00	0.00	65,497.50	138,014.66	0.00	0.00	203,512.16
Total Other Current Liabilities	1,769,541.42	567,412.00	3,263,316.95	3,041,903.60	65,497.50	172,840.56	450,300.00	0.00	9,330,812.03
Total Current Liabilities	1,793,521.31	567,412.00	3,280,015.43	3,058,951.73	105,082.76	305,610.19	451,300.00	0.00	9,561,893.42
Total Liabilities	1,793,521.31	567,412.00	3,280,015.43	3,058,951.73	105,082.76	305,610.19	451,300.00	0.00	9,561,893.42
Equity									
3900 -Retained Earnings	2,486,025.83	6,956,088.50	116,251,121.72	28,297,422.27	-273,867.03	-24,780,741.90	429,329.08	0.00	129,365,378.47
Net Income	379,274.21	65,675.62	401,877.81	-252,714.10	-81,677.28	-939,162.05	77,282.79	0.00	-349,443.00
Total Equity	2,865,300.04	7,021,764.12	116,652,999.53	28,044,708.17	-355,544.31	-25,719,903.95	506,611.87	0.00	129,015,935.47
TOTAL LIABILITIES & EQUITY	**4,658,821.35**	**7,589,176.12**	**119,933,014.96**	**31,103,659.90**	**-250,461.55**	**-25,414,293.76**	**957,911.87**	**0.00**	**138,577,828.89**

Roxborough Water and Sanitation District
Profit & Loss
January through April 2023

	Jan 23	Feb 23	Mar 23	Apr 23	TOTAL
Ordinary Income/Expense					
Income					
5010- Service Charges	379,803.98	389,202.30	372,797.96	395,898.70	1,537,702.94
5100-Availability Charges	26,780.12	0.00	231.38	27,555.99	54,567.49
5101- Service Charges LMA	29,608.84	29,850.27	31,235.06	31,246.24	121,940.41
5200- Property Taxes	129.43	95,940.31	642,644.58	127,231.27	865,945.59
5210- Specific Ownership Taxes	17,772.07	20,017.05	15,695.55	20,966.86	74,451.53
5211- Dominion WTP Operations	51,074.22	51,074.22	51,074.22	57,833.66	211,056.32
5310-Permit Fees	1,650.00	1,650.00	0.00	3,300.00	6,600.00
5410-Hydrant Water	3,936.25	1,293.75	2,132.50	8,005.00	15,367.50
5510-Potable Irrigation Water	524.50	1,665.00	1,675.60	1,806.50	5,671.60
5511-Irrigation Water	6,692.13	8,042.13	6,778.73	25,371.75	46,884.74
5601-Late Fees, Penalties,	5,603.95	4,969.20	3,434.66	4,987.19	18,995.00
5610- Miscellaneous Income	1,021.86	-1,507.00	954.60	-175.34	294.12
5611-Inclusion fees-NWDC	7,644.00	5,600.67	5,605.60	7,644.00	26,494.27
5620- Dominion Dist. Operations	16,349.59	16,349.59	16,349.59	16,898.26	65,947.03
5625- Dominion Sewer Conveyance	38,160.00	38,740.00	39,860.00	40,820.00	157,580.00
5640- Dominion Treated Water Us	5,373.99	6,195.27	7,496.79	16,420.00	35,486.05
5650 Dominion Exp Reimbursement	242,965.55	87,507.09	130,886.22	0.00	461,358.86
5660- Ravenna Reimbursement	14,397.08	0.00	0.00	0.00	14,397.08
5700- Sys. Development Charge	11,020.00	16,676.00	50,135.00	22,683.00	100,514.00
5705 Ravenna SDC	28,487.10	21,661.29	22,153.57	28,447.42	100,749.38
5710- Capital Surcharge	25,088.18	25,204.96	25,242.81	25,167.62	100,703.57
5715- Capital Surcharge WTP Sup	93,585.46	93,556.46	93,744.67	93,706.52	374,593.11
5820- Investment Income	76,618.09	69,708.04	85,981.31	82,640.20	314,947.64
5850 - Reimbursed Exp Other	5,963.50	11,858.00	10,112.15	10,675.00	38,608.65
Total Income	1,090,249.89	995,254.60	1,616,222.55	1,049,129.84	4,750,856.88
Gross Profit	1,090,249.89	995,254.60	1,616,222.55	1,049,129.84	4,750,856.88
Expense					
6020-Payroll Expenses	122,340.20	124,382.85	112,482.62	137,018.32	496,223.99
6040- Accounting	10,500.00	10,500.00	10,500.00	10,500.00	42,000.00
6050- Contract Labor	-2,027.46	5,595.96	5,488.20	5,592.00	14,648.70
6065- Dominion expenses	0.00	0.00	82.00	0.00	82.00
6080- Education	1,873.70	4,914.00	5,784.80	9,112.50	21,685.00
6099- Election	190.00	805.36	4,218.36	19,501.31	24,715.03
6100- Engineering	30,232.50	36,994.50	45,422.82	37,906.80	150,556.62
6110-Conservation Rebates	0.00	50.00	0.00	75.00	125.00
6115- GPS/GIS	9,065.00	1,680.00	3,520.00	2,910.00	17,175.00
6130- Insurance	8,736.00	8,807.00	8,736.00	8,736.00	35,015.00
6140- Lab & Test Fees	173.00	1,888.00	1,448.00	1,100.00	4,609.00
6150- Legal	7,485.63	3,355.02	7,172.52	4,227.52	22,240.69
6170 - Meter Expenses	0.00	3,385.10	1,504.10	2,167.56	7,056.76
6180- Misc. Expenses	2,601.00	512.58	799.00	1,213.51	5,126.09
6185- Littleton Service Fees	0.00	0.00	5,656.00	61,470.50	67,126.50
6200- Office Expense	3,536.46	8,187.21	5,585.85	7,032.41	24,341.93
6210-Operating Supplies	0.00	17,431.13	17,113.13	24,368.11	58,912.37
6220- Permits	24,302.78	5,453.99	4,777.90	2,475.00	37,009.67
6225-Rent	0.00	0.00	0.00	2,693.52	2,693.52
6230- Repairs and Maint	24,150.50	24,604.00	42,005.63	48,421.11	139,181.24
6240- Safety Equipment	0.00	1,685.81	534.29	671.60	2,891.70
6250- Treasurers Fees	1.94	1,439.12	9,639.70	1,908.54	12,989.30
6260- Utilities	422.62	46,147.50	38,453.17	36,907.98	121,931.27
6270- Vehicle	0.00	6,997.48	1,706.45	6,243.92	14,947.85
6280- Water Costs	68,715.72	58,973.82	77,004.00	103,365.61	308,059.15
6420-Loan Adminstrative Fees	0.00	38,400.00	0.00	0.00	38,400.00
6500- CWRPDA -PVH D15a356	0.00	116,617.50	0.00	0.00	116,617.50
6550-CWCB Principal c150346	115,447.15	0.00	0.00	0.00	115,447.15
7100-Principal Payments-W05A105	0.00	272,500.00	0.00	0.00	272,500.00
7150-Ravenna CWCB	82,425.19	0.00	0.00	0.00	82,425.19
7200- Interest Payments	0.00	41,103.19	0.00	0.00	41,103.19
7290- Water Rights	0.00	790.50	4,476.50	8,561.34	13,828.34
7300- Capital Projects	294,657.45	157,308.36	602,189.03	116,712.45	1,170,867.29
7301-Capital DWSD	0.00	0.00	0.00	0.00	0.00

Roxborough Water and Sanitation District
Profit & Loss
January through April 2023

	Jan 23	Feb 23	Mar 23	Apr 23	TOTAL
7308- O-Line Capacity Improve.	9,410.00	9,193.30	5,135.00	29,629.98	53,368.28
7310 - WTP- Dominion Pump	3,861.40	111,529.76	128,454.00	306,674.80	550,519.96
7311- Dominion System Improve.	-24,491.61	44,125.75	11,113.66	5,994.80	36,742.60
7312- Ravenna Pump Station	701.90	0.00	90.00	1,395.00	2,186.90
7313 - Valley View Project	17,106.70	8,013.10	6,244.00	7,586.30	38,950.10
Total Expense	811,417.77	1,173,371.89	1,167,336.73	1,012,173.49	4,164,299.88
Net Ordinary Income	278,832.12	-178,117.29	448,885.82	36,956.35	586,557.00
Other Income/Expense					
Other Income					
6900- Transfers In	26,780.12	0.00	600,231.38	27,555.99	654,567.49
6902- Transfers In WTP	93,585.46	93,556.46	93,744.67	93,706.52	374,593.11
Total Other Income	120,365.58	93,556.46	693,976.05	121,262.51	1,029,160.60
Other Expense					
8000- Transfers to Other Funds	26,780.12	0.00	600,231.38	27,555.99	654,567.49
8002- Transfers Water Supply SV	93,585.46	93,556.46	93,744.67	93,706.52	374,593.11
9000 -Depreciation Expense	234,000.00	234,000.00	234,000.00	234,000.00	936,000.00
Total Other Expense	354,365.58	327,556.46	927,976.05	355,262.51	1,965,160.60
Net Other Income	-234,000.00	-234,000.00	-234,000.00	-234,000.00	-936,000.00
Net Income	**44,832.12**	**-412,117.29**	**214,885.82**	**-197,043.65**	**-349,443.00**

Roxborough Water and Sanitation District
Profit & Loss by Class
April 2023

	1-General Fund	2-Debt Service	3-Water-Treatment	4-Sewer	5-Capital Fund	6-Water- Distribution	7-Plum Valley Heights	TOTAL
Ordinary Income/Expense								
Income								
5010- Service Charges	0.00	0.00	230,524.37	165,374.33	0.00	0.00	0.00	395,898.70
5100-Availability Charges	0.00	0.00	20,715.99	6,840.00	0.00	0.00	0.00	27,555.99
5101- Service Charges LMA	0.00	0.00	0.00	31,246.24	0.00	0.00	0.00	31,246.24
5200- Property Taxes	54,496.62	17,556.90	0.00	0.00	0.00	0.00	55,177.75	127,231.27
5210- Specific Ownership Taxes	13,112.80	4,224.48	0.00	0.00	0.00	0.00	3,629.58	20,966.86
5211- Dominion WTP Operations	0.00	0.00	57,833.66	0.00	0.00	0.00	0.00	57,833.66
5310-Permit Fees	0.00	0.00	1,650.00	1,650.00	0.00	0.00	0.00	3,300.00
5410-Hydrant Water	0.00	0.00	8,005.00	0.00	0.00	0.00	0.00	8,005.00
5510-Potable Irrigation Water	0.00	0.00	1,806.50	0.00	0.00	0.00	0.00	1,806.50
5511-Irrigation Water	0.00	0.00	25,371.75	0.00	0.00	0.00	0.00	25,371.75
5601-Late Fees, Penalties,	0.00	0.00	3,344.15	1,643.04	0.00	0.00	0.00	4,987.19
5610- Miscellaneous Income	0.00	0.00	-324.87	149.53	0.00	0.00	0.00	-175.34
5611-Inclusion fees-NWDC	0.00	0.00	7,644.00	0.00	0.00	0.00	0.00	7,644.00
5620- Dominion Dist. Operations	0.00	0.00	16,898.26	0.00	0.00	0.00	0.00	16,898.26
5625- Dominion Sewer Conveyance	0.00	0.00	0.00	40,820.00	0.00	0.00	0.00	40,820.00
5640- Dominion Treated Water Us	0.00	0.00	16,420.00	0.00	0.00	0.00	0.00	16,420.00
5700- Sys. Development Charge	0.00	0.00	135.00	22,548.00	0.00	0.00	0.00	22,683.00
5705 Ravenna SDC	0.00	0.00	28,447.42	0.00	0.00	0.00	0.00	28,447.42
5710- Capital Surcharge	0.00	0.00	11,900.78	13,266.84	0.00	0.00	0.00	25,167.62
5715- Capital Surcharge WTP Sup	0.00	0.00	93,706.52	0.00	0.00	0.00	0.00	93,706.52
5820- Investment Income	5,989.88	1,532.27	33,416.67	40,403.70	0.00	0.00	1,297.68	82,640.20
5850 - Reimbursed Exp Other	0.00	0.00	10,675.00	0.00	0.00	0.00	0.00	10,675.00
Total Income	73,599.30	23,313.65	568,170.20	323,941.68	0.00	0.00	60,105.01	1,049,129.84
Gross Profit	73,599.30	23,313.65	568,170.20	323,941.68	0.00	0.00	60,105.01	1,049,129.84
Expense								
6020-Payroll Expenses	11,680.69	0.00	53,941.45	37,918.07	0.00	33,478.11	0.00	137,018.32
6040- Accounting	2,375.00	0.00	2,375.00	2,375.00	0.00	2,375.00	1,000.00	10,500.00
6050- Contract Labor	0.00	0.00	0.00	2,796.00	0.00	2,796.00	0.00	5,592.00
6065- Dominion expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6080- Education	2,874.37	0.00	2,079.37	2,079.38	0.00	2,079.38	0.00	9,112.50
6099- Election	19,501.31	0.00	0.00	0.00	0.00	0.00	0.00	19,501.31
6100- Engineering	1,111.70	0.00	2,586.20	10,545.95	0.00	23,662.95	0.00	37,906.80
6110-Conservation Rebates	0.00	0.00	0.00	0.00	0.00	75.00	0.00	75.00
6115- GPS/GIS	0.00	0.00	0.00	850.00	0.00	2,060.00	0.00	2,910.00
6130- Insurance	2,184.00	0.00	2,184.00	2,184.00	0.00	2,184.00	0.00	8,736.00
6140- Lab & Test Fees	0.00	0.00	332.00	0.00	0.00	768.00	0.00	1,100.00
6150- Legal	991.88	0.00	2,607.01	909.88	0.00	-281.25	0.00	4,227.52
6170 - Meter Expenses	0.00	0.00	0.00	0.00	0.00	2,167.56	0.00	2,167.56
6180- Misc. Expenses	469.91	0.00	743.60	0.00	0.00	0.00	0.00	1,213.51
6185- Littleton Service Fees	0.00	0.00	0.00	61,470.50	0.00	0.00	0.00	61,470.50
6200- Office Expense	3,914.28	0.00	315.58	1,159.73	0.00	1,642.82	0.00	7,032.41
6210-Operating Supplies	1,758.49	0.00	1,592.42	21,017.20	0.00	0.00	0.00	24,368.11
6220- Permits	0.00	0.00	110.00	0.00	0.00	2,365.00	0.00	2,475.00
6225-Rent	2,693.52	0.00	0.00	0.00	0.00	0.00	0.00	2,693.52
6230- Repairs and Maint	12,520.22	0.00	11,997.62	3,862.15	0.00	20,041.12	0.00	48,421.11
6240- Safety Equipment	0.00	0.00	427.19	122.20	0.00	122.21	0.00	671.60
6250- Treasurers Fees	817.45	263.35	0.00	0.00	0.00	0.00	827.74	1,908.54
6260- Utilities	348.87	0.00	22,379.58	9,513.60	0.00	4,665.93	0.00	36,907.98
6270- Vehicle	1,146.04	0.00	2,177.07	1,203.33	0.00	1,717.48	0.00	6,243.92
6280- Water Costs	0.00	0.00	0.00	0.00	0.00	103,365.61	0.00	103,365.61
7290- Water Rights	0.00	0.00	0.00	0.00	0.00	8,561.34	0.00	8,561.34
7300- Capital Projects	18,198.30	0.00	21,524.11	24,105.63	0.00	52,884.41	0.00	116,712.45
7308- O-Line Capacity Improve.	0.00	0.00	0.00	0.00	29,629.98	0.00	0.00	29,629.98
7310 - WTP- Dominion Pump	0.00	0.00	0.00	0.00	306,674.80	0.00	0.00	306,674.80
7311- Dominion System Improve.	0.00	0.00	0.00	0.00	5,994.80	0.00	0.00	5,994.80

Roxborough Water and Sanitation District
Profit & Loss by Class
April 2023

	1-General Fund	2-Debt Service	3-Water-Treatment	4-Sewer	5-Capital Fund	6-Water- Distribution	7-Plum Valley Heights	TOTAL
7312- Ravenna Pump Station	0.00	0.00	0.00	0.00	1,395.00	0.00	0.00	1,395.00
7313 - Valley View Project	0.00	0.00	0.00	0.00	7,586.30	0.00	0.00	7,586.30
Total Expense	82,586.03	263.35	127,372.20	182,112.62	351,280.88	266,730.67	1,827.74	1,012,173.49
Net Ordinary Income	-8,986.73	23,050.30	440,798.00	141,829.06	-351,280.88	-266,730.67	58,277.27	36,956.35
Other Income/Expense								
Other Income								
6900- Transfers In	0.00	27,555.99	0.00	0.00	0.00	0.00	0.00	27,555.99
6902- Transfers In WTP	0.00	93,706.52	0.00	0.00	0.00	0.00	0.00	93,706.52
Total Other Income	0.00	121,262.51	0.00	0.00	0.00	0.00	0.00	121,262.51
Other Expense								
8000- Transfers to Other Funds	0.00	0.00	20,715.99	6,840.00	0.00	0.00	0.00	27,555.99
8002- Transfers Water Supply SV	0.00	0.00	93,706.52	0.00	0.00	0.00	0.00	93,706.52
9000 -Depreciation Expense	0.00	0.00	165,000.00	69,000.00	0.00	0.00	0.00	234,000.00
Total Other Expense	0.00	0.00	279,422.51	75,840.00	0.00	0.00	0.00	355,262.51
Net Other Income	0.00	121,262.51	-279,422.51	-75,840.00	0.00	0.00	0.00	-234,000.00
Net Income	**-8,986.73**	**144,312.81**	**161,375.49**	**65,989.06**	**-351,280.88**	**-266,730.67**	**58,277.27**	**-197,043.65**

Roxborough Water and Sanitation District
Profit & Loss by Class
January through April 2023

	1-General Fund	2-Debt Service	3-Water-Treatment	4-Sewer	5-Capital Fund	6-Water- Distribution	7-Plum Valley Heights	TOTAL
Ordinary Income/Expense								
Income								
5010- Service Charges	0.00	0.00	898,783.55	638,919.39	0.00	0.00	0.00	1,537,702.94
5100-Availability Charges	0.00	0.00	41,107.24	13,460.25	0.00	0.00	0.00	54,567.49
5101- Service Charges LMA	0.00	0.00	0.00	121,940.41	0.00	0.00	0.00	121,940.41
5200- Property Taxes	517,270.71	166,661.29	0.00	0.00	0.00	0.00	182,013.59	865,945.59
5210- Specific Ownership Taxes	44,829.53	16,147.60	0.00	0.00	0.00	0.00	13,474.40	74,451.53
5211- Dominion WTP Operations	0.00	0.00	211,056.32	0.00	0.00	0.00	0.00	211,056.32
5310-Permit Fees	0.00	0.00	3,300.00	3,300.00	0.00	0.00	0.00	6,600.00
5410-Hydrant Water	0.00	0.00	15,367.50	0.00	0.00	0.00	0.00	15,367.50
5510-Potable Irrigation Water	0.00	0.00	5,671.60	0.00	0.00	0.00	0.00	5,671.60
5511-Irrigation Water	0.00	0.00	46,884.74	0.00	0.00	0.00	0.00	46,884.74
5601-Late Fees, Penalties,	0.00	0.00	13,997.59	4,997.41	0.00	0.00	0.00	18,995.00
5610- Miscellaneous Income	0.00	0.00	-288.83	582.95	0.00	0.00	0.00	294.12
5611-Inclusion fees-NWDC	0.00	0.00	26,494.27	0.00	0.00	0.00	0.00	26,494.27
5620- Dominion Dist. Operations	0.00	0.00	65,947.03	0.00	0.00	0.00	0.00	65,947.03
5625- Dominion Sewer Conveyance	0.00	0.00	0.00	157,580.00	0.00	0.00	0.00	157,580.00
5640- Dominion Treated Water Us	0.00	0.00	35,486.05	0.00	0.00	0.00	0.00	35,486.05
5650 Dominion Exp Reimbursement	0.00	0.00	461,358.86	0.00	0.00	0.00	0.00	461,358.86
5660- Ravenna Reimbursement	0.00	0.00	14,397.08	0.00	0.00	0.00	0.00	14,397.08
5700- Sys. Development Charge	0.00	0.00	50,540.00	49,974.00	0.00	0.00	0.00	100,514.00
5705 Ravenna SDC	0.00	0.00	100,749.38	0.00	0.00	0.00	0.00	100,749.38
5710- Capital Surcharge	0.00	0.00	47,574.63	53,128.94	0.00	0.00	0.00	100,703.57
5715- Capital Surcharge WTP Sup	0.00	0.00	374,593.11	0.00	0.00	0.00	0.00	374,593.11
5820- Investment Income	20,958.96	7,251.93	130,859.81	151,548.11	0.00	0.00	4,328.83	314,947.64
5850 - Reimbursed Exp Other	0.00	0.00	38,608.65	0.00	0.00	0.00	0.00	38,608.65
Total Income	583,059.20	190,060.82	2,582,488.58	1,195,431.46	0.00	0.00	199,816.82	4,750,856.88
Gross Profit	583,059.20	190,060.82	2,582,488.58	1,195,431.46	0.00	0.00	199,816.82	4,750,856.88
Expense								
6020-Payroll Expenses	38,375.72	0.00	197,939.59	138,540.84	0.00	121,367.84	0.00	496,223.99
6040- Accounting	9,500.00	0.00	9,500.00	9,500.00	0.00	9,500.00	4,000.00	42,000.00
6050- Contract Labor	0.00	0.00	0.00	6,310.62	0.00	8,338.08	0.00	14,648.70
6065- Dominion expenses	0.00	0.00	0.00	82.00	0.00	0.00	0.00	82.00
6080- Education	4,598.71	0.00	3,646.74	4,697.03	0.00	8,742.52	0.00	21,685.00
6099- Election	24,715.03	0.00	0.00	0.00	0.00	0.00	0.00	24,715.03
6100- Engineering	6,754.80	0.00	7,901.20	52,322.62	0.00	83,578.00	0.00	150,556.62
6110-Conservation Rebates	0.00	0.00	0.00	0.00	0.00	125.00	0.00	125.00
6115- GPS/GIS	0.00	0.00	0.00	6,342.50	0.00	10,832.50	0.00	17,175.00
6130- Insurance	8,753.75	0.00	8,753.75	8,753.75	0.00	8,753.75	0.00	35,015.00
6140- Lab & Test Fees	0.00	0.00	3,213.00	0.00	0.00	1,396.00	0.00	4,609.00
6150- Legal	5,417.02	0.00	4,592.39	4,592.39	0.00	7,372.89	266.00	22,240.69
6170 - Meter Expenses	0.00	0.00	306.00	0.00	0.00	6,750.76	0.00	7,056.76
6180- Misc. Expenses	1,075.93	0.00	1,241.48	2,667.82	0.00	140.86	0.00	5,126.09
6185- Littleton Service Fees	0.00	0.00	0.00	67,126.50	0.00	0.00	0.00	67,126.50
6200- Office Expense	12,552.50	0.00	1,209.49	6,019.26	0.00	4,560.68	0.00	24,341.93
6210-Operating Supplies	1,758.49	0.00	4,868.55	52,285.33	0.00	0.00	0.00	58,912.37
6220- Permits	24,896.77	0.00	110.00	4,877.90	0.00	7,125.00	0.00	37,009.67
6225-Rent	2,693.52	0.00	0.00	0.00	0.00	0.00	0.00	2,693.52
6230- Repairs and Maint	34,998.20	0.00	41,478.29	16,251.36	0.00	46,453.39	0.00	139,181.24
6240- Safety Equipment	0.00	0.00	1,914.46	273.34	0.00	703.90	0.00	2,891.70
6250- Treasurers Fees	7,759.06	2,499.92	0.00	0.00	0.00	0.00	2,730.32	12,989.30
6260- Utilities	591.15	0.00	72,936.54	33,439.90	0.00	14,963.68	0.00	121,931.27
6270- Vehicle	1,146.04	0.00	2,755.20	5,096.74	0.00	5,949.87	0.00	14,947.85
6280- Water Costs	0.00	0.00	0.00	0.00	0.00	308,059.15	0.00	308,059.15
6420-Loan Adminstrative Fees	0.00	38,400.00	0.00	0.00	0.00	0.00	0.00	38,400.00
6500- CWRPDA -PVH D15a356	0.00	116,617.50	0.00	0.00	0.00	0.00	0.00	116,617.50
6550-CWCB Principal c150346	0.00	0.00	0.00	0.00	0.00	0.00	115,447.15	115,447.15
7100-Principal Payments-W05A105	0.00	272,500.00	0.00	0.00	0.00	0.00	0.00	272,500.00
7150-Ravenna CWCB	0.00	82,425.19	0.00	0.00	0.00	0.00	0.00	82,425.19
7200- Interest Payments	0.00	41,103.19	0.00	0.00	0.00	0.00	0.00	41,103.19
7290- Water Rights	0.00	0.00	0.00	0.00	0.00	13,828.34	0.00	13,828.34

Roxborough Water and Sanitation District
Profit & Loss by Class
January through April 2023

	1-General Fund	2-Debt Service	3-Water-Treatment	4-Sewer	5-Capital Fund	6-Water- Distribution	7-Plum Valley Heights	TOTAL
7300- Capital Projects	18,198.30	0.00	142,543.74	739,505.41	0.00	270,619.84	0.00	1,170,867.29
7301-Capital DWSD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7308- O-Line Capacity Improve.	0.00	0.00	0.00	0.00	53,368.28	0.00	0.00	53,368.28
7310 - WTP- Dominion Pump	0.00	0.00	0.00	0.00	550,519.96	0.00	0.00	550,519.96
7311- Dominion System Improve.	0.00	0.00	0.00	0.00	36,652.04	0.00	90.56	36,742.60
7312- Ravenna Pump Station	0.00	0.00	0.00	0.00	2,186.90	0.00	0.00	2,186.90
7313 - Valley View Project	0.00	0.00	0.00	0.00	38,950.10	0.00	0.00	38,950.10
Total Expense	203,784.99	553,545.80	504,910.42	1,158,685.31	681,677.28	939,162.05	122,534.03	4,164,299.88
Net Ordinary Income	379,274.21	-363,484.98	2,077,578.16	36,746.15	-681,677.28	-939,162.05	77,282.79	586,557.00
Other Income/Expense								
Other Income								
6900- Transfers In	0.00	54,567.49	0.00	0.00	600,000.00	0.00	0.00	654,567.49
6902- Transfers In WTP	0.00	374,593.11	0.00	0.00	0.00	0.00	0.00	374,593.11
Total Other Income	0.00	429,160.60	0.00	0.00	600,000.00	0.00	0.00	1,029,160.60
Other Expense								
8000- Transfers to Other Funds	0.00	0.00	641,107.24	13,460.25	0.00	0.00	0.00	654,567.49
8002- Transfers Water Supply SV	0.00	0.00	374,593.11	0.00	0.00	0.00	0.00	374,593.11
9000 -Depreciation Expense	0.00	0.00	660,000.00	276,000.00	0.00	0.00	0.00	936,000.00
Total Other Expense	0.00	0.00	1,675,700.35	289,460.25	0.00	0.00	0.00	1,965,160.60
Net Other Income	0.00	429,160.60	-1,675,700.35	-289,460.25	600,000.00	0.00	0.00	-936,000.00
Net Income	**379,274.21**	**65,675.62**	**401,877.81**	**-252,714.10**	**-81,677.28**	**-939,162.05**	**77,282.79**	**-349,443.00**

Roxborough Water and Sanitation District
Profit & Loss -General Fund
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Income		
5200- Property Taxes	54,496.62	517,270.71
5210- Specific Ownership Taxes	13,112.80	44,829.53
5820- Investment Income	5,989.88	20,958.96
Total Income	73,599.30	583,059.20
Gross Profit	73,599.30	583,059.20
Expense		
6020-Payroll Expenses	11,680.69	38,375.72
6040- Accounting	2,375.00	9,500.00
6050- Contract Labor	0.00	0.00
6080- Education	2,874.37	4,598.71
6099- Election	19,501.31	24,715.03
6100- Engineering	1,111.70	6,754.80
6130- Insurance	2,184.00	8,753.75
6150- Legal	991.88	5,417.02
6180- Misc. Expenses	469.91	1,075.93
6200- Office Expense	3,914.28	12,552.50
6210-Operating Supplies	1,758.49	1,758.49
6220- Permits	0.00	24,896.77
6225-Rent	2,693.52	2,693.52
6230- Repairs and Maint	12,520.22	34,998.20
6250- Treasurers Fees	817.45	7,759.06
6260- Utilities	348.87	591.15
6270- Vehicle	1,146.04	1,146.04
7300- Capital Projects	18,198.30	18,198.30
Total Expense	82,586.03	203,784.99
Net Ordinary Income	-8,986.73	379,274.21
Net Income	**-8,986.73**	**379,274.21**

Roxborough Water and Sanitation District
Profit & Loss -Debt Service
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Income		
5200- Property Taxes	17,556.90	166,661.29
5210- Specific Ownership Taxes	4,224.48	16,147.60
5820- Investment Income	1,532.27	7,251.93
Total Income	23,313.65	190,060.82
Gross Profit	23,313.65	190,060.82
Expense		
6250- Treasurers Fees	263.35	2,499.92
6420-Loan Adminstrative Fees	0.00	38,400.00
6500- CWRPDA -PVH D15a356	0.00	116,617.50
7100-Principal Payments-W05A105	0.00	272,500.00
7150-Ravenna CWCB	0.00	82,425.19
7200- Interest Payments	0.00	41,103.19
Total Expense	263.35	553,545.80
Net Ordinary Income	23,050.30	-363,484.98
Other Income/Expense		
Other Income		
6900- Transfers In	27,555.99	54,567.49
6902- Transfers In WTP	93,706.52	374,593.11
Total Other Income	121,262.51	429,160.60
Net Other Income	121,262.51	429,160.60
Net Income	**144,312.81**	**65,675.62**

Roxborough Water and Sanitation District
Profit & Loss -Water Treatment
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Income		
5010- Service Charges	230,524.37	898,783.55
5100-Availability Charges	20,715.99	41,107.24
5211- Dominion WTP Operations	57,833.66	211,056.32
5310-Permit Fees	1,650.00	3,300.00
5410-Hydrant Water	8,005.00	15,367.50
5510-Potable Irrigation Water	1,806.50	5,671.60
5511-Irrigation Water	25,371.75	46,884.74
5601-Late Fees, Penalties,	3,344.15	13,997.59
5610- Miscellaneous Income	-324.87	-288.83
5611-Inclusion fees-NWDC	7,644.00	26,494.27
5620- Dominion Dist. Operations	16,898.26	65,947.03
5640- Dominion Treated Water Us	16,420.00	35,486.05
5650 Dominion Exp Reimbursement	0.00	461,358.86
5660- Ravenna Reimbursement	0.00	14,397.08
5700- Sys. Development Charge	135.00	50,540.00
5705 Ravenna SDC	28,447.42	100,749.38
5710- Capital Surcharge	11,900.78	47,574.63
5715- Capital Surcharge WTP Sup	93,706.52	374,593.11
5820- Investment Income	33,416.67	130,859.81
5850 - Reimbursed Exp Other	10,675.00	38,608.65
Total Income	568,170.20	2,582,488.58
Gross Profit	568,170.20	2,582,488.58
Expense		
6020-Payroll Expenses	53,941.45	197,939.59
6040- Accounting	2,375.00	9,500.00
6080- Education	2,079.37	3,646.74
6100- Engineering	2,586.20	7,901.20
6130- Insurance	2,184.00	8,753.75
6140- Lab & Test Fees	332.00	3,213.00
6150- Legal	2,607.01	4,592.39
6170 - Meter Expenses	0.00	306.00
6180- Misc. Expenses	743.60	1,241.48
6200- Office Expense	315.58	1,209.49
6210-Operating Supplies	1,592.42	4,868.55
6220- Permits	110.00	110.00
6230- Repairs and Maint	11,997.62	41,478.29
6240- Safety Equipment	427.19	1,914.46
6260- Utilities	22,379.58	72,936.54
6270- Vehicle	2,177.07	2,755.20
7300- Capital Projects	21,524.11	142,543.74
Total Expense	127,372.20	504,910.42
Net Ordinary Income	440,798.00	2,077,578.16
Other Income/Expense		
Other Expense		
8000- Transfers to Other Funds	20,715.99	641,107.24
8002- Transfers Water Supply SV	93,706.52	374,593.11
9000 -Depreciation Expense	165,000.00	660,000.00
Total Other Expense	279,422.51	1,675,700.35
Net Other Income	-279,422.51	-1,675,700.35
Net Income	**161,375.49**	**401,877.81**

Roxborough Water and Sanitation District
Profit & Loss -Water Distribution
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Expense		
6020-Payroll Expenses	33,478.11	121,367.84
6040- Accounting	2,375.00	9,500.00
6050- Contract Labor	2,796.00	8,338.08
6080- Education	2,079.38	8,742.52
6100- Engineering	23,662.95	83,578.00
6110-Conservation Rebates	75.00	125.00
6115- GPS/GIS	2,060.00	10,832.50
6130- Insurance	2,184.00	8,753.75
6140- Lab & Test Fees	768.00	1,396.00
6150- Legal	-281.25	7,372.89
6170 - Meter Expenses	2,167.56	6,750.76
6180- Misc. Expenses	0.00	140.86
6200- Office Expense	1,642.82	4,560.68
6220- Permits	2,365.00	7,125.00
6230- Repairs and Maint	20,041.12	46,453.39
6240- Safety Equipment	122.21	703.90
6260- Utilities	4,665.93	14,963.68
6270- Vehicle	1,717.48	5,949.87
6280- Water Costs	103,365.61	308,059.15
7290- Water Rights	8,561.34	13,828.34
7300- Capital Projects	52,884.41	270,619.84
Total Expense	266,730.67	939,162.05
Net Ordinary Income	-266,730.67	-939,162.05
Net Income	**-266,730.67**	**-939,162.05**

Roxborough Water and Sanitation District
Profit & Loss -Sewer Fund
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Income		
5010- Service Charges	165,374.33	638,919.39
5100-Availability Charges	6,840.00	13,460.25
5101- Service Charges LMA	31,246.24	121,940.41
5310-Permit Fees	1,650.00	3,300.00
5601-Late Fees, Penalties,	1,643.04	4,997.41
5610- Miscellaneous Income	149.53	582.95
5625- Dominion Sewer Conveyance	40,820.00	157,580.00
5700- Sys. Development Charge	22,548.00	49,974.00
5710- Capital Surcharge	13,266.84	53,128.94
5820- Investment Income	40,403.70	151,548.11
Total Income	323,941.68	1,195,431.46
Gross Profit	323,941.68	1,195,431.46
Expense		
6020-Payroll Expenses	37,918.07	138,540.84
6040- Accounting	2,375.00	9,500.00
6050- Contract Labor	2,796.00	6,310.62
6065- Dominion expenses	0.00	82.00
6080- Education	2,079.38	4,697.03
6100- Engineering	10,545.95	52,322.62
6115- GPS/GIS	850.00	6,342.50
6130- Insurance	2,184.00	8,753.75
6150- Legal	909.88	4,592.39
6180- Misc. Expenses	0.00	2,667.82
6185- Littleton Service Fees	61,470.50	67,126.50
6200- Office Expense	1,159.73	6,019.26
6210-Operating Supplies	21,017.20	52,285.33
6220- Permits	0.00	4,877.90
6230- Repairs and Maint	3,862.15	16,251.36
6240- Safety Equipment	122.20	273.34
6260- Utilities	9,513.60	33,439.90
6270- Vehicle	1,203.33	5,096.74
7300- Capital Projects	24,105.63	739,505.41
Total Expense	182,112.62	1,158,685.31
Net Ordinary Income	141,829.06	36,746.15
Other Income/Expense		
Other Expense		
8000- Transfers to Other Funds	6,840.00	13,460.25
9000 -Depreciation Expense	69,000.00	276,000.00
Total Other Expense	75,840.00	289,460.25
Net Other Income	-75,840.00	-289,460.25
Net Income	**65,989.06**	**-252,714.10**

Roxborough Water and Sanitation District
Profit & Loss -Capital Fund
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Expense		
7301-Capital DWSD	0.00	0.00
7308- O-Line Capacity Improve.	29,629.98	53,368.28
7310 - WTP- Dominion Pump	306,674.80	550,519.96
7311- Dominion System Improve.	5,994.80	36,652.04
7312- Ravenna Pump Station	1,395.00	2,186.90
7313 - Valley View Project	7,586.30	38,950.10
Total Expense	351,280.88	681,677.28
Net Ordinary Income	-351,280.88	-681,677.28
Other Income/Expense		
Other Income		
6900- Transfers In	0.00	600,000.00
Total Other Income	0.00	600,000.00
Net Other Income	0.00	600,000.00
Net Income	**-351,280.88**	**-81,677.28**

Roxborough Water and Sanitation District
Profit & Loss -PVH
April 2023

	Apr 23	Jan - Apr 23
Ordinary Income/Expense		
Income		
5200- Property Taxes	55,177.75	182,013.59
5210- Specific Ownership Taxes	3,629.58	13,474.40
5820- Investment Income	1,297.68	4,328.83
Total Income	60,105.01	199,816.82
Gross Profit	60,105.01	199,816.82
Expense		
6040- Accounting	1,000.00	4,000.00
6150- Legal	0.00	266.00
6250- Treasurers Fees	827.74	2,730.32
6550-CWCB Principal c150346	0.00	115,447.15
7311- Dominion System Improve.	0.00	90.56
Total Expense	1,827.74	122,534.03
Net Ordinary Income	58,277.27	77,282.79
Net Income	**58,277.27**	**77,282.79**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual- General Fund
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5200- Property Taxes	517,270.71	1,761,246.00	-1,243,975.29	29.4%
5210- Specific Ownership Taxes	44,829.53	120,000.00	-75,170.47	37.4%
5610-Misc Income	0.00	1,000.00	-1,000.00	0.0%
5820- Investment Income	20,958.96	5,000.00	15,958.96	419.2%
Total Income	583,059.20	1,887,246.00	-1,304,186.80	30.9%
Gross Profit	583,059.20	1,887,246.00	-1,304,186.80	30.9%
Expense				
6020-Payroll Expenses	38,375.72	130,000.00	-91,624.28	29.5%
6040- Accounting	9,500.00	31,500.00	-22,000.00	30.2%
6041- Audit	0.00	30,000.00	-30,000.00	0.0%
6050- Contract Labor	0.00	10,000.00	-10,000.00	0.0%
6060- Directors Fee	0.00	8,000.00	-8,000.00	0.0%
6080- Education	4,598.71	20,000.00	-15,401.29	23.0%
6099- Election	24,715.03	30,000.00	-5,284.97	82.4%
6100- Engineering	6,754.80	40,000.00	-33,245.20	16.9%
6130- Insurance	8,753.75	30,000.00	-21,246.25	29.2%
6150- Legal	5,417.02	25,000.00	-19,582.98	21.7%
6180- Misc. Expenses	1,075.93	10,000.00	-8,924.07	10.8%
6200- Office Expense	12,552.50	40,000.00	-27,447.50	31.4%
6210-Operating Supplies	1,758.49			
6220- Permits	24,896.77	30,000.00	-5,103.23	83.0%
6225-Rent	2,693.52	5,000.00	-2,306.48	53.9%
6230- Repairs and Maint	34,998.20	205,000.00	-170,001.80	17.1%
6250- Treasurers Fees	7,759.06	45,000.00	-37,240.94	17.2%
6260- Utilities	591.15	2,000.00	-1,408.85	29.6%
6270- Vehicle	1,146.04	5,000.00	-3,853.96	22.9%
6300- Bank Service Charges	0.00	2,000.00	-2,000.00	0.0%
7300- Capital Projects	18,198.30	75,000.00	-56,801.70	24.3%
Total Expense	203,784.99	773,500.00	-569,715.01	26.3%
Net Ordinary Income	379,274.21	1,113,746.00	-734,471.79	34.1%
Other Income/Expense				
Other Expense				
8000- Transfers to Other Funds	0.00	700,000.00	-700,000.00	0.0%
Total Other Expense	0.00	700,000.00	-700,000.00	0.0%
Net Other Income	0.00	-700,000.00	700,000.00	0.0%
Net Income	**379,274.21**	**413,746.00**	**-34,471.79**	**91.7%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Debt Service
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5200- Property Taxes	166,661.29	567,412.00	-400,750.71	29.4%
5210- Specific Ownership Taxes	16,147.60	80,000.00	-63,852.40	20.2%
5820- Investment Income	7,251.93	30,000.00	-22,748.07	24.2%
Total Income	190,060.82	677,412.00	-487,351.18	28.1%
Gross Profit	190,060.82	677,412.00	-487,351.18	28.1%
Expense				
6250- Treasurers Fees	2,499.92	15,000.00	-12,500.08	16.7%
6420-Loan Adminstrative Fees	38,400.00	76,800.00	-38,400.00	50.0%
6500- CWRPDA -PVH D15a356	116,617.50	233,236.00	-116,618.50	50.0%
6550-CWCB Principal c150346	0.00	483,231.00	-483,231.00	0.0%
6551- CWCB Interest c150346	0.00	493,412.00	-493,412.00	0.0%
7100-Principal Payments-W05A105	272,500.00	545,000.00	-272,500.00	50.0%
7150-Ravenna CWCB	82,425.19	82,425.00	0.19	100.0%
7200- Interest Payments	41,103.19	61,956.00	-20,852.81	66.3%
Total Expense	553,545.80	1,991,060.00	-1,437,514.20	27.8%
Net Ordinary Income	-363,484.98	-1,313,648.00	950,163.02	27.7%
Other Income/Expense				
Other Income				
6900- Transfers In	54,567.49	160,000.00	-105,432.51	34.1%
6902- Transfers In WTP	374,593.11	1,092,000.00	-717,406.89	34.3%
Total Other Income	429,160.60	1,252,000.00	-822,839.40	34.3%
Net Other Income	429,160.60	1,252,000.00	-822,839.40	34.3%
Net Income	**65,675.62**	**-61,648.00**	**127,323.62**	**-106.5%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Water Treatment
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5010- Service Charges	898,783.55	3,200,000.00	-2,301,216.45	28.1%
5100-Availability Charges	41,107.24	120,000.00	-78,892.76	34.3%
5211- Dominion WTP Operations	211,056.32	500,000.00	-288,943.68	42.2%
5310-Permit Fees	3,300.00	1,200.00	2,100.00	275.0%
5400-Rental Income	0.00	7,200.00	-7,200.00	0.0%
5410-Hydrant Water	15,367.50	40,000.00	-24,632.50	38.4%
5510-Potable Irrigation Water	5,671.60	40,000.00	-34,328.40	14.2%
5511-Irrigation Water	46,884.74	250,000.00	-203,115.26	18.8%
5601-Late Fees, Penalties,	13,997.59			
5610- Miscellaneous Income	-288.83	70,000.00	-70,288.83	-0.4%
5611-Inclusion fees-NWDC	26,494.27	50,000.00	-23,505.73	53.0%
5620- Dominion Dist. Operations	65,947.03	200,000.00	-134,052.97	33.0%
5640- Dominion Treated Water Us	35,486.05	100,000.00	-64,513.95	35.5%
5650 Dominion Exp Reimbursement	461,358.86			
5660- Ravenna Reimbursement	14,397.08			
5700- Sys. Development Charge	50,540.00	275,000.00	-224,460.00	18.4%
5705 Ravenna SDC	100,749.38	250,000.00	-149,250.62	40.3%
5710- Capital Surcharge	47,574.63	80,000.00	-32,425.37	59.5%
5715- Capital Surcharge WTP Sup	374,593.11	1,036,808.00	-662,214.89	36.1%
5820- Investment Income	130,859.81	50,000.00	80,859.81	261.7%
5850 - Reimbursed Exp Other	38,608.65	20,000.00	18,608.65	193.0%
Ravenna Bond Proceeds	0.00	3,196,997.00	-3,196,997.00	0.0%
WCC Water Line Project	0.00	1,205,000.00	-1,205,000.00	0.0%
Total Income	2,582,488.58	10,692,205.00	-8,109,716.42	24.2%
Gross Profit	2,582,488.58	10,692,205.00	-8,109,716.42	24.2%
Expense				
6020-Payroll Expenses	197,939.59	725,000.00	-527,060.41	27.3%
6040- Accounting	9,500.00	32,500.00	-23,000.00	29.2%
6050- Contract Labor	0.00	15,000.00	-15,000.00	0.0%
6065- Dominion expenses	0.00	20,000.00	-20,000.00	0.0%
6080- Education	3,646.74	25,000.00	-21,353.26	14.6%
6100- Engineering	7,901.20	175,000.00	-167,098.80	4.5%
6110-Conservation Rebates	0.00	0.00	0.00	0.0%
6115- GPS/GIS	0.00	25,000.00	-25,000.00	0.0%
6130- Insurance	8,753.75	25,000.00	-16,246.25	35.0%
6140- Lab & Test Fees	3,213.00	15,000.00	-11,787.00	21.4%
6150- Legal	4,592.39	37,500.00	-32,907.61	12.2%
6170 - Meter Expenses	306.00	0.00	306.00	100.0%
6180- Misc. Expenses	1,241.48	10,000.00	-8,758.52	12.4%
6200- Office Expense	1,209.49	20,000.00	-18,790.51	6.0%
6210-Operating Supplies	4,868.55	175,000.00	-170,131.45	2.8%
6220- Permits	110.00	3,000.00	-2,890.00	3.7%
6230- Repairs and Maint	41,478.29	250,000.00	-208,521.71	16.6%
6240- Safety Equipment	1,914.46	5,000.00	-3,085.54	38.3%
6260- Utilities	72,936.54	230,000.00	-157,063.46	31.7%
6270- Vehicle	2,755.20	5,000.00	-2,244.80	55.1%
6280- Water Costs	0.00	50,000.00	-50,000.00	0.0%
7300- Capital Projects	142,543.74	1,140,000.00	-997,456.26	12.5%
Total Expense	504,910.42	2,983,000.00	-2,478,089.58	16.9%
Net Ordinary Income	2,077,578.16	7,709,205.00	-5,631,626.84	26.9%
Other Income/Expense				
Other Income				
6900- Transfers In	0.00	500,000.00	-500,000.00	0.0%
Total Other Income	0.00	500,000.00	-500,000.00	0.0%
Other Expense				
8000- Transfers to Other Funds	641,107.24	120,000.00	521,107.24	534.3%
8002- Transfers Water Supply SV	374,593.11	1,036,808.00	-662,214.89	36.1%
8100- Transfer to Other Funds	0.00	0.00	0.00	0.0%

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Water Treatment
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
8150- Transfer to Capital Fund	0.00	3,565,000.00	-3,565,000.00	0.0%
9000 -Depreciation Expense	660,000.00			
Total Other Expense	1,675,700.35	4,721,808.00	-3,046,107.65	35.5%
Net Other Income	-1,675,700.35	-4,221,808.00	2,546,107.65	39.7%
Net Income	**401,877.81**	**3,487,397.00**	**-3,085,519.19**	**11.5%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Water Distribution
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Expense				
6020-Payroll Expenses	121,367.84	360,000.00	-238,632.16	33.7%
6040- Accounting	9,500.00	32,500.00	-23,000.00	29.2%
6050- Contract Labor	8,338.08	40,000.00	-31,661.92	20.8%
6065- Dominion expenses	0.00	60,000.00	-60,000.00	0.0%
6080- Education	8,742.52	25,000.00	-16,257.48	35.0%
6100- Engineering	83,578.00	200,000.00	-116,422.00	41.8%
6110-Conservation Rebates	125.00	25,000.00	-24,875.00	0.5%
6115- GPS/GIS	10,832.50	25,000.00	-14,167.50	43.3%
6130- Insurance	8,753.75	25,000.00	-16,246.25	35.0%
6140- Lab & Test Fees	1,396.00	10,000.00	-8,604.00	14.0%
6150- Legal	7,372.89	37,500.00	-30,127.11	19.7%
6170 - Meter Expenses	6,750.76	125,000.00	-118,249.24	5.4%
6180- Misc. Expenses	140.86	10,000.00	-9,859.14	1.4%
6200- Office Expense	4,560.68	20,000.00	-15,439.32	22.8%
6220- Permits	7,125.00	5,000.00	2,125.00	142.5%
6230- Repairs and Maint	46,453.39	225,000.00	-178,546.61	20.6%
6240- Safety Equipment	703.90	2,000.00	-1,296.10	35.2%
6260- Utilities	14,963.68	75,000.00	-60,036.32	20.0%
6270- Vehicle	5,949.87	5,000.00	949.87	119.0%
6280- Water Costs	308,059.15	2,000,000.00	-1,691,940.85	15.4%
7290- Water Rights	13,828.34	2,500.00	11,328.34	553.1%
7300- Capital Projects	270,619.84	3,555,000.00	-3,284,380.16	7.6%
Total Expense	939,162.05	6,864,500.00	-5,925,337.95	13.7%
Net Ordinary Income	-939,162.05	-6,864,500.00	5,925,337.95	13.7%
Net Income	**-939,162.05**	**-6,864,500.00**	**5,925,337.95**	**13.7%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Sewer Fund
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5010- Service Charges	638,919.39	1,800,000.00	-1,161,080.61	35.5%
5011- Service Charge Ravenna	0.00	300,000.00	-300,000.00	0.0%
5100-Availability Charges	13,460.25	40,000.00	-26,539.75	33.7%
5101- Service Charges LMA	121,940.41	300,000.00	-178,059.59	40.6%
5310-Permit Fees	3,300.00	33,000.00	-29,700.00	10.0%
5601-Late Fees, Penalties,	4,997.41			
5610- Miscellaneous Income	582.95	20,000.00	-19,417.05	2.9%
5625- Dominion Sewer Conveyance	157,580.00	360,000.00	-202,420.00	43.8%
5650 Dominion Exp Reimbursement	0.00	50,000.00	-50,000.00	0.0%
5670-Dominion Cap Lease O-Line	0.00	200,000.00	-200,000.00	0.0%
5700- Sys. Development Charge	49,974.00	200,000.00	-150,026.00	25.0%
5710- Capital Surcharge	53,128.94	160,000.00	-106,871.06	33.2%
5820- Investment Income	151,548.11	55,000.00	96,548.11	275.5%
Total Income	1,195,431.46	3,518,000.00	-2,322,568.54	34.0%
Gross Profit	1,195,431.46	3,518,000.00	-2,322,568.54	34.0%
Expense				
6020-Payroll Expenses	138,540.84	485,000.00	-346,459.16	28.6%
6040- Accounting	9,500.00	31,500.00	-22,000.00	30.2%
6050- Contract Labor	6,310.62	30,000.00	-23,689.38	21.0%
6065- Dominion expenses	82.00			
6080- Education	4,697.03	25,000.00	-20,302.97	18.8%
6100- Engineering	52,322.62	125,000.00	-72,677.38	41.9%
6115- GPS/GIS	6,342.50	25,000.00	-18,657.50	25.4%
6130- Insurance	8,753.75	30,000.00	-21,246.25	29.2%
6140- Lab & Test Fees	0.00	1,000.00	-1,000.00	0.0%
6150- Legal	4,592.39	15,000.00	-10,407.61	30.6%
6180- Misc. Expenses	2,667.82	1,000.00	1,667.82	266.8%
6185- Littleton Service Fees	67,126.50	1,100,000.00	-1,032,873.50	6.1%
6200- Office Expense	6,019.26	15,000.00	-8,980.74	40.1%
6210-Operating Supplies	52,285.33	100,000.00	-47,714.67	52.3%
6220- Permits	4,877.90	1,000.00	3,877.90	487.8%
6230- Repairs and Maint	16,251.36	150,000.00	-133,748.64	10.8%
6240- Safety Equipment	273.34	2,000.00	-1,726.66	13.7%
6260- Utilities	33,439.90	100,000.00	-66,560.10	33.4%
6270- Vehicle	5,096.74	2,000.00	3,096.74	254.8%
6300- Bank Service Charges	0.00	3,000.00	-3,000.00	0.0%
7300- Capital Projects	739,505.41	2,280,000.00	-1,540,494.59	32.4%
Total Expense	1,158,685.31	4,521,500.00	-3,362,814.69	25.6%
Net Ordinary Income	36,746.15	-1,003,500.00	1,040,246.15	-3.7%
Other Income/Expense				
Other Income				
6900- Transfers In	0.00	200,000.00	-200,000.00	0.0%
Total Other Income	0.00	200,000.00	-200,000.00	0.0%
Other Expense				
8000- Transfers to Other Funds	13,460.25	40,000.00	-26,539.75	33.7%
9000 -Depreciation Expense	276,000.00			
Total Other Expense	289,460.25	40,000.00	249,460.25	723.7%
Net Other Income	-289,460.25	160,000.00	-449,460.25	-180.9%
Net Income	**-252,714.10**	**-843,500.00**	**590,785.90**	**30.0%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-Capital Fund
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Expense				
6805-Ravenna Phase 3/4 Expense	0.00	2,360,000.00	-2,360,000.00	0.0%
7301-Capital DWSD	0.00			
7308- O-Line Capacity Improve.	53,368.28			
7310 - WTP- Dominion Pump	550,519.96			
7311- Dominion System Improve.	36,652.04	250,000.00	-213,347.96	14.7%
7312- Ravenna Pump Station	2,186.90			
7313 - Valley View Project	38,950.10	1,205,000.00	-1,166,049.90	3.2%
Total Expense	681,677.28	3,815,000.00	-3,133,322.72	17.9%
Net Ordinary Income	-681,677.28	-3,815,000.00	3,133,322.72	17.9%
Other Income/Expense				
Other Income				
6900- Transfers In	600,000.00	3,565,000.00	-2,965,000.00	16.8%
Total Other Income	600,000.00	3,565,000.00	-2,965,000.00	16.8%
Net Other Income	600,000.00	3,565,000.00	-2,965,000.00	16.8%
Net Income	**-81,677.28**	**-250,000.00**	**168,322.72**	**32.7%**

Roxborough Water and Sanitation District
Profit & Loss Budget vs. Actual-PVH
January through April 2023

	Jan - Apr 23	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5200- Property Taxes	182,013.59	450,300.00	-268,286.41	40.4%
5210- Specific Ownership Taxes	13,474.40	50,000.00	-36,525.60	26.9%
5820- Investment Income	4,328.83	1,000.00	3,328.83	432.9%
Total Income	199,816.82	501,300.00	-301,483.18	39.9%
Gross Profit	199,816.82	501,300.00	-301,483.18	39.9%
Expense				
6040- Accounting	4,000.00	12,000.00	-8,000.00	33.3%
6080- Education	0.00	1,000.00	-1,000.00	0.0%
6100- Engineering	0.00	2,500.00	-2,500.00	0.0%
6150- Legal	266.00	2,500.00	-2,234.00	10.6%
6250- Treasurers Fees	2,730.32	9,000.00	-6,269.68	30.3%
6500- CWRPDA -PVH D15a356	0.00	303,013.00	-303,013.00	0.0%
6550-CWCB Principal c150346	115,447.15	115,447.00	0.15	100.0%
7311- Dominion System Improve.	90.56			
Total Expense	122,534.03	445,460.00	-322,925.97	27.5%
Net Ordinary Income	77,282.79	55,840.00	21,442.79	138.4%
Net Income	**77,282.79**	**55,840.00**	**21,442.79**	**138.4%**

SUPPLEMENTAL INFORMATION

Long Term Obligations

CWCB- 2014 Loan	$ 15,118,912
CT2015-176 CWCB-PVH Water Supply	$ 1,944,671
2015 CWRPDA- PVH Infrastructure	$ 3,412,651
2019-2250 CWCB- Ravenna	$ 1,351,660
2005 CWRPDA Loan Payable	$ 2,067,500
TOTAL LONG TERM LIABILITIES	$ 24,895,394

Cash and Reserves Balances

The board of directors has directed the authority to designate a portion of the cash on hand as operating and capital reserves for both the Water and Sewer Funds. The operating reserves will be in an amount equal to 25% of the budgeted annual expenditures for each fund. These funds will be used to fund any operational expenses in excess of operating cash on hand. The capital reserves will be funded in an amount equal to 20% of the budgeted annual expenditures for the water fund and 10 % of the budgeted annual expenditures for the sewer fund. These funds will be used to fund capital improvements on existing capital assets and acquisitions of new capital assets. The balance in these funds as of April 30, 2023 is as follows:

	General Fund	Debt Service Water Fund	Debt Service Sewer Fund	Capital Projects Fund	Water Fund	Sewer Fund	PVH	Total
Operating Reserve	$ -	$ -	$ -	$ (250,462)	$ 3,000,000	$ 1,000,000		$ 3,749,538
Capital Reserve	-	-	-		459,271	538,722		$ 997,993
Operating Cash	2,880,104	593,809	6,427,955	-	8,141,422	11,127,277	507,612	$ 29,678,179
Total Cash on Hand	$ 2,880,104	$ 593,809	$ 6,427,955	$ (250,462)	$ 11,600,693	$ 12,665,999	$ 507,612	$ 34,425,710

Roxborough Water and Sanitation
Distribution of Cash in Bank- Water Fund
2023

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Cash Funds Available												
Cash in Bank - Water Fund	11,489,971	11,535,746	11,481,807	11,600,693								
Total Funds Available	11,489,971	11,535,746	11,481,807	11,600,693	0	0	0	0	0	0	0	0
Distribution of Available Funds												
Operating Reserve 25% of Budgeted Expenditures	3,000,000	3,000,000	3,000,000	3,000,000								
Capital Reserve	122,435	156,607	283,679	459,271								
Operating Cash	8,367,536	8,379,139	8,198,128	8,141,422								
Total Cash	11,489,971	11,535,746	11,481,807	11,600,693	0	0	0	0	0	0	0	0
Capital Reserve												
Beginning Reserve Balance	-67,588	122,435	156,607	283,679								
Additions to Reserve	250,000	250,000	250,000	250,000								
Use of Reserves	59,977	215,828	122,928	74,408								
Ending Reserve Balance	122,435	156,607	283,679	459,271	0	0	0	0	0	0	0	0

Roxborough Water and Sanitation
Distribution of Cash in Bank- Sewer Fund

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Cash Funds Available												
Cash in Bank - Sewer Fund	12,729,205	12,695,207	12,886,268	12,666,999								
Total Funds Available	12,729,205	12,695,207	12,886,268	12,666,999								
Distribution of Available Funds												
Operating Reserve 25% of Budgeted Expenditures	1,000,000	1,000,000	1,000,000	1,000,000								
Capital Reserve	553,513	552,055	25,607	538,722								
Operating Cash	11,175,692	11,143,152	11,860,661	11,128,277								
Total Available Funds	12,729,205	12,695,207	12,886,268	12,666,999	0	0	0	0	0	0	0	0
Capital Reserve												
Beginning Reserve Balance	377,828	377,828	377,828	377,828								
Additions to Reserve	185,000	185,000	185,000	185,000								
Use of Reserves	-9,315	-10,773	-537,221	-24,106								
Ending Reserve Balance	553,513	552,055	25,607	538,722	0	0	0	0	0	0	0	0

Roxborough Water and Sanitation
Distribution of Cash in Bank - Debt Service
2023

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Cash Funds Available - Water Treatment Plant												
Beginning Cash Balance	505,534	505,534	130,470	224,446								
Surcharge Collected	93,585	93,556	93,745	93,707								
Availability of Service Trans.	26,780	0	231	275,656								
Payment of Debt	82,426	468,620	0	0								
Ending Cash Balance	543,473	130,470	224,446	593,809	0	0	0	0	0	0	0	0

	Jan	Feb	March	April	May	June	July	August	Sept	Sept	Sept	Sept
Cash Funds Available - Sewer Debt Service												
Operating Cash	6,457,734	6,515,054	6,653,005	6,427,955								
Total	7,001,207	6,645,524	6,877,451	7,021,764	0	0	0	0	0	0	0	0

No Assurance is provided on these Financial Statements

Roxborough Water & Sanitation District
Property Tax Schedule
2023

SUMMARY – DOUGLAS & JEFFERSON COUNTIES

	2023										2023		
	Property Taxes	Delinquent Tax, Rebates and Abatements	Specific Ownership Taxes	Interest	Treasurer's Fees	HB 1006 Tax	HB 1006 Treasurer's Fee	Total Amount Received	Percentage of Levied Taxes Received Monthly	Percentage of Levied Taxes Received Y-T-D	Total Amount Received	Percentage of Levied Taxes Received Monthly	Percentage of Levied Taxes Received Y-T-D
January	$ 129		$ 14,908		$ 2			$ 15,039	0.00%	0.00%	$ 15,039	0.53%	0.53%
February	$ 95,940		$ 20,017		$ (1,686)			$ 114,271	4.60%	4.61%	$ 114,271	6.19%	6.73%
March	$ 553,505		$ 12,115		$ (8,303)			$ 557,317	26.57%	31.18%	$ 557,317	30.21%	36.93%
April	$ 127,231		$ 20,967		$ (1,909)			$ 146,289	6.11%	37.28%	$ 146,289	7.93%	44.86%
May								$ -	0.00%	37.28%	$ -	0.00%	44.86%
June								$ -	0.00%	37.28%	$ -	0.00%	44.86%
July								$ -	0.00%	37.28%	$ -	0.00%	44.86%
August								$ -	0.00%	37.28%	$ -	0.00%	44.86%
September								$ -	0.00%	37.28%	$ -	0.00%	44.86%
October								$ -	0.00%	37.28%	$ -	0.00%	44.86%
November								$ -	0.00%	37.28%	$ -	0.00%	44.86%
December								$ -	0.00%	37.28%	$ -	0.00%	44.86%
TOTAL	$ 776,805	$ -	$ 68,007	$ -	$ (11,896)	$ -	$ -	$ 832,916	37.28%	37.28%	$ 832,916	44.86%	44.86%

ARTICLE VII. WATER AND WASTEWATER SYSTEMS

7.1 RESPONSIBILITIES OF THE CUSTOMER/OWNER.

7.1.1 **WATER AND WASTEWATER SERVICE LINES**. See **Article 3.2**, **Water and Wastewater Service Lines** for definitions of service lines. District responsibilities are as specified in **Article 3.1**, **District Facilities** and **Article 3.2.2**, **District Ownership and Responsibilities**. Customer/Owner responsibilities are as specified in **Article 3.2.1**, **Customer Ownership and Responsibilities**. Damage, breaks, or stoppages in service lines shall be repaired by the Customer/Owner as specified in **Article 3.2.1**, **Customer Ownership and Responsibilities**. The District considers any water line break or wastewater stoppage a threat to the safety and welfare of people that live in the District and treats same as an emergency. In the case of a water line break, service shall be temporarily disconnected at the curb stop valve, meter pit or main line valves until appropriate repairs are completed. If the District considers that in the case of a waterline break or wastewater stoppage the safety and welfare of the District are in jeopardy, a written notice to the property owner specifying the time limit for the repairs to be completed will be given. If progress on the repair has not been made within the time specified on the written notice, the District shall have the authority to make the repair and to collect from the Customer/Owner all resulting costs thereof plus any administrative costs incurred by the District. The District shall be entitled to place a lien against the property of such Customer/Owner securing payment of such costs or be entitled to collect through the civil courts process or in any other legally available manner.

7.1.2 **WATER METERS**. All water services shall be metered. The Water Meter shall, after installation, inspection and approval, become the property of the District, and shall be maintained by the District. Refer to A**rticle 3.2.2, District Ownership and Responsibilities**. The Customer/Owner shall promptly notify the District if he believes there is any inaccuracy in Water Meter readings. The radio frequency device attached to the meter is considered a part of the meter. All other equipment, ancillary to the meter (setter, yoke, remote readout if there is one, etc.) piping, pressure reducing valve, control valve, fittings, etc., providing service to the property, is the responsibility of the property owner. The meter pit or curb stop box shall not be covered by any materials and shall be readily visible and accessible to District employees at all times. If meter pit or curb stop box is not visible and/or accessible after inspection it will be considered **Maintenance and Repair** as specified in **Article 9.1.4**.

7.1.3 **MOVED OR DESTROYED BUILDINGS**. When buildings are moved or destroyed, the original **Water/Sewer Connection Permit/Availability of Service Certificate** shall terminate. If the service lines to the new building are the same size upon reconnection to the new building as they were on the date the building was moved or destroyed, no additional System Development Charge will be required; however, all permitting fees and other fees permitted under the **Schedule of Fees, Rates and Charges** in **Exhibit A** shall be required. If the size of the service lines increases, the Customer/Owner shall be required to pay the difference between the original System Development Charge provided in the **Water/Sewer Connection Permit/Availability of Service Certificate** for the size of the service lines which were disconnected, and the amount of the System Development Charge, for the size of the service lines that are being reconnected.

7.1.4 **SEPTIC FACILITIES.** A septic facility may not be installed or utilized within the District's service area unless otherwise authorized by the Board of Directors in writing, and subject to such terms and conditions as the Board may determine, in its sole discretion. In the event that the District determines to only provide water service to property at such time that the property is included in the District's service area, septic facilities may be utilized unless otherwise prohibited by the Board of Directors and until the property is connected to the District's wastewater system. If an Owner/Developer wishes to install a septic facility, a written application to the Board of Directors must state what circumstances would be strong enough to cause the Board to overrule existing District policy. The Board may require a Feasibility Study, as specified in **Article 5.3.6**, **Requirement For Inclusion Feasibility Study**. If a permit for a septic facility is approved and the permit issued, the District shall not be responsible for maintenance of or any hazards created by the septic facility. The District reserves the **Right of Entry**, **Article 3.3**, to inspect the septic facility from time to time to ensure that the facility does not pose a threat to the health or safety of others in the District. Installation of an unapproved septic facility of any type shall be a violation of **Article 7.2.2**, **Illegal Acts**.

7.1.5 **RIGHT OF ENTRY.** The District may enter upon private property for the purpose of inspection, installation, replacement, repair, maintenance, observation, measurement, sampling or testing of water/wastewater systems or any portion of or any appurtenances to, as specified in **Article 3.3**, **Right of Entry**.

7.1.6 **WATER WELLS.** A water well may not be installed or utilized within the District's service area unless otherwise authorized by the Board of Directors in writing, and subject to such terms and conditions as the Board may determine, in its sole discretion. If an Owner/Developer wishes to install a water well, a written application to the Board of Directors must state what circumstances would be strong enough to cause the Board to overrule existing District policy. The Board may require a Feasibility Study, as specified in **Article 5.3.6**, **Requirement For Inclusion Feasibility Study**. If a water well is approved d, the District shall not be responsible for maintenance of or any hazards created by the water well facility. The District reserves the **Right of Entry**, **Article 3.3**, to inspect the water well from time to time to ensure that the facility does not pose a threat to the health or safety of others in the District. The District will not supply water service to the property with a water well without **Backflow/Cross-Connection, Article 7.3.3**, to prevent commingling of water sources with the District's water system. Installation of an unapproved water well of any type shall be a violation of **Illegal Acts**, **Article 7.2.2**.

7.2 PROHIBITED ACTS.

7.2.1 **UNAUTHORIZED PERSONS.** No unauthorized person shall connect to or disconnect from, cover, uncover, use, alter, disturb, or open onto the water or wastewater systems without first obtaining the applicable permit or authorization from the District. This includes, but is not limited to, the curb stop box or meter pit.

7.2.2 **ILLEGAL ACTS.** No person shall maliciously, willfully, or negligently, break, damage, destroy, cover, uncover, deface, tamper, or refuse "right of entry" as specified in **Article 3.3**, **Right of Entry**, to any portion of the water or wastewater systems even

though all or portions of the same may be privately owned and maintained by the Customer/Owner. No person shall install or use any type of septic facility or system, or drill or install any water well facility or system within the District's service area, except as otherwise authorized in Articles 7.1.4 and 7.1.6. The District may pursue to the limits of local, state, and/or federal laws any person or persons that cause damage to the District's infrastructure.

7.2.3 **EASEMENTS.** The District maintains its facilities in easements throughout the service area. No person shall construct or install any structure or improvement on the Easement Area including, without limitation, any building, fencing, streetlight, power pole, yard light, mailbox or sign, whether temporary or permanent, or plant or locate any tree, shrub, woody plant, nursery stock, garden, or other landscaping design feature on any part of the Easement Area without the District's prior written consent; however, such limitation shall not preclude the planting of grass and other natural vegetation.

7.2.~~3~~4 **PROHIBITED USES.** Prohibited uses of the District's systems include, but are not limited to, an unauthorized discharge to the wastewater system, an unauthorized connection or disconnection of water or wastewater service lines, or a tampering or in any way modifying any Water Meter or hydrant, or any other part of the District's system, even though all or portions of the same may be performed on a privately owned and maintained service line. Tampering with any Water Meter in any way or manner without District consent or making an unauthorized connection to the District's water or wastewater service lines is a criminal offense and subject to criminal prosecution. Per Section 18-4-506.5(2), C.R.S., any person who in any manner alters, obstructs, or interferes with the action of any Water Meter without the knowledge and consent of the District commits a class 2 misdemeanor. In addition, per Section 18-4-506.5(1), C.R.S., any person who connects any pipe, tube, stopcock, wire, cord, socket, motor or other instrument or contrivance with any main, service pipe, or other medium conducting or supplying water to any building without the knowledge and consent of the District commits a class 2 misdemeanor.

7.2.~~4~~5 **CONNECTION/DISCONNECTION OF SERVICE.** No unauthorized person shall be allowed to connect onto or disconnect from the water or wastewater systems or to enlarge or otherwise add to or change equipment, service or use of property without prior written approval of the District. All requests for a connection/reconnection of District service may be granted or denied by the District Manager at his/her sole discretion. All connections/reconnections of water or wastewater service from the District shall be inspected and approved only by District personnel, regardless of the ownership of any curb stop, meter pit or service line and regardless of the circumstances concerning the connection/reconnection. A connection and/or a reconnection is each a separate, distinct function and shall require additional inspections by District personnel. The District may impose a Connection of service charge, and/or a reconnection of service charge as may be set forth in **Exhibit A**, **Schedule of Fees, Rates and Charges**, or require an additional Water/Sewer Connection Permit.

7.2.~~5~~6 **UNAUTHORIZED CONNECTIONS.** Upon the discovery of any unauthorized connections, including but not limited to bypass of the Water Meter during construction, the Customer/Owner may be subject to the provisions of **Article 6.5**, **Failure to Obtain**

a Water/Wastewater Connection Permit and subject to prosecution for any criminal activity specified in **Article 7.2.3, Prohibited Uses**. If an unauthorized connection or disconnection has been made or any other changes, the District shall send written notice to the Customer/Owner of the property specifying the nature of the violation as provided in **Article 9.2.1, Notification of Violation**. The notification will include such information as set forth in **Article 9.2.1, Notification of Violation** and require the Customer/Owner to follow the schedule as specified in **Article 9.2.2**, **Violation Schedule.**

7.2.~~6~~7 SECTION INTENTIALLY OMITTED

7.2.~~7~~8 CHANGES TO EXISTING SERVICE. No change in the Customer/Owner's existing service lines, equipment, (such as meter pits, curb stops or appurtenances), water or wastewater service, or change in the use of the property served shall be made without obtaining a modified **Water/Sewer Connection Permit**. The payment of any fees shall also be required as set forth in **Exhibit A**, **Schedule of Fees, Rates and Charges**, and the Customer/Owner must obtain approval of the changes by the District. If any such change made will, in the opinion of the District, increase the burden, as specified in **Volume 1**, **Part 2**, **Technical Standards and Specifications**, placed on the District's systems by the Customer/Owner, the District shall determine if an additional System Development Charge is required for the property along with any additional service charges. If any changes to the existing service are made without obtaining a modified Water/Sewer Connection Permit/Availability of Service Certificate the District shall determine if the charges or fees shall be retroactive to the date of the start of the use of the additional District resources and/or may require a penalty be assessed for a violation of **Article 7.2.3**, **Prohibited Uses** and **Article 9.2**, **Violations**~~.~~

7.2.~~8~~9 NOTIFICATION OF VIOLATION. If the District, after inspection of the infrastructure in question, believes any customer, owner, developer or resident has changed its equipment, service, or use of its property in violation of these Rules and Regulations, it shall so notify the customer, owner, developer or resident of the nature of the changes made that violate the Rules and Regulations and shall follow the procedures as provided in **Article 9.2.1, Notification of Violation**. The notification will include such information as set forth in **Article 9.2.1, Notification of Violation** and require the Customer/Owner to follow the schedule as specified in **Article 9.2.2, Violation Schedule.** Failure to respond or make corrections within the specified time schedule will result in a violation as specified in **Article 9.2**, **Violations** and may include disconnection of service and prosecution of criminal activity specified in **Article 7.2.3, Prohibited Uses** or for any other violation of Federal and State Law.

7.2.~~9~~10 MULTIPLE USE OF WATER. No Customer/Owner shall make use of Gray Water for any purpose including watering indoor or outdoor plants, shrubs, trees, bushes, grass or other vegetation. If District personnel discover that a Customer/Owner is using Gray Water for any purpose, the District shall give written notice to the Customer/Owner of the property specifying the nature of the violation and the steps required to correct the violation. Failure to respond or make corrections within the specified time will result in a penalty as specified in **Article 9.2 Violations.**

Normal Wastewater shall mean domestic quality water which has been used and discharged into the wastewater system and which contains animal or vegetable matter in suspension or solution from residences, commercial buildings, institutions and industrial establishments not requiring pretreatment in accordance with Colorado Department of Public Health and Environment, Water Quality Control Division's current regulations. Normal wastewater shall also include "Gray Water" or domestic quality wastewater which has been used but has not been discharged into the wastewater system but has been collected into a receptacle by a Customer/Owner and is intended for re-use for irrigation or other purposes. Other than normal waste, a special permit is required that authorizes discharge of special waste to the District's wastewater system. Volume 1, Part 2 Standards and Specifications, of these Rules and Regulation's contains expanded definitions of these terms and possible pretreatment procedures that may be utilized in order to bring the wastes in compliance with the normal waste standards.

7.3 RESTRICTIONS ON USE OF THE WATER SYSTEM.

7.3.1 HIGH DEMAND USES. The District's potable water system has been planned and constructed to provide potable water for conventional domestic and commercial uses and for fire protection. Higher demand for other than conventional use shall follow the rules stated in the following.

1. Persons requesting a **Water/Sewer Connection Permit/Availability of Service Certificate** to use the water system to supply an industrial process or other commercial purpose which could be expected to require large quantities of water or unusual demand rates, shall be required to submit demand data as to water use and wastewater volumes before issuance of a permit will be considered. Use limitations and special discharge permit may be required by the Board.

2. Persons requesting a **Water/Sewer Connection Permit/Availability of Service Certificate** to use the water system to supply a property shall have a water service line that shall be sized according to the current **AWWA Manual M 22**, as specified in **Volume 1**, **Part 2**, **Technical Standards and Specifications**. The District may require residential structures to provide fixture counts per the current Uniform Plumbing Code at any time the District determines a high demand use may exist. If fixture counts are above the number recommended in the current Uniform Plumbing Code, the Customer/Owner may be required to pay an additional System Development Charge. Property containing additional outlying structures, as specified in **Volume 1**, **Part 2**, shall be required to purchase additional water connections based on the required line size in accordance with the current Uniform Plumbing Code, to be determined by the District Engineer. In addition, a special discharge permit may be required. Only the District Manager may grant exceptions.

3. No separate irrigation-only water taps are allowed. New development is strongly encouraged to plan for low water use landscaping and avoid irrigated turf.

7.3.2 **COLORADO WATER CONSERVATION PROGRAM.** The Board of Directors has adopted the Colorado Water Conservation Program or "CWCP" in order to promote efficient water use during high demand water months and to discourage water waste. The CWCP is adopted by Resolution and made a part of these Rules and Regulations as **Exhibit D**. The CWCP applies to all District residents and property owners.

7.3.3 **BACKFLOW/CROSS-CONNECTION.** Except as expressly permitted, water in the District's system and water from any other source shall not be commingled. Water from any other source shall be distributed through a system entirely independent of the District's system, as specified in **Volume 1, Part 2, Technical Standards and Specifications.**

1. **BACKFLOW/CROSS-CONNECTION PREVENTION DEVICE.** If a Backflow/Cross-Connection Prevention Device Permit is issued and the potential of backflow is present, a backflow prevention device approved by the District shall be installed to prevent its occurrence. The Customer/Owner shall install, operate, test, and maintain the backflow prevention device as required by the District. The Customer/Owner may be required to provide the District with yearly, certified test results of the backflow preventer. Tests should be made on the device at a minimum of once per year or as determined by the District. Design specifications, engineering standards, testing and reporting standards are found in **Volume 1**, **Part 2**, **Technical Standards and Specifications**, of these Rules and Regulations.

7.4 RESTRICTIONS ON USE OF THE WASTEWATER SYSTEM.

7.4.1 **GENERAL RESTRICTIONS**. Rules, definitions, and technical information on special and prohibited wastes, pretreatment of special wastes, interceptor requirements for special wastes, and special manhole requirements may be found in **Volume 1**, **Part 2**, **Technical Standards and Specifications**, of these **Rules and Regulations**.

1. No waste or wastewater other than normal household biodegradable wastewater may be discharged into the wastewater system unless the District has issued a permit to the Customer/Owner.

2. No person shall discharge or cause to be discharged, through sump pumps, other types of pumps, downspouts, drains, any storm water, surface water, roof runoff, groundwater, sub-surface drainage, cooling water or untreated process waters directly or indirectly via service lines, manholes or storm drainage facilities to any portions of the District's wastewater system unless a permit has been issued to the Customer/Owner by the District.

3. Any wastes which may qualify as special waste, as specified in **Volume 1**, **Part 2**, **Technical Standards and Specifications**, may require analysis at a District approved laboratory at the Customer/Owners expense prior to discharge to the wastewater system, and may be discharged only upon the issuance of a permit to the Customer/Owner by the District.

4. Prohibited waste shall not be discharged into the wastewater system.

7.4.2 **UNAUTHORIZED DISCHARGE.** Examination for the possibility of any such unauthorized discharge or condition may be made, as specified in **Article 9**, **Inspections and Enforcement of Water and Wastewater Regulations**, by the District Manager, District Engineer, District employee or an authorized District maintenance contractor, any of whom shall have the right to enter upon any premises at any reasonable time for the purpose of making such an inspection, as specified in **Article 3.3**, **Right of Entry**. If it is found that any such prohibited connection or discharge has been made, the Customer/Owner shall stop the discharge immediately. The District shall give written notice of the violation to the Customer/Owner requiring the disconnection of the device from the wastewater system or correction of the condition causing the unauthorized discharge within five days. Failure to correct the prohibited act or acts shall result in a violation that may include fines, penalties and/or disconnection of service as specified in **Article 9.2**, **Violations**. Otherwise the District shall make such disconnection or correction and the cost thereof, as specified in **Article 9.3 Cost Assessments**, shall be paid by the Customer/Owner of the property and/or person(s) causing such unauthorized discharge.

7.5 EMERGENCY RESPONSE

7.5.1 **CIRCUMSTANCES CONSTITUTING AN EMERGENCY.** Certain circumstances may constitute an emergency and District Personnel will respond subject to the following:

1. If water or wastewater is being discharge from any pipe, meter or other appurtenance of the District's system, it shall be reported immediately to the District. During normal business hours, 8:00 – 4:30 p.m. Monday through Friday, report the emergency to the District's office, (303) 979-7286. If an emergency occurs outside of normal business hours, call the office and follow the prompts or contact the District's after hours on-call service, and they will contact the District's on-call personnel. District on-call personnel will do their best to respond as soon as possible. Note that water shut-offs, due to nonpayment, are not considered to be an emergency.

2. When contacting the District due to an emergency, the customer should inform the District if the emergency is not resulting in the discharge of water or wastewater that will damage private property or pose a risk to public health or the environment. In these cases, District on-call personnel will respond within two (2) to four (4) hours from the time the call is received.

3. If District on-call personnel respond to an after-hours emergency and it is determined the problem is with the water or wastewater pipes, valves or other appurtenances owned by and the responsibility of the owner, the owner will be charged the following:

    a. One hundred dollar ($100.00) after-hours on-call response charge;
    b. Time and material charges for District on-call personnel, vehicles, tools and materials; and
    c. An administrative fee equal to fifteen percent (15%) of the time and materials charge.

4. If an owner must schedule contractors or plumbers after hours to facilitate repairs or maintenance that require District personnel to be present to operate curb stops or for other reasons, the District may waive the $100.00 after-hours on-call response charge set forth in **Article 7.5.1.3.a** if the owner makes arrangements with the District in advance to schedule the work.

ARTICLE IX. INSPECTIONS AND ENFORCEMENT OF WATER AND WASTEWATER REGULATIONS

9.1 **INSPECTIONS.** Inspection(s) shall be performed by a District inspector who will inspect, and accept or reject, all construction work completed and materials furnished by a contractor, or any other work, as detailed in the Rules and Regulations. Inspections of new and/or existing connections and related appurtenances to the District's system, as specified in **Article 3.2.1**, **Customer/Owner Ownership and Responsibility** may be performed by the District to ensure the health, safety, and welfare of the public water and wastewater systems as well as compliance with these Rules and Regulations. The charge for scheduled inspections or return trips (re-inspections) for new connections shall be as set forth in **Exhibit A**, **Schedule of Fees, Rates and Charges**. The District may enter upon private property for the purpose of inspection, installation, replacement, repair, maintenance, observation, measurement, sampling or testing of water/wastewater systems or any portion of or any appurtenances to, as specified in **Article 3.3, Right of Entry**.

Permits may or may not require inspections. The individual or entity obtaining a permit from the District assumes that the District may inspect, at any time, any or all of the facilities that the permit was issued for. Some permits have one inspection included in the cost of the permit. **Return Trip Fees (Re-inspections)** may have penalty charges added to the original cost of the permit. See **Exhibit A, Schedule of Fees, Rates and Charges.**

9.1.1 **RESTRICTIONS ON USE OF WATER SYSTEM.** Restrictions on use of the water systems, as specified in **Article 7.3**, **Restrictions on the Use of Water System**, shall be corrected or abated by the Customer/Owner as directed by the District.

9.1.2 **RESTRICTIONS ON USE OF WASTEWATER SYSTEM**. Discharge of water, wastes or wastewater by a Customer/Owner in any manner which is in violation, as specified in **Article 7.4**, **Restrictions on the Use of Wastewater System**, shall be declared a public nuisance and shall be corrected or abated by the Customer/Owner as directed by the District.

9.1.2.1 **OBSTRUCTION OF SYSTEMS.** When a discharge of wastes or wastewater causes an obstruction, damage or any other impairment to the District facilities, the District may assess charges against the Customer/Owner for the costs incurred in cleaning or repairing the facility. These charges shall be due and payable immediately upon the District's invoicing of the Customer/Owner.

9.1.3 **EMERGENCIES.** The District considers any water line break or wastewater stoppage as a threat to the safety and welfare of people that live in the District and treats any water line break or wastewater stoppage as an emergency. Pre-approved contractors authorized by the District may do the work. This work does not require that permits be obtained prior to performing the work but does require written or verbal authorization by the District. If an emergency is deemed by the District to exist, the District at ~~it's~~its discretion, may disconnect the water and/or wastewater service line from the District's water and wastewater system, until such time as the District has received adequate assurance that any and all violations of the District's Rules and Regulations will cease and will not occur in the future.

Emergency work may be inspected at any time during the duration of the emergency and after the emergency is over to ~~insure~~ensure that emergency repairs were made according to the Rules and Regulations of the District. The District will, as soon as possible, provide written Notification of Violation, as specified in **Article 9.2**, **Notification of Violation**, to the customer, owner, developer, or resident citing the circumstances giving rise to the emergency and the reasons for termination of service, providing the other information specified in the **Notification of Violation**, and providing an opportunity for a hearing before the District. The fees charged for emergency inspections shall be shown in **Exhibit A, Schedule of Fees, Rates and Charges**.

9.1.4 **MAINTENANCE AND REPAIR ENFORCEMENT.** If routine Maintenance and Repair is deemed by the District to exist, which is the Customer/Owner responsibility as specified in **Article 3.2.1, Customer/Owner Ownership Responsibility**, the District will give written notice to the Customer/Owner. Written notice will include a brief description of the maintenance and/or repair needed, contact information and request for response from the Customer/Owner within a stated time frame. Failure to respond within stated time frame will constitute a violation as specified in **Article 9.2, Violations**.

9.2 VIOLATIONS.

9.2.1 **NOTIFICATION OF VIOLATION.** If the District, after inspection, determines that an emergency exists, **Article 9.1.3**, **Emergencies**, the emergency shall be corrected at the Customer/Owner's expense. If a non-emergency violation of these Rules and Regulations has occurred, the District shall so notify the Customer/Owner of the nature of the violation. The notification will include, at the District's discretion, the steps that are required to correct the deficiencies noted and a time frame to correct said deficiencies. A statement of the District's intent to assess any fees or any penalties, to discontinue service, and/or to file criminal charges against the Customer/Owner for violation of State law specified in **Article 7.2.3, Prohibited Uses** for any other violation of Federal and State law, will also be included in the notification.

9.2.2 **VIOLATION SCHEDULE. Except in the case of an emergency,** the Customer/Owner shall be afforded ten (10) days in which to respond to the District's notice. Failure to respond as required herein within the ten (10) day period shall be deemed to establish the fact of the violation and the District will have the right to take action to correct the violation at the Customer/Owner's expense and to pursue criminal charges against the Customer/Owner for violation of State law as specified in **Article 7.2.3, Prohibited Uses** or for any other violation of Federal or State law. Fees, penalties and actions deemed appropriate by the District shall be assessed and/or enacted against the Customer/Owner and/or the property in question and shall be collected as provided under these Rules and Regulations and Colorado law, **Article 8.5**, **Collection Policies** and **Article 9.4.2**, **Penalties for Non-Payment of Other Than Service Charges**.

9.2.3 **RESOLUTION OF VIOLATION.** If the Customer/Owner responds within ten days, the District Manager may defer payment of the violation fees pending a resolution of the violation; provided, however, the Customer/Owner may remain subject to prosecution for any criminal activity specified in **Article 7.2.3, Prohibited**

Uses or for any other violation of Federal and State law. Such a response by the Customer/Owner shall include permission to make such inspections of the property in question as the District Manager or his representatives shall deem necessary to establish the fact that the corrections of the deficiencies noted have been made to the District's satisfaction. The Customer/Owner shall thereafter take all steps prescribed by the District Manager and shall pay all required fees within the time period established by the District Manager. Nothing in this Article 9.2 shall prevent the District from seeking criminal charges against the Customer/Owner for any illegal acts described in **Article 7.2.3, Prohibited Uses** or for any other violation of Federal and State law.

9.3 COST ASSESSMENTS.

9.3.1 **ASSESSMENT OF COSTS FOR INSPECTIONS AND VIOLATIONS**. The cost incurred for any such inspection, notice of violation, action or proceeding**,** shall be charged to the Customer/Owner, and, until paid, shall constitute a perpetual lien against the property. The District shall have all legally available remedies for the collection of such costs and any penalties assessed by the District. The District shall also be entitled to recover its costs of collection.

9.3.2 **PENALTIES.** Any person who shall violate any provision of these Rules and Regulations shall be fined, as specified in **Exhibit A**, **Schedule of Fees, Rates and Charges**, and/or prosecuted to the full extent of Colorado law. All costs and expenses, legal, engineering, administrative, court costs, penalties assessed, and any other expenses incurred, prosecuting the violator will be collected by lien or through the courts.

9.3.3 **CIVIL LIABILITY.** Any person who intentionally or negligently violates any provision of these Rules and Regulations or the conditions set forth in any permit duly issued shall be subject to civil liability to the District. Violators shall be prosecuted to the full extent of Colorado law. All costs and expenses, legal, engineering, administrative, court costs, penalties assessed, costs of collections, and any other expenses incurred prosecuting the violator will be collected by lien or through the courts.

9.3.4 **APPEAL AND HEARING PROCEDURES**. An appeal concerning the interpretation, application, or enforcement of the Rules and Regulations of the District must be presented in writing to the District Manager, as specified in **Article 10.1**, **Request for Hearing**.

9.4 PENALTIES.

9.4.1 **PENALTIES FOR NON-PAYMENT OF SERVICE CHARGES**. Any time a Customer/Owner is overdue in payment of any service charges set forth in set forth in the **Exhibit A**, **Schedule of Fees, Rates and Charges**,~~,~~ due the District, the District shall have the right to assess an interest charge and/or penalties as set forth in the **Exhibit A**, **Schedule of Fees, Rates and Charges**. The District shall further have the right, in its sole discretion, to disconnect service to any Customer/Owner who becomes thirty (30) days or more overdue in payment for scheduled services. If payment of the outstanding obligation or a request for a hearing, as specified in **Article 10.1**, **Request for Hearing**, is not received by the District, the District Manager or other District

representative shall disconnect the service and the Customer/Owner shall be assessed the cost, as specified in **Exhibit A**, **Schedule of Fees, Rates and Charges** of the disconnection, and, additionally, shall be assessed the cost of reconnection when service is restored.

9.4.2 **PENALTIES FOR NON-PAYMENT OF OTHER THAN SERVICE CHARGES**. At any time a Customer/Owner is overdue in payment of any charges due to the District, the District shall have the right to assess an interest charge and/or penalties as set forth in the **Exhibit A**, **Schedule of Fees, Rates and Charges**. The District shall further have the right, in its sole discretion, to disconnect service to any Customer/Owner who becomes thirty (30) days or more overdue in payment for services. If payment of the outstanding obligation and penalties or a request for a hearing, as specified in **Article 10.1**, **Request for Hearing**, with any required deposit is not received, the District Manager or other District representative shall disconnect the service and/or revoke all permits and other rights to perform work or otherwise conduct business within the District. The Customer/Owner shall be assessed the cost of the disconnection and the reconnection of service as specified in **Exhibit A**, **Schedule of Fees, Rates and Charges**. The District shall have all legal remedies to collect any outstanding obligations, as specified in **Article 9.6**, **District Rights**. Non-payment of any charges due the District may have a chilling effect on the Customer/Owner position with the District on any other properties within the District.

9.4.3 **REVOCATION OF A WATER/SEWER CONNECTION PERMIT/AVAILABILITY OF SERVICE CERTIFICATE.** The right to connect to the District's systems and receive services shall be revocable by the District upon non-payment of any District fees owing to the District and remaining unpaid for a period of thirty (30) days, whether or not the Customer/Owner with the right to connect has actually connected to the District's systems. Such revocations shall be conducted in the same manner as specified in **Section 9.4.2**, **Penalties for Non-Payment**. If the Water/Sewer Connection Permit/Availability of Service Certificate is revoked, the Customer/Owner may reacquire such rights only by paying all fees, charges and any penalties due and owing the District and requesting the reinstatement of the Customer/Owner's original Water/Sewer Connection Permit/Availability of Service Certificate. If the revoked permit is reinstated, the expiration date of the permit remains the same as in the original permit. It is in the District's sole discretion to reinstate the revoked Water/Sewer Connection Permit/Availability of Service Certificate or to require the Customer/Owner to purchase a new Water /Sewer Connection Permit/Availability of Service Certificate and System Development Charge paying all the then applicable fees and charges, **Exhibit A**, **Schedule of Fees, Rates and Charges**.

9.5 REQUEST FOR HEARING.

9.5.1 **REQUEST FOR HEARING.** When the Customer/Owner has been given a notice of service revocation as specified in **Article 9.4.1**, **Penalties for Non-Payment of Service Charges**, the Customer/Owner may request that a hearing be held as specified in **Article 10.1**, **Request for Hearing.**

9.6 DISTRICT RIGHTS

9.6.1 **DISTRICT RIGHTS.** The District has the right to assess to any customer, owner or developer overdue in payment of his account, all legal fees, court costs, connection and/or reconnection of service fees, and all other costs necessary to or incidental to the collection of said account. The District shall have all legal remedies to collect any outstanding obligation including the filing of liens against property or to initiate foreclosure proceedings.

9.6.2 **FORECLOSURE PROCEEDINGS.** Following efforts to collect overdue payments of any fee or charge assessed by the District under these Rules and Regulations and/or Colorado law, if it becomes necessary for the District to initiate foreclosure proceedings as allowed by § 32-1-1001(1)(j), C.R.S., as amended, the District shall in each such case be entitled to assess all legal fees, costs of collection, and other costs, which costs shall be payable in full upon assessment and shall be included in the lien then being foreclosed. Payment of said costs and any and all other fees outstanding against the subject property shall be a precondition to the resumption of service to that proper.

SCHEDULE OF FEES, RATES AND CHARGES (Exhibit A)

Approved June 21, 2022~~March 15, 2023~~ – Effective June 21~~March 25~~, 2023

The Board of Directors typically reviews rates in March each year, but these fees, rates and charges are subject to change at any time by the Board of Directors.

1.0 RESIDENTIAL AND COMMERCIAL CUSTOMER FEES, RATES AND CHARGES

Water

Residential and Commercial Monthly Base Water Charges per EQR*		
Service Charge	**Per month**	
Water Treatment and Distribution	$	39.00
Water System Replacement Fund	$	3.00
Monthly Surcharges Added to the Monthly Base Charge:		
Water Supply Fund (Roxborough & Ravenna)[1]	$	25.00
Extended System Development Charge (Ravenna)[2]	$	100.00
Ongoing Inclusion Fee (Subdistrict- Plum Valley Heights, Chatfields & TRIP)[3]	$	25.48
Residential Water Usage (per 1,000 gallons)		
Tier 1: 0-5,000	$	5.30
Tier 2: 5,001-10,000	$	6.25
Tier 3: 10,001-20,000	$	7.75
Tier 4: 20,001-40,000	$	10.00
Tier 5: 40,001 and up	$	17.00
Commercial Water Usage (per 1k gallons) *Examples 1" Tap= 2 EQR's*		
Tier 1: 0-10,000	$	5.30
Tier 2: 10,001-20,000	$	6.25
Tier 3: 20,001-40,000	$	7.75
Tier 4: 40,001-80,000	$	10.00
Tier 5: 80,001 and up	$	17.00

*EQR is 3/4" tap Equivalent Residential Unit

Notes:

1. Water Supply Fund is assessed for all customers in Roxborough Park, Roxborough Village, Chatfield Farms and Ravenna to repay the 2013 CWCB Loan for the purchase of a permanent water supply.
2. Because residents of Ravenna previously paid significant tap fees to the former water provider, Roxborough agreed to allow them to pay the District's System Development Charge (SDC) at $100/month for 15 years (Dec. 2034).
3. An Inclusion Fee of $3,700 per EQR was due to the District for each customer in the Plum Valley Heights Subdistrict (Plum Valley Heights, Chatfield East, Chatfield Acres, Chatfield Estates and TRIP) that was payable $500 at the time of the Inclusion and $25.48 per month of 10 years (Aug 2027). Residents of the PVH Subdistrict pay a debt service mill levy to pay for construction of the municipal water system and purchase water to serve them, therefore, they do not pay the $25 Water Supply Fund.
4. **Aurora Imposed Drought Surcharge - In the event of water shortages, the City of Aurora can vote to implement surcharges, at which time RWSD is required to impose similar surcharges in addition to the Water Usage Rates. Based on the water supply agreement with Aurora, RWSD is required to impose similar restrictions and surcharges on RWSD customers.**

~~Aurora Imposed Drought/Water Availability Surcharges (per 1,000 gallons)~~ ~~The water availability surcharges will be in addition to the Water Usage Rates described above.~~					
~~Tier~~	~~Usage (gal)~~	~~Normal~~	~~Stage I~~	~~Stage II~~	~~Stage III~~

~~I~~	~~0-5,000~~	~~$0.00~~	~~$0.00~~	~~$0.00~~	~~$4.20~~
~~II~~	~~5,001-10,000~~	~~$0.00~~	~~$1.95~~	~~$7.60~~	~~$12.60~~
~~III~~	~~10,001-20,000~~	~~$0.00~~	~~$1.95~~	~~$7.60~~	~~$12.60~~
~~IV~~	~~20,001 and up~~	~~$0.00~~	~~$1.95~~	~~$7.60~~	~~$12.60~~

Sewer

Residential and Commercial Monthly Base Sewer Charges per EQR*		
Sewer Collection and Treatment	$	44.50
Sewer System Replacement Fund	$	3.00
Commercial		
Non-Metered Sewer Usage (per 1,000 gal. water usage)	$	2.26
Metered Sewer Flow (per 1,000 gal. of sewer flow)	$	4.16

***EQR (Equivalent Residential Unit) Conversion Chart**

Water Tap Size	Multiplier (EQR)
¾"	**1**
1"	**2**
1 ½"	**4**
2"	**8**
3"	**18**

Irrigation (SDC) Rates and Water Usage Charges

Irrigation water connection size will be charged at 1.5 times the established Equivalent Residential Unit rates for the Monthly Base Water Charge and, for new connections, the water portion of the System Development Charge plus the Connection Permit.

2.0 NEW DEVELOPMENT FEES, RATES AND CHARGES

2.A Availability of Service Charge (ASC)

Vacant property will be billed an ASC when water and/or sewer service lines are available within 100' of the property line. ASC are billed quarterly, in advance, per lot or per acre (4.5 units per acre)

	Quarterly Billing for ASC	
	Lot	Acre
TOTAL	**$239.63**	**$1078.34**
Water	$168.38	$757.71
Sewer	$71.25	$320.63

2.B Plan Review/Field Work Permit

Developers will be billed for all costs of plan reviews. Additional fees will be determined after review of the construction plans. Fees will be paid prior to the Pre-Construction Conference and prior to the start of construction. Additional fees will be charged to the Developer if re-inspections are necessary.

2.C System Development Charges (SDC)

SDCs must be paid prior to obtaining a Water and Sewer Connection Permit and Availability of Service Certificate/Letter. Ravenna Properties are charged for the Water portion of the SDC monthly by agreement. (Ref. Section 1 Water, Footnote 2)

Total SDC for Water & Sewer	**$54,039.00**
Water Total SDC	**$37,109.00**
New Facilities	$3,561.00
Existing Facilities Buy In- Adjusted	$27~~,~~701.00
Water Supply	$5,847.00
Sewer Total SDC (Ravenna)	**$16,930.00**
New Facilities	$423.00
Existing Facilities Buy In- Adjusted	$ 10,851.00
Outside Treatment	$5,656.00
Subdistrict (included prior to 09/01/2017) **Subdistrict (included on or after 10/18/2017)**	**$15,680.00** **$23,500.00**

2.D Partial SDC for Auxiliary Structures

Auxiliary structures are defined in Exhibit B, Definition-Equivalent Residential Units and require a partial SDC to be paid equal to one-half of the District's Current SDC. SDCs must be paid prior to obtaining a Water and Sewer Connection Permit and Availability of Service Certificate/Letter.

Partial SDC for Water & Sewer	**$27,019.50**
Partial SDC for Water	**$18,554.50**
Partial SDC for Sewer ~~(Ravenna)~~	**$8,465.00**

~~2.D~~2.E System Development Charge Extension

The applicant may extend the SDC for a period of six (6) months by paying the current extension fee and paying the difference between the original and current SDC, if any. The extension request must be made prior to the expiration of the Connection Permit/Availability of Service Certificate. There is no limit to the number of extensions for an individual property.

Water Extension Fee	$250.00
Sewer Extension Fee	$250.00
Total	$500.00

~~2.E~~2.F2022 SYSTEM DEVELOPMENT CHARGE- CREDIT FOR PRE-PAID TAP FEES*

Pre-paid Taps (water tap fees purchased prior to 12/16/80) are credited based on the calculations underthe following tables. The credit goes toward the existing facilities portion of the SDC.

SDC Credit for Pre-Paid Tap Fee $880

	Water	Sewer	Total
SDC Owned Lot	$450	$430	$880
CCI Adjustment Factor **	7.52	7.52	7.52
SDC Credit	$3,384	$3,234	$6,618

SDC Credit for Pre-Paid Tap Fee $990

	Water	Sewer	Total
SDC Owned Lot	$506	$484	$990
CCI Adjustments Factor **	6.95	6.95	6.95
SDC Credit	$3,517	$3,364	$6,881

SDC Credit for Pre-Paid Tap Fee $1,200

	Water	Sewer	Total
SDC Owned Lot	$614	$586	$1,200
CCI Adjustments Factor **	6.95	6.95	6.95
SDC Credit	$4,267	$4,073	$8,340

***CCI Adjustment Factor is calculated using the Construction Cost Index (CCI) annual average for each year published by Engineering News Record.*

~~2.F~~2.G Connection Permit, Inclusion and Plan Review Fees

Total Connection Permit- Water & Sewer 1 EQR (3/4") Tap Size	**$1,650.00**
Permit Fee	$1,000.00
Meter Fee	$ 550.00
Transfer Fee	$ 25.00
Chatfield Watershed	$ 25.00
Water Resources Development Fee	$ 50.00
Stub In Fee (Water and Sewer Each)	$ 300.00
Inclusion Fee – District	$3,200.00
Inclusion Fee – Subdistrict	$ 500.00
Plan Review Application	$ 750.00

One inspection is part of a Permit cost. A charge of $50 will be assessed for each additional inspection if required. A charge of $100 is assessed for an emergency inspection.

Inclusion Fee of $3,200, for the District, plus $500, for the Subdistrict, per EQR or $14,400 per acre, for the District, plus $2,250, for the Subdistrict, prior to inclusion. Legal, engineering, and administrative costs as determined by the District must be escrowed with the District prior to any negotiations with the developer for reimbursement of any and all costs incurred by the District.

$750 plus $25.00 per lot will be charged for Plan Review. If more than two construction plan reviews are necessary, the developer will be charged for additional reviews.

2.H Hydrant Meter Charges

Damage Deposit	$1,500.00 (Any unused portion will be refunded upon return of the meter in good condition and account paid in full
Service Charge	$75 per month or any portion of a month. Not prorated
Water Use	$17.00 per 1,000 gallons

3.0 General Charges and Fees

Account Transfer Fee	$25.00
Fax: Send or Receive	$3.00 1st page and $1.00 additional
Insufficient Funds	$20 per check or ACH return
Late Fees- Service Account SDC/Availability Account	$15 per month if not paid by the 20th of month 1% per month of outstanding balance
Money order obtained for cash instead of check	$5.00
Shut off Fee	$100.00 (per RWSD Management)
Copies	$.25 per page
CORA (CO Open Records Act)	$.25 per page plus $33.85/hr
Credit Card Payments	$2.95 plus $2.00 per $100 paid
Electronic check	$2.95 per transaction
Bankruptcy Reconnection Fee	$150 deposit
Illegal Service Line Connection (water or sewer)	$1,000.00
Meter/Curb Stop Tampering	$1,000 and up (per RWSD Management)
Home Occupied – Meter Not Set	$1,000
Unmetered water usage (Jumper)	$300
Improper Water Meter Set (re-inspection)	$50
New Sod or Seed Permit Watering Exemption	$10
Watering Violations	Warning- 1st Offense $50- 2nd Offense $100- 3rd Offense $200- 4th Offense (will also be shut off with additional $100 fee) All fees must be paid before service is restored
Administrative Fees and Emergency/After Hours Fees	The District will invoice to cover the costs requiredof our employees to do work required by Developers, etc. to make changes to the District's Infrastructure. There is a $100 emergency after hours call fee.
Emergency After Hours Call	$100
Director of Operations	$100/ Hr x 1.5 for Overtime
Facility Operator/Field Superintendent	$75/ Hr x 1.5 for Overtime
Field Technician	$50/ Hr x 1.5 for Overtime
Office Staff	$45/ Hr x 1.5 for Overtime

EXHIBIT B
DEFINITIONS

ABBREVIATIONS

C.R.S. shall mean Colorado Revised Statutes.

GPD/Acre shall mean gallons per day per acre.

TBD shall mean To Be Determined.

ADMINISTRATIVE FEES shall mean all costs incurred by the District to accomplish a given task. These costs may be but are not limited to, out-of-pocket expenses, fees for preparation and publication of legal notices, preparation of District resolutions and Court orders, and other costs related thereto, including all costs incurred by the District for accounting, attorneys, engineers and other professional consultants who assist in evaluating proposals, contracts, agreements or other types of projects where the District may incur costs and/or general administrative processing activities or internal staff time.

ADMINISTRATIVE EXPENSES shall mean all other expenses incurred by the District for the processing of work that is not covered by specific **Office Staff Fees**. These fees will be determined on an individual basis.

AGREEMENT shall mean a written agreement between individuals or entities and the District to legally bind the parties in the agreement to accomplish work as specified therein, to define terms, conditions and procedures for providing water and wastewater improvements and/or services, or to use District facilities in a clearly defined or specified manner.

AVAILABILITY OF SERVICE CHARGES shall mean the availability of water and wastewater service or readiness to serve or standby charge permitted and described in Section 32-1-1006 (1)(h)(I), C.R.S. and otherwise permitted by the District's Service Plan, both as amended from time to time. Availability charges are assessed for property within the boundaries of the District. Availability of Service Charges shall be imposed, based on platted or zoned density of each existing Residential Unit or upon each acre of property upon which any development may be constructed and water or wastewater service lines are within 100 feet of the property line The amount of the charge shall be as set forth in **Exhibit A**, **Schedule of Fees, Rates and Charges**.

BACKFLOW/CROSS-CONNECTION shall mean any physical arrangement whereby a potable supply is connected, directly or indirectly, with any other water supply, irrigation system, wastewater line, drain, underdrain, conduit, tank, or plumbing fixture, in which contaminated water, sewage, or other waste, liquid or gas, may contaminate or pollute the potable water supply as a result of backflow, backsiphonage, suction or any other cause. Bypass arrangements, jumper connections, removal spools, swivel or changeover devices, four-way valve connections, and other temporary or permanent devices through which, or because of which, backflow could occur are considered to be cross-connections in accordance with current Colorado Department of Health Regulations. Backflow prevention devices must be used to prevent backflow caused by cross-connection. **Article 7.3.3**, **Backflow/Cross Connection**.

BACKFLOW/CROSS-CONNECTION PREVENTION DEVICE shall mean a device or means designed to prevent backflow created by backpressure, backsiphonage or backpressure and

backsiphonage acting together.

BACKFLOW/CROSS-CONNECTION PREVENTION DEVICE PERMIT shall mean a permit to allow the installation of a device or means designed to prevent backflow created by backpressure, backsiphonage or backpressure and backsiphonage acting together. The Customer/Owner shall install, operate, test, and maintain the backflow prevention device as required by the District. The Customer/Owner shall be required to provide the District with yearly, certified test results of the backflow preventer. Tests should be made on the device at a minimum of once per year or as determined by the District. **Article 7.3.2.1**, **Backflow Prevention Device**, **and Part 2**, **Technical Standards and Specifications**.

BLASTING. See **Explosives**.

BOARD AND/OR BOARD OF DIRECTORS shall mean the elected governing body of the Roxborough Water and Sanitation District.

BONDS shall mean performance and labor and material payment bonds or financial instruments.

CHATFIELD BASIN WATERSHED ASSOCIATION FEE is a part of the **Water/Wastewater Connection Permit/Availability of Service Certificate** fee charged to cover costs associated with the Chatfield Basin Watershed Association. The Association is charged with assuring the quality of water entering Chatfield Reservoir is not being degraded by its members. **Exhibit A, Schedule of Fees, Rates and Charges**.

CHECK INSUFFICIENT FUNDS CHARGES shall mean a charge placed on an account to recover the cost of processing a returned check. **Exhibit A, Schedule of Fees, Rates and Charges**.

CLEANUP shall mean the maintaining of work sites in a reasonable state of order and cleanliness.

COMMERCIAL CUSTOMER FEES, RATES AND CHARGES shall mean fees upon commercial uses within the boundaries of the District where the District provides service. These fees are set forth **Exhibit A, Schedule of Fees, Rates and Charges**.

CONTRACTOR shall mean any person, corporation, firm, partnership, or other legal entity which performs work or furnishes materials to property within the District or undertakes to construct, alter, move, demolish, repair, replace, excavate or add to any District facilities covered by these Rules and Regulations.

COPY CHARGE shall mean the charge per page for District personnel to make copies for non-District personnel using the District copy machine. **Exhibit A, Schedule of Fees, Rates and Charges.**

CORPORATION STOP (CORP STOP) shall mean the valve that connects the water service line to the water main line.

CROSS-CONNECTION. See **Backflow**.

CURB STOP shall mean the valve and box installed on a water service line to provide a means to shut off the service line. Usually at or near the Customer/Owner's property line and, provided it is located within the easement at the property line, defines the point where ownership of the service line transfers from the District to the Customer/Owner.

CUSTOMER/OWNER shall mean any person, company, corporation or other legal entity authorized to use the District's water or wastewater systems under a permit issued by the District. Customer/Owner may also mean the property's titleholder of record or a resident of the District.

DAY(S) or days shall mean calendar days unless "business days" are indicated.

DESIGN FLOW (WASTEWATER) shall mean the design of the wastewater collection~~distribution~~ system and shall include wastewater service for the entire area tributary to the outfall point according to the formulas in **Volume 1, Part 2, Technical Standards and Specifications**.

DESIGN FLOW (WATER) shall mean the design of the water distribution system based on the number and type of properties to be served according to the formula in **Volume 1, Part 2, Technical Standards and Specifications.**

DEVELOPER shall mean any person, company, joint venture, partnership, corporation or other legal entity that is the owner or developer of property and which desires service from the District or the right to construct an extension, improvements or other facilities in the District.

DEVELOPER FIELD WORK PERMIT shall mean authorization that allows a developer/owner to construct water and wastewater facilities within the District and wishes to convey the constructed facilities to the District. **Article 6.2, Required Permits, Exhibit A, Schedule of Fees, Rates and Charges.**

DEVELOPMENT~~evelopment~~ shall mean any activity on property in the District related to the preparation, construction, installation, and modification ~~and installation~~ of improvements of any kind to the District's systems.

DEVIATIONS shall mean an authorization in writing by the District, to make a change or changes to these Rules and Regulations in order to meet special conditions. If an emergency exists, the District Manager or ~~Field~~District Engineer may authorize a deviation.

DISCHARGE shall mean outflow to or from the District's wastewater system; the quantity of wastewater passing along a conduit per unit of time; or the rate of such flow.

DISCONNECTION/RECONNECTION OF SERVICE CHARGES (SHUT OFF FEE) shall mean the amount charged to the Customer/Owner of a connected water service to disconnect the water service for nonpayment of debt or other valid reasons as determined by the District. After the debt has been paid or the reason for disconnection has been remedied, the charge for reconnection is assessed. Each instance of a disconnection or reconnection of water service is chargeable. **Article 9.4, Penalties and Exhibit A, Schedule of Fees, Rates and Charges**.

DISTRICT shall mean the Roxborough Water and Sanitation District or the Board of Directors of the District.

DISTRICT BOARD AND/OR BOARD OF DIRECTORS OR BOARD shall mean the elected governing body of the Roxborough Water and Sanitation District.

DISTRICT ENGINEER OR ENGINEER shall mean the engineering firm, or duly authorized representative, designated by the District to act on its behalf in all engineering and related

matters.

DISTRICT FACILITIES shall mean all improvements and water and wastewater systems constructed by or for the District, which are or may become the property of the District.

DISTRICT MANAGER OR MANAGER shall mean General Manager of the District, or duly authorized agent designated by the District to act on its behalf in all management related matters.

DISTRICT PERSONNEL are persons or entities granted permission by the District Manager to perform work on the District's systems.

DISTRICT SYSTEM(S) shall mean the District water and/or wastewater facilities, or any other property owned by the District.

DRAINAGE(S) shall mean an artificial or natural surface on which water flows either intermittently or continuously.

DRAWING(S) OR PLANS shall mean profiles, cross sections, drawings, and supplemental drawings, approved by the District that show the locations, character, dimensions or details of the work. Drawings also refers to standard detail drawing specifications for use by Customer/Owner or Developer/Owner in designing new or extended facilities to be owned and operated by the District. These drawings are available from the District Engineer upon request.

AS BUILTS are drawings that show construction as completed and are signed and sealed by the design engineer.

~~**BLUELINE PRINTS** shall mean copies made from the master drawings by either ozalid or xerographic processes.~~

CONSTRUCTION DRAWINGS shall mean drawings that show what is to be constructed and shall be signed by the design engineer, the District Manager and approved by the County.

EASEMENT(S) shall mean the legal right of the District to have access to the District's water and wastewater systems for purposes of inspection, maintenance, repair, replacement, construction or the laying of new lines.

EFFLUENT shall mean wastewater after it has been processed through the wastewater treatment plant. This effluent may be used for irrigation purposes or discharged to a waterway as approved by the Colorado Department of Health.

EMERGENCY INSPECTIONS shall mean inspections done without notification on an emergency basis in order to protect the District's customers or facilities. Pre-approved contractors authorized by the District may perform the inspections. If the inspection shows that work is required to bring the emergency into compliance with the District's Rules and Regulations this work does not require that permits be obtained prior to performing the work. **Article 9.1.3, Emergencies and Exhibit D, Inspections.**

EMERGENCY WORK shall mean work done without notification on an emergency basis in order to protect the District's customers or facilities. Pre-approved contractors authorized by the District may

perform the work. This work does not require that permits be obtained prior to performing the work. **Article 9.1.3, Emergencies**.

EMERGENCY WORK PERMITS AND INSPECTIONS. The District considers any water line break or wastewater stoppage as a threat to the safety and welfare of people that live in the District and treats any water line break or wastewater stoppage as an emergency. Pre-approved contractors authorized by the District may perform the work. This work does not require that permits be obtained prior to performing the work but does require written or verbal authorization by the District. Emergency work may be inspected at any time during the duration of the emergency and after the emergency is over to ensure that emergency repairs were made according to the Rules and Regulations of the District. The fees charged for emergency inspections shall be as shown in **Exhibit A, Schedule of Fees, Rates and Charges.**

ENFORCEMENT shall mean that the District requires that all provisions of these Rules and Regulations and any other specifications by the District shall be met.

EQUIPMENT shall mean all machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of the work.

EQUIVALENT RESIDENTIAL UNIT (EQR) shall mean one single family unit with a 3/4 inch water tap/meter and 4 inch wastewater connection, and designed to be used as only one residential unit, each unit in a duplex, and each residential unit in a multi-family building with water service separately connected to the water main or distribution system. A residential unit is a room or group of rooms which includes or is designed to include kitchen, bathroom, and laundry facilities in which one or more people could reasonably reside. If a residential unit is served by larger than a 3/4 inch water tap/meter, the number of EQRs will be assigned based on the size of the water tap/meter as set forth in Section 1 of EXHIBIT A to these Rules and Regulations. Multi-family buildings with 3 or more units served by a single master meter water tap/meter will be assigned EQRs based on the size of the master meter water tap/meter.

When a separate, building or structure not intended for long-term residential use is added to a residential unit through connections to the existing service lines below the existing water service tap/meter and wastewater connection, a partial System Development Charge (SDC) shall be required, equal to one-half of the District's current SDC as adopted by the Board of Directors, provided that metered water use for both the primary residential unit and the separate structure will be monitored by the District and if use exceeds 0.4 acre feet per year, the difference between the partial SDC previously paid and the current SDC will be due, and the property owner will be billed for 2 EQRs for water and wastewater service going forward. ~~shall mean the average demand or discharge for a single-family detached residence or the equivalent, from a water and wastewater systems demand standpoint. Usually based on a 3/4 inch water connection or a 4 inch wastewater connection.~~

EROSION CONTROL PLAN shall mean a plan that complies with the Douglas County Storm Drainage and Technical Criteria Manual to control erosion into drainages, streams, lakes and reservoirs.

EXPLOSIVE(S) shall mean chemicals used in blasting to move or remove obstructions from areas that are to be used in the construction of Customer/Owner structures or the construction of or operation of the District's facilities. Overshooting, the use of too much explosive is prohibited. The contractor shall notify all appropriate individuals and entities prior to using explosives. The District requires a special pre-blast meeting.

EXTENSION OF SERVICE shall mean the extension of water and/or wastewater service to unserved property within the then existing boundaries of the District. **Article 5.4, Extension of Service**.

FACILITIES, see **District Facilities**.

FAX CHARGES shall mean the amount charged to FAX for one or more pages. **Exhibit A, Schedule of Fees, Rates and Charges.**

FEES are shown in **Exhibit A, Schedule of Fees, Rates and Charges.**

FIRE FLOW shall mean the quantity, in gallons per minute, of water flowing through a water main necessary to fight fires.

FIRE SERVICE LINE(S) shall mean a separate water line constructed for the sole purpose of fighting fires. Water service lines shall not be connected to fire service lines.

FINAL ACCEPTANCE OF FACILITIES shall mean a letter delivered by the District to the Owner/Developer upon the expiration of the warranty period set forth in the Preliminary Acceptance of Facilities letter for water and/or wastewater facilities constructed by the Owner/Developer, indicating the Owner/Developer has satisfied all of the requirements of the District as specified in a written agreement between the Owner/Developer and during the warranty period, and that the District accepts the Facilities for ownership, operation and maintenance by the District.

FORECLOSURE OF PROPERTY FEES shall mean all expenses incurred by the District to foreclose on a property for nonpayment of debts and shall be reimbursed to the District through the legal system resulting in the sale of the property. These fees are determined on an individual basis. **Article 8.4, Collection Policies**

GRAY WATER shall mean **Normal Wastewater** that has not been discharged into the wastewater system but has been collected in a receptacle by a **Customer/Owner** and is intended for re-use for irrigation or other purposes. Gray Water shall also be considered Non-Potable Water for purposes hereof.

HIGH DEMAND WATER USE. The District's potable water system has been planned and constructed to provide potable water for conventional domestic and commercial uses and for fire protection. Higher demand for other than conventional use shall follow the rules stated in **Article 7.3.1, High Demand Uses**, and the District may require additional fees and establish limitations before the permit is issued. These fees will be determined on an individual basis.

HYDRANT OR FIRE HYDRANT shall mean a valve assembly on a main waterline that will supply large volumes of water intended for fire protection.

HYDRANT METER DAMAGE DEPOSIT shall mean a deposit required to reimburse the District for the loss or damage of the hydrant meter and the related equipment. Additionally, the user is responsible for any damage to equipment that totals more than the established amount in **Exhibit A, Schedule of Fees, Rates and Charges.**

HYDRANT METER CHARGES shall mean the fees charged for the use of a hydrant meter after a permit is obtained from the District that authorizes connection to and use of District water from a fire hydrant. All such water use shall be metered and paid for as shown in **Exhibit A, Schedule of Fees,**

Rates and Charges.

HYDRANT METER MONTHLY SERVICE CHARGE shall mean a monthly service charge added to the **Hydrant Meter Water ~~-~~Charge. Exhibit A, Schedule of Fees, Rates and Charges**.

HYDRANT METER PERMIT shall mean the authorization to connect to and the purchase and use of water obtained from a District fire hydrant. All such water use shall be metered and paid for as shown in **Exhibit A, Schedule of Fees, Rates and Charges**.

HYDRANT METER WATER USE CHARGE shall mean the then current hydrant meter rate charged per 1000 gallons of water. **Exhibit A, Schedule of Fees, Rates and Charges**.

ILLEGAL SERVICE LINE CONNECTION (WATER OR SEWER) CHARGE shall mean any charge imposed on the Customer/Owner for illegal use of the District's water and/or wastewater system.

INCLUSION AGREEMENT shall mean that agreement, entered into between the District and, if applicable, Subdistrict and a person or entity seeking to include property into the District and, if applicable, the Subdistrict, setting forth the terms and conditions for including the property into the District, and if applicable, the Subdistrict, including the payment of costs and fees associated with the inclusion. **Article 5.3, Inclusion Process, Exhibit A, Schedule of Fees, Rates and Charges and Exhibit C, Agreements.**

INCLUSION FEE shall mean the fee paid by an Owner/Developer seeking to include property into the District and, if applicable, the ~~D~~Subdistrict. The Inclusion Fee covers the costs associated with processing the Petition for~~of~~ Inclusion, preparing documents, legal review, noticing the meeting, preparing an order for the court, recording the order, and any other costs associated with processing the inclusion. The Inclusion Fee does not include costs associated with an inclusion feasibility or fees associated with connecting the property to the District's water and/or wastewater systems.

INFRASTRUCTURE shall mean the water and wastewater systems of the District.

INSPECTION(S) shall be performed by a District inspector who will inspect, and accept or reject, all construction work completed and materials furnished by a contractor, or any other work, as detailed in the Rules and Regulations. The District may enter upon private property for the purpose of inspection, installation, replacement, repair, maintenance, observation, measurement, sampling or testing of water/wastewater systems or any portion of or any appurtenances to, as specified in **Article 3.3, Right of Entry. Article 9, Inspections and Enforcement of Water and Wastewater Regulations**.

INSPECTOR shall mean the authorized representative of the District assigned to make detailed inspections of construction or any other work to assure compliance with these Rules and Regulations and the plans approved by the District.

INSUFFICIENT FUNDS shall mean a charge placed on an account to recover the cost of processing a returned check. **Exhibit A, Schedule of Fees, Rates and Charges**.

INTERPRETATION shall mean the District shall interpret all questions pertaining to these Rules and Regulations. Interpretations by the District shall be final.

INTERRUPTION OF SERVICE shall mean a temporary discontinuance of water and/or wastewater

service to one or more customers. This temporary disconnection of service may include other utilities such as electric power, natural gas, telephone, or cable television service as deemed necessary by the appropriate entity in response to a request by the District.

IRRIGATION SYSTEM shall mean a metered system of providing water through the Customer/Owner service lines to irrigate an area of vegetation and shall be properly fitted with a backflow prevention device. No separate irrigation-only water taps are allowed. New **Development** is strongly encouraged to plan for low water use landscaping and avoid irrigated turf. See **DEVELOPMENT.**

LATE FEES shall mean charges added to an account for each time an account payment is past due.

MAILING ADDRESS LABELS CHARGES shall mean the charges made for the generation of a set of mailing address labels for individuals or organizations legally authorized to obtain them from the District.

MAINTENANCE AND REPAIR shall mean the maintenance and repair of the water/wastewater service lines and related appurtenances which are the responsibility of the customer/owner.

MATERIALS shall mean any and all supplies to be used in construction or the operation of the District.

> **MATERIAL(S), DEFECTIVE** shall mean materials that are not in conformance with the requirements of these Standards and Specifications.
>
> **MATERIAL(S), HARMFUL** shall mean any and all materials that may be harmful and/or pollute any part of the District or the environment. Harmful materials, if required, may be used when properly controlled and stored according to the appropriate regulations.

MAY is permissive. **SHALL~~hall~~** is mandatory.

METER shall mean any device measuring the flow of liquids installed by any person or entity given permission by the District to connect to the District's water and wastewater facilities.

MINUTES OF THE DISTRICT'S BOARD MEETING shall mean the public records kept of the District's Board Meetings.

MODIFICATIONS. See **Deviations**.

MONEY ORDER PURCHASE CHARGE in lieu of cash payment shall mean a charge paid if District administrative personnel are required to purchase a money order to satisfy the District rule of no cash transactions for District bills. **Exhibit A, Schedule of Fees, Rates and Charges**

NON-POTABLE OR IRRIGATION WATER MAIN shall mean a District or other entity owned water pipeline within the District, carrying non-potable water only and used primarily for irrigation, installed in a public street or easement.

NON-POTABLE WATER shall mean water not safe for human consumption; or water that does not meet the requirements set forth in the State of Colorado Primary Drinking Water Regulations. All water not specified as non-potable is to be considered as potable.

NORMAL WASTEWATER shall mean domestic quality water which has been used and discharged into the wastewater system and which contains animal or vegetable matter in suspension or solution from residences, commercial buildings, institutions, and industrial establishments not requiring

pretreatment in accordance with Colorado Department of Health, Water Quality Control Division's current regulations. **Volume 1, Part 2, Standards and Specifications**, of these **Rules and Regulations**, contains expanded definition of this terms and possible pretreatment procedures that may be utilized in order to bring the wastes in compliance with the normal waste standards.

NOTIFICATION OF VIOLATIONS shall mean the Customer/Owner is responsible for reimbursing to the District any and all expenses incurred by the District to generate the notice of violation of the District Rules and Regulations. This may include the reimbursement of any **Administrative Fees** and/or **Professional Fees**, or any other charges incurred by the District. Fees are determined on an individual basis.

OFFICE STAFF FEES are charges to users by the District for extra or special work done by District personnel over and above the normal office workload. **Exhibit A, Schedule of Fees, Rates and Charges.**

OPERATING PRESSURE shall mean the water pressure, measured in pounds per square inch (psi), that the various components of the water distribution system contains under normal operating conditions.

OPERATION shall mean the process of operating the District's facilities.

OUTDOOR WATER CONSERVATION PROGRAM OR OWCP shall mean that certain program, adopted by Resolution of the Board of Directors, mandating certain water conservation measures to be followed by all District residents and property owners during high water demand months.

OUTSIDE DISTRICT SERVICE AGREEMENT shall mean that no ~~water and~~ wastewater service shall be provided to property outside of the District except by a written agreement approved by the Board of Directors. This agreement will be issued on a ~~case by case~~case-by-case basis by the District. Charges for furnishing service outside the District shall be set on a case-by-case basis. Pursuant to the terms of the Water Supply Agreement between the District and the City of Aurora, no water service shall be provided outside of the District boundaries, as amended from time to time.

OVERSIZING shall mean the construction of water and/or wastewater lines or facilities beyond the capacity required to serve a particular property or properties in order to effectively provide service to additional properties within the District at a later date. See **Article 6.9, Oversizing**.

OWNER shall mean the property's title-holder of record or a resident of the District.

OWNER/DEVELOPER shall mean any person, company, corporation or other legal entity desiring the extension of the District's water and/or wastewater systems to serve property that is not currently receiving water and/or wastewater services from the District and, if applicable, the Subdistrict.

PENALTY CHARGES FOR VIOLATION OF THE DISTRICT'S RULES AND REGULATIONS shall mean a fine or penalty assessed to the Customer/Owner responsible for a violation of the District's Rules and Regulations. The District Manager or the District Board may assess the fine. Penalty Charges are determined on an individual basis.

PERIODIC MAINTENANCE REVIEWS AND/OR INSPECTIONS shall mean periodic reviews or inspections performed to ensure that equipment is functioning properly and to ensure that special permits or agreements are being maintained according to the provisions of the permits or agreement.

PERMIT(S) shall mean written permission of the Board of Directors authorizing certain work or procedures to be performed on, or use to be made of, the District's water and/or wastewater systems. Normally, permits require fees or charges that are paid to the District and may or may not require inspections. Permits must be obtained prior to the start of any construction.

PERSON shall mean any individual, firm, company, association, society, corporation, or other legal entity.

PLAN REVIEW FEES shall mean the Professional Fees paid by the Owner/Developer for review by the District of all engineered drawings and other plans submitted to the District for approval prior to the construction of any District facilities. If more than two construction plan reviews are necessary, the Developer will be charged for any additional costs. **Exhibit A, Schedule of Fees, Rates and Charges**.

PLANS. See **Drawings**.

POLLUTION shall mean improper use of equipment and/or materials that cause degradation of the environment or harm to the District's systems.

POTABLE WATER shall mean water free from impurities in amounts sufficient to cause disease or harmful physiological effects. The bacteriological, chemical, and radiological quality shall conform to State of Colorado Primary Drinking Water Regulations. All water not specified as non-potable is to be considered as potable.

PRELIMINARY ACCEPTANCE OF FACILITIES shall mean approval by the District to a developer of water and/or wastewater facilities in the District that indicates that the Owner/Developer has satisfied all of the requirements of the District as specified in a written agreement between the Owner/Developer and the District. and begins the warranty period prior to the Final Acceptance of Facilities

PRE-PAID TAPS shall mean a partial credit toward the System Development Charge as set forth on **Exhibit A, Schedule of Fees, Rates and Charges**.

PRESSURE REDUCING/SUSTAINING VALVES (PRV/PSV). See **Water Pressure Regulator.**

PRETREATMENT shall mean the process of treating wastewater prior to its being discharged into a District wastewater main. Defined in detail in **Volume 1, Part 2, Standards and Specifications**.

PRIVATE WASTEWATER LIFT STATION/EJECTOR PUMP/GRINDER PUMP shall mean any pumping system installed in conjunction with a residential or commercial property that conveys wastewater from the property to the District-owned wastewater main.

PROFESSIONAL FEES shall mean the costs incurred by the District for using professional services over and above what are considered normal and are passed on to the customer for reimbursement. These fees will be determined on an individual basis. These fees may consist of one or more of the following: accounting fees, **Administrative Expenses**, engineering fees, legal fees, other Professional Fees.

PROPERTY AND SURVEY MONUMENTS shall mean any marker or marking, private or public that delineates the legal boundaries of property.

RECONNECTION shall mean the connection of service after it has been disconnected.

REGULAR WORKING HOURS shall mean eight (8) AM until four thirty (34:30) PM of the same day, Monday through Friday, excluding District holidays.

RESIDENTIAL UNIT shall mean each single-family structure and any other residential dwelling structure permitted by applicable zoning within the District. See **EQUIVALENT RESIDENTIAL UNIT (EQR).**

RESOLUTION shall mean the official policies of the District as adopted by the District's Board of Directors and recorded in the Minutes of the Meetings of the Board of Directors.

RETAIL FACILITIES shall mean water/wastewater facilities constructed which are required to serve a new or expanding development and which are constructed and paid for by a developer for the District.

RETURN TRIP FEES (RE-INSPECTIONS) shall mean additional inspections beyond the original inspection paid for at the time the permit was issued and creating an additional charge to the District for the time spent making the additional inspections(s). **Article 9.1, Inspections, Exhibit A, Schedule of Fees, Rates and Charges and Exhibit D, Inspections.**

RIGHT OF ENTRY shall mean the right of the District's authorized personnel to enter properties in order to perform the work of the District as described in **Article 3.3, Right of Entry**.

RULES AND REGULATIONS shall mean these Amended and Restated Rules and Regulations adopted by the District's Board of Directors, including all amendments, exhibits, schedules, policies, and resolutions.

SEPTIC FACILITY shall mean a facility constructed on a property to dispose of wastewater without connection to the District's wastewater system. **Article 7.1.4, Septic Facilities**.

SERVICE shall mean water and/or wastewater service to a Customer/Owner.

(SERVICE) ACCOUNT TRANSFER FEE shall mean the amount charged to transfer an account from one person or entity to another. **Exhibit A, Schedule of Fees, Rates and Charges.**

SEWER MONTHLY BASE CHARGE shall mean a base or minimum fixed charge to each customer connected to the District's wastewater system. This charge covers all costs for the treatment of the wastewater the customers of the District generate including both fixed and variable costs. **Exhibit A, Schedule of Fees, Rates and Charges**.

SEWER SERVICE LINE. See **Wastewater Service Line**.

SEWER SYSTEM REPLACEMENT FUND shall mean a reserve fund to replace the District's wastewater infrastructure that in some areas was installed in 1972. The District has established the **Sewer Replacement Fund** that is funded by this charge as well as by a portion of the System Development Charge paid by new home construction at the time the Water/Sewer Connection Permit is purchased. **Exhibit A, Schedule of Fees, Rates and Charges.**

SHALL is mandatory. **MAY~~ay~~** is permissive.

SPECIAL PROVISIONS shall mean specific directions, provisions, or requirements peculiar to the project or work and not otherwise detailed or set forth in the specifications of the project or work. See **Deviations**.

SPECIAL WASTES shall mean any waste or wastewater other than normal wastewater. See **Normal Wastewater.**

STANDARD PRACTICES shall mean generally accepted engineering technical practices.

STANDARDS AND SPECIFICATIONS shall mean the body of directions, provisions, and requirements peculiar to the project or the work to be performed, describing the method or manner of construction, and the quality of materials furnished, as detailed in **Volume 1, Part 2, Standards and Specifications**, of these **Rules and Regulations**.

STORM DRAINAGE SEWER(S) shall mean a system that collects surface waters from streets or other areas and discharges the water to a surface drainage. The District does not own, operate, or maintain any storm drainage sewers. Cross connections to the District's wastewater system are prohibited. See **Backflow or Cross-Connection**.

SUBDISTRICT shall mean the Plum Valley Heights Subdistrict of the Roxborough Water and Sanitation District.

SUBDISTRICT BOARD shall mean the governing body of the Plum Valley Heights Subdistrict of the Roxborough Water and Sanitation District.

STUB-IN/STUB-OUTS. See **Water/Wastewater Stub-In/Stub-Out.**

SUBSTANTIAL COMPLETION shall mean that date, as determined by the District, when the construction project or a specified part hereof is sufficiently completed, in accordance with **Volume 1, Part 2, Technical Standards and Specifications**, so that the project or a specified part can be utilized for the purposes for which it is intended.

SUMP AND/OR SUMP PUMP(S) shall mean an underground pit in a structure that collects ground water or other seepage and that may contain a pump that will pump the collected water to an underdrain system or a surface discharge point. Pumping to or a cross connection with the District's wastewater system is prohibited. **Article 7.4, Restrictions on Use of the Wastewater System.**

SURFACE WATER shall mean rainwater, snowmelt, or excess irrigation water that collects and drains through storm water drainage systems to natural or artificial drainages.

SUPPLIER shall mean an individual, firm or corporation having a direct contract with a developer or contractor or with any subcontractor for the manufacture or furnishing of any part of the supplies or materials to be used at or incorporated in, work at the site.

SYSTEM DEVELOPMENT CHARGE (SDC) shall mean a onetime charge imposed by the District upon each **Residential Unit** or **Equivalent Residential Unit**, or other use such as commercial uses, paid for generally, at the time the **Water/Sewer Connection Permit/Availability of Service Certificate** is applied for. **Exhibit A, Schedule of Fees, Rates and Charges.**

TEST(ING)(S) shall mean methods or procedures used to accomplish the certification that materials or construction meets the requirements of **Volume 1, Part 2, Technical Standards and**

Specification.

TESTING AGENCY shall mean the entity charged by the District with the performance of tests required by the District.

TRAFFIC CONTROL PLAN shall be a plan, approved by Douglas County or Roxborough Park Foundation, made to mitigate traffic, both pedestrian and vehicular, through an area that a contractor is performing work for the District.

UNACCEPTABLE WORK shall mean work that does not conform to **Volume 1, Part 2, Technical Standards and Specifications** of these Rules and Regulations.

ILLEGAL SERVICE LINE CONNECTION (WATER OR SEWER) CHARGE UNAUTHORIZED USE OF DISTRICT WASTEWATER AND/OR WASTEWATER SYSTEM PENALTIES shall mean charge imposed on the Customer/Owner for illegal use of the District's water and/or wastewater system.

UNAUTHORIZED USE OF DISTRICT WATER AND/OR WATER SYSTEM PENALTIES CHARGES shall mean penalties levied on individuals or entities for illegal use of water. These penalty charges will be determined on an individual basis.

UPGRADE shall mean any improvement, replacement, modification or capital upgrade of any kind, which, in the opinion of the District, is not part of the District's routine operations and maintenance programs, or which creates a permanent betterment or improvement to the District's infrastructure.

UNDERDRAIN(S) shall mean a system that collects the discharge of peripheral drain systems from individual building foundations or from sump pumps. Pumping to or cross connection to the District's wastewater system is prohibited. The District shall not be responsible for the maintenance and operation of any underdrain system.

UNIT WATER DEMANDS shall mean the amount of water required to supply a residential or commercial development.

VALVE BOX shall mean an enclosure that provides access and surrounds a valve or water meter.

VIOLATION(S) shall mean an action or actions that are performed by contractors or customers/owners that are not in accordance with the provisions of these Rules and Regulations. Violations will be corrected immediately. **Article 9.2, Violations**.

WASTE(S) shall be classified as follows:

> **INDUSTRIAL WASTEWATER** shall mean the liquid wastes from industrial processes as distinct from domestic wastewater as defined further in **Volume 1, Part 2, Standards and Specifications** of these Rules and Regulations. See **Normal Wastewater**.
>
> **NORMAL WASTEWATER**. See **Normal Wastewater**.
>
> **PROHIBITED WASTE** is waste falling within any prohibited category as specified in **Volume 1, Part 2, Technical Standards and Specifications** of these Rules and Regulations.
>
> **SEWAGE**. See **Normal Wastewater** and **Special Wastewater**.

SPECIAL WASTEWATER shall mean wastewater that does not conform to the definition for **Normal Wastewater**.

Note: Volume 1, Part 2, Technical Standards and Specifications, of these **Rules and Regulations**, contains expanded definitions of these terms and possible pretreatment procedures that may be utilized in order to bring wastes into compliance with the normal waste standards.

WASTEWATER MAIN shall mean a pipeline conveying wastewater or special wastewater that is installed in a public street or easement that is owned by the District, as defined in **Volume 1, Part 2, Technical Standards and Specifications.**

WASTEWATER SERVICE LINE shall mean the wastewater service line extending from the wastewater main to the structure it serves. The Customer/Owner shall be responsible for the maintenance and replacement of the wastewater service line and related appurtenances from the property line to the structure to which the wastewater service line is attached. In certain instances, if the wastewater service line is in water/wastewater easements extending into the owner's property the District may assume responsibility for that portion of the wastewater service line that is within the easement. **Article 7.1.1, Water and Wastewater Service Lines.**

WASTEWATER SYSTEM shall mean ~~the wastewater treatment plant, all~~ wastewater mains, manholes, cleanouts if applicable, lift stations and related appurtenances owned and operated by the District lying within easements owned by the District or public right of way.

~~**WASTEWATER TREATMENT PLANT** shall mean the District owned facility that treats wastewater to bring all effluent and solid wastes into compliance with Federal and Colorado Department of Health, Water Quality Control Division's current regulations.~~

WATER CONSERVATION DEVICES shall mean devices that reduce the flow of water that is needed for a particular function.

WATER MAIN shall mean a District water pipeline, carrying potable water only, installed in a public street or easement owned by the District.

WATER METER shall mean any device measuring the flow of water installed by any person or entity given permission to connect to the District's water facilities. **Article 7.1.2, Water Meters**.

WATER METER FEE shall mean a charge imposed by the District, collected at the time of the purchase of the Water/Sewer Connection Permit to recover the cost of purchasing, installing, maintaining and replacement, if necessary, of the water meter. **Exhibit A, Schedule of Fees, Rates and Charges.**

WATER METER INSPECTION shall mean the inspection of any water meter for accessibility, accuracy and/or for any maintenance required to the meter itself and/or to the attached radio frequency device.

WATER PRESSURE BOOSTER SYSTEM shall mean a system installed by a ~~c~~Customer/~~ o~~Owner on the water service line to increase the water pressure.

WATER PRESSURE REGULATOR OR PRESSURE REDUCING/SUSTAINING VALVE (PRV/PSV) shall mean a device installed by a customer owner on the water service line that protects against

pressure surges in the water system. The PRV should maintain the water pressure to between 25 psi and 75 psi. PRVs are required on all residential and commercial properties in the District.

WATER SUPPLY FUND shall be a fee imposed by the District on each Customer/Owner to fund the acquisition of the District's permanent water supply. **Article 5.3.6, Water Resources Agreement, Exhibit A, Schedule of Fees, Rates and Charges**.

WATER MONTHLY BASE CHARGE shall mean a base or minimum fixed charge to each customer connected to the District's water system. This charge covers the fixed costs to provide water service to each customer. Examples of fixed costs are charges for utilities, insurance, office fees, accounting, billing and administration, costs that occur regardless of water use. **Exhibit A, Schedule of Fees, Rates and Charges.**

WATER SERVICE LINE shall mean the Customer/Owner shall own, maintain, and repair all water service lines and appurtenances from the property line to and throughout the structure served. Water service line appurtenances include, but are not limited to, the pressure reducing valve, and control valve. The District shall retain ownership of the water service curb stop, curb stop box, water meter, water meter pit, and radio frequency devices in accordance with Article 3.2.2. The Customer/Owner shall be responsible to not cover meter pit and curb stop boxes with any materials and to maintain meter pit and curb stop box lids 2 inches to 4 inches above final grade, readily visible and accessible to District employees at all time. Customer/Owner's ownership of the aforementioned water service line facilities listed in this Article 3.2.1 shall not entitle the Customer/Owner to make unauthorized use of District systems, as specified in **Article 7, Water and Wastewater Systems.** All use of service lines at any time after the initial connection to the District system shall be subject to these Rules and Regulations. The requirements outlined in this Article 3.2.1 shall not be changed by the fact that the District may construct, finance, pay for, repair, maintain or otherwise affect customer/owner's service lines.

WATER SYSTEM shall mean the water distribution system, fire hydrants, all valves, stub-ins/stub-outs, pumps, storage facilities, water plant and all appurtenances owned and operated by the District.

WATER SYSTEM REPLACEMENT FUND shall mean a reserve fund to replace the District's water infrastructure that in some areas was installed in 1972. The District has established a Water Replacement Fund that is funded by this charge as well as by a portion of the System Development Charge paid by new home construction at the time the Water/Wastewater Connection Permit is purchased. **Exhibit A, Schedule of Fees, Rates and Charges**.

WATER TREATMENT shall mean water treated in the District's Water Treatment Plant to ~~insure~~ensure that the potable water sent to the consumer is free from impurities in amounts sufficient to cause disease or harmful physiological effects. The bacteriological, chemical, and radiological quality of the potable water shall conform to State of Colorado Primary Drinking Water Regulations.

WATER USAGE RATE CHARGES shall mean a water-usage rate based on actual water consumption during the monthly billing period. Water usage rates are based on a block (tiered) structure that increases in the cost-per-gallon for the high-demand users. See **Exhibit A** for the current **Schedule for Rates and Fees.**

WATER/SEWER CONNECTION PERMIT/AVAILABILITY OF SERVICE CERTIFICATE shall mean a request for the authority to connect a structure to the water and/or wastewater system of the District, **Article 6, Permitting for Individual Service**.

WATER/WASTEWATER SERVICE LINE REPAIR CHARGE shall mean the recovery of all costs incurred by the District to repair or replace water or wastewater service lines to a structure. These charges are generally the result of the failure of the Customer/Owner to perform repairs that the District considers a threat to the public health and the safety of the District's water and wastewater systems. These charges will be determined on an individual basis.

WATER/WASTEWATER STUB-IN/STUB-OUT(S) shall mean the installation, after a **Water/Wastewater Stub-In/Stub-Out Permit** has been obtained from the District, of water or wastewater service lines from the water or wastewater main to a property line, for the purpose of connecting the property to the District's water or wastewater systems at a later date. Any stub-in/stub-out, whether constructed by the District or any person or entity, and whether located on private property, a public right-of-way or District easement shall be considered a part of the water or wastewater service lines and shall be the customer/owner's responsibility. The responsibility for maintenance and repair of that portion of the **Water/Wastewater Stub-In/Stub-Out** from the main to the property line transfers to the District when the service lines are completed to a structure, a meter is set and all inspections have been made and passed by the District. Stub-in/stub-outs shall include the corporation stop, service line piping from the main to the curb stop or meter pit, the curb stop and curb stop box, and the meter pit if used. See **Article 3, Ownership and Operation of Facilities and Article 7, Water and Wastewater Systems.**

WATER/WASTEWATER STUB-IN PERMIT shall mean the issuance of a permit by the District for the installation of water or wastewater service lines from the water or wastewater mains to a property line, for the purpose of connecting the property to the District's water or wastewater systems at a later date.

WATER/WASTEWATER STUB-IN/STUB-OUT(S) PERMIT FEES shall mean the fee charged by the District for the installation of water, wastewater or both water and wastewater stub-ins or stub-outs. **Exhibit A, Schedule of Fees, Rates and Charges.**

WET TAPS shall mean a connection to a water system without an interruption of service to other customers.

WHOLESALE FACILITIES shall mean major water or wastewater facilities constructed and paid for by the District that serve a significant number of customer/owners other than the developers. The District may designate such facilities on a case-by-case basis.

ARTICLE 1. TITLE, SCOPE AND GENERAL CONDITIONS

1.0 GENERAL PROVISIONS.

1.1 GENERAL.

1.1.1 **TITLE**. These Technical Standards and Specifications make up Part 2 of Volume I of the Roxborough Water and Sanitation District Rules and Regulations, and will be referred to herein as the Technical Standards and Specifications.

1.1.2 **PURPOSE**. The purpose of these Technical Standards and Specifications is to provide acceptable standards of design and construction for all improvements to the District's facilities that includes water and wastewater systems and facilities.

1.1.3 **APPLICABILITY**. These Technical Standards and Specifications shall apply to the construction, alteration, removal, or repair of District facilities. These Technical Standards and Specifications shall apply to District contracts, Customer/Owner contracts, Owner/Developer contract and private contracts.

All work on District water and wastewater systems shall comply with these Technical Standards and Specifications, including the applicable standard detail drawings that will be provided as needed or upon request.

1.1.4 **DISTRICT REPRESENTATION**. The District may appoint an engineer, construction inspector, or District employee to act on its behalf with respect to these Technical Standards and Specifications.

1.1.5 **ALTERNATE MATERIALS AND METHODS OF CONSTRUCTION**. The provisions of these Technical Standards and Specifications are not intended to prevent the use of materials or methods of construction not specifically prescribed by these procedures. The District will require that sufficient evidence or proof be submitted to substantiate quality and suitability of alternates. Alternate materials or methods shall not be used without written approval of the District.

1.1.6 **MODIFICATIONS**. When special conditions are encountered, the District may require modifications to, or deviations from these Technical Standards and Specifications to protect interests of the District. In such cases the decision of the District shall be final. Modifications or deviations shall be in conformity with the intent and purpose of these Technical Standards and Specifications and shall not lessen any design requirement or any degree of system integrity. The District shall issue authorization for modifications or deviations to the Technical Standards and Specifications in writing.

1.1.7 **TESTS**. The contractor as required by these Technical Standards and Specifications shall perform testing. In cases where there is insufficient evidence of compliance with the provisions of these Technical Standards and Specifications, or evidence that any material or construction does not conform to these Technical Standards and Specifications, the District may direct the contractor to perform additional testing as required to demonstrate compliance. Test methods will be as specified by these Technical Standards and Specifications or by other recognized test standards. If recognized and accepted test methods do not exist, the District will determine test procedures.

All testing will be performed by a testing agency approved by the District. A copy of all test reports shall be submitted directly to the District, by the testing agency. The contractor shall pay the cost of testing.

1.1.8 **INTERPRETATION AND ENFORCEMENT**. The District, or a District appointed representative, will interpret and enforce these Technical Standards and Specifications. Interpretations issued by the District will be final.

If work is performed contrary to the provisions of these Technical Standards and Specifications, the District may order the work stopped by a written notice to persons engaged in the doing or causing such work to be done, and such persons will immediately stop work until authorized by the District to proceed.

1.1.9 **LIABILITY.** The liability of the District and its employees is controlled and limited by the Colorado Governmental Immunity Act, 24-10-101 *et seq., C.R.S.* The District assumes no responsibility for contractors constructing facilities for private developers, whether or not the District has consulted with the developer or inspected any such construction and whether or not such facilities may eventually be conveyed to the District for the maintenance of facilities and for their safety commences only when such facilities are actually conveyed to the District. Consultants to the District, including but not limited to the District's engineer and contract operations firm, likewise assume no responsibility for the safety or sufficiency of any construction or work conducted by or for a private developer.

Where the District contracts with any contractor, the particular obligations of the District to that contractor shall be specified in the contract.

1.1.10 **PROHIBITED ACTIONS**. No person, firm, or corporation shall construct, alter, repair, or improve, any District facilities, or permit the same, in violation of these Rules and Regulations as specified in **Part 1, Administrative Policies and Procedures, Article 7.2, Prohibited Acts**.

1.1.11 **EMERGENCY WORK**. Contractors hired by the District to perform emergency work such as repair of pipeline leaks, shall comply with any applicable sections of these Technical Standards and Specifications, including insurance requirements. To ensure that contractors performing emergency work comply with the insurance requirements of these Technical Standards and Specifications, only pre-approved contractors will be allowed to perform emergency work within the District.

Contractors performing emergency work shall not be required to obtain a permit prior to performing the work.

1.1.12 **INSURANCE REQUIREMENTS**. The Contractor shall not commence work pursuant to any permit until he has obtained all insurance required by these Technical Standards and Specifications, nor shall the contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has been obtained and approved.

1. **PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE**. The contractor shall carry Comprehensive General Liability / Auto Liability insurance in the amount specified. All subcontractors shall be required to carry Comprehensive General Liability and Automobile Liability insurance in an

amount equal to that required by the contractor. The District shall be listed as an additional insured on the contractor's, and on each subcontractor's, comprehensive general liability insurance policy and auto liability insurance policy. Each additional insured endorsement shall contain a primary insurance clause providing that the coverage afforded to the District as an additional insured is primary and that any other insurance or self-insurance available to the District is non-contributing.

Contractor agrees that it will indemnify and hold harmless the District, the District's engineer and all of their consultants, agents and employees from any loss, cost, damage, expense and liability including attorney's fees, by reason of property damage, personal injury, or both, arising out of or as a result of the contractor's work, or any negligent act or negligent failing to act, or on account of the use of improper or defective materials, or on account of any poor workmanship or on account of any act of omission or commission in connection with the performance of work by contractor, its employees, agents and subcontractors. In any and all claims by or against the District, the District's engineer and their consultants, agents and employees, the indemnification obligation of this paragraph shall not be limited by any required policy of insurance.

2. **PROOF OF INSURANCE**. Prior to the commencement of any work under this contract, the contractor shall furnish to the District certificates of insurance to prove that all required insurance is in force, including the required additional insured endorsement described above, and shall require any subcontractor to submit similar evidence before undertaking work under this contract. Each insurance policy shall contain a clause providing that it shall not be canceled or materially altered without ten (10) days' written notice to the District. The District reserves the right to review the insurance coverage and to deny a permit if, in the Districts sole discretion, such coverage is not adequate. Neither acceptance by the District of any insurance supplied by a contractor or subcontractor, nor failure to deny a permit due to inadequacy of insurance, shall relieve the contractor or subcontractors of their obligation to maintain the required insurance in full force during the period of time work is performed under the permit.

3. **COVERAGES**. Contractors performing work under a field work permit, other agreement, and a **Water/Sewer Connection Permit/Availability of Service Certificate, Part 1, Administrative Policies and Procedures, Article 6.2,** shall maintain the following minimum insurance coverage and limits:

a. **Commercial General Liability**

General Aggregate	$2,000,000
Products and Completed Operations	$1,000,000
Personal & Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

In order to ensure that there are no impaired aggregates, a per job aggregate is required.

All coverage's shall be continuously maintained to cover all liability, claims, demands and other obligations assumed by the Contractor pursuant to this

agreement. A claims-made policy may satisfy these insurance requirements, provided that the necessary retroactive dates and extended reporting periods are procured by the Contractor to maintain such continuous coverage.

b. Comprehensive Automobile Liability Insurance. Coverage shall include all motor vehicles owned, hired, leased or borrowed, with a minimum combined single limit for bodily injury and property damage of not less than $1,000,000 each occurrence, and $1,000,000 aggregate.

c. Umbrella Policy. Coverage to be in excess of the commercial general liability and automobile liability limits of $1,000,000.

d. Workers Compensation. All contractors and subcontractors shall maintain workers compensation insurance in accordance with state law.

1.2 CONDITIONS OF THE WORK

1.2.1 **WORKING HOURS**. All work completed under these Technical Standards and Specifications shall be performed during posted Regular Working Hours. ~~are 8:00 am to 4:30 pm, Monday through Friday.~~ The Contractor shall not perform work outside of Regular Working Hours or on Saturday, Sunday or any District holiday without written consent of the District.

1.2.2 **EMERGENCIES**. When, in the opinion of the District, an emergency arises due to work under these Technical Standards and Specifications, and immediate action is necessary to protect public or private interests, the District may, with or without notice to the contractor or the developer, perform the required work to mitigate the emergency. The contractor or developer will pay for the cost of such work. The performance of emergency work by the District shall not relieve the contractor of responsibility for damages resulting from the performance of work under these Technical Standards and Specifications**.**

In the event of an emergency that threatens loss of life or extensive damage to the work or to adjoining property, the developer or contractor is authorized to take the necessary action to prevent such loss or damage. **Part 1, Article 9.1.3, Emergencies**.

1.2.3 **DAILY CLEANUP**. At all times during construction, the contractor shall maintain the site, partially finished structures, streets, material stockpiles and other like areas in a fit and reasonable state of order and cleanliness.

1.2.4 **FINAL CLEANUP**. Upon completion of the work, the contractor shall remove from the project area all surplus and discarded materials, rubbish, and temporary structures, and leave the project area in a neat and presentable condition. The contractor shall restore all work that has been damaged by his operations.

The contractor shall inspect the interior of all manholes and catch basins within the construction limits for construction materials, dirt, stones, or other debris resulting from the activities of the contractor, and shall remove all debris found.

1.2.5 **AUTHORITY OF DISTRICT**. The District will have the authority to stop the work whenever such stoppage may be deemed necessary. The District will resolve all

questions that arise as to the quality and acceptability of materials furnished, work performed, interpretation of the plans and specifications, and acceptable fulfillment of the requirements of these Technical Standards and Specifications.

1.2.6 **AUTHORITY AND DUTIES OF INSPECTOR**. The District inspector will inspect, and accept or reject, all work completed and all material furnished. Inspections may extend to any part of the work, and to the preparation, fabrication, or manufacture of the materials. The inspector is not authorized to revoke, alter, or waive any requirements of these Technical Standards and Specifications. See **Part 1, Administrative Policies and Procedures, Article IX, Inspections and Enforcement of Water and Wastewater Regulations**.

The inspector shall not act as foreman or perform other duties for the contractor, nor interfere with the management of the work performed by the contractor. Instructions or advice given by the inspector will not be binding upon the District, or release the contractor from fulfilling the terms of these Technical Standards and Specifications.

The presence or absence of the inspector will not relieve the contractor of the responsibility of complying with these Technical Standards and Specifications.

The inspector will at all times have reasonable and safe access to the work, and the contractor shall provide proper facilities for such access. See **Part 1, Administrative Policies and Procedures, Article 3.3, Right of Entry**.

1.2.7 **CONTRACTOR'S RESPONSIBILITY FOR WORK**. The contractor shall be responsible for controlling and supervising the work. It shall be the responsibility of the contractor to ensure that all work is constructed in accordance with these Technical Standards and Specifications.

1.2.8 **REMOVAL OF UNACCEPTABLE WORK**. Work that does not conform to these Technical Standards and Specifications will be considered unacceptable work. Unacceptable work shall be immediately removed and replaced, or otherwise corrected by the contractor.

1.2.9 **SCHEDULING OF WORK**. Work shall be accomplished in accordance with a schedule approved by the District. Deviations from the approved schedule shall be made only with written approval of the District.

1.2.10 **SAMPLES AND TESTS**. Sampling and testing will be in accordance with standard practices unless methods and procedures are otherwise set forth in these Technical Standards and Specifications.

The contractor shall furnish all samples, tests and reports required by the District to determine compliance of materials with these Technical Standards and Specifications. The contractor may be required to furnish a written statement identifying the origin, composition and process of manufacture of a material.

1.2.11 **STORAGE OF MATERIALS**. Materials shall be stored in a manner that insures the preservation of their quality and suitability for the work. Materials shall be stored only in locations approved by the District.

1.2.12 **DEFECTIVE MATERIALS**. Materials not in conformance with requirements of these Technical Standards and Specifications will be considered defective and will be rejected. Rejected materials shall be removed from the work site within 24 hours.

1.2.13 **LOCAL LAWS, ORDINANCES AND CODES**. The contractor shall comply with all current federal, state and local laws, codes and ordinances pertaining to the work being performed. The contractor shall obtain all necessary permits and approvals prior to commencement of the work.

1.2.14 **PUBLIC CONVENIENCE AND SAFETY**. The contractor shall erect the appropriate barricades, signs, or other safety measures, provide for adequate drainage around the work, and take other necessary precautions to safeguard the work and the public.

Fire hydrants shall remain visible from the street and accessible to the Fire Department at all times. No obstructions shall be placed within ten (10) feet of a fire hydrant.

1.2.15 **LOCATION OF EXISTING UTILITIES**. The contractor shall have all underground utilities located by the appropriate utility company prior to commencing work. The contractor shall avoid unnecessary exposure of underground utilities and shall protect underground utilities from damage due to performance of the work. The contractor shall not hinder or interfere with any person engaged in the protection or operation of underground utilities.

The District will locate existing water and sewer system underground facilities. The contractor shall request location of District facilities at least 48 hours prior to commencing excavation. Excavation shall not begin until the District has located pipelines and other facilities.

1.2.16 **PROTECTION AND RESTORATION OF PROPERTY AND SURVEY MONUMENTS**. The contractor shall prevent damage to public or private property adjacent to the work. The contractor at his expense shall restore property damaged by the contractor's operations. At least seventy-two (72) hours prior to commencing work the contractor shall give written notice to owners of property that may be affected by the contractor's operations.

The contractor shall protect and preserve existing survey monuments. Monuments disturbed or removed by the contractor shall be referenced and replaced by a professional land surveyor registered in the State of Colorado, at the contractor's expense.

1.2.17 **USE OF EXPLOSIVES**. When blasting is permitted, the contractor shall use the utmost care to protect life and property. Blasting will be permitted only when approved in writing by the District. A licensed Blasting contractor shall perform blasting.

Excessive blasting or Overshooting will not be permitted. The District may order discontinuance of any method of blasting which leads to overshooting, is dangerous to the public, or destructive to property or to natural features.

1.2.18 **PROTECTION OF STREAMS, LAKES AND RESERVOIRS**. The contractor shall take the necessary precautions to prevent pollution of streams, lakes, and reservoirs with fuels, oils, bitumen's, calcium chloride, or other harmful materials. Contractor operations shall be conducted in a manner that prevents or minimizes the release of silt or other materials to drainages, streams, lakes and reservoirs. An erosion control

plan shall be submitted to the District for approval prior to starting work. The erosion control plan shall comply with the Douglas County Storm Drainage and Technical Criteria Manual.

1.2.19 **DUST CONTROL**. The Contractor shall take the necessary steps to control dust arising from operations connected with the work. Sprinkling with water, or other approved methods shall control dust.

1.2.20 **TRAFFIC CONTROL, BARRICADES AND WARNING SIGNS**. ~~A Traffic Control Plan (TCP) shall be required for all work performed within a road right-of-way. The TCP shall p~~Provide safe methods for movement of pedestrians and motorists traveling through the work zone, and a safe work area for all workers engaged in construction activities. ~~The TCP shall show the location, spacing, scheduling and usage of advance warning signs, barricades, pavement markings and other control devices.~~ All control devices shall be installed and maintained in accordance with Douglas County, Colorado, Colorado Department of Transportation, or Roxborough Park Foundation requirements.~~the "“Manual of Uniform Traffic Control Devices"” (MUTCD).~~

~~The TCP shall include a scaled drawing showing the project area and the streets affected by the project. The drawing shall include the following information:~~

~~1. Location and spacing of properly planned traffic control devices.~~

~~2. The duration of construction activities.~~

~~3. The name and phone numbers of the contractor's designated traffic control supervisor.~~

~~4. Special notes or information pertaining to traffic control operations. The contractor shall be responsible for furnishing, erecting and maintaining traffic control devices required by the approved TCP, throughout the duration of the contract, including periods of suspension. Work shall be properly barricaded and lighted at all times.~~

~~When street cuts are required for water facilities construction, the following conditions shall be met to minimize interference with traffic:~~

~~1. Street service cuts shall be open only between 8:30 a.m. and 4:00 p.m.~~

~~2. Two-way traffic shall be maintained at all times around the construction area.~~

~~The TCP s~~The ~~T~~traffic Plan shall be submitted to the District ~~for approval~~. Work shall not be commenced until the District receives Douglas County, Colorado, Colorado Department of Transportation, or Roxborough Park Foundation approved traffic plans~~the District approves the TCP~~.

1.2.21 **USE OF DISTRICT WATER**. The contractor may purchase, when available, reasonable amounts of water from the District for construction purposes. Water shall be obtained at points designated by the District. All water obtained from the District's system shall be metered by obtaining a Hydrant Meter Permit and hydrant meter from the District. The cost of water shall be as set forth in the District's current **Part 1, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates and Charges**.

1.2.22 **MAINTENANCE OF DRAINAGE**. The contractor shall not prevent or obstruct the flow of water in street gutters or natural drainages, and shall utilize proper methods to maintain the flow of surface water while work is in progress.

1.2.23 **INTERRUPTION OF SERVICES**. Before starting work, the contractor shall plan and coordinate for the disconnection or interruption of all services including water, sewer, cable T.V., telephone, gas, and electric power. Disconnections or interruptions shall be made in accordance with the regulations of the utility that controls the supply of the service.

District approval shall be obtained a minimum of 48 hours prior to disconnection or interruption of water or sewer service. Twenty-four (24) hours prior to the interruption of service, the contractor and or District shall provide written notice to all users whose service will be interrupted. No line shall be shut down for more than a four (4) hour period at one time.

1.2.24 **EQUIPMENT OPERATED ON STREETS**. Only pneumatic-tired equipment shall be permitted to operate over paved surfaces. The contractor shall be responsible for damage to the street surface resulting from his operations.

1.2.25 **MATERIAL SUBMITTALS**. The Contractor shall submit detailed information specifications and drawings for each type of material or equipment proposed for incorporation into the work. The information submitted shall be in sufficient detail to demonstrate compliance with these Technical Standards and Specifications. Materials and equipment shall not be incorporated into the work until approved by the District.

1.2.26 **OPERATION OF DISTRICT SYSTEMS**. Only District personnel shall operate district systems. Developers, contractors, private owners and other persons shall not operate District facilities including valves, fire hydrants, pumps and other system components.

1.2.27 **RESTRICTIONS ON EXCAVATIONS FOR SERVICE LINES**. Excavation for installation of service lines to a single structure will not normally be permitted during the period from December 1 through March 31 of each year. The District may adjust the no-excavation period based on actual weather conditions. Persons wishing to perform excavation during this period will be required to furnish the District with a bond in the amount of $5000, as security for repairs which may be required due to damage the District's existing facilities.

Excavation for installation of service lines to a single structure shall not commence after 1 p.m., without written approval of the District.

1.3 APPROVALS AND INSPECTIONS

1.3.1 **APPROVALS REQUIRED**. Work covered by these Standards and Specifications shall not be commenced until the District has issued a permit covering the proposed work. The District shall be notified two (2) weeks before the planned start of construction.

1.3.2 **APPLICATION FOR DEVELOPER/FIELD WORK PERMIT**. Applicants shall submit an application for a permit for all work covered by these Standards and Specifications. All work except installation of water and sewer services to a single structure, and water and wastewater service stub-outs to a single structure, shall require a separate agreement with the District or an application for Developer/Field Work Permit. See

Part 1, Administrative Policies and Procedures, Article III, Ownership and Operation of Infrastructure, and **Article VI, Permitting for Individual Service**.

Each application shall:

1. Identify and describe the proposed work.

2. Describe the land on which the proposed work is to be done by legal description, street address, or similar description that will readily identify and definitely locate the proposed work.

3. Indicate the type of work or improvement.

4. Be accompanied by plans, diagrams, computations, specifications, and other data conforming to this **Article 1, Section 1.5, Plans and Specifications**.

5. State the valuation and the quantities of the work to be performed.

6. Be signed by the applicant or his authorized agent.

7. Include a starting and completion date for the work.

8. Provide other data and information as required by the District.

1.3.3 **APPLICATION FOR WATER/SEWER CONNECTION PERMIT/ AVAILABILITY OF SERVICE CERTIFICATE**. When the proposed work includes only the installation of water and wastewater service lines to a single structure, the applicant shall submit an application for Water/Sewer Connection Permit/Availability of Service Certificate, **Part 1**, **Administrative Policies and Procedures**, **Article 6.2, Required Permits**. If water and wastewater service lines are not constructed in a single, continuous operation from the main to the structure, a Water/Wastewater Stub-in Permit, **Part 1**, **Administrative Policies and Procedures**, **Article 6.2, Required Permits**, will be required, in addition to the Water/Sewer Connection Permit/Availability of Service Certificate.

1.3.4 **APPLICATION FOR WATER/WASTEWATER STUB-IN PERMIT**. When the proposed work includes only the installation of water and/or wastewater service line stub-ins to a single lot, the applicant shall submit an application for Water/Wastewater Stub-in Permit, **Part 1**, **Administrative Policies and Procedures**, **Article 6.2, Required Permits**. The permit application will be completely filled in. A Water/Wastewater Stub-In Permit shall not be required if a Water/Sewer Connection Permit/Availability of Service Certificate, **Part 1, Administrative Policies and Procedures**, **Article 6.2, Required Permits**, has been issued, and the entire service line from the main to the structure will be constructed in one continuous operation.

1.3.5 **APPROVAL OF APPLICATIONS**. The permit application, plans, specifications, insurance certificates and other data submitted by an applicant for a permit will be reviewed by the District. If the District finds that the work described in an application conforms to the requirements of these Technical Standards and Specifications, and that all required fees have been paid, a permit will be issued.

When the District issues a permit for work for which plans are required, the District Manager will endorse the plans in writing. The endorsed plans and specifications shall not be changed, modified, or altered without authorization from the District.

The approval of an application or issuance of a permit will not be construed to be an approval of any violation of the provisions of these Technical Standards and Specifications.

The approval of an application based on submitted plans, specifications or other data shall not prevent the District from requiring the correction of errors in said plans, specifications and other data, or from stopping construction operations which are in violation of these Standards and Specifications.

1.3.6 **FAILURE TO CONNECT/TERMINATION OF WATER/SEWER CONNECTION PERMIT AND THE DEVELOPER FIELD WORK PERMITS**. The Water/Sewer Connection Permit/Availability of Service Certificate shall expire 18 months after the date of issuance. The Developer Field Work Permits shall expire 12 months after the date of issuance.

1.3.7 **SUSPENSION OR REVOCATION OF PERMITS**. The District may suspend or revoke a permit issued under the provisions of these Rules and Regulations if the permit was issued in error, or on the basis of incorrect information supplied by the applicant. In the event a permit is suspended or revoked, permit fees will not be refunded. See **Part 1, Administrative Policies and Procedures Article 6.13, Revocation of Permit**.

1.3.8 **APPROVED PLANS**. The contractor shall keep one copy of the District endorsed plans on site at all times during the work. The District shall have access to the contractor's District endorsed plans at all times during the work.

1.3.9 **INSPECTIONS**. All construction work covered by these Technical Standards and Specifications shall be subject to inspection by the District. **Part 1, Administrative Policies and Procedures Article 9, Inspections and Enforcement of Water and Wastewater Regulations**.

It shall be the responsibility of the person performing the work to notify the District that such work is ready for inspection. Each request for inspection shall be filed at least one (1) working day before such inspection is required unless otherwise required by these Technical Standards and Specifications. It shall be the responsibility of the person requesting inspections to provide access for proper inspection of the work.

The District will give the contractor written notice of deficiencies noted during an inspection, and may order further construction to cease until all deficiencies are corrected. No partial inspections will be allowed unless prior written approval by the District.

1.3.10 **ADDITIONAL INSPECTIONS AND REINSPECTIONS**. The District may make or require additional other inspections if necessary to ascertain compliance with the provisions of these Technical Standards and Specifications. See **Part 1, Administrative Policies and Procedures, Article 9, Inspections and Enforcement of Water and Wastewater Regulations**.

Reinspection fees may be assessed when work requested to be inspected is incomplete, or when work does not comply with these Technical Standards and

Specifications. Reinspection fees may also be assessed when approved plans are not readily available to the inspector or for failure to provide access at the scheduled time of inspection. When Reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid. See **Part 1, Administrative Policies and Procedures Exhibit A, Schedule of Fees, Rates, and Charges.**

1.4 FEES

1.4.1 **PLAN REVIEW FEES**. Plan review fees shall be paid in full at the time plans and specifications are submitted for approval. Plan review fees shall be as set forth in the District's Schedule of Fees. Plan review fees shall be in addition to permit fees. Plans which require more than two revisions will be assessed a fee, based on the additional time spent by District or District Representative in reviewing. **Part 1, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates, and Charges**.

1.4.2 **PERMIT FEES**. The fee permit fees shall be as set forth in the District's schedule of fees, rates and charges. Permit fees shall be paid prior to issuance of a permit.

1.4.3 **INVESTIGATION FEES**. Work performed without the required District inspections shall be subject to investigation to verify compliance with these Technical Standards and Specifications. The District will determine the extent of the investigation. Fees for inspections and re-inspections will be determined according to the District's current **Part 1, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates, and Charges**.

1.5 PLANS AND SPECIFICATIONS

1.5.1 **GENERAL**. A registered professional engineer, licensed to practice in the State of Colorado, shall prepare plans, computations and specifications for work covered by these Technical Standards and Specifications.~~.~~

1.5.2 **SUBMITTAL REQUIREMENTS**. The District shall review all construction plans for conformance with these Technical Standards and Specifications. Engineering design shall remain the responsibility of the design engineer.

~~Three copies of the p~~Plans, specifications and engineering computations shall be submitted to the District for review signed and sealed electronically. CAD file may be required in submittal. No requirement for hard copies submitted. ~~One set of d~~Electronic documents will be returned with review comments.

~~Four sets of drawings~~Once plan comments have been addressed, drawings shall be submitted to the District in pdf format for signature and CAD format for implementation into the GIS system. The ~~prints~~ shall be signed and sealed by the design engineer. After signature by the District, ~~two of~~ the signed set~~s~~ shall be returned to the developer ~~and the District shall retain two sets~~. The Contractor shall ~~keep one of the sets returned to the developer~~ have a signed electronic or printed copy of plans at~~on~~ the jobsite for the duration of the project.

Upon completion of the work, the developer shall submit ~~two sets of~~ as-built drawings electronically in PDF and CAD files for review by the District. Upon approval of the as-built drawings by the District, ~~the design engineer shall~~ submit ~~one set~~ electronically

signed and sealed~~of~~ as-builts ~~prints, and an electronic set signed and sealed~~ by the design engineer.

1.5.3 **GENERAL PLAN REQUIREMENTS**. Plans and specifications shall be drawn to scale and shall have sufficient clarity to indicate the location, nature, and extent of the work proposed.

Each set of construction drawings shall include an overall utility drawing, showing water, sanitary sewer, and storm sewers included in the project. The overall utility drawing shall show all of the pipe sizes, locations, connections to existing facilities and other pertinent information that would add to the overall understanding of the project.

The following items shall be shown on all plans:

1. Title Block (lower right-hand corner preferred).

2. Scale (1"=50' horizontal and 1"=5' vertical for plans and profiles).

3. Date and revision.

4. Name of professional engineer or firm.

5. Professional engineer's seal and signature.

6. Provide specific coordinate system and projection information for horizontal and vertical datums including any ground scale factors. Reference the Douglas County a minimum of two (2) specific control points listed below:

POINT NUMBER	LAT/LONG		COLORADO STATE PLANE (ZONE CENTRAL 0502)		DESCRIPTION
	LATITUDE	LONGITUDE	NORTHING	EASTING	
10	39D27'12.35993"	-105D04'04.47409"	1590332.61	3122009.435	ROMANSKI
11	39D28'17.08156"	-105D04'22.48045"	1596874.182	3120566.311	DC 2056310
12	39D30'25.60794"	-105D04'20.30184"	1609878.818	3120675.927	COPP
13	39D27'22.54679"	-105D03'16.24950"	1591381.538	3125786.901	DC 2044120
14	39D28'11.80167"	-105D05'13.37426"	1596321.532	3116577.874	DC 2052137
15	39D26'44.21872"	-105D01'44.91540"	1587539.824	3132970.542	DC 2037106
17	39D26'09.54531"	-105D03'44.26712"	1583984.926	3123624.999	DC 2031125
18	39D30'26.60909"	-105D02'35.04502"	1610020.277	3128924.995	J305
21	39D28'40.08760	-105D03'16.86375	1599226.542	3125700.268	DC 2059120

~~6.~~7. Drawing numbers.

~~7.~~8. Statement:

All work shall be constructed to the Roxborough Water and Sanitation District Technical Standards and Specifications~~.~~ This drawing has been reviewed and found to be in general compliance with these Technical Standards and Specifications and other District requirements. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

Approved by: _____

Approved Title Date

9. General notes shall include:

GENERAL NOTES:

1. A PRECONSTRUCTION MEETING SHALL BE SCHEDULED A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF CONSTRUCTION. A PRECONSTRUCTION MEETING WILL NOT BE SCHEDULED UNTIL THE GRADING PERMIT AND ALL OTHER PERMITS HAVE BEEN OBTAINED.

2. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS WHICH HAVE BEEN APPROVED BY ROXBOROUGH WATER AND SANITATION DISTRICT AND ONE (1) COPY OF THE RWSD RULES AND REGULATIONS OF THE ROXBOROUGH WATER AND SANITATION DISTRICT.

3. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST VERSION OF THE RULES AND REGULATIONS OF THE ROXBOROUGH WATER AND SANITATION DISTRICT.

4. POTHOLE TO CONFIRM UTILITY CONNECTION POINTS.

5. ALL SERVICES SHALL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:

- "X" FOR SANITARY SEWER SERVICES
- "V" FOR WATER SERVICES

1.5.4 **PLAN SHEET REQUIREMENTS**. All plan sheets shall contain the following information:

1. North arrow.

2. Property lines: indicate lots to be served by solid lines; other property lines dotted.

3. Ownership and/or subdivision information.

4. Street names and easements with width dimensions.

5. Existing utility lines (buried) location and depth water, gas, telephone, storm drain, irrigation ditches, sanitary sewers, and other pertinent details, i.e., houses, curbs, water courses, etc.

1.5.5 **PROFILE SHEET REQUIREMENTS**. All profile sheets shall contain the following information:

1. Vertical and horizontal grids with scales.

2. Ground surface existing (dotted) and proposed (solid)

3. Existing utility lines where crossed.

4. Benchmarks (USGS Datum).

5. Existing manhole invert and rim elevations.

6. Crossings of other pipelines

1.5.6 **WATER SUPPLY CONSTRUCTION DETAILS**. In addition to the requirements listed above, water supply construction plans shall include the following items:

1. Water mains.

   a. Size.
   b. Length.
   c. Materials used and types of joints.
   d. Location dimensions.

2. Fittings.

   a. Tees.
   b. Crosses.
   c. Reducers.
   d. Bends.
   e. Plugs.
   f. Blow-offs.

3. Valves.

4. Fire Hydrants.

5. Plan, profile and complete details for off-site transmission mains, pump stations, special valves, and vaults, tanks, etc.

6. Standard bedding detail (cross-section).

7. Service connections or stub-ins.

8. Complete material list.

~~8.~~9. Applicable District Standard Details

1.5.7 **WASTEWATER LINES CONSTRUCTION DETAILS**. In addition to the requirements listed above, all sanitary sewer construction plans shall include the following:

1. Sanitary sewer mains.

   a. Diameters.
   b. Materials.
   c. Gradients.
   d. Length between manholes.

2. Manholes and cleanouts.

   a. Stationing and number designation shall meet District numbering convention.
   b. Elevation of inverts in and out of manhole.
   c. Elevation of manhole rim.

3. Location control dimensions.

4. Manhole stub-outs.

5. Proposed future extensions.

6. Wye and riser connection for services.

7. Service connections or stub-outs.

8. Underdrain.

9. Standard bedding cross-section

10. Concrete encasement, locations.

11. Cut-off walls.

12. Complete material list.

13. Applicable District Standard Details

1.5.8 SPECIFICATIONS AND SUPPORT DOCUMENTATION. The following shall be included with submitted construction plans:

1. Reference on plans to District Technical Standards and Specifications.

2. Reference on plans to other agency standards and specifications that are required or proposed.

3. Where reference to other commonly available standards and specifications will not suffice, copies of specifications are to be provided.

4. Copies of written approval from other affected agencies as required.

5. Soils test data including but not limited to subsurface profile, moisture content, gradation, water-soluble sulfates, pH, Atterberg limits, percent passing No. 200 sieve, compressive strength, electrical resistivity, swell/consolidation analysis, over-excavation requirements, corrosiveness, and other test data. Test data shall be performed within fifty feet (50') of main line.

1.6 DEFINITIONS AND ABBREVIATIONS.

1.6.1 **DEFINITIONS**. Additional definitions are in **Part I, Administrative Policies and Procedures, Exhibit B, Definitions**. Whenever the following terms are used in these Technical Standards and Specifications, they will be defined as follows:

Technical Standards and Specifications shall mean the body of directions, provisions, and requirements contained herein, describing the method or manner of construction, and the quality of materials furnished.

1.6.2 **ABBREVIATIONS**.

AASHTO shall mean the American Association of State Highway and Transportation Officials.

ACI shall mean the American Concrete Institute.

AISC shall mean the American Institute of Steel Construction.

ANSI shall mean the American National Standards Institute.

APWA shall mean the American Public Works Association.

ASA shall mean the American Standards Association

ASTM shall mean the American Society for Testing and Materials.

AWG shall mean the American Wire Gauge.

AWWA shall mean the American Water Works Association.

BPR shall mean the Bureau of Public Roads.

CDOT shall mean the Colorado Department of Transportation.

FCC shall mean the Federal Communications Commission.

gpcd shall mean gallons per capita per day.

gpm shall mean gallons per minute.

GRC shall mean galvanized rigid conduit.

IMSA shall mean the International Municipal Signal Association.

IPCEA shall mean the Insulated Power Cable Engineers Association.

ITE shall mean the Institute of Transportation Engineers.

MGD shall mean million gallons per day.

NEC shall mean the National Electrical Code.

NEMA shall mean the National Electrical Manufacturers Association.

NFPA shall mean the National Fire Protection Association.

PVC shall mean polyvinyl chloride.

psi shall mean pounds per square inch.

UBC shall mean the Uniform Building Code.

UPC shall mean the Uniform Plumbing Code.

UL shall mean Underwriters Laboratories, Inc.

USDA shall mean the United States Department of Agriculture.

1.6.3 **TERMS**. Whenever, in these Technical Standards and Specifications, the words "as ordered", "as directed", "as required", "as permitted", "as allowed", or words or phrases of like import are used, it will be understood that the order, direction, requirement, permission, or allowance of the District is intended.

The words "approved", "reasonable", "suitable", "acceptable", "accepted", "properly", "satisfactory", or words of like effect and import, shall mean approved, reasonable, suitable, acceptable, accepted, proper, or satisfactory in the judgment of the District.

Whenever the word "District" is used in these Technical Standards and Specifications, it shall mean the Roxborough Water and Sanitation District or its designated representative.

1.6.4 **SPECIFICATIONS BY REFERENCE**. All standards/specifications (i.e., ASTM, AWWA, ACI, etc.) referenced in these Technical Standards and Specifications, shall refer to the latest edition of the referenced standard/specification.

Throughout these Technical Standards and Specifications, any section referenced shall include all sub-sections of that section. Any portion of these Technical Standards and Specifications that may be applicable to any other section, whether referenced or not, shall apply.

ARTICLE 2. WATER SUPPLY FACILITIES

2.0 GENERAL PROVISIONS.

2.1 GENERAL.

2.1.1 **APPLICABILITY.** All water main construction within the District and all water service line construction connecting to the District's water mains shall be designed and constructed in accordance with these Technical Standards and Specifications. The requirements stated herein shall apply to new water system construction and to repairs to existing facilities.

2.1.2 **REFERENCES.** All references cited in these Technical Standards and Specifications as the Denver Water Board Specifications shall mean the latest edition of the Engineering Standards of the Board of Water Commissioners of Denver, Colorado.

2.1.3 **TAPPING EXISTING WATER MAINS.** All residential service line taps shall be wet taps. The shut down of any portion of the water system will be allowed only when uncontrolled circumstances do not permit a wet tap. Tapping existing water mains shall be either wet taps or a shut down of a portion of the main line to facilitate a tie in. The District shall approve any shut down of the water system in writing.

A contractor who specializes in the type of work being performed shall perform tapping of all mains. The District shall be notified forty-eight (48) hours prior to the commencement of any tapping work.

2.1.4 **TRENCHING, BACKFILLING AND COMPACTING.** Trenching, backfilling and compacting shall be performed in accordance with all applicable portions of these **Technical Standards and Specifications, Article 4, Site Work and Earthwork**.

2.1.5 **CROSS CONNECTION CONTROL.** All facilities served by the Districts water system shall comply with the provisions of these **Technical Standards and Specifications, Exhibit A, Cross Connection Control** and **Part 1**, **Administrative Policies and Procedures, Article 7.3.2, Backflow/Cross- Connection**.

2.1.6 **WATER CONSERVATION DEVICES.** All facilities served by the District's water system shall utilize water conservation devices as specified in **Exhibit B, Water Conservation Standards**, of these Technical Standards and Specifications.

2.2 DESIGN CRITERIA

2.2.1 **GENERAL.** Water distribution systems shall comply with the requirements of these Technical Standards and Specifications for water main and service line construction and may include special criteria established by the District for the overall hydraulics of the water utility system. Special criteria shall be outlined at pre-design meetings scheduled, as determined necessary by the District.

2.2.2 **DESIGN FLOW REQUIREMENTS.** The design of the water distribution system shall be based on the following water demands:

UNIT WATER DEMANDS FOR FUTURE LAND USE

Land Type	Avg. Demand	Max. Day/ Avg. Day	Peak Hr./Max Day
Residential	1~~35~~00 GPCD*	2.~~6~~8	1.5
Commercial	1650 GPD/Acre	2.~~8~~6	1.5
Industrial	1650 GPD/Acre	2.~~8~~6	1.5
Park	3060 GPD/Acre	2.~~8~~6	1.5

*Gallons per Capita/Day
People / EQR = 2.9

Minimum fire flow shall be as noted below:

Type of Development	Duration (hrs.)	Needed Fire Flow (gpm)
Residential	2	1,500
Multifamily/Apartment	3	3,000
Industrial/Commercial	3	3,500

A reduction in minimum fire flow may be allowed by up to 50% on a case-by-case basis if a building fire sprinkler system is installed and approved by the jurisdictional fire department and building department. In no circumstances shall fire flow be lower than 1,500 gpm.

2.2.3 **OPERATING PRESSURE REQUIREMENTS.** All areas shall be designed to have a maximum static head of three hundred (300) feet (one hundred thirty [130] psi) and a minimum static head of one hundred (100) feet (forty-three [43] psi). Distribution systems shall also be designed to maintain a twenty (20) psi residual pressure during a maximum day plus fire flow event, and a forty psi (40) residential residual during peak hour residential flows. The maximum pressure drop from static head to maximum day plus fire flow, or peak hour residential flow, shall not exceed thirty psi (30).

2.2.4 **FIRE HYDRANT LOCATIONS.** All structures shall be located within 300 feet of a fire hydrant, as measured along an approved fire vehicle access.

In residential areas, fire hydrants shall be spaced a maximum of five hundred feet (500') apart as measured along street curb line~~,~~ and at an overall spacing that will average not less than one hydrant to two hundred thousand (200,000) square feet throughout an individual subdivision. Where blocks are over eight hundred feet (800') in length, intermediate hydrants shall be placed in the center of the blocks. A hydrant shall be placed in the end of each cul-de-sac over three hundred feet (300') in length. Fire hydrants shall be located on the northeast corner of intersections and at lot lines whenever possible.

In business and industrial areas, hydrants shall be spaced not more than three hundred feet (300') apart.

Fire hydrant locations and spacing shall be as approved by the District.

2.2.5 **FIRE LINE TO NON-RESIDENTIAL AREA**. The Owner shall maintain all fire lines extending from the valve on the District water main. Valves on newly constructed fire lines shall be located on the tee at the main line. Fire lines shall be used exclusively for fire protection. Domestic water taps or irrigation taps shall not be allowed on a fire line.

2.2.6 **DISTRIBUTION SYSTEM LAYOUT.** Distribution mains and lateral lines shall be located as indicated on the approved plans. Minimum pipeline diameter for lateral lines shall be eight inches (8"). At dead-ends less than three hundred feet (300') long six-inch (6") diameter pipe may be used.

Dead ends shall be minimized by looping whenever possible. Lines at ends of long cul-de-sacs shall be looped along lot lines to adjacent streets. Dead ends shall be provided with a permanent blow-off or fire hydrant. Mains and laterals shall be extended to the boundaries of filings and completely across the frontage of individual lots.

In business and industrial areas, dead ends shall not extend more than 300 feet and looping shall be required.

2.2.7 **VALVE SPACING.** The maximum spacing for valves shall in all distribution mains and lateral lines shall be six hundred feet (600'). Intermediate valves shall be installed where blocks exceed six hundred feet (600') in length. Valves shall also be placed at each fire hydrant and permanent blow-off.

Four-way and three-way street intersections shall require four (4) and three (3) valves respectively, one located on each extended property line. For a succession of short blocks perpendicular to the direction of the distribution main, and without residential or commercial services between intersections, one of the mainline valves at an intersection may be omitted, provided the six hundred foot (600') maximum spacing requirement is maintained.

Valves shall be placed at each end of a line running through an easement on private property, on each side of a major creek or channel crossing, and on each side of a distribution line that provides service to a hospital, school or large industrial user.

2.2.8 **COMBINATION AIR VALVES.** Combination air valves shall be installed at each high point in all distribution mains and laterals. Combination air valves shall be installed in pre-cast manholes or vaults fitted with air vents open to the atmosphere. Combination air valves shall be ~~Vent-O-Mat RBX~~Aquestia (A.R.I.) D-040 or approved equal.

2.2.9 **BLOW-OFF ASSEMBLIES.** Provisions shall be included in the design to allow for the flushing of distribution mains and lateral lines at all low points in the system, at all dead ends, or at any point noted on the approved plans. The blow-off assembly shall be installed perpendicular to and on the downhill side of the main or line and shall drain to the nearest gutter line or drainage channel.

2.2.10 **PIPE.** Pipe class shall be as required for specific project conditions.

2.2.11 **HYDRAULIC DESIGN.** Distribution mains and lateral lines shall be designed using the Hazen-Williams friction coefficients and maximum head losses noted below. The given head losses shall apply at peak hourly flows.

Maximum Head Loss by Pipe Size

Pipe Size	Hazen-Williams Friction Coefficient	Max. Head Loss
6" - 12"	C-100	2' per 1,000'
14" - 16"	C-110	2' per 1,000'
20"	C-130	1.5' per 1,000'
Over 20"	As directed by the District	TBD

All pipes shall be designed to have a maximum velocity of ten feet (10') per second, at max day flow plus fire flow.

2.2.12 **LOCATION OF WATER MAINS.** Water mains shall be located twelve feet (12') north or east of the centerline of the street unless otherwise approved by the District.

At street intersections, valves shall be located at extension of the property lines.

Fire hydrant gate valves shall be connected to the main with a swivel tee. Water mains shall extend to the boundary line of the property or subdivision served. A main serving one lot shall extend across the entire frontage for that lot. Mains serving a subdivision shall extend to the center of boundary streets, to boundary lines or to the outside of paved areas as noted on the approved plans.

2.2.13 **MINIMUM DEPTH.** All pipes shall be installed with a minimum of five feet (5'-0") and a maximum of ten feet (10') of cover from finished grade of street to the top of the pipe.

2.2.14 **RELATION TO WASTEWATER MAINS AND STORMWATER LINES.** Water lines shall be located a minimum of ten feet (10), horizontally, from existing or proposed stormwater and wastewater mains (edge to edge measured distance). Where wastewater lines cross water mains, the water line shall be a minimum of eighteen inches (18"), clear, above the wastewater main. If this clear distance is not feasible, the crossing shall be designed and constructed so as to protect the water main. The District shall approve the crossing design.

Minimum protection shall consist of the installation of an impervious and structural wastewater line. The wastewater~~water~~ line shall be encased in reinforced concrete. The encasement shall be at least six inches (6") thick around the entire pipe and shall extend a distance of ten feet (10') on either side of the water main.

Stormwater lines shall be located a minimum of eighteen inches (18") vertical clearance in relation to a water main.

2.2.154 **CORROSION PROTECTION SYSTEMS.** Polyethylene wrap shall be used on all cast iron or ductile iron pipe, fittings, rods, and appurtenances per AWWA C-105. Soil resistivity measurements shall be conducted by an independent geotechnical laboratory and tested in accordance to ASTM G-187-05. Testing frequency shall not be less than one test for every 400 linear feet of pipe. If soil resistivity is less than one thousand (1,000 ohm-cm), a corrosion protection system shall be designed by a corrosion engineer. Anodes will be required for all ductile iron pipe and fittings when

the soil resistivity is less than 1,000 ohm-cm and must be designed by a corrosion engineer.

2.2.165 **SERVICE CONNECTIONS.** Refer to **Article 2.5, Water Service Lines** of this section for service line requirements and specifications.

2.3 MATERIALS

2.3.1 **PIPE.** All pipes for water main construction shall be ductile iron. If the soil resistivity is less than 1,000 ohm-cm, polyvinyl chloride (PVC) pipe can be used as an alternative.

Ductile iron pipe shall be in conformance with AWWA C151. Class designation shall be as shown on the approved plans or as designated by the District for each individual project. Ductile iron pipe shall be thickness class 52 unless stricter requirements are needed. Ductile iron pipe shall have a standard cement mortar lining in conformance with AWWA C104, and an asphaltic outside coating per AWWA C151. Each pipe shall be marked with the weight, class designation, and size.

PVC pipe shall be in conformance with AWWA C900 for 4 inch through 60 inch pipe sizes. ~~4 inch through 12 inch and C905 for pipe sizes 14 inch or greater.~~ All PVC pipe shall conform to a Dimension Ratio of 14. Class designation shall be as shown on the approved plans. Each pipe shall be marked with dimension ratio, pressure class, AWWA designation number, seal of the testing agency verifying the suitability of the pipe for potable water service, and size.

2.3.2 **JOINTS.** Buried pipelines shall have mechanical or push-on joints in conformance with AWWA C111. Buried fittings and valves shall have mechanical joints in conformance with AWWA C111. Exposed piping, valves, and fittings, in vaults and manholes, shall have flanged joints in conformance with AWWA C115.

2.3.3 **RESTRAINED JOINTS.** Restrained joints shall be Series 1500TD Tru-Dual as manufactured by EBAA Iron Sales, Inc for PVC pipe and shall be Series 1700 as manufactured by EBAA Iron Sales, Inc. for DIP pipe, or approved equal. 316 Stainless Steel shall be provided for all rods and nuts.

An alternate to a restrained joint fitting for Ductile Iron Pipe includes internal pipe joint restraints. Internal pipe joint restraints shall be Field Lok 350 Gasket as manufactured by US Pipe and Foundry Co. or TR Flex restrained joint pipe as manufactured by US Pipe and Foundry, Co. or approved equal.

2.3.4 **FITTINGS.** Fittings for ductile iron pipe and PVC pipe shall be in conformance with AWWA C110 and AWWA C111. Class designation shall be compatible with the pipe class designated for the project. A standard thickness cement mortar lining shall be applied in conformance with AWWA C104. All fittings shall receive a bituminous outside coating approximately one (1) mil thick.

2.3.5 **GATE VALVES.** Gate valves in sizes four inches (4") to ten inches (102") shall be of the iron body, non-rising bronze stem, and resilient-seated type conforming to AWWA standard C509-01 and the specific requirements outlined.

Gate valves shall provide zero leakage at working pressures up to two hundred (200) psi in either direction. Valves shall open left (counter-clockwise). Valves shall be furnished with a two-inch (2") square operating nut for buried locations, and with a

hand wheel operator for exposed locations. End connections shall be furnished with all necessary joint materials. Valves shall have a full opening flow-way of equal diameter to the nominal size of the connecting pipe.

Coatings shall be in conformance with AWWA C550 and the following specific requirements. Internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of four (4) mils. The coating shall be a two-part thermosetting epoxy suitable for field over coating and for touchup with the same coating material without special surface preparation or extreme heat. The supplier shall furnish detailed performance tests of adhesion, hardness and abrasion resistance of the furnished coatings. Coating shall have a successful record of performance in valves, pipe or other allied equipment, for a minimum of ten (10) years.

2.3.6 **BUTTERFLY VALVES.** Valves having a nominal diameter ~~greater than~~ twelve inches (12") or greater shall be geared butterfly valves designed for direct burial and shall conform to AWWA specification C504, Class 150-B. Valves shall be of the tight closing rubber seat type with rubber seats that are bonded to the valve body. Metal to metal sealing surfaces shall not be permitted. Valves shall be bubble tight at one hundred fifty (150) psi rated pressure with flow in either direction. Valve discs shall rotate 90° from the fully open position to the fully closed position. Coatings shall conform to standards specified above for gate valves. Valve bearings shall be sleeve-type corrosion-resistant, and self-lubricating with the load not to exceed twenty-five hundred (2500) psi.

Manual operators shall have worm gearing or traveling nut operating in a lubricating bath. The required maximum input force on a hand wheel or chain wheel shall be not more than 80 pound pull to develop the required operator seating torque. Manual operators shall comply with AWWA C-504. Hand wheel operators in structures shall be furnished with a direct valve position indicator. Buried valves shall be rated for underground installation. Valves shall open left (counter-clockwise).

2.3.7 **PRESSURE REDUCING/SUSTAINING VALVES (PRV/PSV).** PRV/PSVs shall maintain a constant downstream pressure regardless of fluctuations in demand. When the upstream pressure becomes equal to the spring setting of the pressure sustaining control, the valve shall throttle to maintain a constant inlet pressure. If the downstream pressure is greater than the upstream pressure, the valve shall close automatically to prevent return flow. The valve shall be equipped to provide for slow opening and closing by means of independent, field adjustable opening and closing speed controls.

Valves shall be a hydraulically operated, diaphragm-actuated, globe or angle pattern valve. Valves shall have a resilient, synthetic rubber disc, having a rectangular cross section, contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat insert. The diaphragm assembly containing a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. This diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. Packing glands and stuffing boxes are not acceptable. There shall be no pistons operating the valve or pilot controls.

Valve design shall allow the repair of all internal parts through the top flange without removing the valve from the pipe.

The pressure reducing pilot control shall be direct-acting, adjustable, spring-loaded, normally open diaphragm valve, which closes when downstream pressure exceeds the spring setting.

The pressure-sustaining pilot shall be a direct-acting adjustable, spring-loaded, normally closed diaphragm valve, which opens when upstream pressure exceeds the spring setting.

The end details shall be 125 ANSI B16.1 in order to meet the pressure ranges required.

The main valve body and cover shall be made of cast iron conforming to ASTM A48. The main valve trim shall be Bronze (ASTM B-61) or 303 Stainless Steel. The pilot controls material shall conform to ASTM B-61 Bronze.

Pressure reducing/pressure sustaining valves shall be as manufactured by OCV Control Valves or Cla-Val, Company.

2.3.8 **FIRE HYDRANTS.** Hydrants shall be the Manufacturer's latest design, manufactured and tested in compliance with AWWA C-502, "Standard for Dry Barrel Fire Hydrants". Fire hydrants shall be American Flow Control Waterous 5 1/4 Pacer, WB-67-250 Traffic Model, rated at 250 psi. American AVK Series 27 is an acceptable manufacturer. Hydrants shall include bronzed bushed shoe providing bronze to bronze seating for the main valve, complete with O-rings for sealing, and a bronze shaft coupling.

Hydrants shall be "Traffic" type with replaceable "Breakable" units six inches (6”) above the ground line for minimizing repairs due to traffic damage.

The buried portion of the hydrant shall be given a bituminous coating in accordance with AWWA C-151. All ferrous metal parts shall be coated in accordance with AWWA C-550~~-01~~. The upper exposed section of the hydrant above ground shall be given a prime coat of synthetic red lead primer Type IV-TFP-86a followed by one shop coat of heavy duty alkyd enamel paint conforming to the District's standards.

Hydrants shall have a five and one-quarter inch (5-1/4") main valve opening with a six-inch (6") mechanical joint end. Each hydrant shall be equipped with a four and one-half inch (4-1/2") pumper nozzle and with two, two and one-half inch (2-1/2") hose nozzles with National Standard threads. Hydrant valve shall open counter~~-~~clockwise from a standard operating nut. Hydrant bury shall be a minimum of 5'-6" in areas without curb and gutter, and 6'-0" in areas with curb and gutter. Fire Hydrants shall be six inches (6”) above final grade or back of sidewalk and have a distance of no less than three feet (3’) in circumference clear of all obstructions around the fire hydrant. Longer hydrants shall be provided if required by specific grading conditions. Refer to Standard Drawing No. 2-1~~, which is available upon request.~~

The hydrant manufacturer shall furnish an affidavit stating that all hydrants furnished comply with all applicable provisions if AWWA C-502 (dry barrel ok) standards as modified or supplemented herein. A copy of the certification shall be forwarded to the District.

2.3.9 **VALVE BOXES.** The manufacturer of valve box components shall be experienced in the design and manufacture of valve boxes, and shall be regularly engaged in the

manufacture of valve boxes. The manufacturer shall have produced valve boxes, which have given successful service for a period of at least five (5) years.

Valve box parts shall be made of gray cast iron in compliance with the requirements of ASTM A48 or ASTM A 126.

Valve boxes shall be complete with bases and accessories.
Valve box shall be of sufficient length to reach from the pipe to at least 1-inch above the final ground elevation.

Extension pieces shall be those recommended by the manufacturer.

Valve boxes shall be the three-piece adjustable screw type. The following patterns are acceptable:

Mueller screw-type 51/2" H-10357 with No. 160 oval base.

Tyler screw-type 6" cast iron valve box assembly series 6860 with No. 160 oval base.

Clay and Bailey screw-type 6" cast iron valve box assembly No. P-108 with No. 160 large oval base.

The operating nut depth shall not exceed 5 1/2 feet. If the depth of the operating nut is to be deeper than 5 1/2 feet, then an extension shall be attached to the operating nut. The extension shall extend to be a minimum of 8" from finished grade.

The operating nut shall be centered in the valve box and turn freely.

The word "WATER" shall be embossed with large letters across the lid for potable water installations only.

2.3.10 COMBINATION AIR RELEASE VALVES. Combination air release valves shall be designed to exhaust large volumes of air when the system is filled with water and to allow large volumes of air to enter the pipeline when the system is drained. The air and vacuum relief portion of the valve shall have a discharge orifice area, which is equal to or greater than the valve inlet. The valve shall also be capable of venting small quantities of entrained air, which typically accumulate at high points in the pipeline during system operation. Entrained air shall be vented under pressure by means of a small, independently controlled orifice. The combination air release valve shall be designed for a minimum working pressure of 150 psi.

The combination air release valve body, cover and baffle shall be cast iron conforming to ASTM A48 or ASTM A126. The valve float shall be stainless steel conforming to ASTM A240. The float retainer, outlet orifice plug, float cushion retainer, restraining screws and internal lock nuts and washers shall be stainless steel conforming to ASTM A276. The float cushion and outlet orifice seat shall be synthetic Buna-N rubber manufactured in compliance with ASTM SB800.

The combination air release valves shall be ~~VENT-O-MAT RBX~~ Aquestia (A.R.I.) or approved equal.

2.3.11 **BLOW-OFF ASSEMBLY.** The standard blow-off shall be through a two-inch (2") ball valve with a two-inch (2") gate valve operating nut, box, piping and cover. All piping shall be threaded copper and valves shall be brass. Galvanized piping or fittings shall not be allowed. The blow-off pipe shall be no deeper than 4 inches (4") from the top of the valve box. For valve box standards refer to **Article 2.3.8 of these Technical Standards and Specifications**. Refer to Standard Drawing Number 2-2 for blow-off detail~~, which is available upon request~~.

2.3.12 **WATER SAMPLE STATIONS.** Water sample stations shall provide District a sampling point for direct sampling of the water main. Sample station shall include a lockable enclosure and shall be non-draining. Sample station shall be Kupferle Eclipse #88-SS, or approved equal.

2.3.13 **VAULTS.** Vaults shall be pre-cast or cast-in-place concrete and shall be constructed in accordance with these Standards and Specifications. Pre-cast vaults shall be designed so that joints and corners are waterproof. Vaults shall be waterproofed after construction by use of sealants, epoxies, or other approved methods.

Vaults shall be designed to resist all lateral and vertical loads imposed. Vault roofs shall be designed to support the overhead fill, any surcharge and an H-20 traffic loading.

2.3.14 **MANHOLES.** Refer to **Article 3.3.4, Manholes and Riser Rings through 3.3.7, Manhole Rings and Covers**, of these Technical Standards and Specifications.

2.3.15 **MANHOLE BASE SLABS AND BASE BEAMS.** Refer to **Article 3.3.5, Manhole Base Slabs and Base Beams,** of these Technical Standards and Specifications.

2.3.16 **SUMP PITS FOR VAULTS AND MANHOLES.** Gravel sumps shall be provided in all vaults. In areas where groundwater is anticipated, the gravel sump shall be replaced with a concrete sump to prevent entry of groundwater into the vault. In areas where groundwater is anticipated, the vault shall be designed with adequate safety features against floating. Developer's engineer shall submit buoyancy calculations to District engineer for review and approval.

A gravity drain line or sump pump shall be provided when a concrete sump is utilized.

2.3.17 **VENT PIPES.** Vent pipes shall be installed in all vaults and pits. Installations that contain electrical equipment shall have a blower attached to the vent system. Vent pipes shall be field located at the nearest intersection of the street property line and the side lot line.

Above ground vent pipe shall be six-inch (6") nominal diameter galvanized steel pipe, Grade 40, conforming to A.S.T.M. Standard Designation A 53. The vent screen shall be a three-fourths inch (3/4") No. 9-11 flattened expanded galvanized metal screen. Below ground vent pipe shall be six inch (6")~~,~~ nominal diameter galvanized steel pipe, Grade 40, conforming to A.S.T.M. Standard Designation A 53~~scheduled 40 PVC with glued joints~~ with 10 mil PVC pipe wrap tape for buried pipe. ~~A PVC glued joint by standard pipe thread female adapter shall be used to connect the steel pipe to the PVC pipe at ground level.~~ Refer to Drawing number 2-6~~, which is available upon request~~.

2.3.18 **POLYETHYLENE ENCASEMENT MATERIAL.** Polyethylene encasement material shall conform to the most current AWWA C105.

Twenty-four inch (24") flat width tubing shall be used with four inch (4"), six inch (6"), and eight-inch (8") diameter pipe. Thirty inch (30") flat width tubing shall be used with all twelve-inch (12") diameter pipes. Thirty-six inch (36") flat width tubing shall be used for sixteen-inch (16") diameter pipe. Fifty-two (52") inch flat width tubing shall be used with twenty inch (20") and twenty-four inch (24") diameter pipe.

Harness rods shall be covered by four inch (4") flat width polyethylene tubing.

The entire joint shall be covered by a cigarette-wrap of forty-eight inch (48") wide polyethylene sheet material over each set of lugs. Irregular shaped valves and fittings shall be covered with flat forty-eight inch (48") wide polyethylene sheet material.

The polyethylene seams and overlaps shall be wrapped and held in place by means of two-inch wide plastic-backed adhesive tape. The tape shall be Polyken #900 (polyethylene), Scotchrap #50 (polyvinyl) or equal. The tape shall be such that the adhesive will bond securely to both metal surfaces and polyethylene film.

2.3.19 **MECHANICAL JOINT RESTRAINTS.** Mechanical joint restraints shall be MEGALUG as manufactured by EBAA Iron Sales, Inc. or Uni-Flange by The Ford Meter Box Company, Inc., or approved equal.

2.3.20 **BEDDING MATERIALS.** Bedding materials shall be in accordance with **Article 4.2.1, Pipe Bedding Materials**, of these Technical Standards and Specifications.

2.3.21 **CONCRETE.** Concrete shall conform to **Article 5, Concrete Work**, of these Technical Standards and Specifications.

2.3.22 **PLASTIC LINER PIPE (SLIPLINING).** Water main slip lining materials shall comply with all applicable requirements of **Article 3.3.9, Plastic Liner Pipe** (Slip lining), of these Technical Standards and Specifications.

2.3.23 **STEEL CASINGS FOR BORES.** Steel casing pipe shall comply with all applicable requirements of **Article 3.3.10, Steel Casings for Bores**, of these Technical Standards and Specifications.

2.4 WATER MAIN CONSTRUCTION.

2.4.1 **GENERAL.** All work will conform to applicable portions of the most current AWWA C600 for ductile iron pipe and AWWA C605 for PVC pipe. Installation of Ductile Iron and PVC Water Mains and Appurtenances, and to the pipe manufacturer's recommendations, as modified herein.

2.4.2 **PIPE INSTALLATION.** The Contractor shall provide proper equipment, tools and facilities required for convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench in such a manner as to prevent damage to pipe materials and to protect coatings and linings. Under no circumstances shall pipe or fittings be dropped or dumped into the trench; any pipe or fittings that are dumped shall be removed from the work site and shall not be used.

All pipe and fittings shall be carefully examined for cracks and other defects immediately before installation in final position. The groove in the bells of ductile iron

pipe shall be full and continuous. Defective pipe or fittings shall be tagged and removed from the job site within twenty-four (24) hours. All foreign matter or dirt shall be removed from the interior and ends of pipe and accessories before they are lowered into position in the trench.

Precautions shall be taken to prevent foreign material, including trench water from entering the pipe. During construction, no debris, tools, clothing, gravel or other foreign materials shall be placed in the pipe. The Contractor shall provide and maintain adequate equipment to properly remove and dispose of all water entering the trench or other part of the work. At times when pipe laying is not in progress, the open ends of pipe shall be closed by means of a water tight plug.

Cutting of pipe for inserting valves, fittings, or closures pieces shall be done in a neat and workman-like manner without damage to the pipe or lining. Cuts shall result in a smooth end, at right angles to the axis of the pipe. Pipe ends shall be smooth and beveled with a file or other tools according to the pipe manufacturer's recommendations.

Rubber gaskets shall be lubricated and installed according to the manufacturer's recommendation. Extreme care shall be used to keep joints clean during assembly.

Ductile iron pipe, fittings and appurtenances shall be protected with polyethylene film wrap per the most current AWWA standard C-105. Miscellaneous steel or other ferrous pipe for blow-offs, etc., shall be similarly protected.

After installation of the polyethylene protective wrap, pipe shall be secured in place by installation of bedding material, up to the spring line of the pipe.

2.4.3 **ALIGNMENT AND GRADE.** Field survey parties under the supervision of a registered land surveyor shall determine alignment and grade of the pipe and the location of fittings, valves, and hydrants. The required minimum depth of cover between the top of the pipe barrel and the finished street grade shall be five (5) feet. The water main shall be laid to the required lines and grades with fittings, valves, and hydrants at the required locations.

2.4.4 **THRUST BLOCKS.** Thrust blocks shall be constructed at all horizontal bends and fittings and vertical bends which do not include mechanical restraint. Care shall be taken not to block outlets or to cover bolts, nuts, clamps or other fittings or make them inaccessible. A bond breaker shall be placed between the pipe and the thrust block to aid in ease of future removal. Thrust blocks shall bear against undisturbed earth. Mechanical restraints shall be required to anchor the fittings to the main if a thrust block cannot bear against undisturbed earth.

Formwork for thrust blocks and anchors shall be constructed using wood forms. Wood forms shall be removed before backfilling. Refer to detail sheet no. 2-7.~~, which is available upon request.~~

Newly placed thrust blocks shall be allowed to set, undisturbed, for a minimum of twenty-four (24) hours prior to backfilling, tamping or compacting.

2.4.5 **MECHANICAL JOINT RESTRAINTS.** Mechanical joint restraints shall be used at all bends fittings, and valves. Mechanical joint restraints shall be installed at the following locations:

1. Fire hydrants.

2. Fire sprinkler connections.

3. Domestic connection.

4. Horizontal and vertical bends.

5. Vertical offsets.

Harness rods may be used only when the use of thrust blocks or a mechanical joint restraint is not feasible. Harness rods shall be used only at locations shown on the approved plans.

2.4.6 **SETTING VALVES AND HYDRANTS.** Immediately prior to the installation of a valve or hydrant the valve or hydrant shall be carefully inspected; the interior shall be thoroughly cleaned; the valve or hydrant shall be operated as many times as necessary to determine that all parts are in proper working order with the valve seating properly and the hydrant drain valve operating properly. Valves and hydrants shall be set plumb, in a vertical position and securely braced in place.

Each hydrant shall have a six-inch (6") gate valve on the inlet line and shall be connected to the main by a six-inch (6") ductile iron, polyethylene wrapped pipe. The gate valve shall be connected directly to a swivel tee installed in the main.

Hydrants shall be set six-inches (6”) above the established finished grade, with hose nozzles parallel to the curb or centerline of the street, and the pumper nozzle facing the curb or street. In areas with curb and gutters, the pumper nozzle shall be located at least six inches (6") behind the curb or sidewalk.

Valves shall be provided with valve boxes centered and plumb over the operating nut of the valve. The boxes shall be supported by the soils and isolated from the valve to prevent any shock or stress being transmitted to the valve. Valve boxes shall be maintained in position during backfilling. Valve box covers may be set to sub grade elevation to prevent damage during street construction, and adjusted to finished grade at the time of paving.

Hydrants shall be provided with a drainage pit with nine (9) square feet of surface area and two feet (2') of depth below the barrel of the inlet. Pits shall be backfilled with one and one-half inch (1-1/2"), washed, crushed rock to a level six inches (6") above the barrel drain hole. A concrete thrust block shall be provided at the bowl of each hydrant (as shown on Standard Drawing No. 2-1~~, which is available upon request~~) and shall be placed so as to not obstruct the barrel drain hole. Hydrants and valves shall be backfilled to the ground surface as specified in **Article 4, Site Work and Earthwork**, of these Technical Standards and Specifications.

2.4.7 **PLASTIC LINER PIPE (SLIPLINING)**. Plastic liner pipe shall be installed in accordance with all applicable portions of **Article 3.3.9, Plastic Liner Pipe** (Slip lining), of these Technical Standards and Specifications**.**

2.4.8 **STEEL CASING AND CARRIER PIPE INSTALLATION.** Steel casing and carrier pipe shall be installed in accordance with **Article 3.3.10, Steel Casings for Bores**, of these Technical Standards and Specifications.

2.4.9 **TEST STATIONS.** Underground pipeline test stations shall be installed at the locations shown on the approved plans. Tracer wire test stations shall be installed at all fire hydrants, curb stops, blow offs, and valves in un-improved surface areas at a minimum.

2.4.10 **PLUGGING OF DEAD ENDS.** Standard plugs or caps shall be installed at dead ends of all fittings and pipes, and adequate thrust blocks shall be provided.

2.4.11 **FILLING AND VENTING THE LINE.** Only District personnel shall operate valves. Pipelines shall be slowly filled with water and all air expelled from the pipe. All hydrants, air and vacuum relief valves, and other vents shall be open during the filling of pipelines. Where hydrants or other permanent vents are not available in the line, the Contractor shall install the required temporary vents. The rate of filling pipelines shall not exceed the venting capacity.

2.4.12 **DISINFECTION AND FLUSHING MAINS.** Disinfection and flushing shall be performed in accordance with AWWA C651, "Standard for Disinfecting Water Mains".

The chlorine solution shall be retained in the line for at least twenty-four (24) hours. If the water temperature is less than 41°F (5°C), the ~~water~~chlorine solution shall remain in the pipe for at least forty-eight (48) hours. The chlorine residual at the pipe extremities and other representative points shall be at least twenty-five (25) parts per million at the end of the twenty-four (24) hour or forty-eight (48) hour period. If the test is not satisfactory, the disinfection shall be repeated until a twenty-five (25) parts per million of chlorine residual is obtained.

Following chlorination, the main shall be thoroughly flushed until the water runs clear with no chlorine residual in excess of that carried in the existing system.

The contractor shall take the necessary precautions to prevent any chlorine solution or residual flow into existing water facilities or receiving waters and shall assume responsibility for any damages caused by heavily chlorinated water.

Water mains shall not be placed in service or tapped until successful chlorination and bacteriological testing have been performed.

~~A twenty four (24) hour b~~Bacteriological testing for total coliform bacteria shall be performed utilizing two options~~.~~:

- An initial set of samples immediately after flushing and then resample again after a minimum of 16 hours (24 hours if water temperature is less than 41°F (5°C)).
- Let the water sit for a minimum of 16 hours (24 hours if water temperature is less than 41°F (5°C)) after flushing. The collected without flushing the main, two sets of samples a minimum of 15 minutes apart while the sample taps are left running.

Samples shall be collected for every 1,200 linear feet of new water main, plus one set from the end of the line, and one from each branch greater than the one pipe length. District personnel will take samples for bacteriological testing. If the test fails, the line

shall be re-chlorinated, re-flushed and retested. The District will require at least forty-eight (48) ~~hours notice~~hours' notice for testing. No Testing/Samples on Mondays or Fridays. If bacteriological test fails three (3) times then an alternate method for ~~/mechanical~~ cleaning ~~as~~ required by District such a mechanical cleaning by pigging or high pressure jetting of the water main.~~.~~

2.4.13 **LEAKAGE TESTING.** Pressure and leakage tests shall be conducted in accordance with AWWA C600. Test pressure shall be the greater of working pressure plus fifty (50) psi or one hundred fifty (150) psi, measured at the high point of the section being tested. The maximum length of line to be tested shall be two~~one~~ thousand five hundred feet (2~~1~~,5~~0~~00'). All joints in connections shall be watertight within tolerances set forth in AWWA C600. Any leakage that is discovered by observation or tests shall be located and corrected by the Contractor, regardless of the allowance used for testing. Pressure and leakage tests shall not be conducted until the line has been disinfected. Please refer to AWWA standard C-600, "Installation of Ductile Iron Pipe Water Mains and their Appurtenances."

Any failed pressure and leakage tests will require re-disinfection of the water main per **Article 2.4.12**.

2.4.14 **MANHOLES**. Refer to **Article 3.3.4, Manholes & Riser Rings**, of these Technical Standards and Specifications.

2.4.15 **TRACER WIRE**. Tracer wire shall be installed on all water main pipeline and water service lines. Tracer wire test stations are to be located at all blow offs, curb stops, and fire hydrants. Wire shall be a minimum of 12 AWG High-Molecular Weight Polyethylene (HMWPE) insulated wire. After installation there shall be a minimum of twelve inches (12") of slack wire available in the test box or valve box. Refer to detail drawings 2-1 and 2-2, ~~which are available upon request,~~ for location of wire and box.

2.4.16 **TRENCHING.** Trenching for water and sewer lines shall be separated horizontally at least ten (10) feet apart. Trenches shall remain open after taps are made until the District's operations personnel can inspect all installations. Water service lines shall be a minimum of 5 feet deep. Common trenching is not allowed unless approved in writing by the District.

2.5 WATER SERVICE LINES.

A Water/Sewer Connection Permit is required before any digging can take place.

Purchase of a Water/Sewer Connection Permit obligates the Owner/Developer to strictly adhere to all of the District's Technical Standards and Specifications that pertain to water and sewer service line connections. Exceptions to the District's Technical Standards and Specifications may be made only upon application in writing to the District Manager.

1. Jumpers are not allowed in this District. Water use is prohibited without the use of a meter or without prior written permission from the District. If this provision is violated, the Owner of the offending service shall be immediately assessed a ~~$300~~ fine per incident. The fine for unmetered water usage is set forth in the District's current **Part I, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates and Charges**.~~.~~

Reminders:

1. A Water/Sewer Connection Permit Is required before any digging can take place.

2. If at any time a problem or questions occurs, please be sure to contact the District for instructions before proceeding with a connection.

Any variances must be requested in writing and approved by the District.

2.5.1 GENERAL REQUIREMENTS.

1. **SERVICE SIZE.** Water services shall be adequately sized to meet the requirements of the facility being served. The minimum size water service shall be three-quarter inches (3/4").

   The service line and meter shall be sized according to AWWA manual M22: "Sizing Water Service Lines & Meters" and shall be approved the District on the basis of:

   a. Number of units serviced.

   b. Number of fixtures.

   c. Length of service line.

   d. Total GPM required.

   e. Annual consumptive demand.

   The District may require the installation of a meter a size smaller than the service pipe in cases where the full capacity of a previously used service pipe is not required.

   Service lines shall be of the same type material from beginning to end, unless the appropriate insulator is installed at the junctions of dissimilar metals and unless approved by the District.

   Service lines shall be the same size as the Corporation Stop unless written permission is given by the District.

2. **WATER SERVICE LINE LOCATIONS.** District approval of service line locations is required for all services. Water service lines at the Curb Stop shall be no deeper than six feet (6'). Water service lines shall be a minimum of two feet (2') from the property line. If any portion of the service line is to be located under a hard surface such as driveway then the service line will be sleeved in SDR-35 pipe, or if joint trenching is approved by the District.

3. **METERS.** Meters sized $^{3}/_{4}$" or 1" will be furnished and installed by the District. The District will furnish the meter and remote reader for all services. All other service line components such as pipe, fittings, meter pits and meter setters, shall be furnished and installed by the developer. The developer will be responsible for furnishing and installing meters 1-1/2" or larger. The charge for

District furnished meters is set forth in the District's current **Part I, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates and Charges**.

Water meters shall be set when the Owner/Developer requests water for the structure. Meter sets shall be ordered from Roxborough Water and Sanitation District at least 24 hours in advance. Note: If the meter cannot be set due to improper installation, a fee shall be assessed for each return inspection as set forth in **Part I, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates and Charges**. If the building is occupied prior to a meter set, a fine shall be assessed by the District as set forth in **Part I, Administrative Policies and Procedures, Exhibit A, Schedule of Fees, Rates and Charges**. Meter sets in cold months must have a heat source available.

The District will supply and maintain the water meters 1" or smaller, which was paid for when the fee for the Water and Sewer Connection Permit was collected.

It is the Owner's responsibility to ~~i~~ensure that the water billing address is correct and bills are paid promptly. The Owner shall notify the District of any change of ownership or of any change of billing responsibility. For all commercial meters and water meters 1-1/2" or larger, it is the Owner's responsibility to perform accuracy tests and provide the District with the results. Tests shall be completed and in compliance with the following:

Meter Size (Inches)	Interval Between (Years)	Tests Accuracy (%)
1-1/2	4	3
2	4	3
3	3	3
4	2	3
6	1	3

If the tested meter does not meet the accuracy indicated in the above table, the Owner will be responsible for replacement of the meter.

4. **LOCATION OF METERS AND REMOTE READOUTS.** Meters for all services in the District shall be installed inside with remote readouts. Remote readouts shall be mounted in an approved location**.** All meter set and remote readouts locations will be approved by the District and will not be covered in any way at any time as to allow the District total access for repairs.

5. **METER SIZE.** Meters shall be of the same size as the corporation stop.

Meters in sizes three inches (3") through six inches (6"), regardless of type of installation, shall be compound type meters. Compound meters shall consist of two (2) meters, one (1) to measure small flows and the other to measure large flows. The two (2) meters may be assembled in one (1) case or in separate cases coupled together. The meter shall meet the most current AWWA C702.

A bypass line shall be required for all meters one and one-half inch (1-1/2") and larger. Bypass lines shall contain an independent control valve and shall contain no tees, plugs, or other outlets through which water could be withdrawn. Please refer to Drawing 2-13~~, which is available upon request~~.

6. **CURB STOPS.** Curb stops shall be installed on all service lines to provide a means to shut off the service line. The Curb Stop and stop box shall be located as shown on the standard details. Curb stops shall be buried a minimum of five feet (5') and a maximum of six feet (6'). The Curb Stop box shall be a minimum of two-inches (2") and a maximum of four-inches (4") above final grade or back of sidewalk.

7. **PRESSURE REGULATORS**. A pressure regulator, adjustable from twenty-five (25) to seventy-five (75) psi, shall be installed on all service lines in which normal operating pressure exceeds 50 psi. For services with inside meter settings, the pressure regulator shall be installed between the meter yoke and downstream valve. For services with outside meter settings, the regulator shall be located in an accessible area as described for inside meter settings. Please refer to Drawing 2-16~~, which is available upon request~~.

8. **PRESSURE BOOSTER SYSTEMS.** In locations where the District's water distribution system is not capable of providing adequate pressure to certain individual lots, the District may require installation of pressure booster systems within the affected houses. Booster systems will be required when static pressure at the meter is less than 43 psi. Booster systems will be sized to provide adequate flow and will generally consist of a booster pump and a pressure tank. The District shall approve booster systems prior to installation.

   In lieu of a pressure booster system, the District may require installation of a pipeline from a higher pressure zone to serve houses with pressure less than 43 psi.

   Generally, booster systems will not be allowed when the service pipeline can be at sufficient size to not impact pressure and flow.

9. **SERVICE LINE STUB-INS.** Service line stub-ins shall extend behind any other utilities, such as gas and electric lines. Water services shall be in a separate trench and shall be a minimum of ten feet (10') from sewer service lines. Water service lines shall be a minimum of eighteen inches (18") above any sanitary sewer crossing.

10. **SERVICE LINE TAPS.** Direct tapping of the main will be permitted for 3/4" taps in ductile iron pipe with a diameter of 8" or greater. All other taps shall be made using the specified tapping saddle and conform to C-105 for Polyethylene and Dielectric Coupling of service tap.

    All 3/4" taps shall be wet taps, using a double strap tapping saddle with Corporation Stop and 3/4" K-copper tubing. A Curb Stop shall be installed at least two feet inside the property line and two feet off the property line. The meter shall be installed inside the structure in an area approved by the District.

2.5.2 SERVICE LINE EQUIPMENT AND MATERIALS.

1. **SERVICE LINE PIPE AND FITTINGS.** Service lines shall be seamless copper tube, Polyethylene (PE) or ductile iron pipe. Service line materials shall conform to one of the following specifications:

   a. Seamless copper tube, Type K (soft), shall be used for service lines three-fourths inch (3/4") through three inches (3").

   b. PE shall be three-fourths inch (3/4") through three inch (3") and shall be in accordance with AWWA C-901, AWWA C-904, or AWWA C-906. The dimension ratio shall be 9 or a dimension ratio that exceeds the pressure rating of dimension ratio of 9. The pipe shall be listed as meeting NSF-61.

   ~~b.~~c. Ductile Iron Pipe may be used for three-inch (3") service lines, and shall be used for all service lines larger than three inches (3").

   Pipe fittings for DIP service lines shall be cast-iron, mechanical joint in compliance with **Article 2.3.3, Fittings**, of these Technical Standards and Specifications.

   Pipe fittings for "K" copper service lines shall be all brass construction in accordance with AWWA C-800. Fittings used inside a building or a meter vault (2" meter and larger) may be of the sweat copper type.

2. **CORPORATION STOPS.** Corporation Stops shall be manufactured in accordance with AWWA C800 (most current), with AWWA taper thread on the inlet side.

   The outlet connection shall be flare type. Style shall be Ford FB600, or approved equal. All corporation stops will have a dielectric coupler installed to isolate the copper from the Corp Stop. **In all service line installations, the corp. stop shall be insulated from the copper service line.**

   After tapping the Corporation Stop and the service line shall be wrapped in polyethylene extending from the main line eighteen inches (18") up the service line per AWWA C-105 (most current) Standard Drawing Number 2-15.

3. **CURB STOPS.** Curb stops/ball valves shall have a body constructed of 85-5-5-5 waterworks brass with flared outlets. Styles shall be Ford Ball #B-22, Mueller #H15204, or approved equal.

   Curb Stop shall be no deeper than 5' 6". Curb Stop shall be a minimum of 2"and a maximum of 4" above final grade.

4. **CURB STOP BOXES.** Curb Stop boxes shall be arch pattern base, which do not permit the transfer of loading onto the Curb Stop valve. Curb boxes shall be constructed of cast iron and steel, as manufactured by The Mueller Company or approved equal.

5. **PRESSURE REGULATORS.** The regulator shall be a Watts Model 25AUB. If the property falls into a high-pressure zone the developer or builder will need a high-pressure zone meter installation. See Drawing 2-14B~~, available upon request,~~ for installation placement.

6. **METER COUPLINGS.** Meters one and one-half inch (1-1/2") and larger shall be provided with a coupling to allow for the removal of the meter without disturbing the pipe. Couplings shall be Ford LOK-PAK Meter Couplings or approved equal.

7. **METER SETTERS.** Meter setters shall be of an all copper and brass construction and shall have a positive 1/4 turn shut-off valve on the inlet side of the setter with padlock wings. Vertical meter settings for inside-house installation shall be Ford Copperhorn or approved equal. Horizontal meter settings for outside-house (meter pit) installation shall be Ford Series 70 Coppersetter or approved equal. Provide a 7 $^{1}/_{2}$" meter yoke for meter installation.

   The water meter setting shall provide a continuous, electrically conductive path around the water meter. If a bonding jumper is required, it shall be made of copper with fittings suitable for the bonding jumper and the water pipe material. The meter setting installation shall be in compliance with the NEC, Articles 100, 250-81, 250-94, 250-112 and 250-115(a).

8. **VALVES FOR USE WITH METERS.** Gate or ball valves three inch (3") and smaller to be used with copper service pipe shall be brass, with non-rising stems and solid wedge disc. Gate valves shall meet the requirements of AWWA Standard C800. Valves shall be Nebco #T22 or Approved equal.

   Valves larger than three inches (3") for use with ductile iron service pipe shall be gate valves conforming to **Article 2.3.4, Gate Valves**, of these Technical Standards and Specifications.

9. **TAPPING SADDLES.** Water service tapping saddles for service lines 2-inch diameter and smaller shall be bronze casting with double silicone bronze straps. Single strap saddles shall not be permitted.

   Tapping saddles being used shall be Smith-Blair #232, Ford 202B, Mueller #16100 Series, or approved equal.

10. **METER PITS AND COVERS.** Meter pits for meters shall consist of twelve-inch (12") high pre-cast concrete rings, 24" I.D., with two-inch (2") wall thickness. The top section shall be tapered to accommodate a 20" I.D. frame.

    Meter pit covers shall be airtight with a double cover. The meter pit cover shall have a cast iron or~~, cap type, top lid.~~ traffic rated composite, cap type, top lids. The body of the meter pit cover shall be cast iron or aluminum. Aluminum shall have a polymer coating such as ~~an~~ epoxy. Meter pit covers shall be Ford Model W3 or approved equal**.** Meter pits shall be 2 to 4 inches above final grade.

11. **COMPOUND METERS.** Compound meters shall conform to most current AWWA C702. Meters shall be manufactured by Badger Meter or approved equal. Final meter selection shall be submitted to the District for approval prior to ordering.

Specifications shall be furnished upon request for meters larger than six inches (6") or for installations where the service requirements require a meter other than the type specified above.

12. **METER CHECK VALVES.** Check valves shall be required for all meters one and one-half inch (1-1/2") and larger. Reduced pressure principle backflow preventers may be required where conditions exist that could cause a flow of water from the property to the main.

2.5.3 SERVICE LINE EXTENSION.

1. **EXCAVATION, BEDDING AND BACKFILL.** Excavation, bedding and backfill shall be performed in accordance with **Article 4, Site Work and Earthwork**, of these Technical Standards and Specifications.

2. **SERVICE LINE TAPS.** Tapping shall be performed after the water main has passed pressure and bacteriological tests.

   Service line taps shall be made under full line pressure. Taps shall be made in the upper half of the main at the ten o'clock and two o'clock positions. The tap shall be made on the same side of the main as the water meter.

   Service taps shall have a minimum separation of 18 inches and shall be no closer than 18 inches to a coupling or bell. After the tap has been completed, polyethylene wrap and the bedding shall be repaired or replaced. Upon completion of all service taps, a visual inspection shall be made by the District to check for leakage. If any leakage exists which cannot be corrected by tightening the corporation stop, upon approval by the District a repair saddle may be used.

   No partial inspections for water service will be permitted without prior approval to the excavation by Roxborough Water and Sanitation District.

3. **OUTSIDE METER SETTINGS WITH REMOTE READOUTS.** Outside meters shall be installed in a horizontal position and housed in a concrete manhole or vault. Remote readouts shall be located in an approved location.

4. **INSIDE METER SETTING AND REMOTE READOUTS.** Inside meter settings shall be installed in a manner which will allow free access and adequate room for inspection and maintenance and will protect the meter from freezing. Meters installed inside of buildings shall be not more than eighteen inches (18") from the wall through which the service pipe enters the building. The meter yoke shall have a minimum of one-foot (1') clearance from all surrounding obstructions. All fittings shall be brass or copper.

   Inside meter settings shall not be allowed in crawl spaces, closets or other locations that are not easily accessible. Meter sizes one and one-half inch (1-1/2") and two inch (2") installed inside buildings shall be provided with a floor drain.

   Remote readouts shall be installed in an approved location within five feet (5’) of the meter. The remote readout will remain accessible to the District at all times.

2.6 PUMPING FACILITIES.

2.6.1 GENERAL. In locations where the District's water distribution system is not capable of providing adequate water pressure to a development area, the District may require the construction of a pumping facility in order to provide proper service. The District may not approve the installation of a pumping facility where, in the opinion of the District such an installation would have an adverse effect on the operation, or future operation, of the District's water system. The Developer shall provide the District with a set of design calculations and drawing for review and acceptance by the District. Drawings shall conform to **Article 1.5, Plans and Specifications**, of these Technical Standards and Specifications.

The pumping facility shall satisfy all requirements of the Colorado Department of Public Health and Environment and of these Standards and Specifications. The Developer shall prepare a set of "as built" drawings of the pumping facility in accordance with **Article 1.5, Plans and Specifications**, of these Technical Standards and Specifications. Upon completion of the pumping facility, the Contractor shall also provide the District with two (2) copies of an "Operation & Maintenance Manual" for the facility.

2.6.2 DESIGN CRITERIA.

1. **GENERAL**. The District on a case-by-case basis will establish specific design criteria for water pumping facilities. Prior to commencing design, the developer and his engineer shall meet with the District to develop design criteria for the project.

2. **PUMPS AND PUMP STATION.** Pump stations shall have a minimum of two (2) pumps and shall be capable of pumping the peak design flow with one pump out of service. All pumping equipment shall be manufactured and supplied by the same company.

   The station shall be sized to accommodate all pumps, electrical equipment and controls required to operate the facility. The station shall be lighted, heated and well ventilated, and if required shall be designed for easy expansion. The architectural finish of the station shall blend with that of the surrounding architecture.

   A standby generator, capable of operating the entire station for a minimum of four hours, shall be provided and shall be located outside of the building in an all- weather enclosure.

3. **CONTROLS AND TELEMETRY.** Pump operation shall feature automatic sequencing of the pump operation to balance pump wear. A telemetry system shall be incorporated at the pump station into the system for control monitoring and reporting. The system shall be capable of differentiating between varieties of emergency conditions including high and low pressures, pump failures and power failure. The telemetry system shall be compatible with the District's system and will be reviewed and accepted by the District prior to installation.

4. **SITE IMPROVEMENTS.** A six-foot (6') high vinyl coated chain link fence with barbed wire shall be installed around the perimeter of the pump station site.

Upon completion of the pump station construction all disturbed areas within the site shall be fertilized, seeded and mulched in accordance with **Article 4.8, Site Restoration**, of these Technical Standards and Specifications.

Depending on site location, landscaping improvements may be required by the District.

ARTICLE 3. WASTEWATER FACILITIES

3.0 GENERAL PROVISIONS.

3.1 GENERAL.

3.1.1 **APPLICABILITY.** All wastewater main construction within the District system and all wastewater service line construction connecting to the District's wastewater mains shall be completed in accordance with these Technical Standards and Specifications and the approved plans. These Technical Standards and Specifications shall cover new construction and repairs to existing facilities.

3.1.2 **TRENCH, BACKFILLING AND COMPACTING.** Trenching, backfilling and compacting shall be performed in accordance with **Article 4.6, Trenching**, **Backfilling and Compacting**, of these Technical Standards and Specifications.

3.1.3 **PRESERVATION OF MONUMENTS.** Monuments which are moved or disturbed will be replaced by a licensed professional land surveyor at the contractor's expense.

3.1.4 **CONNECTION TO DISTRICT WASTEWATER SYSTEM.** The District shall not allow flow of any kind into the existing wastewater system until final acceptance of the wastewater lines. All wastewater flow shall meet the **Classification of Wastes and General Prohibitions** as indicated in **Appendix A** of these Technical Standards and Specifications.

3.1.5 **CONNECTION TO DISTRICT WASTEWATER SYSTEM FROM AN OUTSIDE ENTITY.** The District shall not allow flow of any kind into the existing wastewater system without District approval. Wastewater flow entering the District system from an outside entity shall be monitored flow. Please refer to standard details 3-13A and 3-13B~~, which is available upon request~~.

3.2 DESIGN CRITERIA

3.2.1 **DESIGN FLOW.** The design shall include consideration of providing service for the entire area tributary to the outfall point. The following wastewater flow rates shall be used:

Wastewater Flow Rates by User Type

User Type	Unit Wastewater Flow Rate
Residential	~~90~~71 gallons/capita/day
Commercial	1,500 gallons/acre/day
Industrial	1,300 gallons/acre/day
Park/Recreation	50 gallons/acre/day
Elementary Schools	13 gallons/student/day
Jr. & Sr. High Schools	20 gallons/student/day

Minimum residential population density, household density and land usage shall be as noted on the approved PD.

Wastewater peaking flows shall be computed using the following equation:

PF = 3.39 x ADF

Where ADF = average daily flow

3.2.2 **HYDRAULIC DESIGN.** Wastewater mains ten inches (10") in diameter and smaller shall carry the peak design flow at a maximum flow depth of seventy-five percent (75%) of the pipe diameter. Wastewater mains twelve inches (12") in diameter and larger may be designed to flow full at the peak design flow rate.

The minimum velocity at the average design flow rate shall be two (2) feet per second. Where actual flow will be considerably below the design flow for several years, the District may require that the minimum velocity be attained by suitable grades at the partial peak design flow rate. Maximum allowable velocity shall not exceed ten (10) feet per second at seventy-five percent (75%) flow depth in the pipe.

Care shall be taken to design invert elevations at manholes in such a manner that the energy gradient is consistently falling in the direction of flow. In addition, when the velocity of an upstream wastewater line entering a manhole at peak flow is above critical velocity, the hydraulic gradient shall be computed to insure that a surcharge will not occur at a service connection, and that the energy gradient will remain level across the manhole.

3.2.3 **WASTEWATER MAINS AND SERVICE LATERALS.** Wastewater mains shall be eight inch (8") diameter or larger. Wastewater service connections shall be four inch (4") diameter or larger. The following minimum grades (based on a Manning's formula n = 0.015) shall apply:

Minimum Grades for Sewers

Sewer Diameter	Minimum Grade (Percent)
4 service lateral	2.0 or 1/4 inch/foot
6 service lateral	2.0 or 1/4 inch/foot
6	1.0 or 1/8 inch/foot
8	0.40
10	0.33
12	0.22
15	0.15
18	0.12
21 or larger	As Approved by District Engineer

Wastewater mains shall ordinarily have a minimum of eight feet (8') of cover to finished ground surface. Where pipe has less than feet (4') of cover, provisions shall be made to protect the pipe from impact and loading.

Wastewater mains shall be extended at least ten feet (10') uphill from the lowest lot corner of the uppermost lot to be served. Wastewater mains shall terminate in a manhole. Service connections shall not be made at manholes, but shall be provided above or below the manhole. Manholes shall be stubbed out with suitable size pipe wherever future extension of the wastewater main is anticipated.

3.2.4 **MANHOLES.** Manholes shall be a minimum of forty-eight inch (48") diameter and shall be provided at every change in direction, grade, or at connections with intersecting sewer mains. Maximum spacing between manholes shall be four hundred feet (400') for lines fifteen inches (15") diameter or smaller or five hundred feet (500') for lines eighteen inches (18") diameter or larger. Wastewater lines between manholes shall be straight in line and grade.

Outside drop manholes (Drawing 3-9 ~~available upon request~~) shall be provided for a wastewater line entering a manhole at an elevation eighteen inches (18") or more above the manhole invert. Where the difference in elevation is less than eighteen inches (18"), the invert shall be filleted to prevent solids deposition. Inside drop manholes shall not be allowed, except by written permission of the District.

Pipe penetration gaskets shall be used for connection of pipes to precast manhole bases. The space between the pipe wall and the edge of the block out shall be grouted inside and outside, after the pipe is inserted into the gasket.

See **Article 3.3.4, Manholes & Riser Rings**, for construction specifications.

Manhole steps shall be twelve inches (12”) on center as demonstrated in Figure3-1~~, which is available upon request~~. The first step shall be eighteen inches (18”) below finished grade.

Corrosion protection from hydrogen sulfide gas shall be required for manholes if a drop manhole is provided or slope of wastewater main results is greater than ten feet per second (10 fps). Manholes shall be lined, or approved equal by the District.

3.2.5 **WASTEWATER SERVICE CONNECTIONS.** Wyes shall be provided in the wastewater main for service connections at each lot or building site. These fittings shall ordinarily be located five feet (5') below the centerline of the lot. Fittings shall be angled upwards so that the upper invert of a one-eighth bend connected to the fitting will have an elevation equal to or higher than the inside crown of the wastewater main. (See Drawing 3-8 ~~available upon request~~) Riser connections shall be installed where the elevation of the top of the fitting is more than twelve feet (12') below finished ground. Riser connections shall ordinarily reach to a grade ten feet (10') below finished ground surfaces. Refer to Paragraph 3.5~~.00~~ of this Section for additional details on wastewater service stub-ins and wastewater service connections.

Wastewater service lines shall not be located closer than three feet (3') to a side property line, and shall not be constructed through or in front of an adjoining property. Wastewater service lines shall be located a minimum of ten feet (10') to the low side of the water service.

A manhole shall be installed instead of a wastewater service connection when a greater than 4” connection is to be made to an eight-inch (8") or smaller main.

Buildings constructed as a shell, with the intention of being used for subdivided suites for commercial purposes, shall have wastewater service connections extending a minimum of six feet (6') outside of the building with a clean out for each set of proposed bathrooms or suites. All commercial and industrial facilities shall have a clean out on the outside of the building, located a minimum of three feet (3') from the building, on the wastewater service connection.

Rainwater leaders, roof drains, surface drains or ground water drains shall not be connected to the wastewater system. Each wastewater service system shall be separate from the drainage system.

3.2.6 **LOCATION DETAILS.** Wastewater mains installed in local or collector streets shall be located West or South of the centerline of the street. Mains installed in easements shall be located in the center of the easement. Mains and manholes shall be located to provide reasonable access for maintenance crews.

3.2.7 **RELATION TO WATER MAINS AND STORMWATER LINES.** Wastewater lines shall be located a minimum of ten feet (10), horizontally, from existing or proposed water mains or stormwater lines (~~centerline distance~~edge to edge distance measured). Where wastewater lines cross water mains and stormwater lines, the wastewater line shall be a minimum of eighteen inches (18"), clear, below the water main or stormwater line. If this clear distance is not feasible, the crossing shall be designed and constructed so as to protect the water main. The District shall approve the crossing design.

Minimum protection shall consist of the installation of an impervious and structural wastewater line. The wastewater line shall be encased in reinforced concrete. The encasement shall be at least six inches (6") thick around the entire pipe and shall extend a distance of ten feet (10') on either side of the water main.

3.2.8 **UNDERDRAIN PIPE.** The Developer may install an underdrain system to collect the discharge of peripheral drain systems from individual house foundations from sump pumps installed as a part of a peripheral drain system for house foundations. Such a system shall be constructed for the convenience of the Developer and will not be maintained by the District. Underdrain systems shall not be connected to the wastewater collection system. Clean outs may not be installed within a wastewater manhole. Underdrain systems shall require the approval of the District.

3.2.9 **GREASE INTERCEPTORS.** Grease interceptors shall be installed in all food serving, food preparing, food catering, or other establishments capable of discharging large amounts of grease into the wastewater system. Grease interceptors shall be located outdoors, on private property, within thirty feet of the facility served, and shall be easily accessible at all time for maintenance and examination. Grease interceptors shall comply with the requirements of the most current Uniform Plumbing Code, South Platte Water Renewal Partners (SPWRP) most current Fat, Oil, and Grease (FOG) Policy, and **Appendix B, Pretreatment Program** of these Technical Standards and Specifications. SPWRP may be reached at 303-762-2600 or, spwaterrenewalpartners.org.

3.2.10 **PETROLEUM OIL, GREASE, AND SAND TRAPS.** Sand and oil traps shall be installed at all service stations, truck or car wash facilities, vehicle maintenance facilities, machine shops, garden nurseries, warehouses, parking garages, and other establishments capable of discharging large amounts of sand and oil into the wastewater system. Sand and oil traps shall be located outdoors, on private property, within thirty feet of the facility served, and shall be easily accessible at all time for maintenance and examination. Sand and oil traps shall comply with the requirements of the most current Uniform Plumbing Code, SPWRP most current Petroleum Oil, Grease, and Sand (POGS) Policy, and **Appendix B, Pretreatment Program** of these Technical Standards and Specifications.

3.2.11 **GRINDER PUMPS.** In those areas where the District's wastewater collection system cannot provide gravity service to certain individual lots, the District may approve the installation of grinder pumps. Grinder pumps and wet wells will be sized to provide adequate service to the individual lots being served. Grinder pump installation shall be approved by the District prior to installation. Grinder pumps shall be installed inside the residence or will fall under **Article 3.6, Wastewater Lift Stations** of these Technical Standards and Specifications.

3.3 MATERIALS.

3.3.1 **WASTEWATER PIPE.** Wastewater pipe and fittings shall be Polyvinyl Chloride (PVC) and shall conform to the requirements of ASTM D3034, SDR 35. Joints shall be factory prepared compression type (Elastomeric Gasket Joint), providing a watertight seal. Solvent cement joints shall not be used.

3.3.2 **UNDERDRAIN PIPE.** Underdrain pipe and fittings shall be Polyvinyl Chloride (PVC) and shall conform to the requirements of ASTM D3034, SDR 35. Pipe shall be perforated in the lower quadrant. Joints shall be factory prepared compression type (Elastomeric Gasket Joint), providing a watertight seal.

Where underdrains are to be constructed under wastewater mains, clean outs for the underdrain shall be provided near each wastewater line manhole. Suitable fittings shall be provided for construction of clean-outs.

3.3.3 **PLUGS.** A compression stop as recommended by the pipe manufacturer shall be provided to seal the end joint of wye connections and dead-end stubs. The location of wyes and stubs shall be marked with a #20 copper wire with yellow insulation extending from the plugged end to twelve inches (12") below the ground surface and tied off to a twenty-four inch (24") piece of two inch by four inch (2"x4") lumber.

3.3.4 **MANHOLES & RISER RINGS.** Manholes shall be constructed of precast concrete conforming to ASTM Designation C-478. Cones shall be of the eccentric type.

Manhole steps shall be one-half inch (1/2") diameter, grade 60, steel-reinforcing rod completely encapsulated in Copolymer Polypropylene as manufactured by M.A. Industries, Inc. The maximum distance from the finished ground (street) surface to the first step shall be eighteen inches (18”). See Drawing 3-1~~, which is available upon request~~.

Manhole barrels shall use butyl rubber sealants and conform to ASTM C-990 to ensure watertight joints.

Mortar for manholes shall be mixed in the following proportions by volume: One (1) part Portland cement; one-half (1/2) part hydrated lime; and three (3) parts sand or masonry cement. The cement, lime, and sand shall be thoroughly mixed dry and only enough water added to form a mortar of proper consistency. Mortar shall be used within one (1) hour after mixing with no retempering permitted. Mortar that has taken a partial set shall not be used.

Riser Rings shall be pre-cast concrete or HDPE as manufactured by Ladtech or approved equal.

Manhole boot connectors shall be A-LOK Products, Inc. Z-LOK, G3 Boot System or approved equal.

3.3.5 **MANHOLE BASE SLABS AND BASE BEAMS.** Manhole base slabs may be poured in place or precast. The slab shall be designed to uniformly support the earth load and any other reasonable loads that may occur. The minimum slab thickness shall be six inches (6"). The minimum reinforcement shall be welded wire fabric, 4x4/W4xW4. Splicing of the welded wire fabric shall be by lapping one space and securing the wire mesh together. All wire fabric shall conform to the requirements of the "Wire Reinforcement Institute, Inc."

3.3.6 **CONCRETE.** Concrete shall conform to **Article 5, Concrete Work**, of these Technical Standards and Specifications. Type II cement shall be used.

3.3.7 **MANHOLE RINGS AND COVERS.** Cast iron manhole ring and covers shall conform to ASTM A-48 with a minimum tensile strength of 25 KSI (Class 25). All casting are to be dipped in asphalt base paint or approved equal. The quality shall be such that a blow from a hammer will produce an indentation on a rectangular edge of the casting without flaking the metal.

Manhole covers shall be furnished with ~~two (2) three-quarter (3/4) inch vent holes, shall have~~ one (1) pick hole 1.25" x 1", shall be twenty four inches (24") diameter, shall be heavy duty with checkerboard style cover design, and shall have the word "sewer" cast in the cover with three inch (3") text height. Manhole frames and covers shall be D&L Foundry and Supply Model No. A-1161, or approved equal. ~~the Denver Heavy Pattern Comco No. 425 (cast iron) or approved equal.~~

For locations that require a thirty-six inch (36") diameter ring and cover, manhole cover shall include two pieces, one twenty-four inch inner cover and one outer donut cover with 36" outer diameter and 24" inner diameter. Manhole frames and covers shall be D&L Foundy and Supply Model No. A-1425, or approved equal.

~~Riser rings shall be polyethylene as provided by Ladtech Inc. or approved equal.~~

The use of ductile iron manhole rings and covers is acceptable to the District. Ductile Iron Manholes shall be approved by the District prior to installation.

3.3.8 **MANHOLE LINING.** Manholes that require lining as defined in **Article 3.2.4,** shall be lined SpectraShield, Sprayroq, or approved equal by District ~~if corrosion control is required per **Article 3.2.4**~~.

3.3.9 **BEDDING MATERIALS.** Bedding materials shall be in conformance with **Article 4.2.1, Pipe Bedding Materials**, of these Technical Standards and Specifications.

3.310 **PLASTIC LINER PIPE (SLIPLINING).** Wastewater main liner pipe and fittings shall be made of a polyethylene pipe compound that meets the requirements for Type III, Grade P34 polyethylene material as defined in ASTM D-1248 and D-3350. The National Sanitation Foundation shall approve both resin and manufacturing plant.

The outside diameter and wall thickness, when measured in accordance with ASTM D-2122, shall conform to the following:

Sewer ID. Min. OD (Inches)	Liner (Inches)	Minimum Wall Thickness (Inches)			
		SDR-32.5	SDR-26	SDR-21	SDR-17
4	3.5	-	-	0.167	0.206
6	4.5	-	-	0.215	0.265
6	5.375	0.166	0.207	0.256	0.317
8	6.625	0.204	0.255	0.316	0.390
8	7.125	0.220	0.274	0.340	0.420
10	8.625	0.266	0.332	0.411	0.508
12	10.75	0.331	0.414	0.512	0.633
15	12.75	0.393	0.491	0.608	0.750
16	14.00	0.431	0.539	0.667	0.824
18	16.00	0.493	0.616	0.762	0.942
21	18.00	0.554	0.693	0.858	1.059
24	22.00	.0677	0.847	1.048	1.295
27	24.00	0.739	0.924	1.143	1.412
30	28.00	0.862	1.077	1.334	1.648
36	32.00	0.985	1.231	1.524	-
40	36.00	1.108	1.385	1.715	-

Standard lengths shall be forty feet (40'). Pipe for service lines shall be SDR-21. Where construction restraints prevent the use of the above noted pipe sizes, other pipe sizes may be utilized with the written approval of the District.

The wastewater liner pipe shall be capable of withstanding long-term water table depth for the various SDR's as shown below:

SDR	Height of Water Above Pipe (ft.)
32.5	4.0
26	8.0
21	15.6

Pipe shall be joined to the specified polyethylene fittings by thermal butt-fusion in accordance with ASTM D-2657 and D-3350. Butt-fusion of the pipe and fittings shall be performed in accordance with the procedures recommended by the pipe manufacturer. Service connections shall be made to the liner pipe by a heat fused polyethylene saddle, compatible to the resins in the liner. Joints between pipe sections shall be smooth on the inside and internal projection beads shall not exceed one-tenth inch (0.1"). The tensile strength of the butt-fusion joint shall not be less than the pipe tensile strength.

3.3.11 **STEEL CASINGS FOR BORES.** Steel casing pipe for bores shall be seamless welded steel tubing having an inside diameter of at least four inches (4") greater than the outside diameter of the bell or joint of the carrier pipe to

Wall Thickness	Casing O.D.
3/16"	< 24"
1/4”	27"
5/16”	30" - 36"
3/8"	42"

Carrier pipe supports shall be stainless steel Pipeline Casing Spacers as manufactured by Cascade Waterworks Manufacturing Company, or approved equal. Casing pipe shall include Rubber End Seal as manufactured by Cascade Waterworks Manufacturing Company, or approved equal.

3.4 WASTEWATER MAIN INSTALLATION.

3.4.1 GENERAL. Installation of PVC wastewater main shall conform to ASTM D-2321, "Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe". All work shall conform to the accepted plans, specifications, special provisions and the above designation, except as modified herein.

3.4.2 ALIGNMENT AND GRADE. Wastewater mains, structures and appurtenances shall be constructed accurately to the line and grade as shown on the approved plans. Construction stakes shall be placed by field parties under the direct supervision of a registered professional land surveyor licensed to practice in the State of Colorado.

The grade and alignment shall be maintained by use of suitable surveying instruments (checking the invert of each piece of pipe) or laser equipment, operated continuously during the construction.

3.4.3 UNDERDRAIN PIPE. Underdrains shall be installed where shown on the approved plans. Underdrains shall be installed below the wastewater line, with a minimum vertical clear distance of 4" between the underdrain and the wastewater line.

Under drain pipes shall be provided with clean-outs near each manhole. Underdrain pipe shall not be installed directly beneath manholes. Underdrains shall be routed around manholes by use of suitable bends and other fittings. Under drain pipe stub in to property shall be three-inch (3”) pipe.

3.4.4 HANDLING PIPE AND FITTINGS. All pipe, fittings, and specials shall be unloaded, stockpiled, hauled, distributed, installed and otherwise handled in a manner that will prevent breakage or other damage thereto and which will insure delivery and installation in a sound and acceptable condition. PVC pipe shall be stored or covered in a manner to protect against direct sunlight exposure.

3.4.5 WASTEWATER LINE INSTALLATION. Wastewater lines shall be constructed continuously upgrade from an existing wastewater lines except when otherwise approved by the District. Special care shall be taken to lay wastewater pipe to exact line and grade with spigot ends pointing in the direction of flow.

Bedding material shall be placed per detail 4-1~~, available upon request~~. A continuous trough shall be excavated in the bedding to receive the bottom quadrant of the pipe barrel. Bell holes shall be excavated so that after placement, only the barrel of the pipe bears on the bedding.

Prior to making pipe joints, all surfaces of the joint shall be clean and dry. Lubricants shall be used as recommended by the pipe manufacturer. The joint shall be carefully pushed home using approved methods of leverage. Care shall be taken to prevent pinching or rolling of the gasket. Adjustment to final line and grade shall then be made. PVC wastewater pipe shall be secured in place by installation of bedding material tamped under and along it up to a level of twelve inches (12") over the top of the pipe.

Wastewater lines shall be kept thoroughly clean and free of gravel, dirt and debris. Whenever work ceases for any reason, the unfinished end of the pipe shall be securely closed with a temporary plug.

Tracer wire shall be installed on all wastewater mains and service laterals~~lines~~. Test station location shall be in open spaces when possible. If a wastewater line is in the road, the test station location shall be shown on the plan drawing close to the wastewater line location. The test location shall be in areas outside asphalt and concrete finished surfaces.

Pipe shall not be covered until a representative of the District has inspected it.

3.4.6 **CONNECTIONS TO EXISTING MANHOLES.** Wastewater pipe connections to existing manholes, where there is no pipe stubbed out, shall be made in such a manner that the finished work will conform as nearly as practicable to the essential requirements specified for new manholes. The contractor shall break out as small an opening in the existing manhole as necessary to insert the new wastewater pipe. The existing concrete foundation bench shall be chipped to the cross-section of the new pipe in order to form a smooth continuous invert similar to what would be formed in a new concrete base. Non-shrink grout shall be used as necessary to smoothly finish the new invert and to seal the new line so the junction is watertight.

3.4.7 **CONSTRUCTION OF MANHOLES AND CLEAN-OUTS.** Concrete bases shall extend at least six inches (6") below the bottom of the pipe and shall be benched up to at least two inches (2") over the top of the pipe (See Drawing 3-1 ~~available upon request~~). The shape of the invert shall conform exactly to the lower half of the pipe it connects. Side branches shall be constructed with as large a radius of curvature as possible (See Drawing 3-3A ~~available upon request~~). Inverts shall be plastered with cement mortar and left smooth and clean.

Precast manhole sections shall not be placed on the foundation until after it has reached sufficient strength to provide support without damage. The top of the bench shall be thoroughly cleaned. Sealant shall be applied to the precast section-bearing seat. The first precast section shall be carefully lowered onto the bench so that the sealant is forced out from under the section evenly on all sides. Each succeeding precast section shall be jointed in a similar manner. Sealant shall be raked back in all joints to a minimum depth of one half inch, and all joints shall be grouted, inside and outside the manhole. All lifting holes and other imperfections in manhole walls shall be filled with non-shrink grout.

The top of the manhole vault shall be a minimum of twelve inches (12") and a maximum of eighteen inches (18") below the finished street or ground surface elevation. Concrete extension risers or collars shall be used to bring the manhole ring and cover up to finished street or ground surface elevation.

3.4.8 **PLASTIC LINER PIPE (SLIPLINING).** The Contractor shall by-pass the wastewater around the section or sections of the line that are to be slip lined. The by-pass shall be made by plugging an existing upstream manhole if necessary and pumping the wastewater into a downstream manhole or adjacent system. The pump and by-pass wastewater lines shall be of adequate capacity and size to handle the flow. Under no circumstances will the dumping of raw wastewater on private property or on District

streets be allowed. At the end of each working day, temporary tie-ins shall be made between the relined section and the existing section, and the by-pass removed.

Prior to commencing slip lining, the Contractor shall televise and thoroughly clean the line that is to receive the liner. It shall be the responsibility of the Contractor to clear the line of any protruding service connections or solids that might prevent the pulling of the liner through the existing wastewater main.

Excavation shall conform to all applicable portions of **Article 4, Site Work and Earthwork**, of these Technical Standards and Specifications. Excavation shall be required at each building service connection to the main, after insertion of the liner pipe into the existing sewer main. Excavation shall provide sufficient working room to properly reconnect the building service lead to the new liner pipe. Access shaft excavations shall also be required at intermediate manholes, or other intermediate points, where the liner pipe will be "fed" into the existing wastewater main. When possible, these intermediate access shaft excavations should coincide with building wastewater service connection excavations or critical deviations in line or grade. Where excavations for the insertion of the liner are made in a line section between the two manholes, the liner pipe shall be joined together with a circular seal clamp, or equivalent connection. The exposed liner clamp shall then be encased (all around) with twelve inches (12") of cement stabilized sand.

The sections of liner pipe shall be assembled and joined on the site, above ground.

Where installation of the liner pipe is to be made through an access shaft, the top of the existing wastewater main shall be exposed to springline for the full length of the shaft prior to removal of the crown portion of a section of the existing main.

A power winch shall be connected to the end of the liner by the use of a pulling head. Precautions shall be taken to prevent damage to the liner and joints. The length of the liner pipe to be pulled into an existing wastewater main at any one time shall be governed by the size of the liner and the condition of the existing wastewater main.

After the liner has been pulled into place, secured in the manhole walls and tested in accordance with **Article 3.4.11, Testing and Inspection**, of this section, each existing wastewater service connection shall be connected to the new liner. A portion of the existing wastewater main around each service connection shall be removed to expose the liner pipe and provide sufficient working space for making the new service connection. Service laterals shall be connected to the liner pipe by using a heat fused polyethylene saddle, compatible with the resins in the liner. If extreme conditions prevent heat fusion of this saddle, it may be secured to the liner with stainless steel bands, with a neoprene gasket between the liner and the saddle. The entire wastewater service connection shall be encased with a twelve-inch (12") cover (all around) of cement stabilized sand.

In those places where the main access shaft is excavated at an existing manhole, the manhole shall be replaced with a new precast concrete manhole. Where new manholes are not required at the access shaft locations, the line shall be encased in cement stabilized sand.

The annular space between the liner and the existing wastewater main shall be sealed where the wastewater main enters and exits each manhole. This annular space may be sealed with a mechanical seal, chemical seal, or combination of both.

The District prior to construction shall approve the method in writing. The liner shall be allowed to stabilize for several hours at the wastewater main temperature before grouting the annular spaces at the manholes.

At all points where the liner pipe has been exposed, such as access shafts, service connections, and outside of manholes, cement stabilized backfill shall be placed in six inch (6") lifts to an elevation one foot (1') over the top of the exposed liner pipe. Each lift shall be hand tamped and care shall be exercised at all times to prevent damage or collapse to the liner, service connections, etc. After the cement stabilization is in place and accepted by the District, the trench shall be backfilled to the required finished grade.

3.4.9 **STEEL CASING AND CARRIER PIPE INSTALLATION.** Pits shall be excavated such that the timber blocking can be installed to give an unyielding backing for the hydraulic boring machine or jacks and to prevent sloughing of the header face. Sub grade on which rails or guides are to be set shall be stabilized with washed rock where soft or springy ground is encountered. Excavation and casing installation shall be performed simultaneously. At no time shall the advancing edge of the casing trail the excavation by more than twelve inches (12").

Sections of the steel casing shall be trimmed, beveled and aligned in the pit so that when welded together the thrust of the boring machine will be uniformly transmitted through the casing in a horizontal plane. Welds shall be made to provide a solid firm watertight connection without the use of butt straps.

The casing pipe shall be installed by boring or jacking upgrade from the outlet end. When the carrier pipe to be installed is for gravity flow, the horizontal and vertical alignments of the casing pipe, when in place, shall not vary from those called for on the accepted plans by more than the following:

Alignment	Entrance	Midpoint	Outlet
Horizontal	+0.02'	+0.35'	+0.70'
Vertical	+0.02'	+0.10', -0.05	+0.20', -0.10

Voids created along or above the casing shall be filled with grout after installation of the casing. Grout shall be equal parts of Portland cement and mortar sand mixed with sufficient water to provide a workable mix. Grout shall be pumped through grout holes in the casing until all voids are filled. Grout holes, one inch (1") to two inches (2") in diameter, shall be provided or drilled in the casing on four foot (4') centers along the pipe arch and at eight foot (8') centers along each springline. As grouting advances each of the completed grout holes shall be plugged to a watertight condition.

Each section of carrier pipe shall have two (2) stainless steel casing spacers. Sections of carrier pipe shall be properly joined to each other as they are set and the assembled line gradually threaded through the casing by means of applying force at the exposed end of the carrier pipe. Care shall be exercised to provide watertight joints and to protect the ends of the pipe as they are pushed by uniformly transferring said force through the pipe in a horizontal plane. It may be necessary to vary the size of risers on casing spacers to obtain a uniform grade through the carrier pipe.

Following threading and aligning the carrier pipe, the void between the carrier and the casing shall be filled with clean sand. Sand under pressure shall be blown into the void until the entire void is filled.

3.4.10 **WYES AND RISERS FOR SERVICE CONNECTIONS.** Wyes, stubs, and risers shall be placed where shown on the accepted plans. Wyes shall be angled upwards so that the upper invert of a one-eighth (1/8) bend connected to the fitting shall have an elevation equal to or higher than the inside crown of the wastewater main. Riser connections shall be installed where the elevation of the top of the branch is more than twelve feet (12') below finished ground. Riser connections shall ordinarily reach to a grade ten feet (10') below finished ground surface. Watertight plugs shall be installed in each branch pipe or stub. Wye and riser locations shall be marked with a #20 copper wire with yellow insulation run from the plugged end up twelve inches (12") below the ground surface and tied off to a twenty-four inch (24") piece of two inch by four inch (2"x4") lumber. As-built measurements shall be made by the contractor to reference the wye or riser connection to the nearest manhole before backfill. Measurements shall be carefully and accurately made and recorded and shall be shown on the as-built plans.

3.4.11 **TESTING AND INSPECTION.** The District shall visually inspect all wastewater lines for cleanliness and accurate alignment. Discrepancies noted during visual inspection shall be corrected prior to further testing.

Prior to final acceptance, the contractor shall conduct, at his own expense, tests for water tightness for all new wastewater line construction. Tests shall be completed under the direction of the District. The District may require that the first two (2) manholes, including the main between them, of all wastewater line projects be tested before further construction to permit initial observation of the quality of construction workmanship. The District may require additional testing during the course of construction if infiltration appears to be excessive or the quality of workmanship is questionable.

All pipelines shall be tested for excessive deflection. Deflection testing shall be performed by pulling a properly sized mandrel through the pipeline.

Low pressure air testing shall be performed on all wastewater lines. Vacuum testing of manholes may be required by the District, depending on specific project conditions. Air and vacuum testing shall be completed in accordance with ASTM C- 828 and as described herein. The District shall record times and pressure and vacuum readings during the test period. A test section shall not be longer than the length of pipe between adjacent manholes.

The low-pressure air test for wastewater lines and the vacuum test for manholes shall be performed after completion of backfilling and compaction.

1. **AIR TESTING PROCEDURE.** The ends of the sewer pipe being tested shall be plugged and braced and the test section shall be pressurized to four (4) psi. The pressure pump shall be turned off and the air in the pipe allowed to stabilize for a minimum of two (2) minutes. The time shall be monitored as the line either holds pressure or drops no more than one (1) psi (if the ground water is higher than the top of the pipe, the test pressure shall be increased to account for the high groundwater). The pressure shall remain within the allowable limits for the time indicated by using the following formula:

$$T = 0.0237 (L) (D^2)$$

where: T = time of test (in seconds)
L = length of pipe being tested (in feet)
D = diameter of pipe (in inches)

or as indicated in the following table:

Specified Test Duration for Length of Pipe Indicated (min:sec)

Pipe Diameter	Pipe Length (Feet)						
	0-150	200	250	300	350	400	500
4 “	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6 ”	5:40	5:40	5:40	5:40	5:40	5:42	7:07
8 “	7:34	7:34	7:34	7:36	8:52	10:08	12:38
10 “	9:26	9:26	9:53	11:52	13:51	15:49	19:45
12 ”	11:20	11:24	14:15	17:05	19:56	22:47	28:26
15 “	14:10	17:48	22:15	26:42	31:09	35:36	44:26

Sections of pipe that fail the air test shall have the defects repaired and the test shall be repeated. Repair and repeat testing shall be continued until the testing requirements are met.

2. **VACUUM TESTING MANHOLES.** Manholes shall be tested before the ring and cover and grade adjustment rings have been installed. All pipes entering the manhole shall be plugged and braced and a vacuum of ten inches (10") of mercury shall be drawn. The vacuum pump shall be turned off and the time monitored as the vacuum drops one inch (1"). The vacuum shall not drop more than one inch (1") for the duration of the time indicated in the following table.

Specified Test Duration for Diameter of Manhole

Manhole Diameter (inches)	Test Duration (min:sec)
48	1:00
60	1:15
72	1:30

Manholes that fail the vacuum test shall have the defects located and repaired and the test shall be repeated. Repair and repeat testing shall be continued until the testing requirements are met.

When required, infiltration tests shall conform to the requirements of ASTM C969. Infiltration tests shall be conducted by placing an approved, calibrated V-notch weir in the line and measuring infiltration flow. Successive readings shall be taken until consistent results are attained. Infiltration shall not exceed the allowable leakage limit 50 gallons per inch of internal pipeline diameter per mile per day when the average head on the test section is six feet (6’) or less.

When required, exfiltration tests shall conform to the requirements of ASTM C969. Exfiltration tests shall be conducted by plugging the section of line to be

tested, filling the line and manholes with water to a depth of four feet in the upper manhole. If groundwater is present above the elevation of the pipe, the water level in the upper manhole shall be increased by the height of the groundwater surface above the pipe. The water shall be allowed to stand for a minimum of eight (8) hours to allow absorption to take place in the walls of the manhole and pipe. If required, water shall be added to bring the water surface back to a depth of four feet in the upper manhole. The drop in elevation of the water surface in the upper manhole shall be monitored over a 60 minute period, and converted to an exfiltration rate. Exfiltration testing shall not be used if the hydraulic head in the lower part of the test section would exceed 25 feet. Exfiltration shall not exceed 50 gallons per inch of internal pipeline diameter per mile per day when the average head on the test section is three feet (3') or less.

3.5 WASTEWATER SERVICE LINES.

Sewer Connection Instructions

A Water/Sewer Connection Permit is required before any digging can take place.

Purchase of a Water/Sewer Connection Permit obligates the Owner/Developer to strictly adhere to all of the District's Rules and Regulations that pertain to sewer service line connections. Exceptions to the District's Rules and Regulations may be made only upon application in writing to the District Manager.

Reminders:

1. A Water/Sewer Connection Permit Is required before any digging can take place.

2. If at any time a problem or questions occurs, please be sure to contact the District for instructions before proceeding with a connection.

3. Any variances must be requested in writing and approved by the District.

3.5.1 GENERAL REQUIREMENTS.

1. **LOCATION AND ALIGNMENT OF WASTEWATER SERVICE.** Wastewater service lines shall be constructed in the shortest and straightest route possible. The service may be constructed with one or more horizontal one-eighth (1/8) bends between the house plumbing and the wastewater main with the written approval of the District. Clean-outs shall be installed in accordance with UBC, the UPC and as described herein. Wastewater service lines shall have a minimum depth of three feet (3').

2. **WASTEWATER SERVICE STUB-INS TO PROPERTY LINE.** Wastewater Service stub-ins shall be extended to at least the back of the sidewalk or to the property line if no sidewalk is present or planned. Where necessary, wastewater service shall be extended past any other utilities such as gas, electric, etc., that have been installed behind the sidewalk. Service stub-ins shall be plugged with a compression stop.

No partial sewer inspections will be permitted without prior approval to the excavation by the District.

3. **SERVICE CONNECTIONS.** Wastewater service connection shall be positioned at either the 2 o'clock or the 10 o'clock position on the circumference of the wastewater main. On new installations, either wye or tee fittings shall be used. When tapping into an existing wastewater main, a saddle connection and approved coring method shall be used. The minimum distance between service connections made along the pipe shall be 3 feet. The minimum distance from either the bell or spigot end of a pipe shall be 3 feet. The minimum distance from the center of a manhole to a service connection shall be either 5 feet or the transition point from the manhole trench to the normal pipe trench, whichever is greater. A maximum of 4 wastewater service connections shall be allowed per 20-foot length of pipe.

4. **ABANDONMENT OF AN EXISTING SEWER SERVICE**. If a property has an existing sewer service stub in that is not to be used for any reason they will need to abandon the existing stub in accordance with Standard Drawing Number 3-11~~, which is available upon request~~. The property owner will need prior approval of the abandonment from the District and will need to show the abandonment on a set of as-built plans.

3.5.2 WASTEWATER SERVICE LINE MATERIALS. Pipe and fittings for wastewater service lines shall be as specific in **Article 3.3, Materials**, of this Article.

3.5.3 WASTEWATER SERVICE LINE INSTALLATION.

1. **GENERAL.** Installation of wastewater service shall conform to applicable portions of ASTM 2321~~-00~~ and to the pipe manufacturer's installation instructions.

2. **CONNECTING TO THE WASTEWATER MAIN.** Where wyes have not been installed in the wastewater main, the main shall be connected by machine drilling a hole into it sized to fit the saddle being used for the connection. The District shall approve the drilling machine and the method of drilling. A representative of the District shall inspect the main and saddle at every connection and shall be shown the “donut” or cut out as to ensure proper tapping of the pipe prior to backfilling. In the event that a connection is covered before it is inspected, the contractor, at his own expense, shall uncover the connection and remove any concrete or mortar from around the fitting to allow for a visual inspection of the connection and the main. If the wastewater main is cracked or broken during the process of locating and tapping, the contractor shall, at his expense, immediately replace the broken pipe.

3. **PIPE INSTALLATION.** Pipe installation for wastewater service lines shall conform to **Article 3.4.5, Wastewater Line Installation**, of this Article.

   In those cases where the wastewater service cannot be installed a minimum of ten feet (10') horizontally away from a water service, concrete encasement of the wastewater line shall be required. Encasement shall be C-900 pipe encased on either end. The water pipeline shall be sleeved in SDR-35.

Where the water and wastewater service lines must cross one another, installation shall be completed in accordance with **Article 3.2.7, Relation to Water Mains**, of this Article.

4. **CROSSING SIDEWALK OR CURB.** Wastewater service line trenches shall not extend beneath an existing sidewalk or curb. The pipe shall be bored, jacked or tunneled through the earth under the sidewalk or curb. Wastewater service lines that will be under any hard surface shall be C-900 pipe.

5. **TRENCHING.** Trenching for sewer service lines shall be separated horizontally at least ten (10) feet apart. Trenches shall remain open after taps are made until the District's operations personnel can inspect all installations. Sewer service lines shall be a minimum of 3 feet deep. Common trenching is not allowed, variances may be considered upon submission of engineered drawings showing the excavation plan and special circumstances.

3.6 WASTEWATER LIFT STATIONS

3.6.1 GENERAL. In those locations where a development area cannot be served by gravity into the existing District system, the District may approve the construction of a wastewater lift station. The developer shall provide the District with a set of design calculations and drawings for review and acceptance by the District.

The wastewater lift station shall satisfy all of the requirements of the Colorado Department of Public Health & Environment and of these Technical Standards and Specifications.

The District shall require that the developer's engineer prepare the "Application for Site Approval" for submittal to the Colorado Department of Public Health & Environment and to prepare a set of "as built" drawings of the wastewater lift station. Upon completion of the lift station, the contractor shall also provide the District with two (2) copies of an Operation and Maintenance Manual for the lift station.

3.6.2 DESIGN CRITERIA.

1. **GENERAL.** The District will establish on a case-by-case basis specific design criteria for wastewater lift stations. Prior to commencing design, the developer and his engineer shall meet with the District to develop design criteria for the project.

2. **PUMPS AND PUMP STATION.** Lift stations shall have a minimum of two (2) pumps and shall be capable of pumping the peak design flow with one pump out of service. All pump equipment shall be manufactured and supplied by the same company.

   The station shall be sized to accommodate all of pumps, electrical equipment and controls required to operate the facility. The station shall be lighted, heated and well ventilated, and if required shall be designed for easy expansion. The architectural finish of the station shall blend with that of the surrounding architecture as much as possible.

A standby generator, capable of operating the entire station for a minimum of four hours, shall be provided and shall be located outside of the building in an all-weather enclosure.

3. **CONTROLS AND TELEMETRY.** Pump operation shall feature automatic sequencing of the pump operation to balance pump wear. Pre-determined wet well levels measured by mercury float switches shall control pumps.

   A telemetry system shall be incorporated into the system to automatically contact the District in case of an emergency. The telemetry system shall be capable of differentiating between varieties of emergency conditions including high and low wet well levels, pump failures and power failure. The telemetry system shall be compatible with the District's system and will be reviewed and accepted by the District prior to installation.

4. **SITE IMPROVEMENTS.** A six-foot (6') high vinyl coated chain link fence with barbed wire shall be installed around the perimeter of the wastewater lift station site. Upon completion of the lift station construction all disturbed areas within the site shall be fertilized, seeded and mulched in accordance with **Article 4.8, Site Restoration**, of these Technical Standards and Specification.

   Depending on site location, landscaping improvements may be required by the District.

ARTICLE 4. SITE WORK AND EARTHWORK

4.0 GENERAL PROVISIONS.

4.1 GENERAL. Site work shall consist of demolition and removal of structures and obstructions; clearing and grubbing; over lot grading; subgrade preparation; removal of topsoil; site preparation; excavation and embankment; excavation, trenching, bedding and backfill of pipelines and service lines; excess excavation; borrow; and restoration and cleanup. All site work and excavation shall comply with the requirements of these Technical Standards and Specifications.

4.1.1 DISPOSAL. The contractor shall make all necessary arrangements for suitable disposal locations. If disposal will be at other than established dump sites, the District may require the contractor to furnish written permission from the property owner on whose property the materials will be placed.

4.1.2 COMPACTION TESTING. Compaction testing shall be performed by a consulting engineering or geotechnical firm at the contractor's expense. Final soils compaction reports shall be prepared and signed by a registered professional engineer who is registered in the State of Colorado. Reports shall be submitted to the District within one (1) week of testing.

4.2 MATERIALS

4.2.1 PIPE BEDDING MATERIALS. Bedding material for water lines shall be a clean well-graded sand or squeegee sand and shall conform to the following limits when tested by means of laboratory sieve.

WELL-GRADED SAND

Sieve Size	Total Percent Passing By Weight (%)
3/8 “	100
No. 4	70-100
No. 8	36-93
No. 16	20-80
No. 30	8-65
No. 50	2-30
No. 100	1-10
No. 200	0-3

SQUEEGEE SAND

Sieve Size	Total Percent Passing By Weight (%)
3/8 “	100
No. 200	0-5

Bedding material for PVC wastewater pipe shall meet the gradation of the Colorado Department of Transportation (CDOT) "No. 67 Coarse Aggregate" as specified in

Section 703.02 of the CDOT "Standard Specifications for Road and Bridge Construction" (1986).

Bedding for underdrain pipe shall be three-quarter inch washed gravel.

4.2.2 **STRUCTURE BACKFILL MATERIAL.** Imported structure backfill (Class I) shall meet the general gradation of "Class 1 Structure Backfill Material" as specified in Section 703.08 of the CDOT "Standard Specifications for Road and Bridge Design".

On site Class 2 structure backfill shall meet the requirements of Section 703.08 of the CDOT Specifications.

4.2.3 **ASPHALT PAVING.** Asphalt pavement shall conform to ~~Section 401 of the CDOT Specifications, gradation C or CX.~~road owners requirements. Road owners in the District include Douglas County, Colorado, Colorado Department of Transportation, and Roxborough Park Foundation.

4.3 DEMOLITION AND REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

4.3.1 **GENERAL.** The contractor shall remove, wholly or in part and satisfactorily dispose of all foundations, signs, structures, fences, old pavements, abandoned pipelines, traffic signal material and any other obstructions that are designated for removal. All salvageable material will be clearly marked by the District and shall be removed without unnecessary damage, in sections or pieces that may be readily transported. Materials so removed shall be stored in locations approved by the District. Materials to be salvaged may include, but shall not be limited to, manhole frames and covers, inlet grates, fence material, handrails, culverts, guardrail, walkway, roadway and parking appurtenances and irrigation systems and appurtenances. The contractor will be required to replace any materials lost from improper storage methods or damaged by negligence.

Where portions of structures are to be removed, the remaining parts will be prepared to fit new construction. The work will be done in accordance with plans and in such a manner that materials to be left in place will be protected from damage. The contractor at his expense will repair any damage to portions of structures that are to remain in place. Reinforcing steel, projecting from the remaining structure, will be cleaned and aligned to provide bond with new extension. Dowels are to be securely grouted with approved grout. Depressions resulting from the removal of structures, footings, and other obstructions, shall be filled and compacted with clean fill materials so as to eliminate hazards of cave-in, accumulation and ponding of water.

Immediately following demolition and removal of rubbish from the site, the contractor shall grade the site by filling, compacting, and leveling the site to existing adjacent grades.

4.3.2 **REMOVAL OF PIPE.** Unless otherwise provided, all pipe will be carefully removed and cleaned; every precaution will be taken to avoid breaking or damaging the pipe. Pipes to be re-laid shall be removed and stored in a manner that prevents loss or damage before relaying.

Any temporary water or sewer line put in by the developer, whether for the developer or the District, for any reason will be removed after the use of the line is complete. If the developer wishes to leave the line in place they will need to have the temporary

line surveyed into the as-builts for that area and take sole ownership and responsibility for the temporary line. This may include but is not limited to responding to locate requests by UNCC or any other party requesting information on the temporary line.

Where culverts or wastewater lines are to be left in place and plugged, the ends will be filled with Class III concrete. Culvert and wastewater ends are to be sufficiently filled to prevent future settlement of embankments.

When removing manholes, catch basins and inlets, any live wastewater line connected with these items will be properly reconnected, and satisfactory bypass service will be maintained during such operations.

4.3.3 **REMOVAL OF PAVEMENTS, SIDEWALKS, AND CURBS.** Concrete or asphalt that is to remain shall be cut to straight, true line with a vertical face. Concrete or asphalt shall be cut with a saw. The sawing shall be done carefully, and the contractor at his expense shall repair all damage to the concrete or asphalt that is to remain in place. The minimum depth of saw cuts in concrete shall be two (2) inches.

The contractor shall be responsible for the cost of removal and replacement of all over breakage as determined by the District.

4.4 SITE PREPARATION

4.4.1 **GENERAL.** The contractor shall complete all work necessary to satisfactorily prepare the site as shown on the accepted drawings and as specified herein. Following this preparation, the site shall be in such a condition as to easily continue with the next operation. Site preparation includes clearing, grubbing, grading, tree and shrub removal, and native grass stripping and removing and disposing of all debris. This work will also include the preservation from injury or defacement of all vegetation and objects not designated for removal.

4.4.2 **CLEARING.** Branches on trees or shrubs will be removed as indicated on the plans. Branches of trees extending over the roadbed will be trimmed to give a clear height of 20 feet above the road bed surface. All trimming will be done by skilled workmen and in accordance with good tree trimming practices.

All objects, trees, stumps, roots and other objects designated for removal shall be removed to a minimum of two (2) feet below subgrade.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted in accordance with these Technical Standards and Specifications.

The contractor shall strip areas where excavation or embankment is to be made. Stripping shall include the removal of material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and other vegetable matter from the surface of the ground.

Clearing shall be performed in a careful and orderly manner that protects adjoining property, the public and workmen. Damage to streets, parking lots, utilities, plants, trees, buildings or structures on private property, or to bench marks, survey monuments and construction staking due to clearing operations shall be repaired and restored to its original condition by the contractor at his expense.

4.4.3 **TOPSOIL.** The contractor shall salvage within the project limits, or acquire when needed, loose friable loam reasonably free of admixtures of subsoil, refuse, stumps, roots, rocks, brush, weeds, heavy clay, toxic substances or other material which would be detrimental to the proper development of vegetative growth.

Topsoil shall not be placed until the areas to be covered have been properly prepared and grading operations in the area have been completed. Topsoil shall be placed and spread at locations and to the thickness shown on the plans and shall be keyed to the underlying material.

4.5 EARTHWORK

4.5.1 **GENERAL.** This work shall consist of excavation, fill, backfill, disposal, shaping or compaction of all material encountered within the limits of the project. Work shall be performed to the line and grade indicated on the approved plans.

Excavation, dewatering, sheeting, and bracing shall be carried out in such a manner as to eliminate any possibility of undermining or disturbing the foundation of any existing structures or any work previously completed.

Refer to **Article 4.6, Trench, Backfilling and Compacting**, of this Article for requirements for trenching, backfilling and compacting.

The District may require the contractor to provide an earthmoving diagram and haul routes.

4.5.2 **DEFINITIONS.**

Bedding Material shall mean material that is installed under and around pipelines.

Borrow shall mean backfill or embankment material which must be acquired from designated borrow areas.

Proof Rolling shall mean the application of test loads over a subgrade surface by means of a heavy pneumatic-tired vehicle to locate weak areas in subgrade.

Rock shall mean rock formations that cannot be excavated with a D-9 tractor in good repair with a single hydraulic ripper.

Stabilization Material shall mean material that is to be placed in areas of over excavation, of unsuitable insitu material, or in areas of high water table to stabilize the insitu material.

Structure Backfill shall mean earthen material that is installed around and over any structure.

Structure Excavation shall mean excavation materials over an area extending three (3) feet out from the outer most bottom edge of a proposed structure, up to existing grade or top of proposed grade.

Suitable Material shall mean any earthen material consisting of on-site or similar non-organic sands, gravels, clays, silts and mixtures thereof with a maximum size of six

inches (6"). Bedrock that breaks down to specified soil types and sizes during excavation hauling and placement may be considered suitable material.

Unclassified Excavation shall mean excavation of all materials encountered.

Unsuitable Material shall mean any earthen material containing vegetable or organic silt, topsoil, frozen materials, trees, stumps, certain man made deposits, or industrial waste, sludge or landfill, or other undesirable materials.

4.5.3 GRADING TOLERANCES. All earthwork shall be carried out in such a manner that final grades shall conform to those indicated on the approved plans. Final grades shall not vary from the design elevations by more than 0.1 feet. In addition, positive surface drainage shall be provided on the entire site so that no depressions or ponds are formed, regardless of depth. It shall be the contractor's responsibility to insure that all portions of the site drain as shown on the accepted plans.

Grading shall be performed in conjunction with all of the necessary clearing, grubbing, stripping, filling, and compacting operations to the satisfaction of the District.

Grading shall be done by approved means. Areas adjacent to structures and other areas inaccessible to heavy grading equipment shall be graded by manual methods.

4.5.4 EXCAVATION.

1. **GENERAL.** Excavated areas shall be graded in a manner that will permit adequate drainage, will not disturb material outside the limits of slopes and will be within the tolerances noted in **Article 4.5.3, Grading Tolerances**, of this Article. Suitable material removed from the excavation shall be used for the construction of embankments, for backfilling, and for other approved purposes.

   The Contractor shall dispose at his expense of all unsuitable or surplus material.

   Water pumped or drained from the work shall be disposed of in an approved manner.

2. **STRUCTURE SUBGRADES.** If the material at or below the depth to which excavation for structures would normally be carried is unsuitable for the required installation, it shall be removed to such widths and depths as directed by the District and shall be replaced with stabilization material.

   Unauthorized over excavations shall be refilled to grade with Class 1 structure backfill material.

   If the surface of the subgrade is in an unsuitable condition for proceeding with construction, the contractor shall, remove the unsuitable material and replace it with concrete, structure backfill, or other approved material.

3. **PROTECTION OF EXISTING STRUCTURES AND UTILITIES.** Existing poles, pipes, wires, fences, curbs, property line markers, and other structures that must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. In case of damage, the contractor shall notify the property owner.

Unless property owners wish to make the repairs themselves, the contractor shall repair all damage.

The utility company shall locate all utility lines well ahead of the work. All such locations shall be plainly marked by coded paint symbols on pavement or by marked stakes in the ground.

All existing utility services shall be supported by suitable means to prevent damage during construction activities.

4. **EXCAVATED MATERIAL.** Excavated material shall be stockpiled in locations to minimize the impact on traffic, driveways and adjoining properties. Excavated material shall not be deposited on private property unless written consent of the property owner(s) has been filed with the District.

Excavated materials shall not be removed from the site or disposed of by the contractor except as approved by the District.

Suitable excavated material shall be used as backfill, fill for embankments, or other parts of the work.

Surplus material shall be disposed of as directed by the District.

5. **PROOF ROLLING.** Proof rolling may be required to determine whether certain areas of subgrade meet compaction requirements. Where required by the District, proof rolling shall be carried out as designated, with a heavy rubber tired proof roller with a minimum weight of fifty (50) tons or a single axle dump truck loaded to provide an equivalent wheel loading.

Subgrade found to be unacceptable during proof rolling shall be scarified, and recompacted at the proper moisture content.

4.5.5 FILLS AND EMBANKMENTS.

1. **GENERAL.** Earth fills shall be constructed in accordance with this Section, including placing and compacting of all embankment material, and all related work required to ensure proper bond of materials with previously placed embankment.

Material shall not be placed in any section of embankment until the foundation for that section has been cleared, stripped, and dewatered and compacted in accordance with these Technical Standards and Specifications.

The suitability of each part of the foundation for placing embankment material thereon and of all materials for use in the embankment construction shall be as determined by the District. Materials shall be placed and compacted in approximately horizontal layers of the specified thickness. The thickness of each layer shall not exceed six inches (6") before compacting.

2. **PLACEMENT OF FILL MATERIAL.** After subgrade has satisfactorily been prepared, the fill material shall be placed and compacted thereon and built-up in successive layers until the required elevation is reached. Fill materials shall

be a homogenous mixture of stockpiled suitable material. Fill shall be placed within the lines and grades shown on the accepted plans. Fill material shall not be placed on frozen surfaces, and shall not contain snow, ice, or other frozen materials.

The contractor shall maintain the embankment in a manner satisfactory to the District until the District has given final acceptance of all work.

Excavated materials too wet for immediate compaction, shall be dried to the proper moisture content.

3. **COMPACTION REQUIREMENTS.** Fills and embankments less than 10 feet in height shall be compacted to 95% of maximum density (AASHTO T 99). Fills and embankments 10 feet and greater in height shall be compacted to 100% of maximum density. Moisture content will be maintained within + two percent (2%) of optimum moisture during compaction.

4.5.6 STRUCTURE BACKFILL.

1. **MATERIALS.** Structure backfill material shall be used to backfill reinforced concrete structures. Class 1 backfill material shall be used when on-site excavated material does not meet the requirements for Class 2 backfill.

2. **PLACEMENT OF BACKFILL MATERIAL.** Backfilling shall consist of placing materials in horizontal, uniform layers brought up uniformly on all sides of the structure. The thickness of each layer of backfill shall not exceed six inches (6") before compacting to the required density.

   Areas adjacent to structures and other areas inaccessible to mobile compaction equipment shall be compacted with suitable power-drive hand tampers or other acceptable devices.

   Backfill material shall not be deposited against the back of concrete abutments, concrete retaining walls, or the outside of cast-in-place concrete structures until the concrete has developed it’s full 28 day strength.

   Unless otherwise indicated on the approved plans, sheeting and bracing used in making the structure excavation shall be removed prior to backfilling.

3. **COMPACTION REQUIREMENTS.** Structure backfill shall be compacted to a density of not less than ninety- five percent (95%) of maximum density determined in accordance with AASHTO T 99 (Standard Proctor). When structure backfill occurs in roadways, backfill shall be compacted to 100% of maximum density.

4.5.7 **BORROW.** In case an insufficient quantity of material is available on site for completion of the necessary embankment and structure backfill operations, the contractor shall furnish approved backfill material from off site.

4.6 TRENCHING, BACKFILLING AND COMPACTING.

4.6.1 **GENERAL.** This work shall consist of furnishing all labor, materials, tools and equipment for trenching, bedding, backfill and compaction for all underground utilities. Excavations shall be made to lines and grades shown on the approved plans. Except as specifically approved by the District trench excavation shall be made by the open cut method to the depth required to construct the pipelines as shown on the approved plans. All trench excavation shall be unclassified.

Surface materials such as concrete and asphalt shall be disposed of separately from the underlying soil; base course and gravels that are to be salvaged shall be stockpiled and protected from contamination. Unsuitable materials shall be disposed of in accordance with these Technical Standards and Specifications.

Excavated material that meets the requirements for backfill material shall be stockpiled in a safe manner, at a sufficient distance from the banks to avoid overloading.

Excavation shall not be permitted to advance more than one hundred fifty (150) feet ahead of pipe laying and two hundred (200) feet in advance of the backfill operations. Trenches shall not be left open overnight.

4.6.2 **CONNECTIONS TO EXISTING FACILITIES.** Prior to the connection of a new utility line to an existing facility, the contractor shall expose the existing facility at the point of connection to verify the elevation and materials of construction. The District shall be notified a minimum of two (2) business days before such an investigation is performed. The contractor shall also expose existing utilities that cross new construction to allow for verification of elevation and materials of construction.

4.6.3 **TRENCH EXCAVATION FOR PIPELINES AND SERVICE LINES.** Trenches shall comply with the requirements of the Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction". Sheeting and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench.

Excavated material shall not be placed nearer than two (2) feet from the sides of the trench. Heavy equipment shall not be used or placed near the sides of the trench unless the trench is adequately braced.

The width of the trench shall comply with the requirements set forth in these Standards and Specifications and shall permit the pipe to be laid and joined properly. The allowable trench width at the top of the pipe shall not exceed the outside diameter of the pipe barrel plus twenty-four inches (24"), nor be less than the outside diameter of the pipe barrel plus twelve inches (12").

If the width of the lower portion of the trench exceeds the maximum width herein stated, the contractor, at his expense, shall furnish and install special pipe embedment or concrete encasement to protect the pipe from the additional loading. The pipe manufacturer shall determine the type and quantities of special pipe embedment, using trench-loading criteria based upon saturated backfill weighing 120 pounds per cubic foot and allowance for truck and other superimposed live loads.

If the soil test data indicates claystone bedrock is present, overexcavation shall be four feet (4') below the pipe bedding material. The soils shall be compacted appropriately to stabilize the material below the pipe bedding material.

4.6.4 **REMOVAL OF WATER.** The contractor shall provide and maintain at all times ample means and devices with which to remove and properly dispose of all water entering the trench excavation. Water shall be disposed of in a suitable manner without damage to adjacent property or without being a nuisance to public health and convenience. Water level in the trench shall be maintained a minimum of 6" below the pipe.

Well points, sumping or any other acceptable methods that will insure a dewatered trench shall accomplish dewatering. All dewatering methods shall be subject to the approval of the District.

4.6.5 **PREPARATION OF FOUNDATION FOR PIPE LAYING.** When the excavation is in firm earth, care shall be taken to avoid excavation below the established grade plus the required specified over depth to accommodate the pipe bedding material.

When soft or otherwise unsuitable foundation material is encountered in the bottom of the trench, the unsuitable material shall be removed and replaced with stabilization material to provide a suitable foundation for the pipe.

Stabilization material shall meet the gradation of "No. 4 Coarse Aggregate" as specified in Section 703.02 of the CDOT "Standard Specifications for Road and Bridge Construction".

4.6.6 **BEDDING FOR PIPELINES AND SERVICE LINES.** Bedding material shall be placed to uniformly support the entire pipe barrel. Bedding material shall be placed to a depth of twelve inches (12") above the top, and six inches (6") below the bottom of all pipe. Service lines shall have four inches (4") of bedding above and below the service line.

4.6.7 **BACKFILL FOR PIPELINES AND SERVICE LINES.** Trench backfill shall be placed in loose six-inch (6") lifts and each lift thoroughly consolidated by tamping or vibrating.

Hydro hammers shall not be used until the trench backfill has been placed and compacted to within three (3) feet of the finished grade by the lift method. Large rollers, tractor drawn equipment or hydro hammers, shall not be used within eighteen (18) inches of the pipe.

Flooding or jetting of trenches will not be permitted.

Bracing installed to prevent cave-ins will be withdrawn in a manner that will maintain the desired support during the backfill operations. Driven sheet pilings will be cut off at or above the top of pipe, and the portion below the cut-off line will be left in the ground.

Backfill material that shows signs of visible frost will not be allowed to be used as backfill for pipelines or service lines.

4.6.8 **COMPACTION.** Trench backfill shall be compacted to a density of not less than one hundred percent (100%) of maximum density determined in accordance with AASHTO T 99 (Standard Proctor). The moisture content shall be maintained within ± two percent (2%) of optimum moisture during compaction.

Pipes outside the roadway prism or sidewalk and not subject to traffic loads or heavy loads for a period of two (2) years shall be backfilled in layers as described above but shall be compacted to approximately the density of the surrounding earth.

4.6.9 **COMPACTION TESTING.** Trench backfill shall be tested at a rate of at least one (1) test per 200 cubic yards of backfill material, but not less than one (1) test per 250 feet of trench. The testing shall be performed at various depths and locations. Additional testing shall be performed around items such as structures, manholes, valve boxes. One compaction test shall also be performed for each ~~four~~ service lines.

4.6.10 **MAINTENANCE OF BACKFILL.** Backfill shall at all times during construction be maintained to the satisfaction of the District. Access across trenches for driveways and streets shall be maintained free of hazards to traffic or pedestrians.

4.7 **PAVEMENT REPLACEMENT**. Pavement cuts shall be repaired using an approved hot mix asphalt concrete. If a permanent patch cannot be installed within twenty-four (24) hours, the contractor shall place a temporary, cold mix, asphalt patch immediately after completing backfill and compaction. Refer to Drawing 4-2, which is available upon request.

4.8 **SITE RESTORATION**

4.8.1 **RESTORATION.** The surface grade and condition of all un-surfaced areas disturbed by construction activities shall be restored immediately following construction. The contractor shall replace all sod, trees, shrubbery, sprinkler systems, fences, and any other items disturbed by construction activities. All other areas disturbed during construction grading operations shall re-vegetated with native grasses. Seeding shall be performed immediately upon completion construction. The contractor shall maintain all planted materials or seeding until its growth is established.

All roadway surfacing, curbing, sidewalks, and gutters will be restored or replaced to a condition equal to that before the work began.

ARTICLE 5. CONCRETE WORK

5.0 GENERAL PROVISIONS.

5.1 GENERAL. This section covers concrete work performed in conjunction with work on District water and wastewater systems. Engineering, plans, licenses, permits, inspection, warranties and acceptance shall be as detailed in these applicable Standards and Specifications.

5.1.1 STANDARDS. All concrete work shall meet the requirements of ~~ACI 301, "Specification for Structural Concrete for Buildings", and ACI 347, "Recommended Practice for Concrete Formwork"~~Douglas County, Colorado Roadway Design and Construction Standards latest edition or specific job requirements.

Concrete work for thrust blocks shall meet minimum 4,000 psi compressive strength.

5.1.2 SUBMITTALS. The contractor shall submit the following items for District approval:

1. Concrete mix design.
2. Reinforcing shop drawings and bar schedules.
3. Batch tickets from each concrete truck showing the following information:
   a. Weight and type of cement.
   b. Weights of fine and coarse aggregates.
   c. Weight (in gallons) of water including surface water on aggregates.
   d. Quantity (cubic yards) per batch.
   e. Times of batching and discharging of concrete.
   f. Name of batch plant.
   g. Name of contractor.
   h. Type.
   i. Name and amount of admixture.
   j. Date and truck number.

~~**5.2 DESIGN CRITERIA**~~

~~**5.2.1 MIX DESIGN.** Concrete shall conform to the following requirements:~~

Concrete Requirements

Minimum Compressive Strength	4000 psi
Minimum Cement	6 sacks/cubic yard
Maximum Water/ Cement Ratio	0.46 by weight
Slump	2-4 inches
Air Entrainment	4-8 % by Volume

5.2.2 REINFORCEMENT CLEARANCES.

Unless otherwise shown on the plans, the minimum clear cover for reinforcing steel shall be:

Location	Minimum Clear Cover
Bottom bars in soil bearing foundations and slabs	3 inches
Bars adjacent to surfaces exposed to weather or earth backfill:	2 inches
For bars more than 3/4" in diameter	1-1/2 inches
For bars 3/4" or less in diameter	3/4 inches
Interior Surfaces:	
Slabs, walls, joints with 1-3/8" diameter or smaller	

5.3 MATERIALS.

5.3.1 GENERAL. Concrete shall be composed of Portland cement, aggregate, and water, and shall be reinforced with steel bars or steel wire fabric where required. No admixture other than air-entraining agents and water reducing agents shall be used without written permission of the District.

5.3.2 CEMENT. All cement used in concrete work shall be Portland cement conforming to the requirements of ASTM C-I50, II or IIA.

5.3.3 FLY ASH. Fly ash may be substituted for a portion of the cement. Fly ash shall conform to the requirements of ASTM C-618.F.

5.3.4 WATER. Water for concrete shall be clean and free from sand, oil, acid, alkali, organic matter, or other deleterious substances.

5.3.5 ADMIXTURES. Air-entraining admixtures shall conform to the requirements of ASTM C-260.

5.3.6 FINE AGGREGATE. Fine aggregate shall be composed of clean, hard, durable, uncoated particles of sand, free from injurious amounts of clay, dust, soft or flaky particles, loam, shale, alkali, organic matter, or other deleterious matter. Fine aggregate shall be well graded from course to fine and when tested by means of laboratory sieves shall meet the following grading requirements:

Sieve Size	Percent Passing (%)
3/8"	100
#4	95-100
#8	80-100
#16	45-80
#30	25-60
#50	10-30
#100	2-10

Fine aggregates for concrete shall conform to the requirements of ASTM C-33.

5.3.7 COARSE AGGREGATE. Coarse aggregate shall consist of broken stone or gravel composed of clean, hard, tough and durable stone and shall be free from soft, thin, elongated or laminated pieces, disintegrated stone, clay, loam, vegetable, or other deleterious matter. Coarse aggregate shall be well graded and when tested by means of laboratory sieves shall meet the following grading requirements:

Sieve Size	Percent Passing
2"	100
1-1/2"	95 - 100
3/4"	35 - 70
3/8"	10 - 30
#4	0 – 5

Coarse aggregates for concrete shall conform to the requirements of ASTM C-33.

5.3.8 MIXING. Concrete shall be continuously mixed or agitated from the time the water is added until the time of use and shall be completely discharged from the truck mixer or truck agitator within one and one-half (l-l/2) hours after batching.

5.3.9 REINFORCING STEEL. Reinforcing bars shall conform to ASTM A615, Grade 60. Welded wire fabric shall comply with "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement" (ASTM A-l85) or "Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement" (ASTM A-497).

5.3.10 JOINT FILLER MATERIAL.
Joint materials shall conform to AASHTO Specifications according to type as follows:

Concrete joint sealer, hot-poured elastic	M l73
Preformed expansion joint filler (Bituminous Type)	M 33 M l53
Preformed sponge rubber and cork expansion joint fillers	M 2l3
Preformed expansion joint fillers - nonextruding & resilient bitum.	

5.4 CONCRETE CONSTRUCTION

5.4.1 FORMWORK. Forms shall be used to confine the concrete and shape it to the required lines. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete. Forms shall be constructed so that the finished concrete shall conform to the shapes, lines, grades and dimensions indicated on the plans. Forms shall be made from plywood, coated plywood or steel.

Forms shall not be disturbed until the concrete has hardened sufficiently to permit their removal without damaging the concrete or until the forms are not required to protect the concrete from mechanical damage. Minimum time before removal of forms after placing concrete shall be one (1) day for vertical formed surfaces. Forms supporting the underside of beams and slabs shall not be removed until the concrete has attained the specified 28-day strength.

5.4.2 REINFORCING STEEL. Before being positioned, all reinforcing steel shall be thoroughly cleaned of mill and rust scale and of coatings that will destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and, if necessary, cleaned.

Reinforcing steel shall be accurately placed and secured against displacement by using suitable tie wire or clips at bar intersections. Reinforcing steel shall be supported by metal chairs or spacers, precast mortar blocks or metal hangers. Splicing of bars will not be permitted, except where shown on the approved plans.

5.4.3 PLACING CONCRETE. Before depositing concrete, debris shall be removed from the space to be occupied by the concrete. Concrete shall not be placed until all forms and reinforcing steel have been inspected and accepted by the District.

Concrete shall be handled from the mixer to the place of final deposit as rapidly as possible by methods which prevent separation or loss of ingredients. The concrete shall be deposited in the forms as nearly as practicable in its final position. Concrete shall be placed in a manner that will avoid segregation and shall not be dropped freely more than five feet (5').

Concrete shall be compacted by internal vibration. Vibrators shall not be used to move or spread the concrete.

5.4.4 JOINTS. Non-bituminous joint filler shall be placed at the spacing shown on the accepted plans. Bituminous type shall be used for concrete paving where joint sealers are not specified.

Expansion joint material shall be provided at the following locations and shall be in place prior to the placing of concrete:

1. At each end of curb return.

2. At both edges of driveway.

3. Between back of sidewalk and driveway slab or service walk.

4. Every fifty feet (50') in sidewalk.

Contraction joints shall be spaced as follows:

1. Not more than ten feet (10') nor less than five feet (5') on center in curb and gutter and combination curb-walk.

2. Not more than ten feet (10') nor less than five feet (5') on center in sidewalk.

3. At least two joints, equally spaced at not greater than ten foot (10') intervals in driveways.

4. As directed by the District.

5.4.5 FINISHING. Exposed faces of curbs and sidewalks shall be finished to true-line and grade as shown on the plans. Surface shall be floated to a smooth finish. Sidewalk and curb shall be broomed. After completion of brooming and before concrete has taken its initial set, all edges in contact with the forms shall be tooled with an edger having a three-eighths inch (3/8") radius.

No dusting or topping of the surface or sprinkling with water to facilitate finishing will be permitted.

Immediately following the removal of the forms, all fins and irregular projections shall be removed from all surfaces. Surface defects, including tie holes shall be patched. The surface shall be left sound, smooth, even, and uniform in color.

5.4.6 CURING. Fresh concrete shall be adequately protected from weather damage and mechanical injury during the curing periods. The curing process shall be started as soon as possible after concrete placement and finishing and shall continue for a minimum of seven days. The following curing procedures may be used:

1. Ponding (for slabs or footings).

2. Spraying with a membrane curing compound.

3. Wet burlap, earth, or cotton mats.

4. Waterproof paper or polyethylene plastic cover.

5.4.7 COLD WEATHER CONCRETING. Concrete placement during cold weather shall conform to the requirements of ACI 306, "Recommended Practice for Cold Weather Concreting".

Concrete placed in cold weather shall be protected from extreme temperatures as follows:

1. A temperature of at least 50 degrees F shall be maintained for the first seventy-two (72) hours after placement.

2. After the first seventy two (72) hours and until the concrete is seven (7) days old, it shall be protected from freezing temperatures.

3. Concrete adjacent to heaters or salamanders shall be insulated from direct heat of the unit that may dry it out prior to being properly cured.

4. Temperatures shall be measured by maximum and minimum thermometers furnished by the Contractor and installed adjacent to the concrete.

Concrete slabs shall not be placed, regardless of temperature conditions, if the supporting ground is frozen or contains frost.

5.4.8 HOT WEATHER CONCRETING. The placement of concrete in hot weather shall comply with ACI 305, "Recommended Practice for Hot Weather Concreting".

5.4.9 BACKFILLING. Backfill shall not be place against concrete structures until the concrete has attained its specified 28- day strength.

5.4.10 TESTING. All concrete shall be sampled and tested by an approved testing agency. Test reports shall include the exact location of the work at which the batch represented by a test was deposited. The report of the strength test shall include detailed information on storage and curing of specimen prior to testing, the project number, and the location of the concrete (curb, manhole, inlet, sidewalk, paving, etc.). All test reports shall bear the seal and signature of a professional Engineer registered in the state of Colorado and competent in the field of concrete testing.

One series of strength tests shall be taken per fifty (50) cubic yards (or fraction thereof) of the concrete placed per day. Slump tests and air tests shall be performed on each truckload of concrete.

APPENDIX A
Classification of Wastes and General Prohibitions

1.0 CLASSIFICATION OF WASTES AND GENERAL PROHIBITIONS.

1.1 WASTE CLASSIFICATIONS. Wastes shall be classified into three general categories: normal wastewater, special waste, and prohibited waste.

1. Normal wastewater shall mean wastewater that can be treated without pretreatment and within normal operating procedures, and which, when analyzed, shows by weight a daily average of not more than 300 parts per million of suspended solids and not more than 250 parts per million BOD.

2. Special waste shall mean any wastewater that does not conform to the definition for normal wastewater, but which can be treated after pretreatment by the customer or by utilization of special operating procedures.

3. Prohibited wastewater is defined as any water or wastewater falling within any category as set forth in **Section 1.2**, **Prohibited Wastes**.

1.2 PROHIBITED WASTES. Except as provided herein, no person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

1. Any liquid or vapor having temperatures higher than 104 degrees Fahrenheit.

2. Any water or wastewater which may contain more than 100 ppm by weight of animal or vegetable fat, oil, or grease.

3. Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, gas, oil or grease.

4. Any garbage that has not been properly shredded too less than 1/2-inch in the largest dimension.

5. Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastic, wood, paunch manure, or any other solid or viscous substance capable of causing obstruction to the flow in wastewater lines or other interference with the proper and normal operation of the wastewater treatment plant.

6. Any waters or wastes having pH lower than 5.0 or higher than 9.0, or having any other corrosive or toxic property capable of causing damage or hazard to structures, equipment, or personnel of the wastewater treatment plant.

7. Any water or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any wastewater treatment process, constitute a hazard to humans, animals or fish, or create any hazard in the receiving waters of the wastewater treatment plant effluent.

8. Any waters or wastes containing suspended solids of such character and quantity that unusual attention or expense is required to handle such materials at the wastewater treatment plant.

9. Any noxious substances or malodorous waste, waters, gases, or substance capable of creating a public nuisance, either in the wastewater lines or at the wastewater treatment plant.

10. A 5-day B.O.D. concentration greater than 250 ppm.

11. A concentration of more than 250 ppm of suspended solids.

12. Concentrated wastes from septic tanks and portable sanitary devices.

13. A peak flow rate greater than 5 times the average flow rate.

14. Any chemicals having a 24-hour proportionate composite sample concentration at the point of discharge in excess of the following:

Cadmium	0.10	mg/l
Chromium	5.0	mg/l
Copper	3.0	mg/l
Cyanides	2.0	mg/l
Iron	15.0	mg/l
Phenol	10.0	mg/l
H_2s (Hydrogen Sulfide)	1.0	mg/l
Zinc	2.0	mg/l

15. In general, any toxic or non-biodegradable waste or any wastes which cause the effluent to exceed state or federal standards after providing conventional treatment.

16. Except as specifically permitted by the District for the golf course or other special uses, no drain accepting discharge from vehicle wash racks, filling stations, restaurants, or other building wastewater lines as specified by the District shall be connected to any wastewater service line unless the discharge first passes through an acceptable grease, sand, or oil interceptor, as required.

17. All wastewater prohibitions and limitation requirements as indicated in the most Current Municipal Code of the City of Littleton Wastewater Utility Ordinance.

1.3 **DISCHARGE POLICY.** No wastewater other than normal wastewater may be discharged into the wastewater system unless a permit, has been issued to the customer/owner. Special waste as set forth in **Exhibit A**, **Article 1.2**, **Prohibited Wastes**, may be discharged into the wastewater system upon the issuance of such a permit and compliance with all its terms. Prohibited waste may not be discharged into the wastewater system. The prohibitions against unauthorized discharge of wastes proscribed in this section includes the dumping or pumping of wastes directly into any part of the District's wastewater system without the prior written consent of the District Manager.

1.4 SPECIAL WASTES AND REQUIRED PERMITS.

1.4.1 **PERMITTING.** Any wastes that may qualify as special waste must be analyzed prior to discharge to the system. Such waste shall be analyzed under the standards established in this **Appendix A, Classification of Waste and General Prohibitions**. If required, the Customer/Owner shall obtain a permit pursuant to the provisions herein. In general, if the special waste being analyzed does not violate any of the standards established and if the Customer/Owner is not a significant industrial user as defined in U.S. Environmental Protection Agency ~~regualtions~~regulations, no permit shall be required.

1.4.2 **PERMITTING UNDER DISTRICT STANDARDS.**

1. In general, special waste, including industrial cooling water and wastes, unpolluted process waters, bakery and restaurant wastes, car washing wastes, swimming pool drainage, and floor drainage from enclosed and covered areas, may be connected to the wastewater system only by a special permit from the District.

2. The District will consider a permit for the purpose of discharging special waste to the District's wastewater systems based upon an application containing the following general information:

   a. Name and address of owner.

   b. Location of property for which the request is made.

   c. Description of the facility or operation requested for connection.

   d. Estimated quantities and qualities of the waste to be discharged including maximum rates.

   e. Plans and specifications of related waste generating processes and any pretreatment processes.

3. Such a permit, may contain special conditions, including but not limited to:

   a. The construction of flow measuring and/or sampling devices.

   b. The construction of valves or gates to stop flows on an emergency basis.

   c. The construction of a manhole, as specified herein.

   d. The construction of grease, oil and sand traps, or other pretreatment facilities, as specified herein.

1.4.3 **MANHOLE REQUIREMENTS.** When required by the District, any Customer/Owner served by a service line carrying special waste shall install a suitable control manhole, **Article 2.3.12, Manholes**, or monitoring point in the wastewater service line to facilitate

observation, sampling, and measurement of the wastes. Such manhole or monitoring point shall be accessible and safely located, and constructed in accordance with plans and specifications approved by the District. The manhole or monitoring point shall be installed and maintained by the Customer/Owner at his expense. In the event that no manhole has been required, the control manhole, for purposes of testing, shall be considered the nearest down-stream manhole in the wastewater main to the point at which the service line is connected.

1.5 PRETREATMENT AND INTERCEPTOR REQUIREMENTS.

1.5.1 PRETREATMENT GENERAL REQUIREMENTS. Where deemed necessary by the District, whose determinations shall be final, the customer/owner shall provide, at his expense, such preliminary treatment (hereafter, "pretreatment") as may be necessary. Where pretreatment facilities are provided for any waste or waters, they shall meet any applicable District, state, or federal specifications or design standards, and, once built, shall be maintained continuously in satisfactory and effective operation by the customer/owner.

1.5.2 REQUIREMENTS FOR GREASE, OIL AND SAND TRAPS. Grease, oil and sand interceptors, shall be provided at the sole cost and expense of the customer/owner when, in the opinion of the District Manager or Director of Operations they are necessary for the proper handling of liquid wastes containing grease or oil in excessive amounts, any flammable wastes, sand, or other harmful constituents.

1.5.3 SPECIFIC REQUIREMENTS FOR GREASE INTERCEPTORS.

1. Grease interceptors are required on all premises, other than residential properties, where food is prepared or processed, or when an industrial process produces organic waste. Grease interceptors shall be installed on the discharge line of every dishwashing sink, dishwashing machine, and every fixed receptacle or plumbing fixture designed, intended or used for the purpose of washing dishes or cooking utensils in a restaurant, cafeteria, lunchroom, hotel kitchen, hospital or health facility kitchen or similar establishment that serves, or has the capacity to serve one hundred or more meals per day. Capacity to serve one hundred (100) or more meals per day shall be determined by the serving or seating capacity of fifteen or more patrons at any time. Grease interceptors may also be required wherever necessary to prevent the discharge of excessive amounts of grease or grease containing liquids to the wastewater system.

2. All drains from the kitchen, food preparation, and dishwashing areas shall be connected to the grease interceptor. Garbage grinders shall not be used for disposal of grease. The discharge from garbage grinders shall not be connected to the grease interceptor.

3. All grease interceptors shall be located outside the building on private property, unless otherwise approved by the District. They shall be so installed as to be readily available and accessible for cleaning, maintenance, and inspection. The customer/owner shall maintain all interceptors at their own expense, in continually efficient operation at all times.

4. Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be watertight, and, if necessary, as determined by the District, gastight and vented. District specifications and design standards are contained in , **Article 3.2.9, Grease Interceptors** and **Article 3.2.10, Petroleum Oil, Grease, and Sand Traps** in these Technical Standards and Specifications.

1.5.4 DISTRICT APPROVAL. Interceptor plans shall be submitted to the District Engineer, who must approve them prior to installation. The cost of reviewing and approving such plans, and inspection and approval of the installation shall be charged to the applicant.

1.5.5 RESPONSIBILITY FOR CLEANING AND MAINTENANCE.

1. The responsibility of cleaning and maintaining all grease interceptors, sand and oil traps shall be the customer/owner's responsibility. The customer/owner shall be responsible for the expense of maintaining all installed equipment and/or facilities to insure continuously efficient operation at all times.

2. Grease interceptors shall be pumped and cleaned of their accumulated matter at least once every three months, or more often if necessary, as determined by the District to ensure maximum efficiency.

3. Sand and oil interceptors shall be pumped at least once every three months or more often if necessary, as determined by the District to ensure maximum efficiency.

4. Access to an interceptor shall remain unobstructed at all times. The necessity to remove large objects such as boxes, crates, or cans or to use a ladder to inspect an interceptor shall constitute a violation of these Technical Standards and Specifications.

5. Failure to maintain any interceptor in efficient working condition shall constitute a violation of these Technical Standards and Specifications.

6. Any unauthorized alteration or damage to any interceptor shall constitute a violation of these Technical Standards and Specifications.

7. The Customer/Owner shall maintain a log of each inspection and maintenance activity performed on any interceptor. This log shall be made available to the District upon request. The log shall state the date of any such inspection, the status of the interceptor, and any unusual or problematic conditions. For maintenance activity, the log shall note the date of the work, the contractor, the actions taken, and their result.

The District shall inspect all grease interceptors and sand and oil traps every six months, and, if not properly maintained, the District will initiate procedures to obtain compliance with these Technical Standards and Specifications and **Part 1, Article 9, Inspections and Enforcement of Water and Wastewater**

Regulations. The cost of such scheduled inspection shall be established by the Board and billed as a part of the annual service charge.

APPENDIX B
PRETREATMENT PROGRAM

1.0 BACKGROUND

This document is intended to augment the document entitled "Classification of wastes and General Prohibitions", also located in **Appendix A** of these Rules and Regulations. The discussions, which follow, include the following topics.

- Potential solutions for reducing oil, grease, and sand in the collection system
- Clogged sewer lines and equipment coating
- Inspection of grease interceptors and sand/oil interceptors in Littleton and Englewood and the sanitation districts
- Inspection of restaurants and other food services without interceptors
- Sizing criteria for grease interceptors and sand/oil interceptors
- Pumping schedules for industries with grease interceptors and sand/oil interceptors
- Minimum criteria for new and existing sources of oil, grease, and sand
- Biological treatment (enzymes and/or bacteria)

2.0 POLICY/PROCEDURE

Grease interceptors are required for all food preparation establishments which may contribute or cause to contribute, directly or indirectly, any water or wastewater which contains oil or grease. This includes, however is not limited to, restaurants, cafeterias, cafes, fast food outlets, schools, fraternal organizations, churches, hospitals, and daycare centers. In-line interior grease traps may not be allowed, unless otherwise approved by the District. Grease interceptors are not required for private residences or dwellings.

Sand/oil interceptors are required for all non-domestic users that have the potential to discharge wastes containing sand, grit, and/or petroleum by-products into the wastewater system. This includes, however is not limited to, automobile service stations, maintenance stations, mechanical repair shops, car and truck washes, garden nurseries, warehouses, and parking garages. In-line interior sand/oil traps may not be allowed, unless otherwise approved by the District. Sand/oil interceptors are not required for private residences or dwellings.

Exceptions to the grease interceptor and sand/oil interceptor requirement are facilities granted a written variance by the District; following approval of a plan review process. Variances apply strictly to the named facility owner/operator located at the named facility address.

The grease interceptor design and sizing criteria must adhere to the requirements established by South Platte Water Renewal Partners owned by the Cities of Littleton and Englewood (SPWRP) and will be subject to approval by the District. The District is located within the SPWRP service area and has adopted their sizing criteria. Those grease interceptors not able to achieve compliance with Division standards may be subject to modification and/or replacement.

Maintenance of grease interceptors is the sole responsibility of owner or operator. The owner or operator must ensure proper operation to prevent obstruction, interference or damage to the collection system. All maintenance shall be completed as required per SPWRP Fats, Oils, and Grease (FOG) Policy and the Petroleum Oil, Grease, and Sand (POGS) Policy. Interceptor pumping, at a minimum, must be completed every three months, unless determined more or less frequent pumping is required. This is subject to approval by the District. The District has implemented an inspection program to ensure compliance. Inspections are completed in accordance with the guidelines and procedures outlined in the District Inspection Criteria.

The use of bacteria or enzymes is prohibited.

Existing sources not contributing significant quantities of oil and grease wastes to the collection system may be granted a written waiver to the inspection criteria. The waiver to the inspection criteria applies strictly to the named facility owner/operator located at the named facility address, subject to an initial inspection and approval by the District. Facilities subject to the inspection waiver may include, however is not limited to, delicatessens, sandwich shops, and pizza take outs whereas other than the preparation of pre-cooked meals, no cooking, food preparation or food service would take place.

3.0 GREASE INTERCEPTOR AND SAND/OIL INTERCEPTOR SIZING CRITERIA

The District has adopted a grease interceptor sizing criteria developed by SPWRP. Refer to the SPWRP Fats, Oils, and Grease (FOG) Policy and the Petroleum Oil, Grease, and Sand (POGS) Policy for sizing criteria.

Please contact the District at 303-979-7286 for more information on grease interceptor and sand/oil interceptor sizing.

4.0 OIL AND GREASE INTERCEPTOR INSPECTION CRITERIA

4.1 PUMPING

At a minimum, a grease interceptor shall be pumped at approximately 75% volume retention capacity (or 25% total volume of accumulated bottom solids and top grease waste). Below 75% capacity, efficiency decreases, which allows for limited separation time and by-pass of the interceptor system.

The efficiency of an interceptor is a function of the solids/grease thickness versus the total depth of the interceptor. In a typical grease interceptor, 75% volume retention capacity can equate to approximately 6 to 12 inches of solids/grease thickness.

Refer to the SPWRP Fats, Oils, and Grease (FOG) Policy and the Petroleum Oil, Grease, and Sand (POGS) Policy for additional pumping requirements.

4.2 REPAIR/MAINTENANCE

All grease interceptors shall be inspected for the following systems:

Outside

1. Manhole covers. Easily accessible and removable.
2. Identification of single or double compartments.
3. Exterior clean-outs.
4. Vent lines.

Inside

1. Identification of inlet and outlet compartments.
2. Identification of Inlet and outlet plumbing (i.e., sanitary 'Ts' with caps or 90 degree elbows).
3. Inlet and outlet extended risers installed below water surface.
4. Location of baffle wall.
5. In the event any of the aforementioned system(s) is damaged or is missing, the system(s) must be repaired or installed, where reasonably applicable. Defective equipment can cause inadequate operating processes.

4.3 SPILL PREVENTION

All users are required to have measures in place to control unwanted discharge to the sanitary sewer. Chemicals, cooking oils, and other liquid products must be stored away from drains or within a containment to reduce the potential for spills reaching the sanitary sewer.

4.4 ELEVATOR PITS

Elevator pits are required to meet SPWRP Petroleum Oil, Grease, and Sand (POGS) Policy.

4.5 NOTICES

Facilities which are required to pump and/or repair interceptors, as documented by inspections, shall be given written notices of violation. Pumping and repairs shall be completed within 5 days and 30 days upon receipt of notice, respectively, and where reasonably applicable.

4.6 FOLLOW-UP INSPECTIONS

Facilities with violations shall be re-inspected following the elapsed time period to ensure compliance. Failure to comply shall result in further notice of violation or enforcement actions. The enforcement procedure is as follows:

- Written notice of pump or repair – issued by inspector
- Written notice of non-compliance – issued by inspector
- Written Director's Order – issued by Director of Utilities

4.7 EXISTING SOURCES

Existing sources not connected to grease traps or interceptors are identified through inspection of the collection system. Once these sources are identified, they are required to implement Best Management Practices (BMP) to keep oil and grease out of the system.

Examples of BMPs include:

- Do not use a garbage disposal.
- Scrape food from plates into a garbage can.
- Pre-wash plates by spraying them off with cold water over a small mesh catch basin positioned over a drain. This catch basin should be cleaned into a garbage can as needed.
- Pour all liquid grease and oil from pots and pans into a waste grease bucket stored at the pot washing sink. Heavy solids buildup of oil and grease on pots and pans should be scraped off into a waste grease bucket.
- If the BMPs are not successful at the facility and it continues to contribute significant amounts of oil and grease to the sewer, as documented by inspections, then the facility is required to install an adequately sized grease interceptor.

Refer to the SPWRP Fats, Oils, and Grease (FOG) Policy and the Petroleum Oil, Grease, and Sand (POGS) Policy for additional BMP recommendations.

For detail drawings of Oil and Grease Interceptors, please refer to drawings 3-4B, 3-5A and 3-5B~~, which are available upon request~~.

EXHIBIT A
CROSS CONNECTION CONTROL

1.0 CROSS CONNECTION CONTROL CRITERIA

1.01 GENERAL. Cross-connections of any type that may permit a backflow of water from a supply other than that of the District into the District's potable water system, are strictly prohibited. A cross-connection shall mean any temporary or permanent connection to the District's potable water system that is unprotected.

Backflow prevention system designs for new construction shall be submitted to the District for approval. The District shall inspect and test all devices that are installed. All systems and applications shall be in strict accordance with the Colorado Department of Health Cross-Connection Control Manual. In the event there is a conflict between the Manual and these specifications, the more stringent requirements shall apply.

The District has adopted a Backflow Prevention and Cross-Connection Control Plan ("BPCCC Plan") to fulfill the requirements of Article 1-114 and Article 1-114.1 of Title 25, C.R.S. and Section 39 of the5 CCR 1002-11 Colorado Primary Drinking Water Regulations. This Plan is modeled after the Colorado Department of Public Health and Environment's Backflow Prevention and Cross-Connection Control Program template. A copy of the District's BPCCC Plan is available in the District's office.

1.02 TYPES OF CROSS-CONNECTION CONTROL DEVICES. The design, installation and maintenance of all cross-connection control devices shall be the sole responsibility of the Owner. The following standards shall apply to cross-connection control devices:

1. **AIR GAP (AG).** An Air Gap is defined as the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other devices and the flood level rim of said vessel. The air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; and, in no case, less than two inches. When an air-gap is used at the service connection to prevent the contamination or pollution of the public potable water system, an emergency bypass shall be installed around the air-gap system and an approved reduced pressure principle device shall be installed in the bypass system. All air-gaps shall be permanently constructed with rigid piping. Flexible hose or tubing shall not be an acceptable for an air-gap.

2. **DOUBLE CHECK VALVE ASSEMBLY (DCVA).** Double check valve assemblies shall consist of an assembly of two independently operating approved check valves with tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve. The entire assembly shall meet the design and performance specifications and approval of a recognized and approved testing agency for backflow prevention devices. These devices shall be readily accessible for in-line maintenance and testing.

3. **PRESSURE VACUUM BREAKER WITH INTERNAL CHECK VALVE (PVB).** Pressure vacuum breaker assemblies shall consist of at least one check valve, vacuum relief, inlet and discharge shutoff and properly installed test cocks. The pressure vacuum breaker shall have a vacuum relief valve that is internally loaded, normally by means of a spring. The PVB shall be installed a minimum

of 12 inches above the highest outlet or overflow level on the nonpotable system. Vacuum breakers shall not be installed more than five feet above the ground. Adequate room shall be made available for maintenance and testing.

4. **ATMOSPHERIC VACUUM BREAKER (AVB).** An atmospheric vacuum breaker is a device that allows air to enter the water line when the line pressure is reduced to a gauge pressure of zero or below. The atmospheric vacuum breaker is designed to prevent back-siphonage only. It is not effective against backflow due to back pressure and shall not be installed where it will be under continuous operating pressure for more than 12 hours in any 24 hour period. Poppets of all atmospheric vacuum breakers shall be precision fitted to insure positive closure. An AVB shall be installed downstream of the last shutoff valve and a minimum of 6 inches above the highest outlet or overflow level on the nonpotable system. Vacuum breakers shall not be installed more than five feet above the ground.

5. **REDUCED PRESSURE PRINCIPLE DEVICE (RPPD) OR REDUCED PRESSURE ZONE ASSEMBLY (RPZA).** A reduced pressure principle device is an assembly of two independently operating approved check valves with an automatically operating differential relief valves between the two check valves, shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and approval of a recognized and approved testing agency for backflow prevention assemblies. The device shall operate to maintain the pressure in the zone between the two check valves at a level less than the pressure on the public water supply side of the device. In case of leakage of either of the check valves the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere. These devices must be readily accessible for in-line maintenance and testing and must be installed in a location where no part of the device will be submerged.

   The device shall not be installed where the pressure can be maintained above the device's rated capacity. When the RPPD is located within a structure, it is recommended that a drain pipe be provided under the relief valve port of the device. An approved air gap between the port and the drain is required. All manufacturers' recommendations for the device shall be followed.

6. **HOSE BIBBS.** Hose bibbs shall be directional with built in backflow preventor. Hose bibbs will also have a drain down feature built in the unit.

1.03 APPLICATION OF DEVICES. The type and complexity of the cross connection control device shall be determined by the Owner/Customer’s Engineer in accordance with the District’s BPCCC Plan. All applications shall be submitted to the District for review and approval. The determination of the type of device required shall be based on the degree of hazard caused to the public from contamination.

1.04 APPROVED CROSS CONNECTION CONTROL DEVICES.

The District Engineer shall insure correct models and sizes and approve all Cross Connection Control Devices. The term "Approved Cross Connection Control Device" shall mean a device that has been manufactured in full conformance with the standards established by the American Water Works Association Standard C510 “Double Check Valve Backflow Prevention Assembly” and C511 “Reduced Pressure Principle Backflow Prevention Assembly”, and has met the laboratory and field performance specifications of the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California.

EXHIBIT B
WATER CONSERVATION STANDARDS

1.0 WATER CONSERVATION STANDARDS

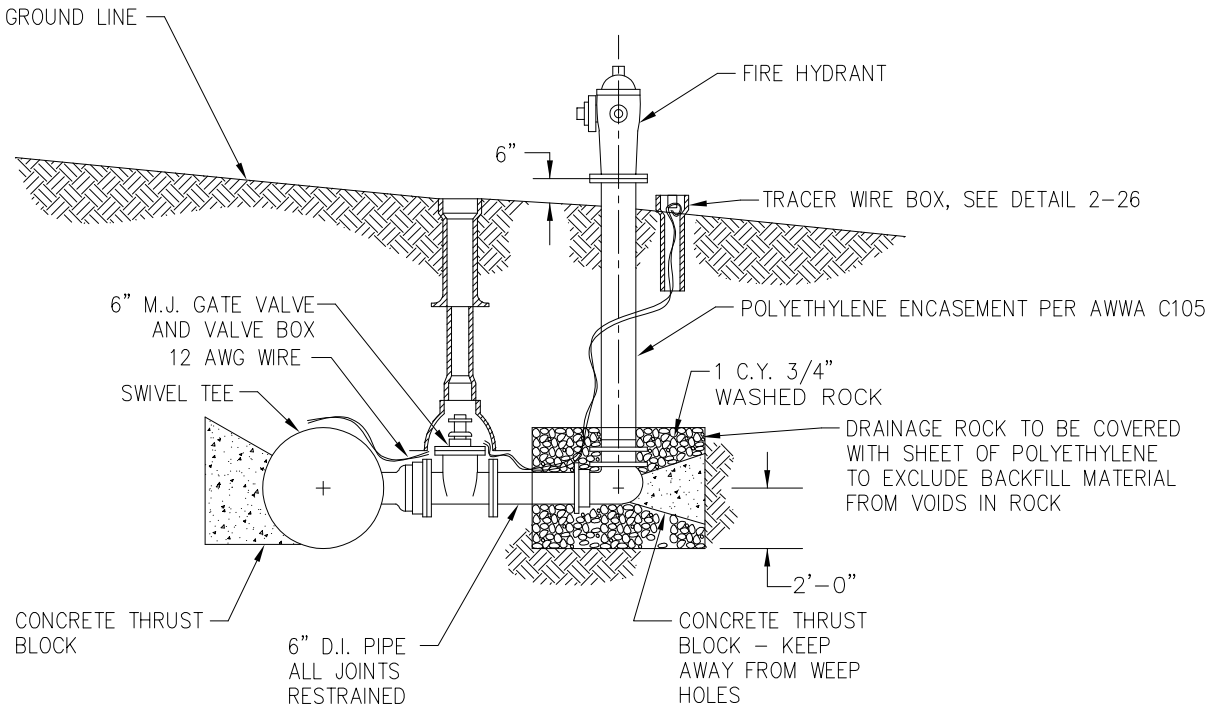
1.1 COMPLIANCE. All work within the District shall comply with the following water conservation standards.

1. Toilets shall not use more than 1.28 gallons per flush. Urinals shall not use more than 0.5 gallons per flush.

2. Kitchen and lavatory faucets shall have aerators, laminar flow devices, or other fixtures that restrict flow to a maximum of 1.5 gallons per minute. No in-line flow control washers, orifices or other such fittings are permitted.

3. Shower heads shall be constructed so as to limit flow to a maximum of approximately 2.0 gallons per minute. No in-line flow control, washers, orifices, or other such fittings are permitted.

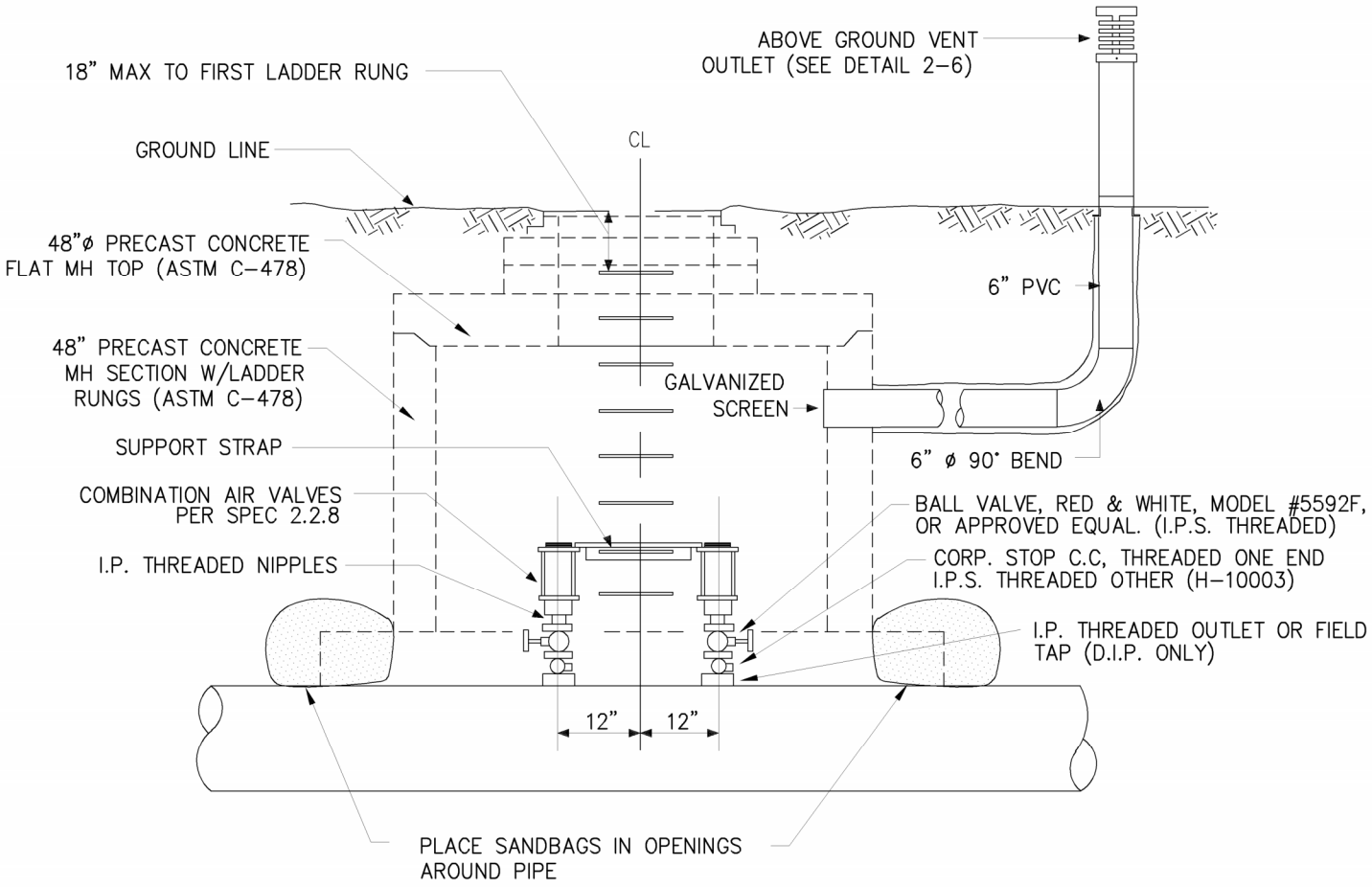
4. All parks, median strips, landscaped public areas and landscaping surrounding condominiums, townhomes, apartments, commercial establishments, developed nonurban areas and industrial parks shall utilize an automatic irrigation system. The automatic irrigation system shall be operated with an EPA WaterSense labeled irrigation controller with weather sensor.



FIRE HYDRANT

NO SCALE

	ROXBOROUGH WATER & SANITATION DISTRICT
FIRE HYDRANTS	
DATE: JUNE 21, 2023	DRAWING NO. 2-1

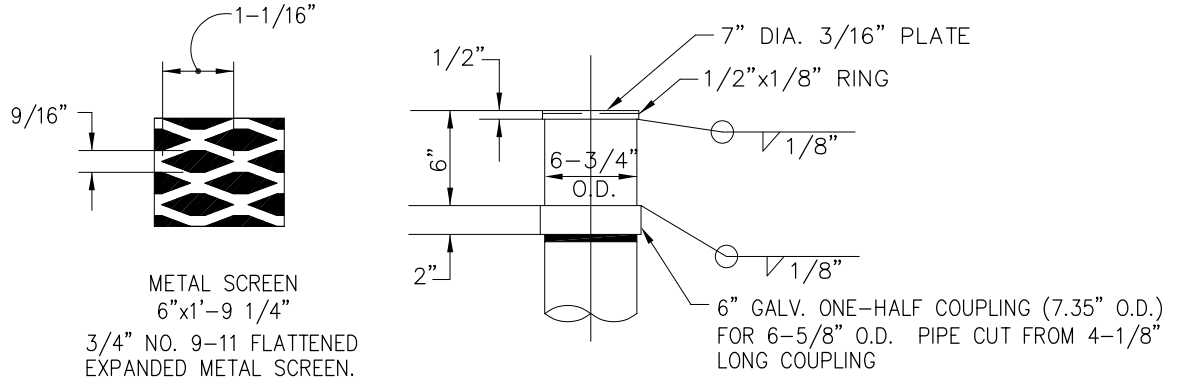


SECTION A–A

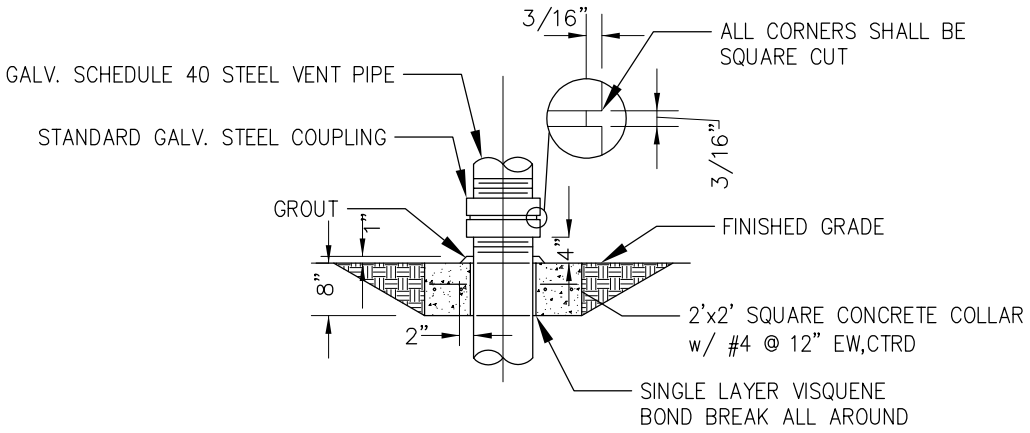
NOTES:

1. 1–1/2" ROCK SHALL BE PLACED IN BOTTOM OF MANHOLE TO CROWN OF PIPE ONLY.
2. ALL PIPE AND FITTINGS SHALL BE BRASS.
3. 6" THRU 10" LINES SHALL HAVE, 2 EA., 1" COMBINATION AIR VALVE.
4. 12" LINES AND LARGER SHALL HAVE, 2 EA., 2" COMBINATION AIR VALVE.
5. SUPPORT BAR SHALL BE CONSTRUCTED OF 1/4" STEEL STRAPPING DRILLED TO MATCH AIR POT HOLES.

	ROXBOROUGH WATER & SANITATION DISTRICT
AIR RELEASE VALVE VAULT	
DATE: JUNE 21, 2023	DRAWING NO. 2-3B

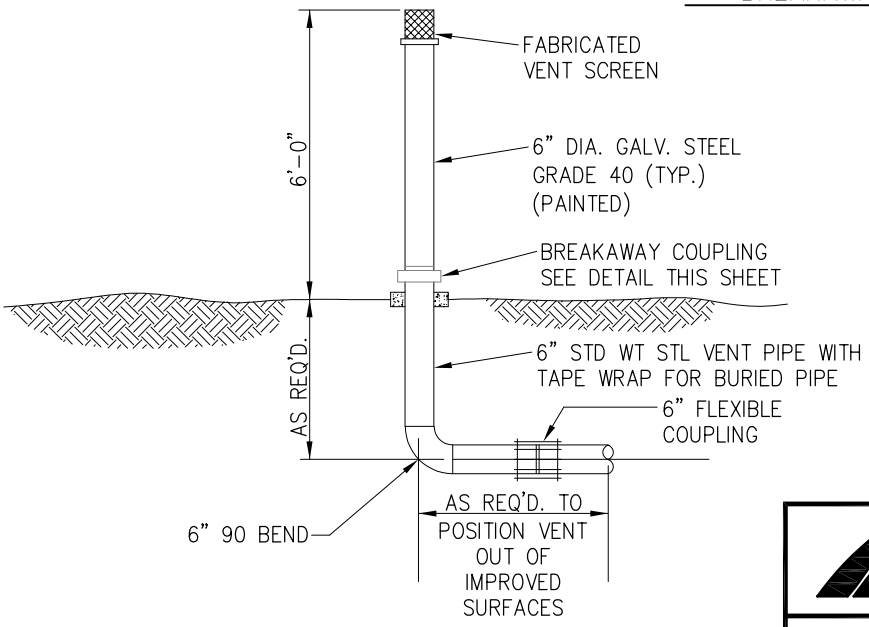


VENT SCREEN DETAIL



NOTES:
1. MOUND GROUT AROUND PIPE, TO PROVIDE DRAINAGE.
2. TROWEL FINISH ALL EXPOSED CONCRETE SURFACES.
3. BREAK-AWAY COUPLING REQUIRED IN ROAD ROW.
4. PAINT COUPLING AFTER CUTTING.
5. PROVIDE VALVE MARKER @ EACH STRUCTURE.

BREAKAWAY COUPLING DETAIL

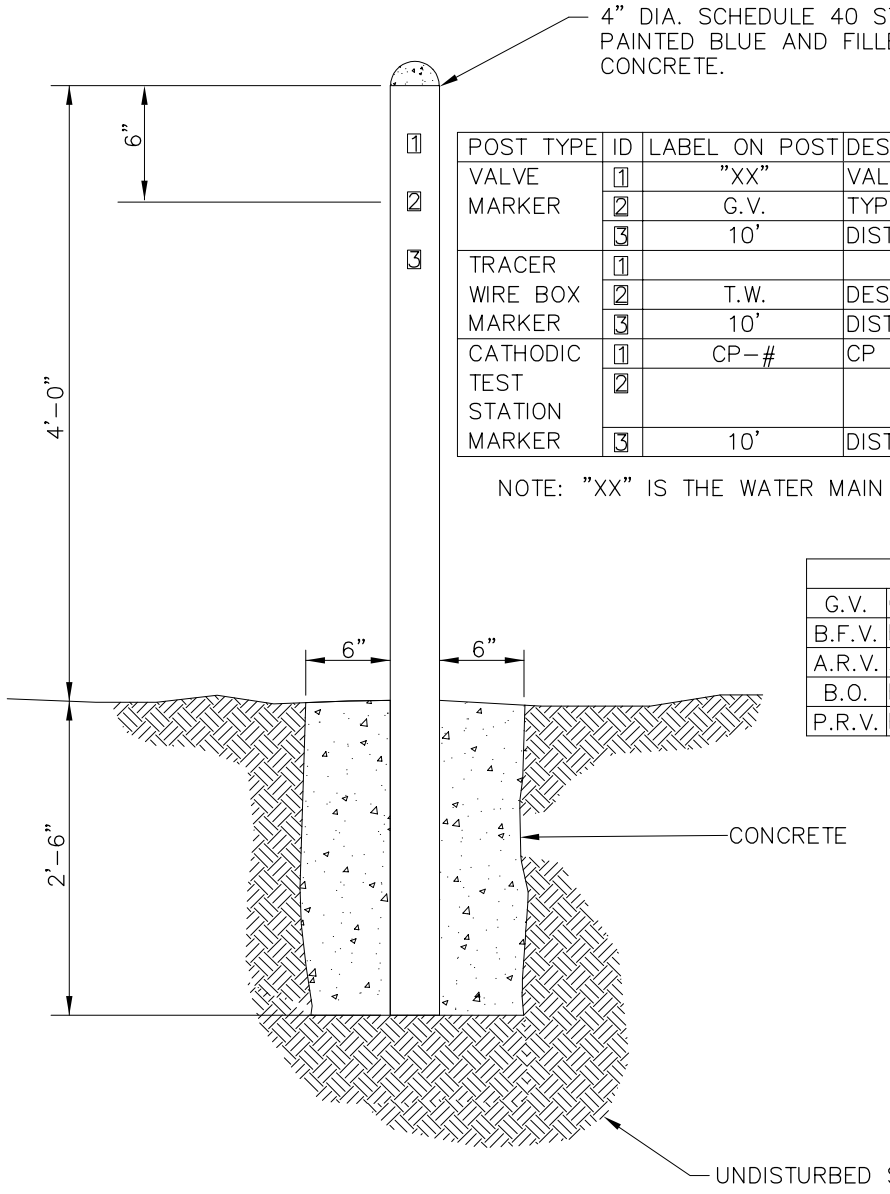


VENT DETAIL

ROXBOROUGH WATER & SANITATION DISTRICT

AIR VENT DETAIL

DATE:	DRAWING NO.
JUNE 21, 2023	2-6



POST TYPE	ID	LABEL ON POST	DESCRIPTION
VALVE MARKER	1	"XX"	VALVE SIZE
	2	G.V.	TYPE OF VALVE, SEE TABLE
	3	10'	DISTANCE TO VALVE
TRACER WIRE BOX MARKER	1		
	2	T.W.	DESCRIPTION FOR MARKER
	3	10'	DISTANCE TO TEST STATION
CATHODIC TEST STATION MARKER	1	CP-#	CP TEST ID
	2		
	3	10'	DISTANCE TO CP TEST STATION

NOTE: "XX" IS THE WATER MAIN SIZE

VALVE TYPES	
G.V.	GATE VALVE
B.F.V.	BUTTERFLY VALVE
A.R.V.	AIR RELEASE VALVE
B.O.	BLOW OFF VALVE
P.R.V.	PRESSURE REDUCING VALVE

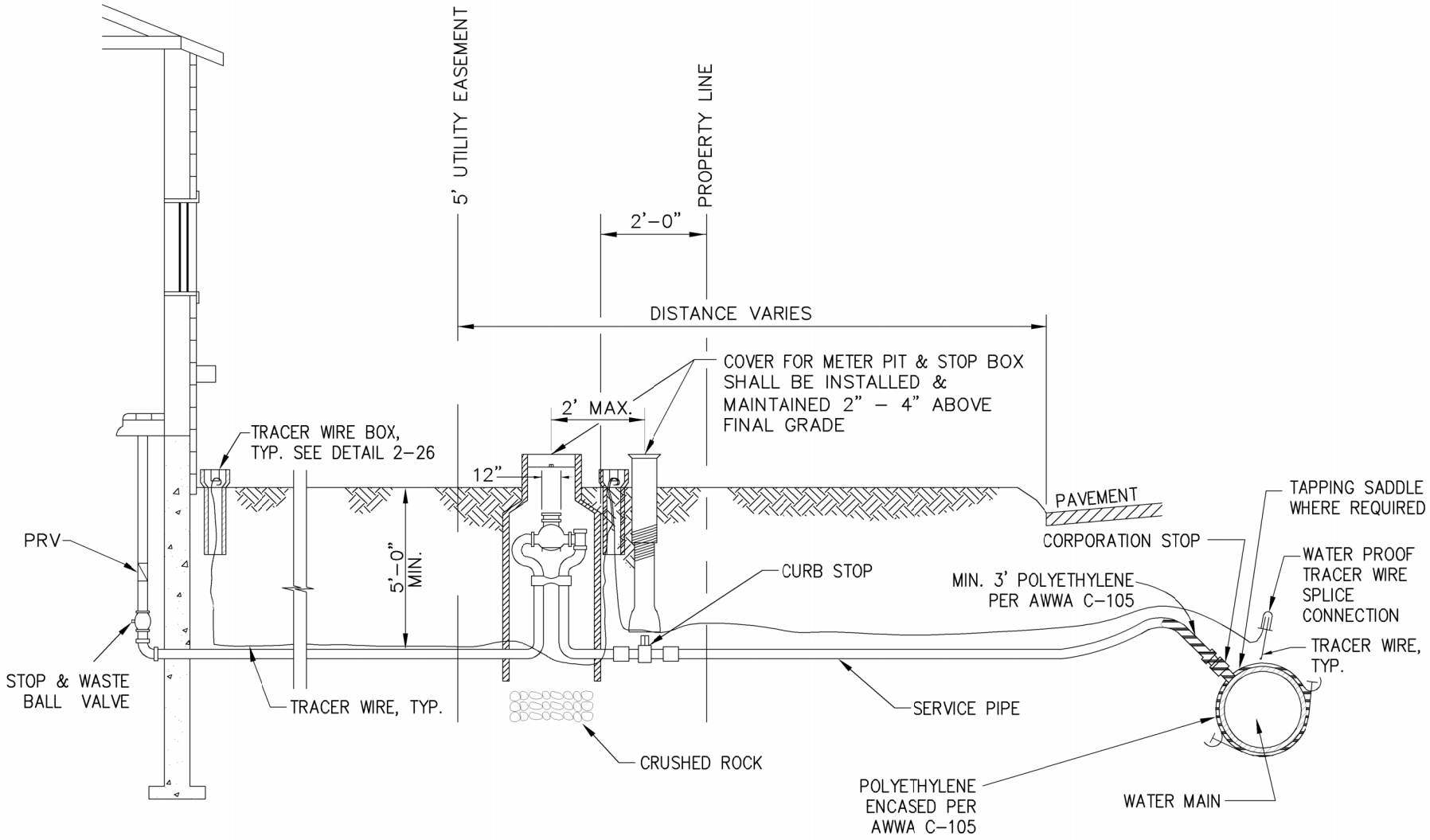
NOTE:
2" CAPITAL LETTERS FACING VALVE, TRACER WIRE BOX, OR CATHODIC TEST STATION.

ROXBOROUGH WATER & SANITATION DISTRICT

MARKER POST

DATE: JUNE 21, 2023

DRAWING NO. 2-10



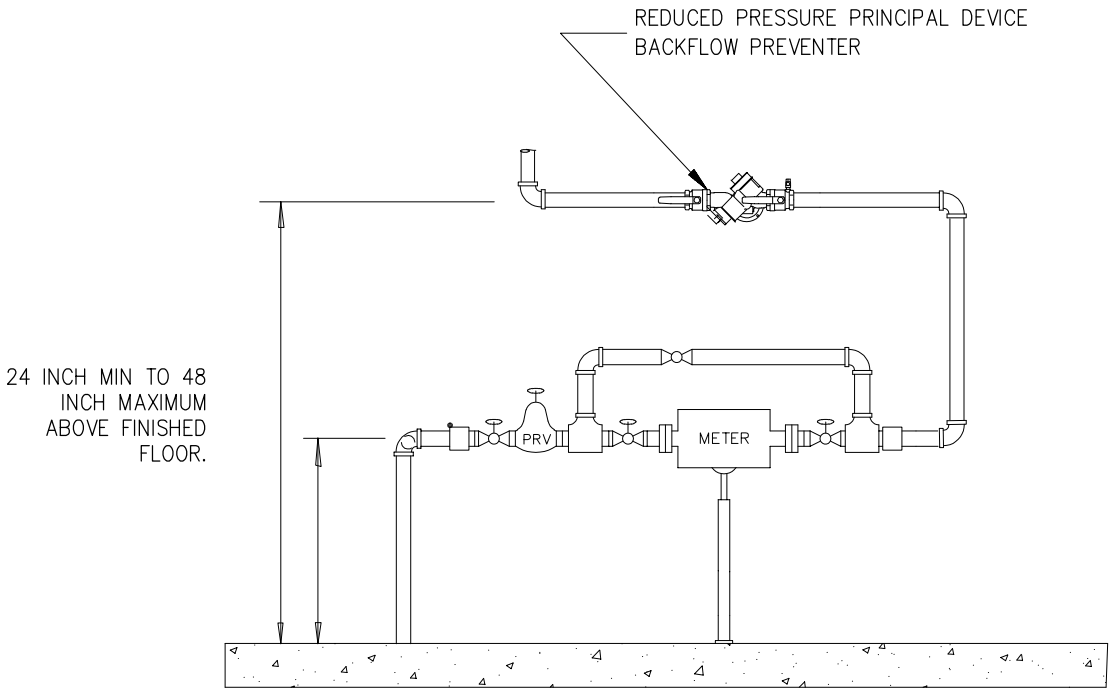
NOTES:

1. THIS METER SET CONFIGURATION REQUIRES PRIOR DISTRICT APPROVAL
2. METER AND READER TO BE INSTALLED BY DISTRICT

ROXBOROUGH WATER & SANITATION DISTRICT

SERVICE LINE OUTSIDE METER DETAIL

DATE:	DRAWING NO.
JUNE 21, 2023	2-11



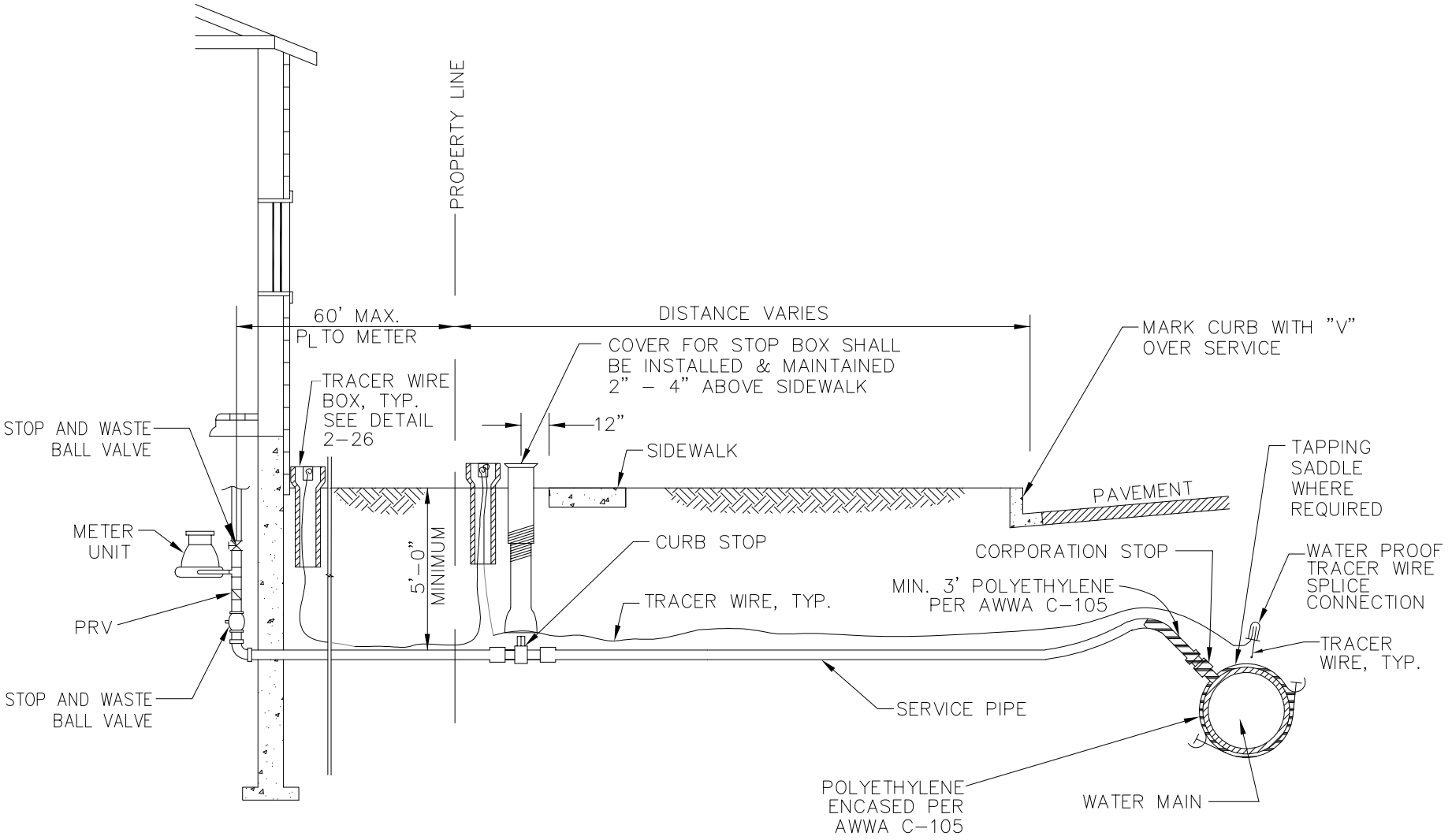
NOTE:

THE DEVICE SHALL BE INSTALLED AT AN ELEVATIONS THAT IS NOT LESS THAN 24 INCHES NOR MORE THAN 48 INCHES ABOVE THE FINISHED FLOOR. THE DEVICE SHAL BE PLACED 12 INCHES AWAY FROM THE ADJACENT WALL TO THE CENTER OF THE DEVICE WITH A MINIMUM OF 24 INCHES OF CLEAR SPACE IN FRONT OF THE DEVICE FROM FLOOR TO CEILING. IF WATER METER AND BACKFLOW PREVENTION DEVICE ARE TO BE INSTALLED IN SERIES, THERE SHALL BE A MINIMUM OF 24 INCHES CLEARANCE BETWEEN THE DEVICES. AN ADEQUATE DRAIN IS REQUIRED FOR THE BACKFLOW PREVENTER. (UNDER THE DEVICE WHENEVER POSSIBLE)

ROXBOROUGH WATER & SANITATION DISTRICT

COMMERCIAL METER
TYPICAL ELEVATION FOR METER AND BACKFLOW PREVENTER ASSEMBLY

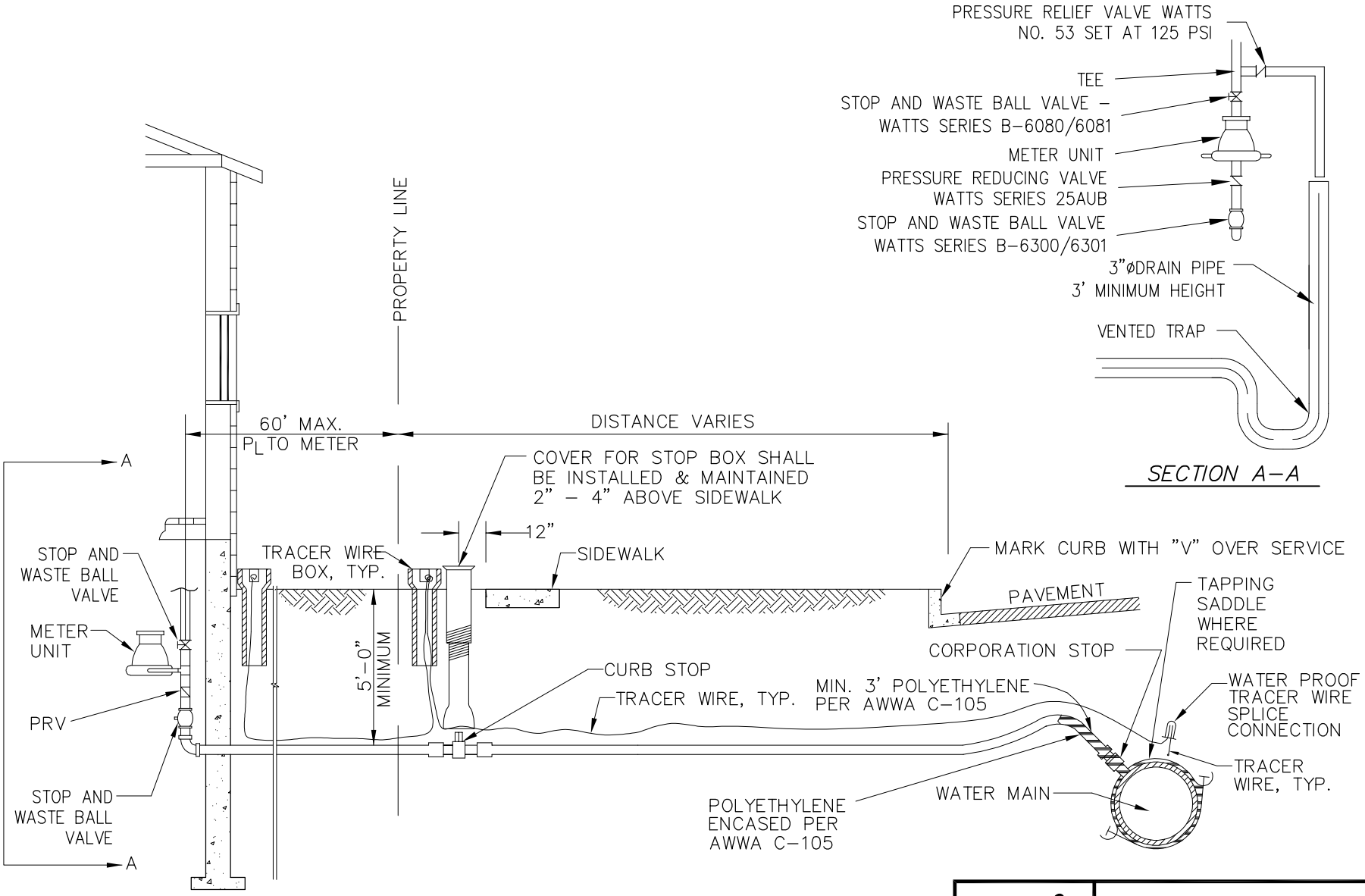
DATE:	DRAWING NO.
JUNE 21, 2023	2-13 C



ROXBOROUGH WATER & SANITATION DISTRICT

SERVICE LINE INSIDE METER

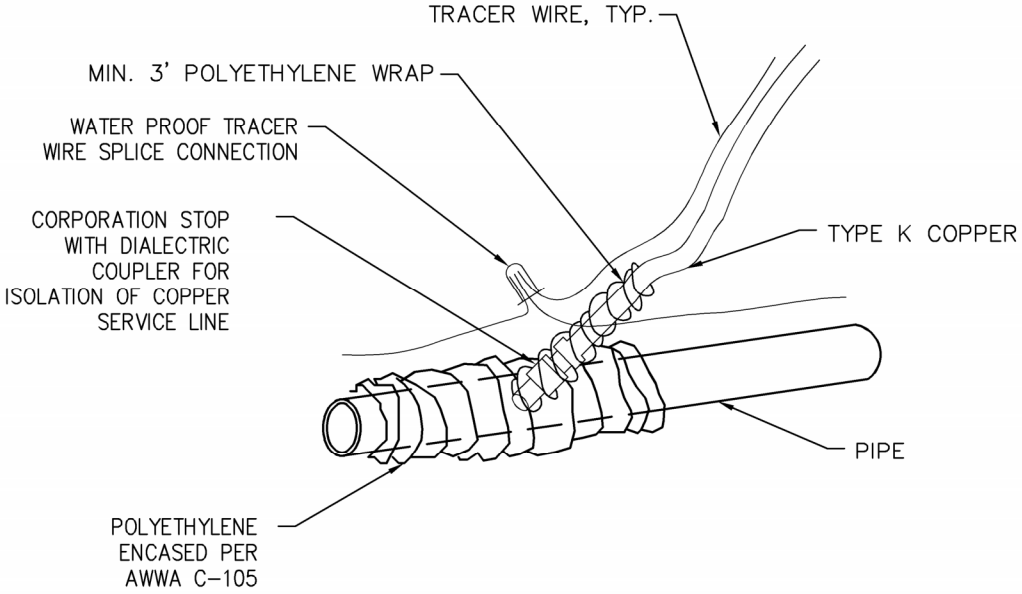
DATE:	DRAWING NO.
JUNE 21, 2023	2-14A

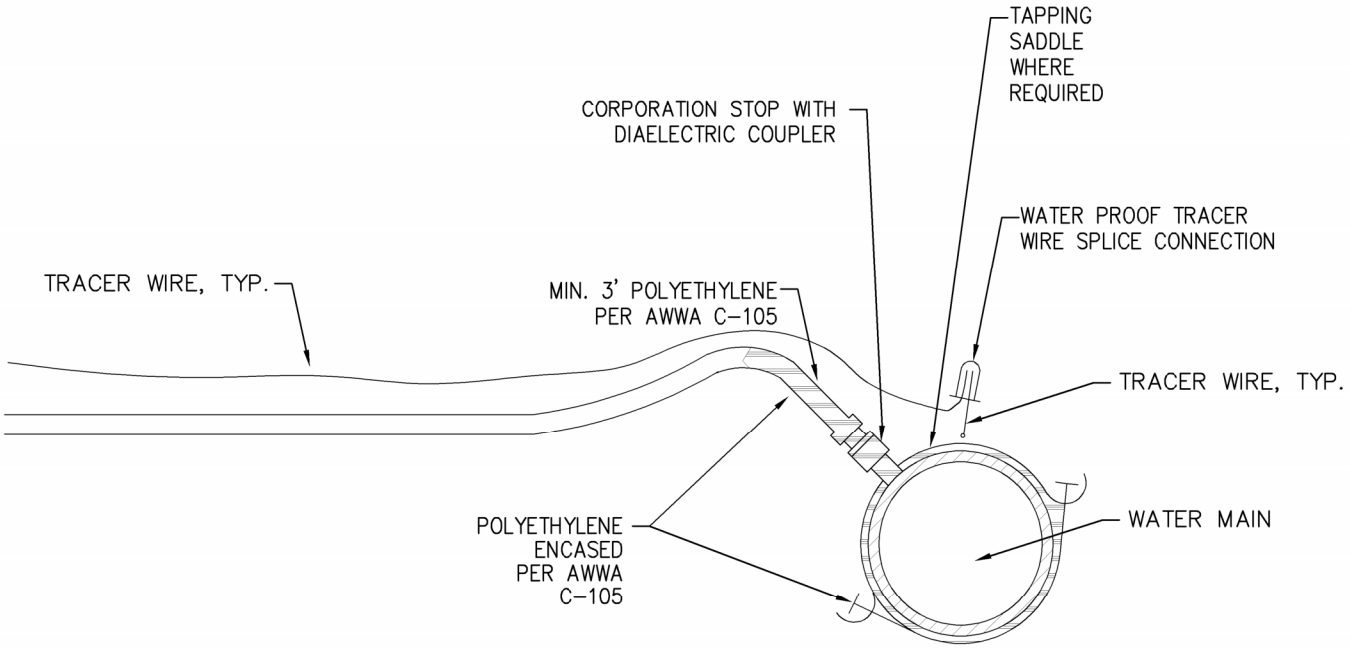


ROXBOROUGH WATER & SANITATION DISTRICT

HIGH PRESSURE SERVICE LINE INSIDE METER

DATE:	DRAWING NO.
JUNE 21, 2023	2-14B

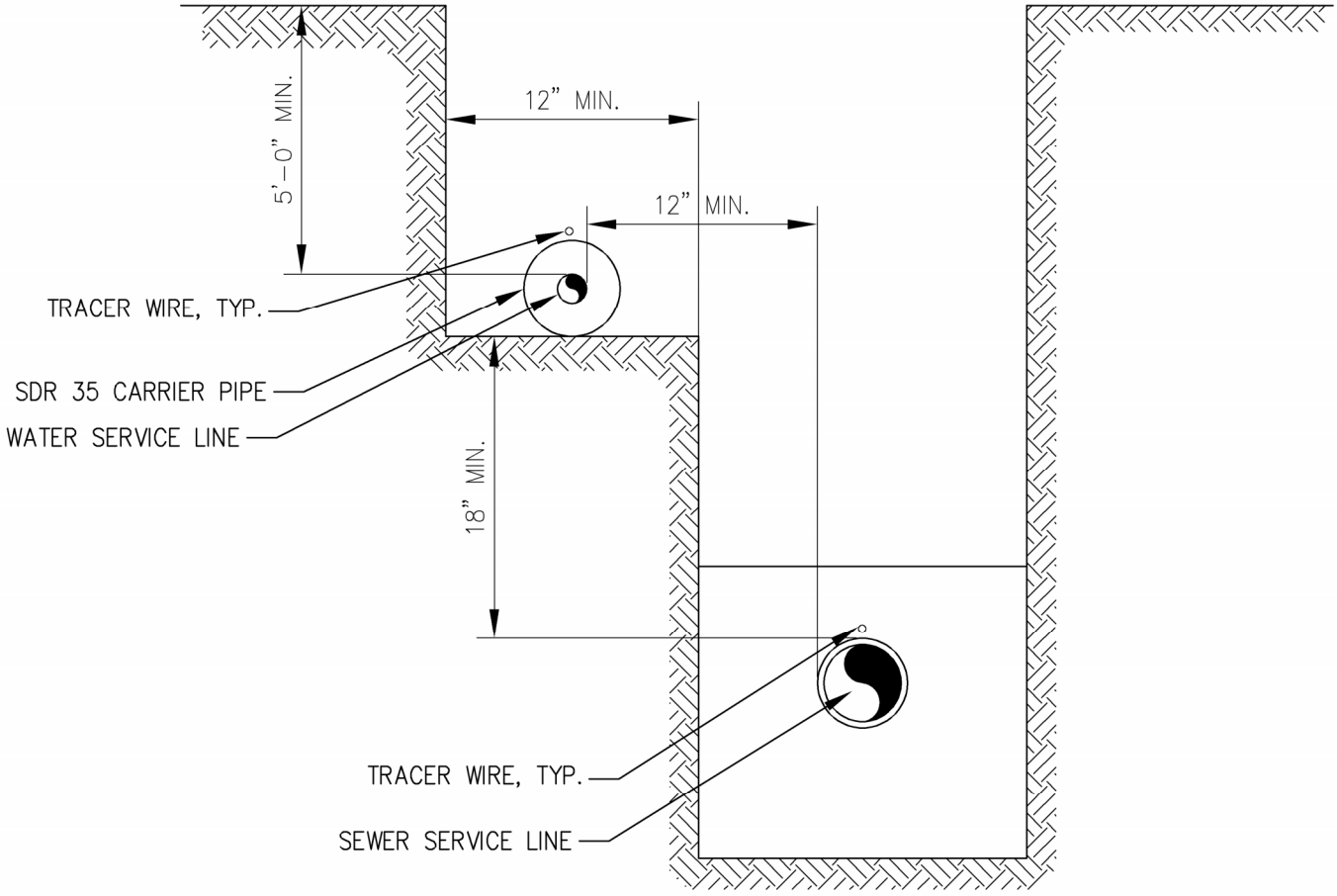




NOTES:

1. REFER TO THE MOST CURRENT AWWA C-105 FOR INSTALLATION.

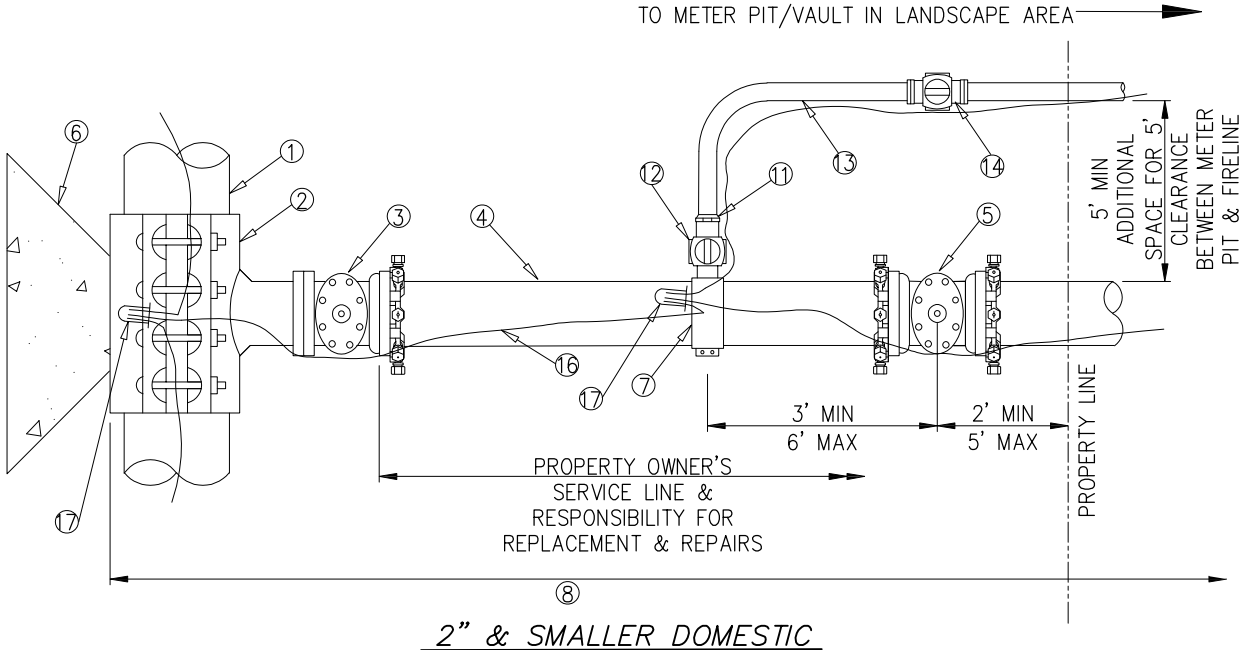
ROXBOROUGH WATER & SANITATION DISTRICT	
POLYETHYLENE WRAP FOR SERVICE TAP	
DATE: JUNE 21, 2023	DRAWING NO. 2-15



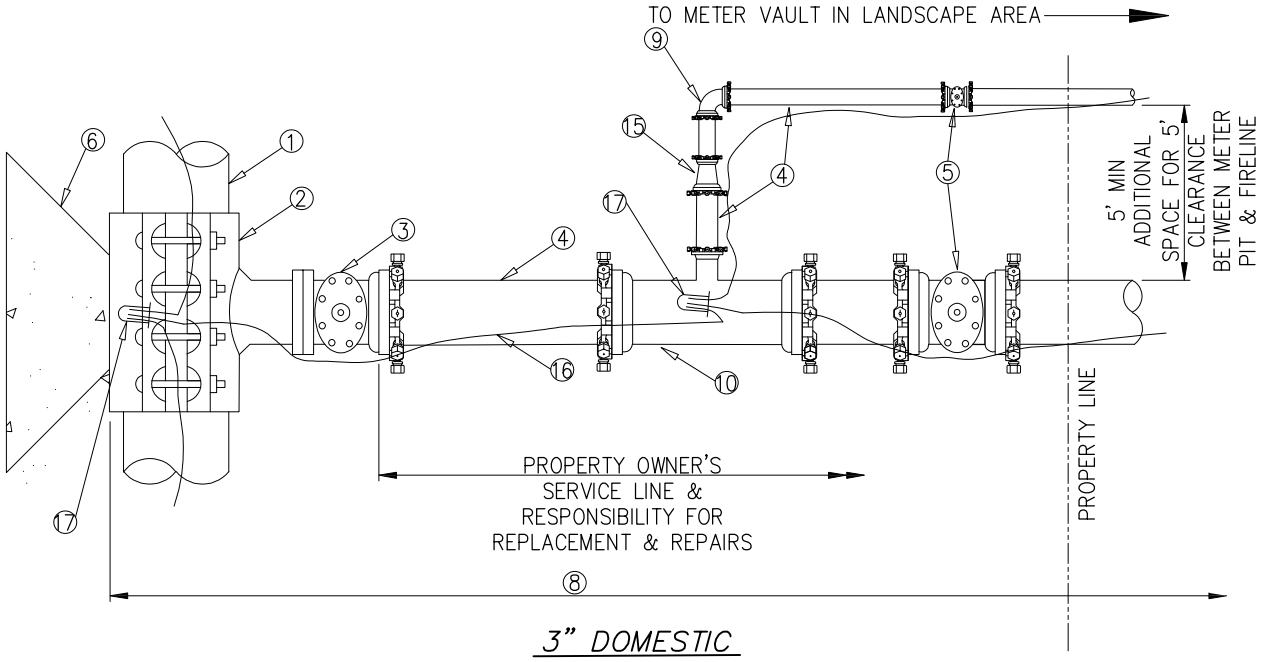
NOTES:

1. FOR LOTS WITH JOINT TRENCH ALONG FRONT OF LOT, WATER SERVICE LINE SHALL BE PLACED WITH 5'-0" MIN. COVER.
2. ALL WATER SERVICES SHALL BE PLACED AT THE CENTER OF THE LOT.
3. A "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY THE BUILDER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX.
4. WATER LINES SHALL BE SLEEVED IN SDR-35 PIPE AND CONCRETE ENCASED ON ENDS

	ROXBOROUGH WATER & SANITATION DISTRICT
WATER & SEWER SERVICE JOINT TRENCH DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 2-17



2" & SMALLER DOMESTIC



3" DOMESTIC

NOTE:
COMBINATION SERVICE CANNOT BE USED WHERE THE SPACING BETWEEN SERVICES EXCEEDS THE DISTANCE FROM THE MAIN TO THE DOMESTIC TAP OR TEE

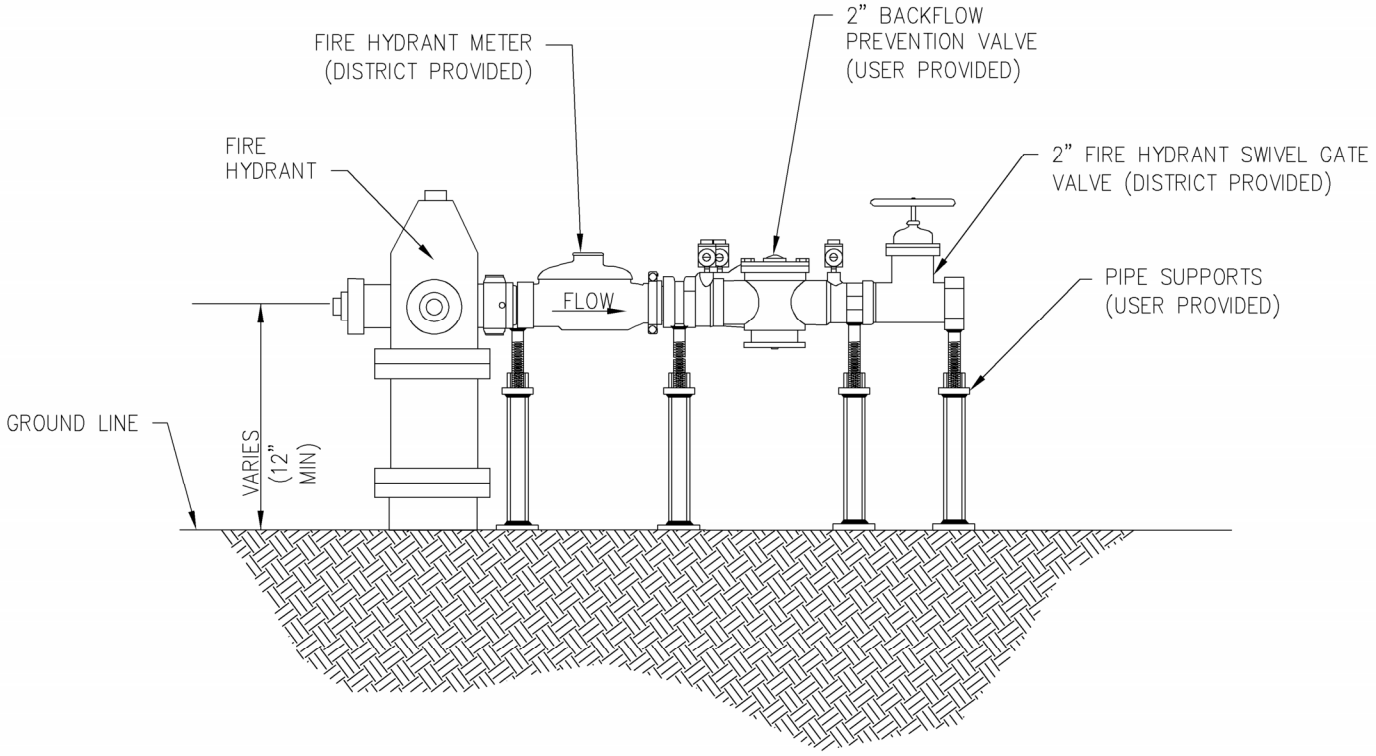
KEY NOTES:

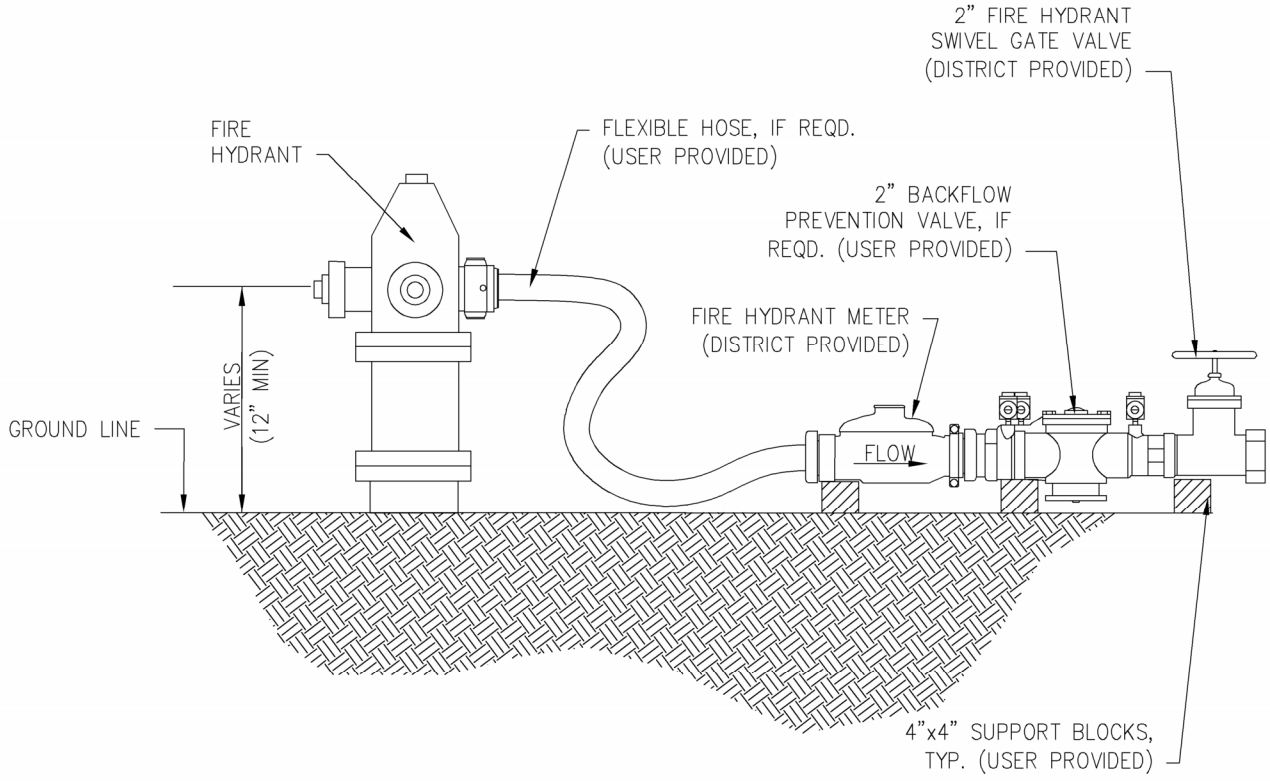
① EXISTING MAIN
② TAPPING SLEEVE
③ TAPPING VALVE OR MECHANICAL JOINT GATE VALVE
④ DUCTILE IRON PIPE FULLY RESTRAINED
⑤ MECHANICAL JOINT GATE VALVE
⑥ CONCRETE THRUST BLOCK
⑦ TAPPING SADDLE
⑧ POLYETHYLENE WRAPPED
⑨ 90° MECHANICAL JOINT ELBOW
⑩ MECHANICAL JOINT TEE
⑪ SERVICE INSULATOR
⑫ CORP STOP
⑬ COPPER PIPE
⑭ CURB STOP
⑮ 4" X 3" MECHANICAL JOINT REDUCER
⑯ TRACER WIRE, TYP.
⑰ WATER PROOF TRACER WIRE SPLICE CONNECTION

ROXBOROUGH WATER & SANITATION DISTRICT

FIRELINE CONNECTION WITH DOMESTIC SERVICE TAP

DATE:	DRAWING NO.
JUNE 21, 2023	2-21

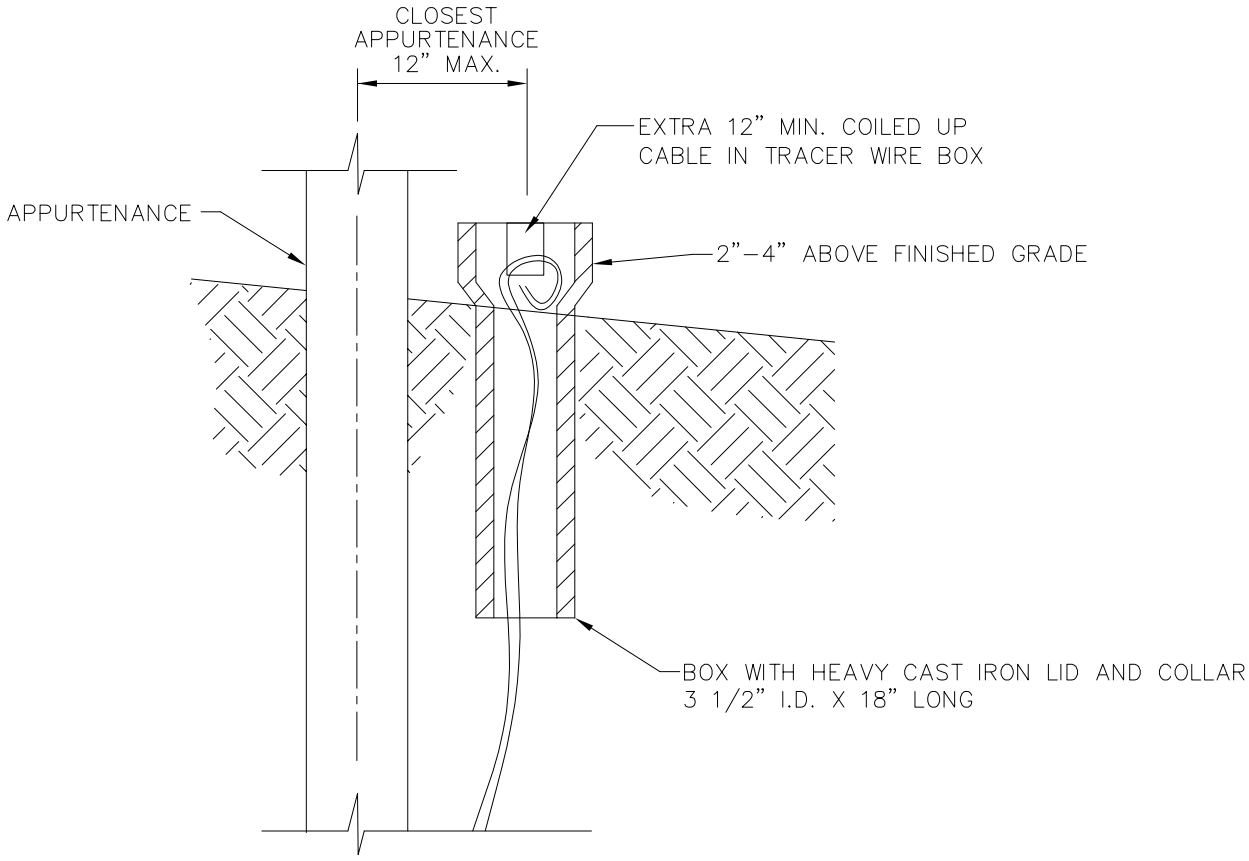




ROXBOROUGH WATER & SANITATION DISTRICT

FIRE HYDRANT METER PERMIT

DATE:	DRAWING NO.
JUNE 21, 2023	2-25



TRACER WIRE BOX

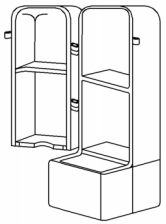
NO SCALE

NOTE:
TRACER WIRE SHALL BE TAPED
TO PIPE IN MAX 10' INCREMENTS

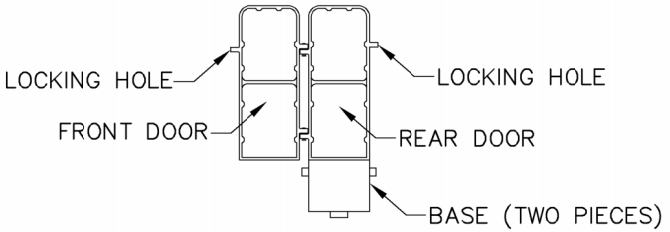
ROXBOROUGH WATER & SANITATION DISTRICT

TRACER WIRE BOX DETAIL

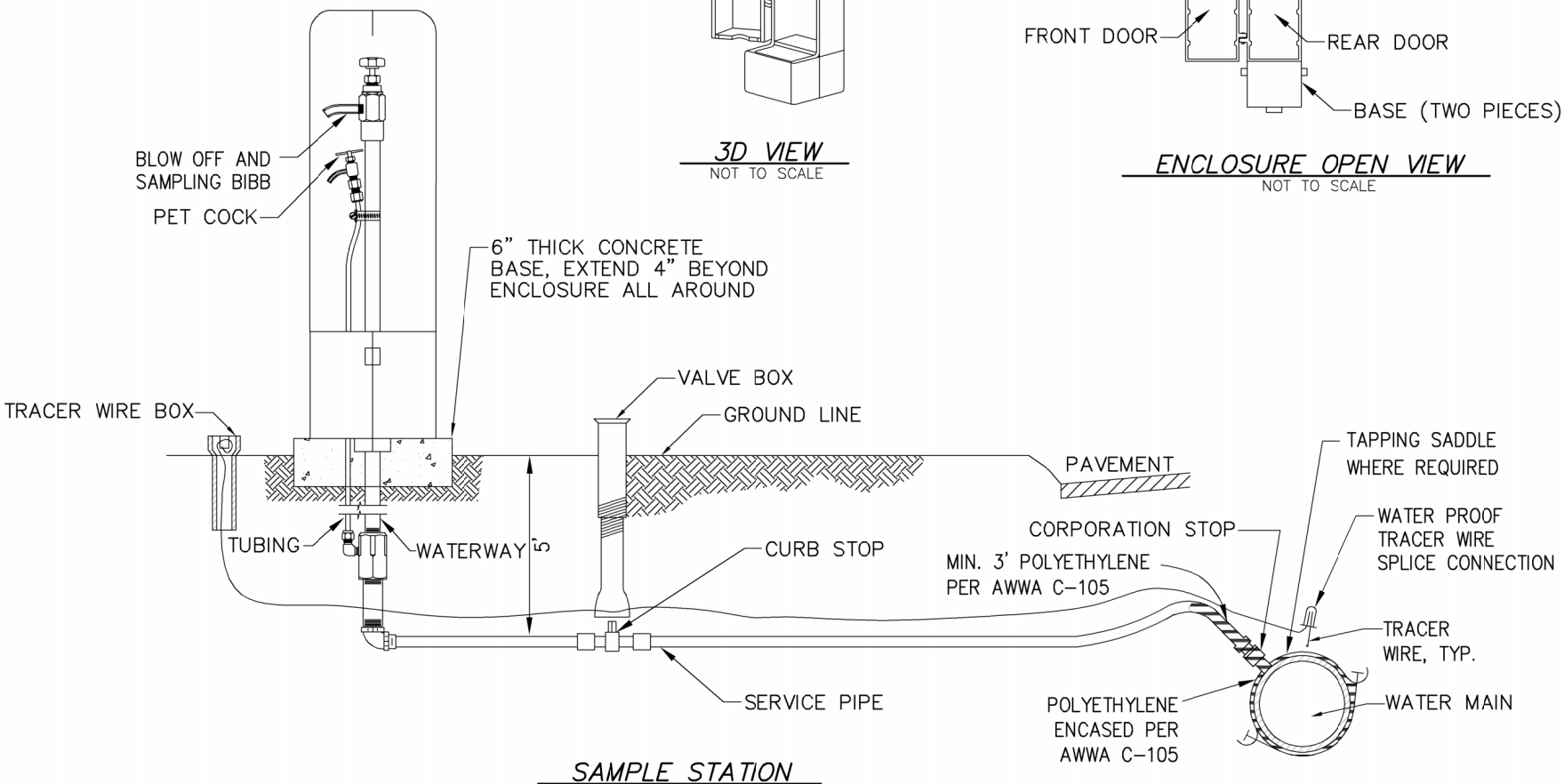
DATE:	DRAWING NO.
JUNE 21, 2023	2-26



3D VIEW
NOT TO SCALE



ENCLOSURE OPEN VIEW
NOT TO SCALE



SAMPLE STATION

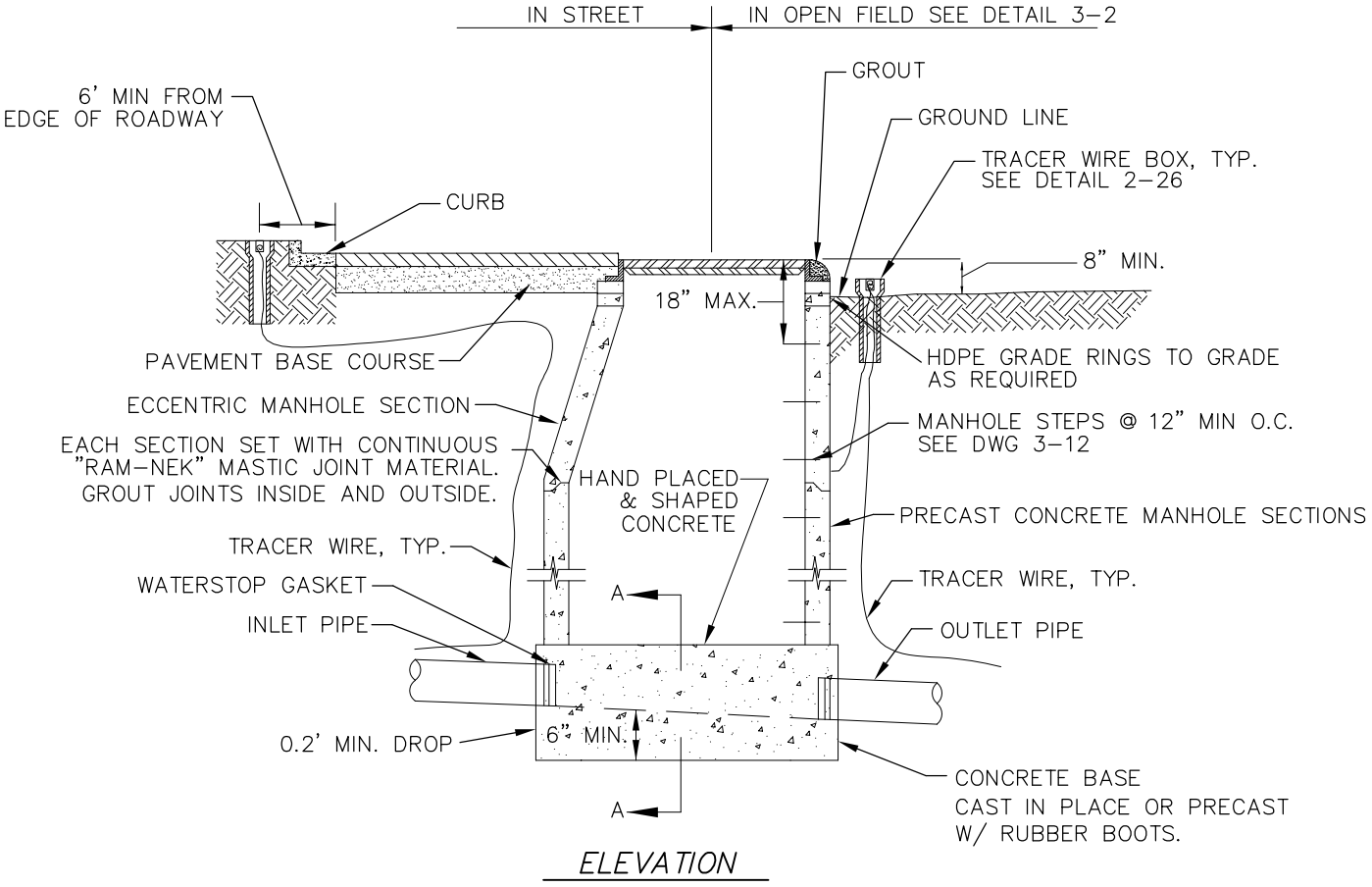
NOTES:

1. SAMPLING STATION SHALL BE 5' BURY, WITH A 3/4" FIP INLET, AND 7/16" UNTHREADED BLOW OFF AND SAMPLING BIBB.
2. STATION SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE ALUMINUM BOX WITH HINGED OPENINGS.
3. WHEN OPEN, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND ALL WATER FLOW SHALL PASS THRU AN ALL STAINLESS STEEL WATERWAY.
4. ALL WORKING PARTS SHALL BE OF STAINLESS STEEL AND SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.
5. A STAINLESS STEEL PET COCK WILL BE LOCATED BELOW THE SAMPLING BIBB TO ALLOW PUMPING OF ANY WATER REMAINING INSIDE THE STATION TO INSURE NON-FREEZING.
6. THE STATION SHALL BE MODEL #88-SS AS MANUFACTURED BY THE KUPFERLE FOUNDRY, ST. LOUIS MO. 63102 OR APPROVED ALTERNATE.

ROXBOROUGH WATER & SANITATION DISTRICT

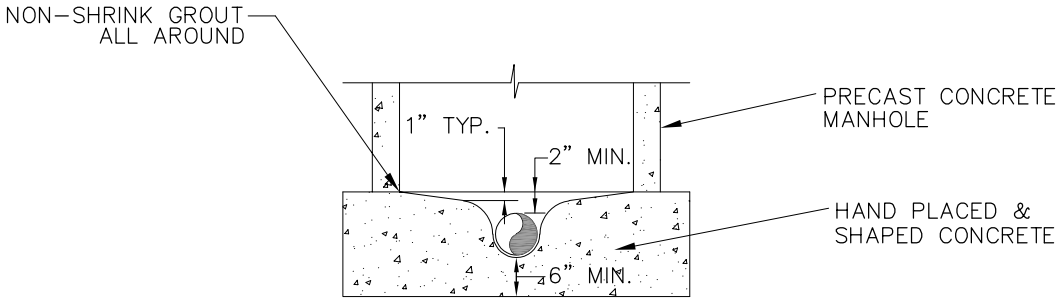
SAMPLE STATION

DATE:	DRAWING NO.
JUNE 21, 2023	2-27



ELEVATION

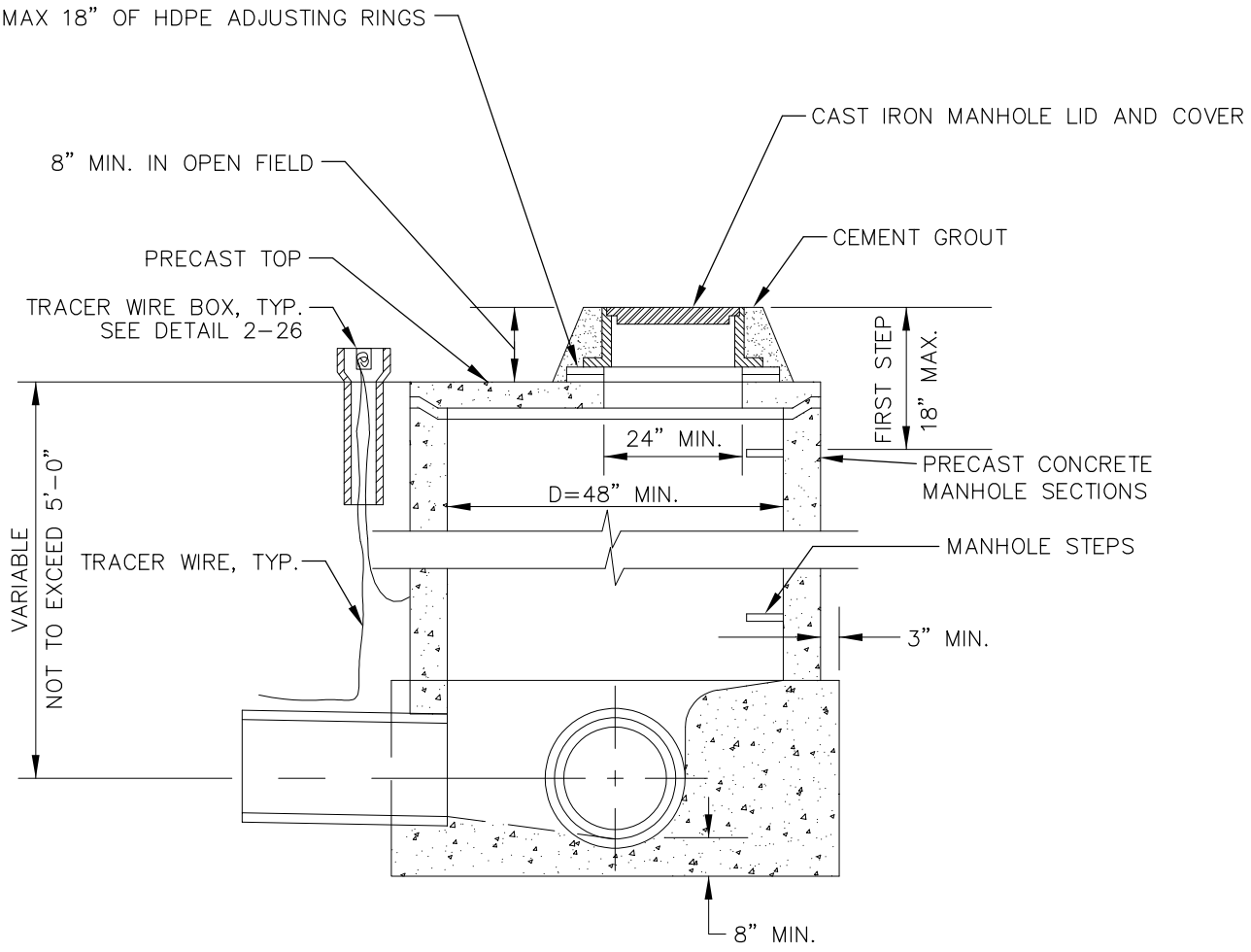
NOTE:
FOR SHALLOW MANHOLES, REFER TO DRAWING NO. 3–2



NOTE:
IF MANHOLE US IN FIELD, RIM SHOULD BE 8" ABOVE FINISHED GRADE, WITH CONCRETE COLLAR

SECTION A–A

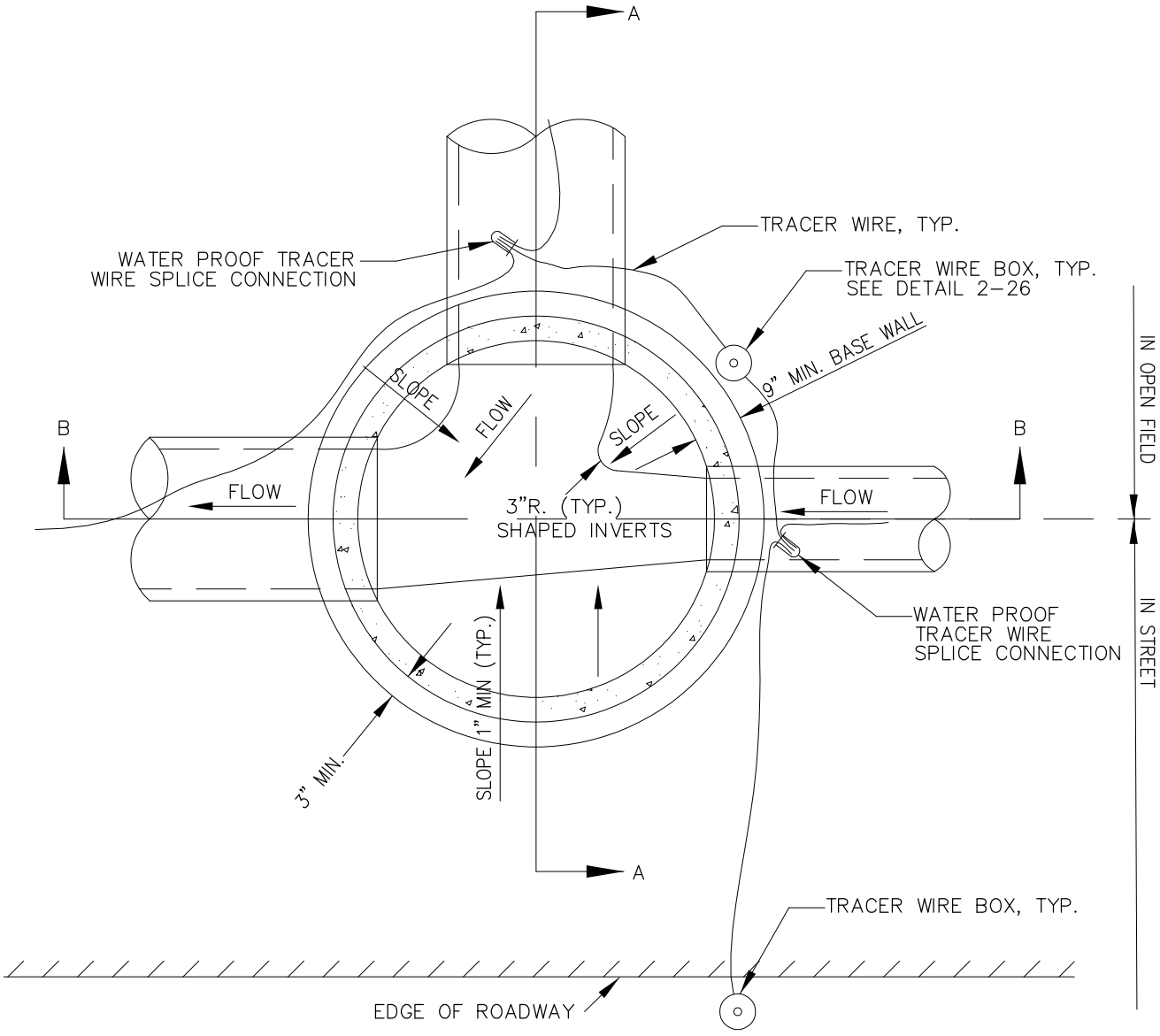
ROXBOROUGH WATER & SANITATION DISTRICT	
STANDARD MANHOLE	
DATE: JUNE 21, 2023	DRAWING NO. 3-1



NOTE:

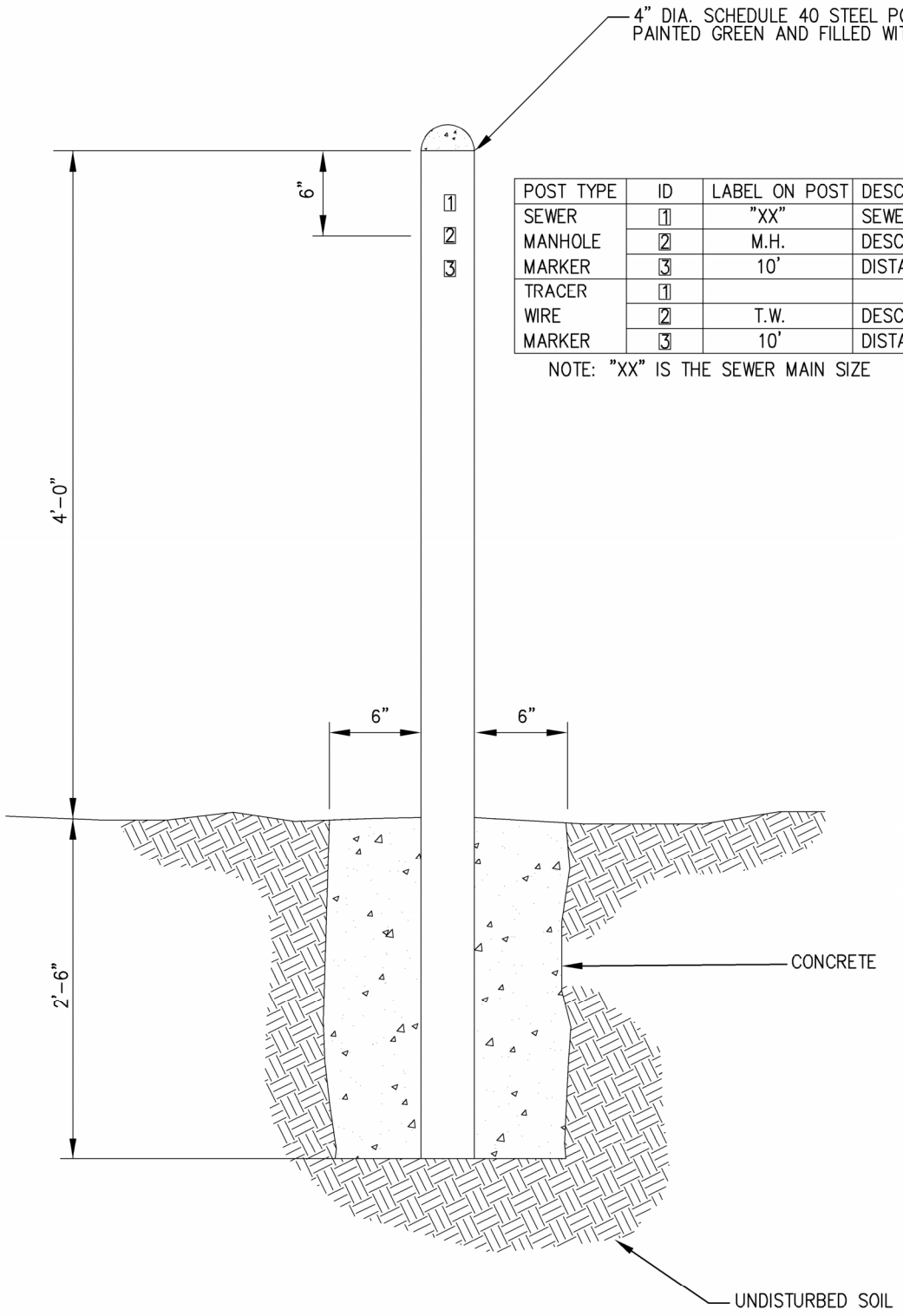
REFER TO DRAWING NO. 3-1 FOR ADDITIONAL DETAILS

ROXBOROUGH WATER & SANITATION DISTRICT	
SHALLOW MANHOLE	
DATE: JUNE 21, 2023	DRAWING NO. 3-2



NOTE:
1. SEE DRAWING 3-3B FOR SECTIONS A-A AND B-B

ROXBOROUGH WATER & SANITATION DISTRICT	
MANHOLE INVERT DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 3-3A



POST TYPE	ID	LABEL ON POST	DESCRIPTION
SEWER	1	"XX"	SEWER MAIN SIZE
MANHOLE	2	M.H.	DESCRIPTION FOR MANHOLE
MARKER	3	10'	DISTANCE TO MANHOLE
TRACER	1		
WIRE	2	T.W.	DESCRIPTION FOR MARKER
MARKER	3	10'	DISTANCE TO TEST STATION

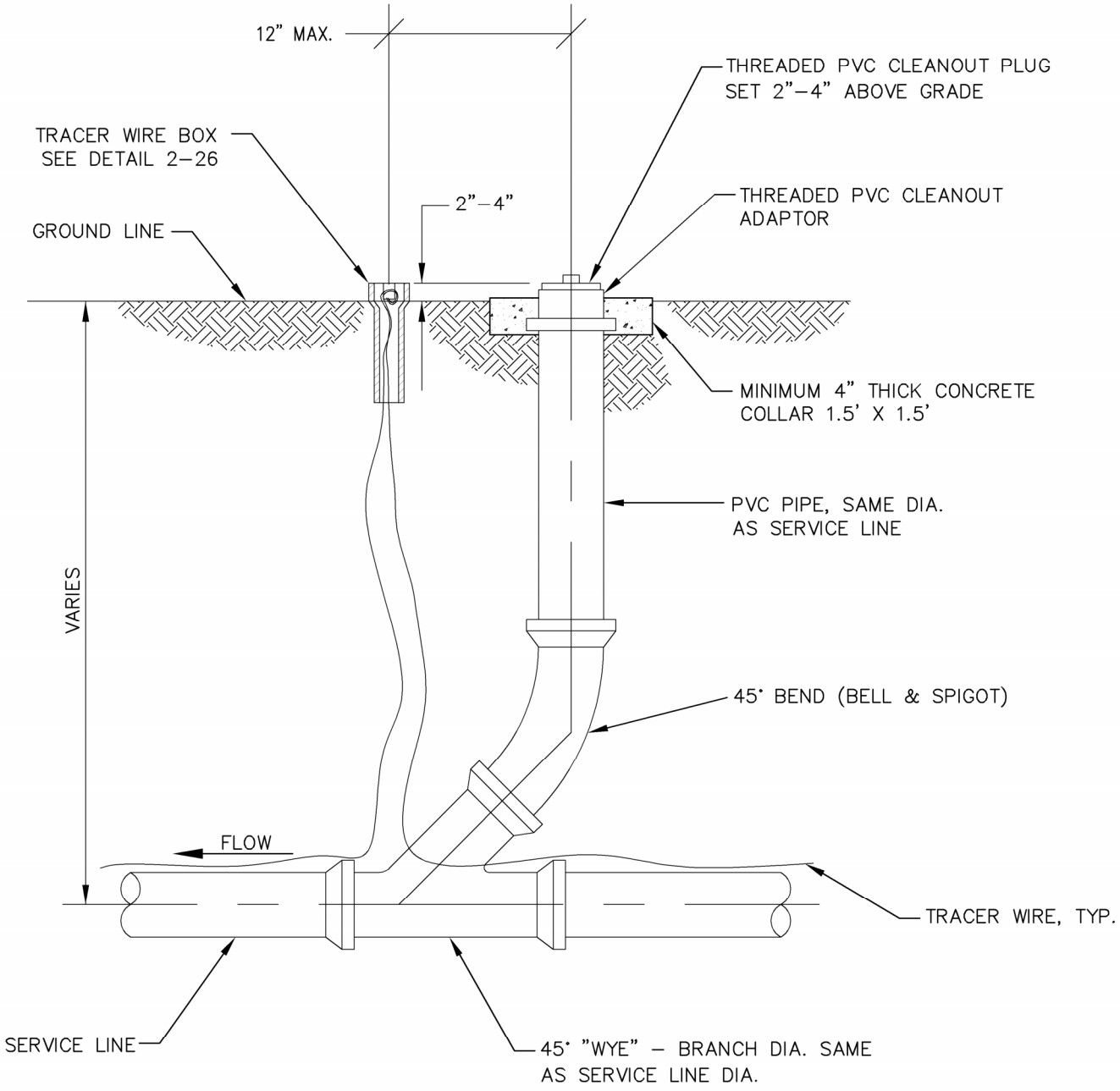
NOTE: "XX" IS THE SEWER MAIN SIZE

NOTE:
2" CAPITAL LETTERS FACING MANHOLE OR TRACER WIRE TEST STATION

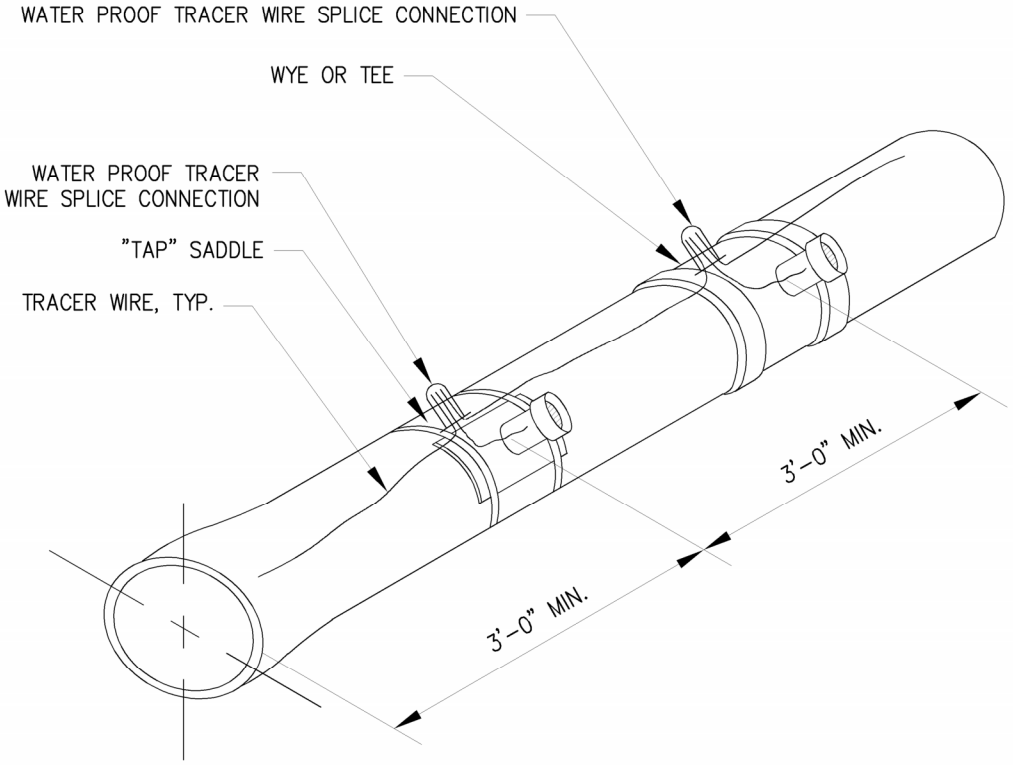
ROXBOROUGH WATER & SANITATION DISTRICT

MANHOLE MARKER POST

DATE:	DRAWING NO.
JUNE 21, 2023	3-6



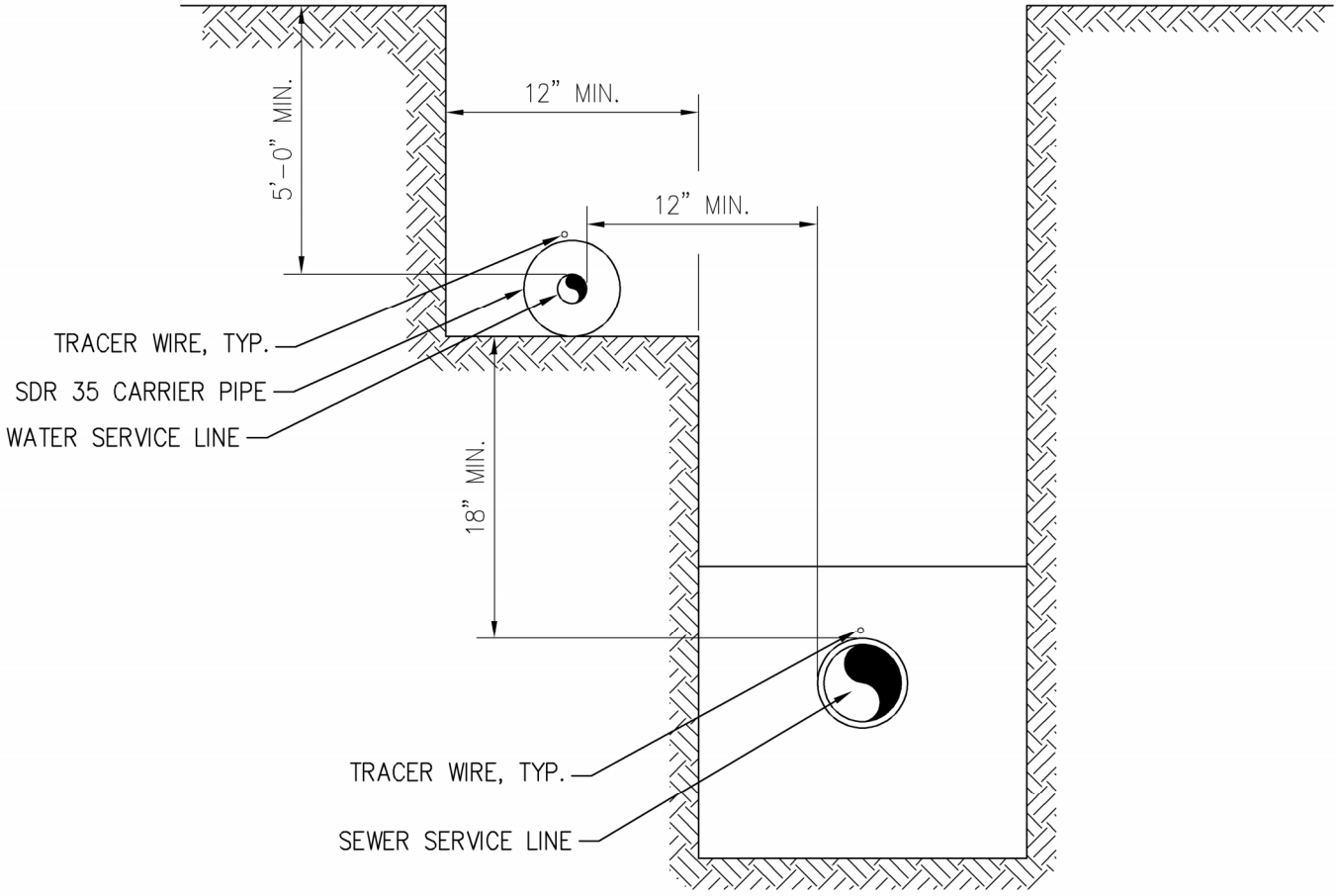
ROXBOROUGH WATER & SANITATION DISTRICT	
SANITARY SEWER CLEANOUT	
DATE: JUNE 21, 2023	DRAWING NO. 3-7



ROXBOROUGH WATER & SANITATION DISTRICT

DOMESTIC SEWER TAPPING DETAIL

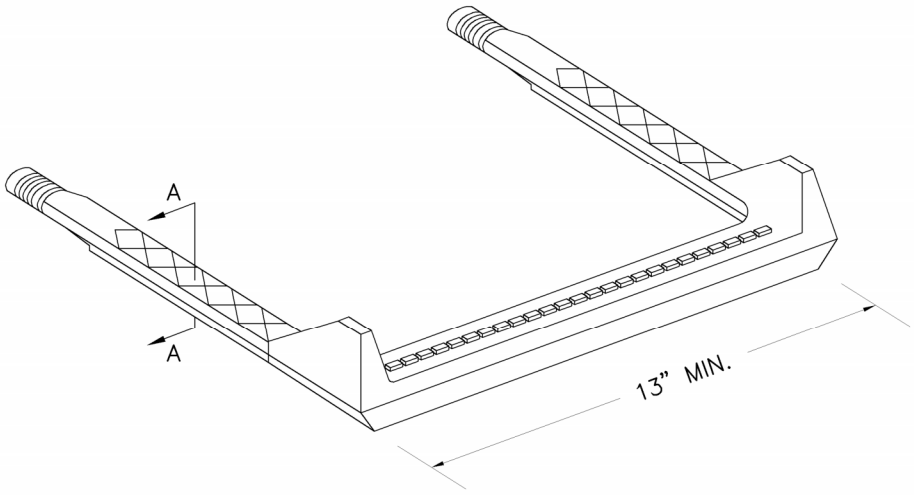
DATE:	DRAWING NO.
JUNE 21, 2023	3-8



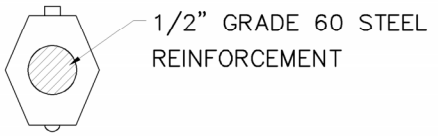
NOTES:

1. FOR LOTS WITH JOINT TRENCH ALONG FRONT OF LOT, WATER SERVICE LINE SHALL BE PLACED WITH 5'-0" MIN. COVER.
2. ALL WATER SERVICES SHALL BE PLACED AT THE CENTER OF THE LOT.
3. A "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY THE BUILDER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX.
4. WATER LINES SHALL BE SLEEVED IN SDR-35 PIPE AND CONCRETE ENCASED ON ENDS
5. AN "X" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY BUILDER TO PERMANENTLY MARK THE LOCATION OF SEWER SERVICE LINE.

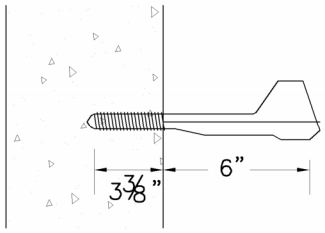
	ROXBOROUGH WATER & SANITATION DISTRICT
WATER & SEWER SERVICE JOINT TRENCH DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 3-10



DETAIL FOR M.A. INDUSTRIES STEP, OR APPROVED EQUAL



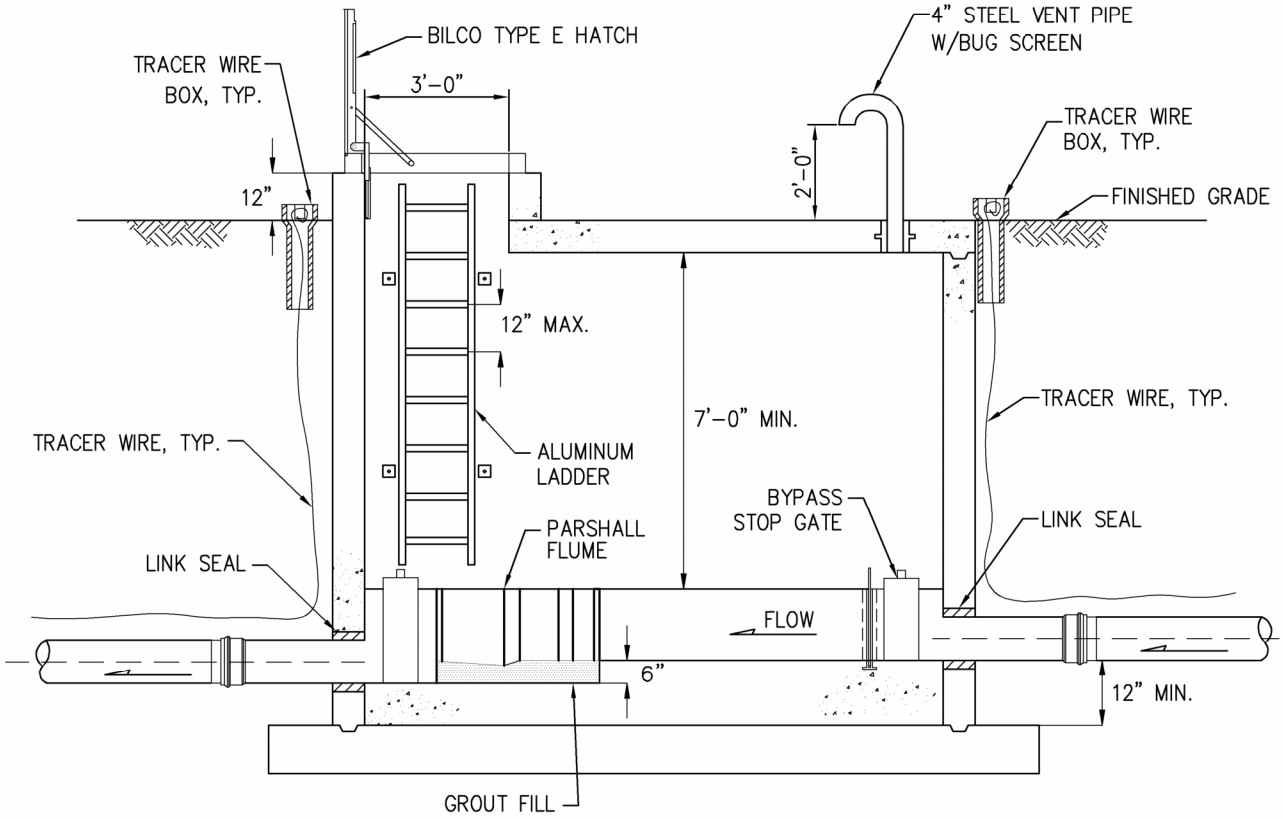
SECTION A–A



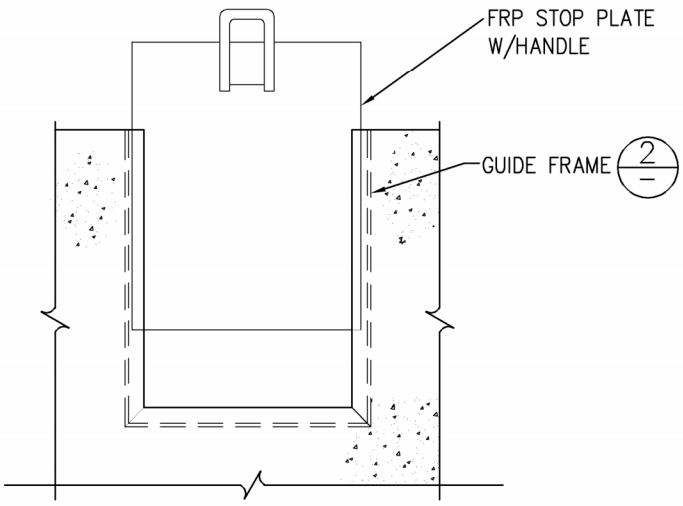
TYPICAL STEP INSTALLATION

NOTES:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
2. CAST IRON STEPS WILL NOT BE PERMITTED.

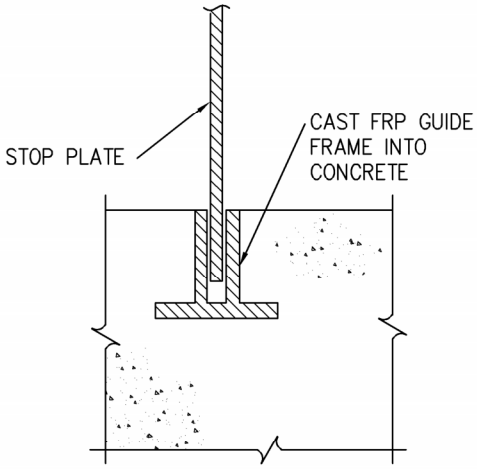
ROXBOROUGH WATER & SANITATION DISTRICT	
STANDARD STEP FOR MANHOLES	
DATE: JUNE 21, 2023	DRAWING NO. 3-12



SECTION A–A

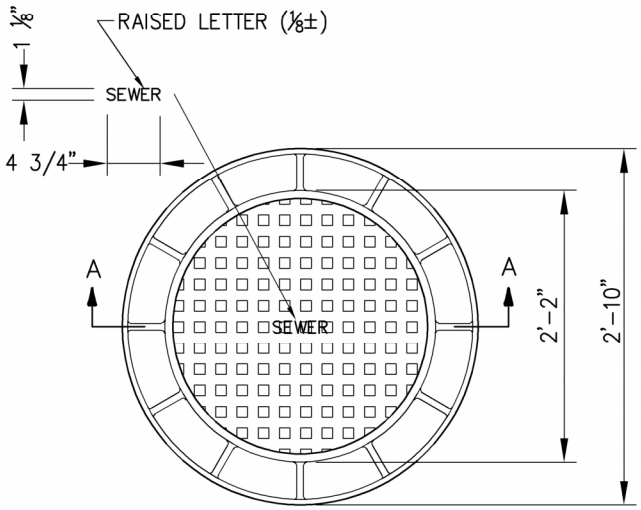


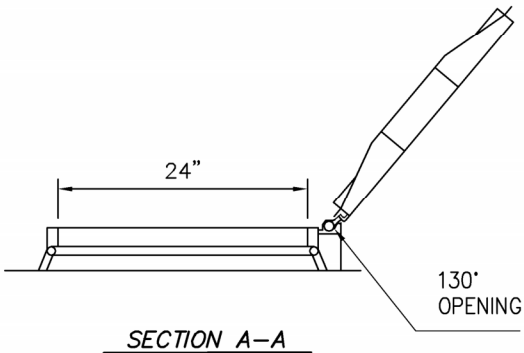
1/– STOP PLATE ELEVATION



2/– GUIDE FRAME SECTION

	ROXBOROUGH WATER & SANITATION DISTRICT
WASTEWATER METERING VAULT - SECTION & DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 3-13B

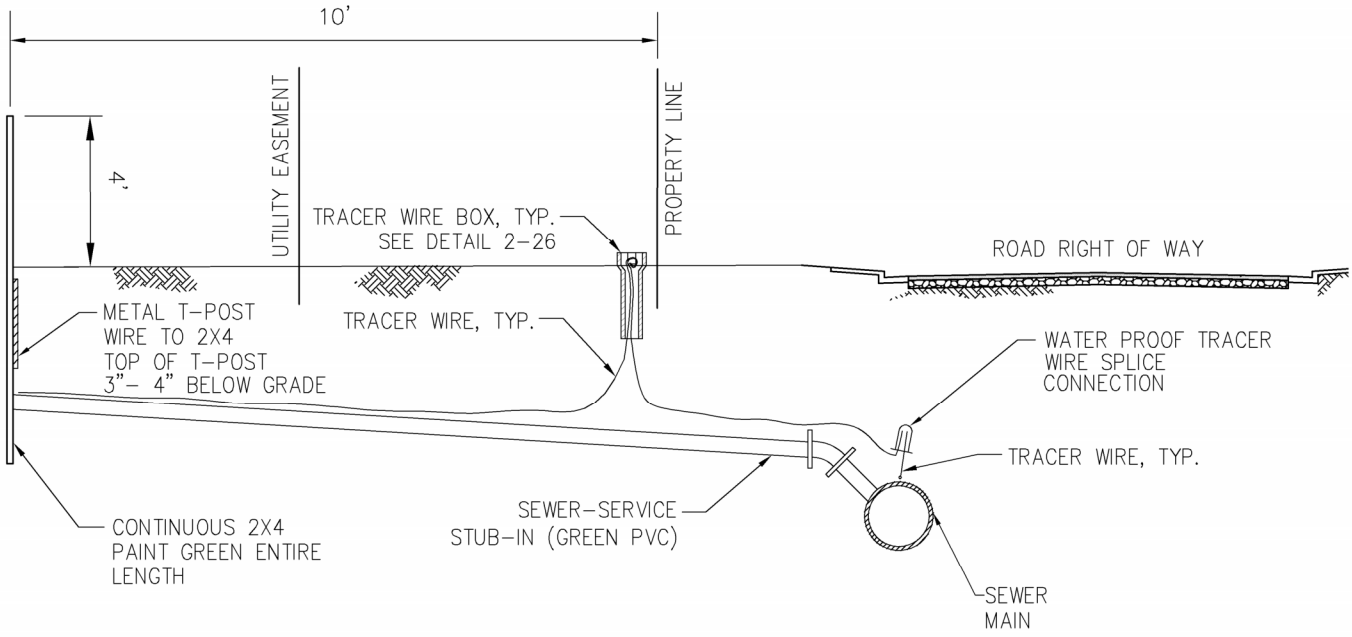




SECTION A–A

NOTES:
1. DUCTILE IRON, CLASS 400
2. RECEPTACLE FOR UNLOCKING
3. LID BEARING JOINT IN POLYETHYLENE
4. MANUFACTURER: PAMREX

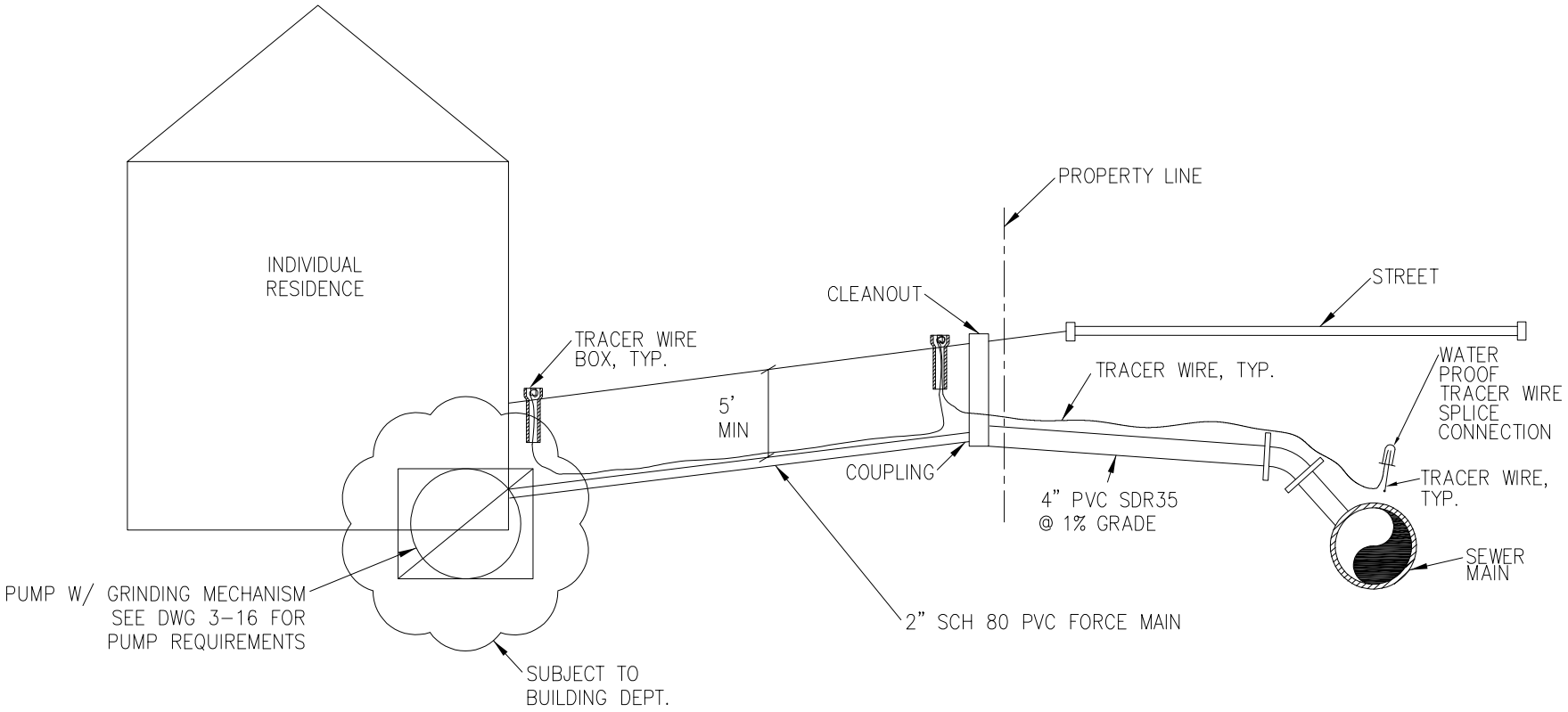
ROXBOROUGH WATER & SANITATION DISTRICT	
HINGED MANHOLE COVER	
DATE: JUNE 21, 2023	DRAWING NO. 3-14



SERVICE LINE STUBOUT MARKER DETAIL

NO SCALE

ROXBOROUGH WATER & SANITATION DISTRICT	
SERVICE LINE STUBOUT MARKER DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 3-15



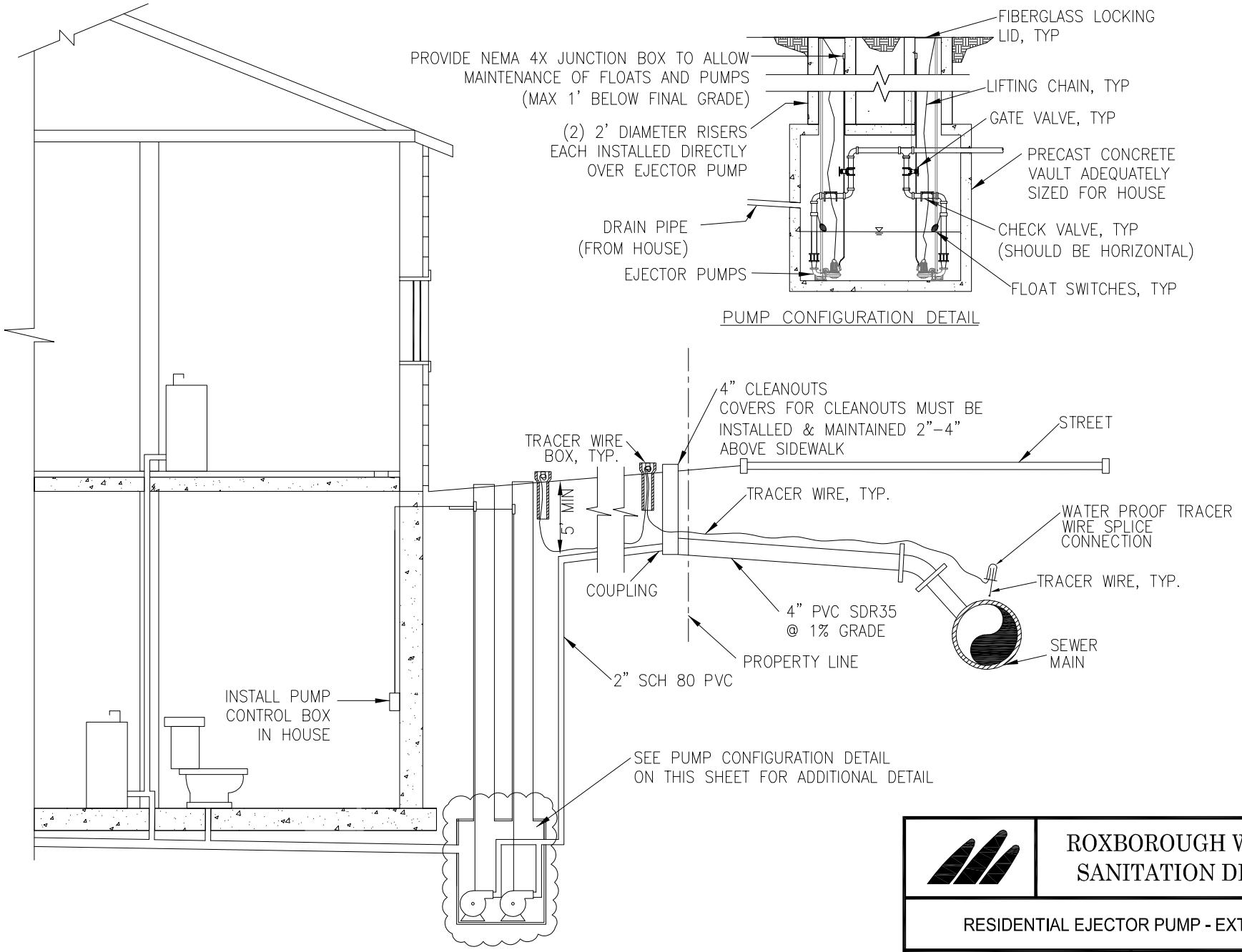
NOTES:

1. PROVIDE FORCE MAIN CLEAN OUT WITH TEE AND THREADED CAP INSTALLED AT MINIMUM 75 FOOT INTERVALS TO ALLOW RODDING/CLEANING OF FORCE MAIN.
2. PROVIDE IN LINE UNIONS INSIDE RESIDENCE TO PROVIDE ACCESS FOR RODDING/CLEANING

ROXBOROUGH WATER & SANITATION DISTRICT

WHOLE HOUSE SEWER SERVICE FORCE MAIN

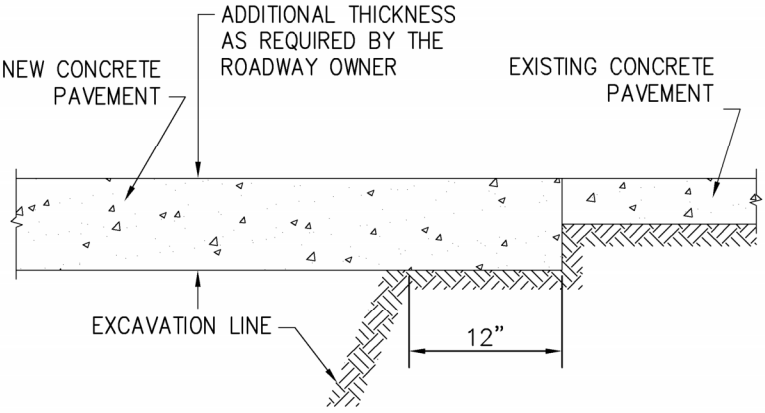
DATE:	DRAWING NO.
JUNE 21, 2023	3-17



ROXBOROUGH WATER & SANITATION DISTRICT

RESIDENTIAL EJECTOR PUMP - EXTERIOR

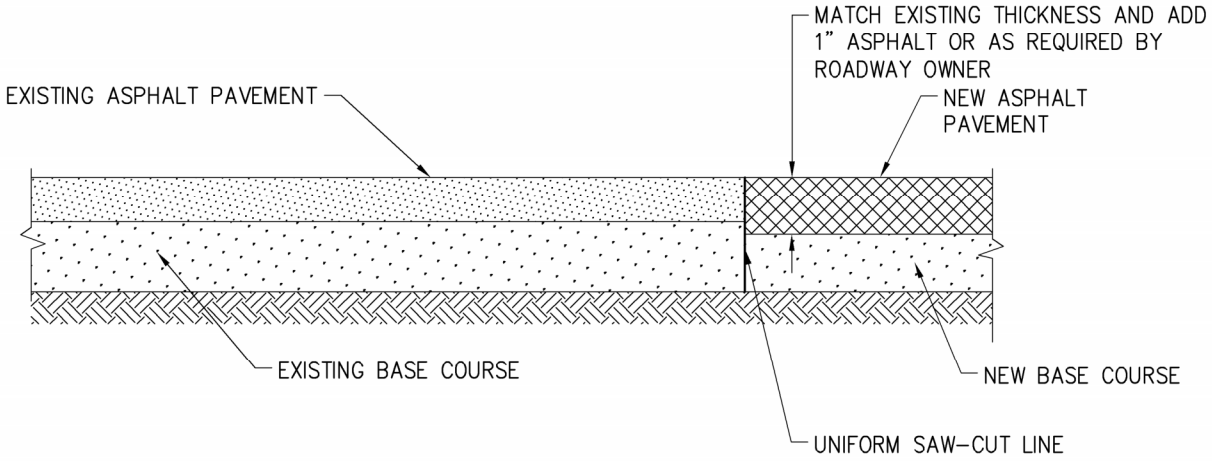
DATE:	DRAWING NO.
JUNE 21, 2023	3-18



NOTE:

WHERE EXISTING PAVEMENT CONTAINS REINFORCING, THE REPLACEMENT SHALL BE REINFORCED AND DOWELED TO MATCH EXISTING REINFORCEMENT.

PORTLAND CEMENT CONCRETE PAVEMENT



ASPHALTIC CONCRETE PAVEMENT

	ROXBOROUGH WATER & SANITATION DISTRICT
PAVEMENT REPLACEMENT DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 4-2