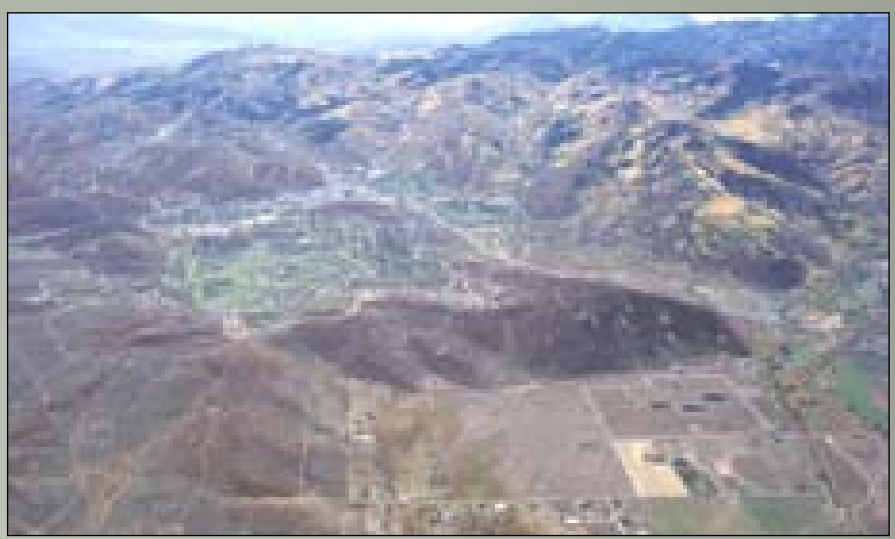


Development Procedures Design Standards and Construction Specifications

for

Wastewater Facilities

in the

Snyderville Basin Water Reclamation District

April 19, 2004

Snyderville Basin Water Reclamation District
2800 Homestead Road – Park City, Utah 84098
www.sbwrd.org


Morgan
Salt Lake
Morgan
Summit
District
Boundary
To Evanston, WY
East Canyon
Water Reclamation
Facility
W R F
80
To Salt Lake City
East Canyon Creek
Silver Creek
80
Silver Creek
Water Reclamation
Facility
W R F
Summit
Salt Lake
Utah Olympic Park
East Canyon Trunk
Kimball Creek
Silver Creek Trunk
40
224
Old Ranch Rd
The Canyons Resort
McLeod Cr
Park
City
To
Kamas
248
Silver Creek
Park City
Mountain Resort
To Heber
Thaynes Canyon
Deer Valley Resort
Summit
Wasatch
SNYDERVILLE BASIN
WATER RECLAMATION DISTRICT
N
0
1
2
Miles

DEVELOPMENT PROCEDURES, DESIGN STANDARDS
and
CONSTRUCTION SPECIFICATIONS

for

WASTEWATER FACILITIES

in the
SNYDERVILLE BASIN
WATER RECLAMATION DISTRICT

April 19, 2004

Adopted by the
Snyderville Basin Water Reclamation District
Board of Trustees

This document supercedes all Development Procedures, Design Standards and Construction Specifications previously established or approved by Snyderville Basin Water Reclamation District.

Jan Wilking, Chair
Board of Trustees

TABLE OF CONTENTS

CHAPTER 1
GENERAL REQUIREMENTS AND POLICIES

CHAPTER 2
DEVELOPMENT PROCEDURES

CHAPTER 3
DESIGN REQUIREMENTS

CHAPTER 4
MATERIAL REQUIREMENTS

CHAPTER 5
CONSTRUCTION REQUIREMENTS

APPENDIX A
FORMS FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

Line Extension Agreement For Public Wastewater System (LEA)
Improvement Completion Agreement
Surety Bond
Agreement for Off-road Public Wastewater Lines
Agreement for Low Pressure Sewer System
Grant of Easement
Grant of Easement and Access Easement
Wastewater System Test Results

APPENDIX B
FORMS FOR PRIVATE LATERAL WASTEWATER CONNECTIONS TO THE PUBLIC WASTEWATER SYSTEM

Wastewater Service Application Forms
- Impact Fee Calculation
- Wastewater Service Application
- Private Lateral Construction Information
- Private Lateral Wastewater Line Detail
- Authorization to Use
- Wastewater Calculation Non-Residential Only

Industrial Waste and Pretreatment Questionnaire
Notice of Conditions
Grant of Easement for Private Lateral Wastewater Line (Example)
Request for Collection System Location and/or Excavation Marking

APPENDIX C
STANDARD DETAIL DRAWINGS

Manhole Details
- MH-01 Precast Manhole With Precast Base
- MH-02 Shallow Manhole
- MH-03 Inside Drop Manhole
- MH-04 Pressure Line Connection to Manhole
- MH-05 Pipe-Manhole Connection (Pipe Slopes Greater than 10%)
- MH-06 Cast-In-Place Manhole Base
- MH-07 Manhole Adjustment Within Asphalt Pavement
- MH-08 Manhole Adjustment Within Concrete Pavement
- MH-09 Manhole Adjustment with Whirlygig® Cast-In-Place Riser
- MH-10 Off-Road Manhole Collar
- MH-11 Manhole Platform

Pipe Details
- PI-01 Pipe Trench
- PI-02 Off-Road Sewerline Trench
- PI-03 Trench Dike
- PI-04 Pipe Anchor

Low Pressure Sewer System Details
- LP-01 Low Pressure Flushing Connection
- LP-02 Dead End Low Pressure Flushing Connection
- LP-03 Low Pressure Combination Air Valve
- LP-04 Low Pressure Private Lateral Stub
- LP-05 Low Pressure Lateral Stub to Building Connection

Private Lateral Wastewater Line Details
- LAT-01 Private Lateral Stub - Gravity Flow PVC Main Line to PVC Lateral Line
- LAT-02 Private Lateral Stub - Gravity Flow HDPE Main Line to PVC Lateral Line
- LAT-03 Private Lateral Stub - Gravity Flow HDPE Main Line to HDPE Lateral Line
- LAT-04 Lateral Connection to Existing Sewer Main
- LAT-05 Gravity Lateral Stub to Gravity Building Connection
- LAT-06 Sanitary Sewer Pressure Line to Gravity Line Connection
- LAT-07 Sanitary Sewer Cleanout and Protective Box

Pretreatment Details
- PT-01 Grease Interceptor
- PT-02 Sampling Manhole Precast Base

CHAPTER 1
GENERAL REQUIREMENTS AND POLICIES

SECTION 101
GENERAL REQUIREMENTS

101.1 Title

A. These regulations shall be known as *Development Procedures, Design Standards and Construction Specifications for Wastewater Facilities in the Snyderville Basin Water Reclamation District (SBWRD Standards).*

101.2 Scope

A. The provisions of these regulations shall apply to the development, design, and construction of any extension, replacement, relocation, modification, repair, abandonment, connection to and use of the public and private wastewater facilities within the Snyderville Basin Water Reclamation District (SBWRD).

101.3 Intent

A. The Board of Trustees of the SBWRD has established certain requirements for development approval and construction of wastewater facilities in the SBWRD through adoption of these SBWRD Standards and other resolutions and policies.

B. These regulations establish procedures and provide minimum standards and specifications to control and regulate the development, design, construction and use of wastewater facilities in the SBWRD.

101.4 Deviations

A. The SBWRD does not intend these standards and specifications to replace professional judgement and competent workmanship on the part of the Project Engineer or Contractor.

B. Proposed designs, materials or construction methods deviating from these regulations shall be submitted to the SBWRD for review. The submittal shall include additional data, computations, exhibits, etc., as required by the SBWRD.

C. Written approval by the SBWRD authorizing a deviation from these regulations shall be received prior to incorporating the design, material or construction method deviation into a project.

101.5 Abbreviations

A. AASHTO: American Association of State Highway and Transportation Officials.

B. ANSI: American National Standards Institute.

C. ASTM: American Society for Testing and Materials.

D. AWWA: American Water Works Association.

E. IPC: International Plumbing Code.

F. SBWRD: Snyderville Basin Water Reclamation District.

101.6 Definitions

A. Approved Construction Drawings: Final design drawings approved, stamped, and signed by the SBWRD. This includes modifications to final design drawings approved by the SBWRD after Final Design Approval is given.

B. Authorization To Use: An approval granted by the SBWRD for occupancy of a residence, building or other facility after acceptance of the Public Wastewater System; connection, inspection, and approval of the Private Lateral Wastewater Line; and receipt of all required fees and forms. The Authorization To Use is required by the Summit County and Park City Building Departments prior to issuance of Certificate of Occupancy/Compliance.

C. Board of Trustees: The governing body of the SBWRD.

D. Building Permit: A permit issued by the Summit County or Park City Building Departments to individual lot or unit owners which authorizes construction of a residence, building or other facility to begin.

E. Certificate of Occupancy/Compliance: A certificate issued by the Summit County or Park City Building Departments to individual lot or unit owners certifying the residence, building or other facility (based on on-site inspections by the Building Inspector) has been constructed in full compliance with all representations made and conditions imposed on its approval.

F. Common Private Lateral Wastewater Line: A private lateral which is designed and constructed to serve more than one individual unit.

G. Contractor: The company or firm and its employees hired by the Developer to construct the extension or modification of the Public Wastewater System or by the homeowner or building owner to construct the Private Lateral Wastewater Line.

H. Developer: The owner, builder, or person sponsoring the construction of the project requiring extension or modification of the Public Wastewater System. The Applicant as established by the LEA.

I. Engineering Services Fees. Fees paid to the SBWRD by the Developer to compensate the SBWRD for its time, effort and expense for design reviews, general project coordination and construction inspection of extension or modification of the Public Wastewater System required for the Developer's project.

J. Final Project Approval: Formal approval given by the Board of Trustees of the completed construction

and related requirements of the Public Wastewater System improvements of the development.

K. Impact Fees: Fees paid to the SBWRD by a homeowner, building owner or facility owner to allow connection to and reserve capacity in the Public Wastewater System in accordance with the SBWRD Impact Fees Policy.

L. Improvement Completion Agreement: An agreement between the Developer of the land proposed to be developed and the SBWRD guaranteeing that all wastewater system improvements will be fully and completely constructed as represented by means of a form of security including a letter of credit, escrow fund, security bond or cash deposit in an amount and form satisfactory to the SBWRD.

M. Industrial Waste And Pretreatment Questionnaire: A questionnaire submitted by a commercial or industrial building or facility owner which provides information regarding the operation or activities that will be conducted in that building or facility. The information will be used by the SBWRD to determine what pretreatment requirements will be required prior to discharging wastewater from the building or facility to the Public Wastewater System.

N. LEA Application Fee: Fees paid to the SBWRD by the Developer at time LEA is submitted for processing the LEA.

O. Line Extension Agreement For Public Wastewater System (LEA): A contract between the Developer of a proposed project and the SBWRD for the design and construction of extensions or modifications to the Public Wastewater System required to provide wastewater service to the project.

P. Low Pressure Sewer System (LPSS): A wastewater collection and conveyance system consisting of Private Lateral Low Pressure Wastewater Lines and Public Low Pressure Wastewater Lines.

Q. Nonresidential Wastewater: All wastewater that is not domestically generated wastewater, or normal strength wastewater, as defined in the SBWRD "Resolution Fixing and Prescribing a Schedule of Charges and Fees for Sewer Services." Nonresidential wastewater has total suspended solids (TSS) concentration greater than 250 mg/l (milligrams per liter), 5-day biochemical oxygen demand (BOD) concentration greater than 200 mg/l, or oil and grease concentration greater than 100 mg/l.

R. Off-road Public Wastewater Line: Any section of the Public Wastewater System (manhole to manhole) which is not located in a paved and maintained public or private street or road, and which has manholes further than 10 feet from the back of curb or edge of asphalt. Also included is any Public Wastewater Line that is located such that it is not accessible by SBWRD maintenance equipment.

S. Off-road Public Wastewater Line Agreement: A contract between a Developer and the SBWRD which establishes the responsibilities of each party regarding Off-Road Public Wastewater Lines.

T. Private Lateral Low Pressure Wastewater Line: That portion of the Low Pressure Wastewater System not owned or operated by the SBWRD including a gravity wastewater service line from the building to a grinder pump installation, a grinder pump installation, a pressure discharge line with associated valving from the grinder pump installation to the Public Low Pressure Wastewater Line and the connection of the pressure discharge line to the Public Low Pressure Wastewater Line.

U. Private Lateral Wastewater Line: The wastewater line and appurtenances which provide the connection between a building in which plumbing fixtures are installed and the Public Wastewater System. The Private Lateral Wastewater Line shall include ejector pumps and appurtenances located outside of buildings, grease, oil, and sand interceptors and sampling manholes, if required for the building. For the purposes of these regulations, the Private Lateral Wastewater Line begins 30 inches outside the building and includes the connection to the Public Wastewater System collection line. Lateral stubs installed with the Public Wastewater System construction are part of the Private Lateral Wastewater Line.

V. Private Wastewater System: That portion of the wastewater system not owned, or operated by the SBWRD. This shall include but not be limited to Private Lateral Wastewater Lines, Private Lateral Low Pressure Wastewater Lines, gravity wastewater lines less than 8-inches in diameter, and private "ejector" pumps.

W. Project Engineer: The company or firm and its employees hired by the Developer to provide the design of the project.

X. Project Manager: The person or persons hired by the Developer to provide project management for the project.

Y. Project Surveyor: The company or firm and its employees hired by the Developer to provide the construction staking and record drawing survey for the project.

Z. Public Low Pressure Wastewater Line: That portion of the Low Pressure Sewer System owned and operated by the SBWRD and consisting of low pressure wastewater main lines located within dedicated public roadways or easements, low pressure flushing connections, the connection of the low pressure wastewater main line to the gravity Public Wastewater System and other associated

facilities.

AA. Public Wastewater Line: That portion of the wastewater collection system owned and operated by the SBWRD and located within dedicated public roadways or within easements granted to the SBWRD across private roadways or other private property . This shall include public gravity flow wastewater lines 8 inches or larger, manholes, Public Low Pressure Wastewater Lines and appurtenances, and force mains from wastewater pump stations. Some existing public gravity flow wastewater lines are 6 inch diameter.

BB. Public Wastewater System: Public wastewater lines, public wastewater pump stations, force mains, and water reclamation facilities, accepted by the SBWRD.

CC. Reimbursable Costs: Costs determined by the Board of Trustees to be paid to the Developer of a project in which wastewater improvements are installed which would not normally be required to be installed at the Developer's expense or not necessary to provide wastewater service to that project according to these regulations.

DD. Residential Equivalent (RE): A unit of measurement used to equate wastewater flow from a building or facility to a typical three bedroom single family residence. The assumed wastewater flow from one Residential Equivalent unit equals 320 gallons per day.

EE. SBWRD District Engineer: The individual employed by the SBWRD responsible for the coordination of development within the SBWRD, or his designated representative.

FF. SBWRD Inspector: The person assigned by the SBWRD to make inspections of Public Wastewater System extensions or modifications and Private Lateral Wastewater Lines.

GG. "Shall"/"Should": Where the term "shall" is used, it is intended to mean mandatory requirement. Other terms such as "should" and "recommend" indicate discretionary use.

HH. Substantial Completion Date: The date when the Public Wastewater System improvements in a Project are sufficiently complete to be utilized for wastewater service as determined by the SBWRD. The wastewater system improvements shall remain the property of the developer with respect to ownership, maintenance, and repair or replacement until Final Project Approval is granted.

II. Warranty Period: The period of time following Final Project Approval during which the Developer and Contractor remain responsible for problems with the Public Wastewater System improvements due to defects in material and workmanship.

JJ. Wastewater Service Application: An application submitted to the SBWRD by a homeowner, builder, building owner, facility owner or authorized agent to connect to and use the Public Wastewater System.

101.7 Referenced Codes and Standards

A. When reference is made to a Standard Specification (ASTM, International Plumbing Code, Park City Standards, Summit County Standards, etc.), the specification referenced shall be understood to mean the latest revision of said specification.

B. When not directly applicable to certain aspects of wastewater system construction projects, the referenced standard specifications may be modified or deleted by appropriate notation on the Approved Construction Drawings.

101.8 Indemnification of SBWRD

A. The SBWRD, its employees, officers, independent contractors, and agents shall be indemnified and held harmless from all claims resulting from the design, construction, inspection and operation of the new wastewater facilities which arise prior to Final Project Approval and acceptance of the wastewater improvement facilities by the SBWRD.

B. Public liability and property damage insurance shall meet the requirements contained in the LEA in Appendix A.

101.9 Contractor Licensing Requirements

A. Contractors performing construction on the wastewater system within SBWRD shall possess all licenses required by local and state rules and regulations.

B. As a minimum Contractors shall possess a valid Utah Contractor's License and shall be licensed and insured to perform wastewater system construction in accordance with state law.

SECTION 102
POLICIES

102.1 Access to Public Wastewater System

A. The design and construction of extensions or modifications of the Public Wastewater System for all new developments shall provide a Public Wastewater Line adjacent to all lots or parcels within each developed property for connection of Private Lateral Wastewater Lines.

B. A Private Lateral Wastewater Line serving a lot or parcel shall not cross another lot or parcel to access the Public Wastewater System.

C. Private Lateral Wastewater Lines may cross platted common areas, and platted private roads within the same platted development, if the development dedication plat specifically dedicates these areas for private utilities and the Homeowners Association that controls those common areas and private roads is responsible for ownership and maintenance of the Private Lateral Wastewater Lines.

D. A Private Lateral Wastewater Line shall not extend into a public right-of-way for a distance greater than the record width of the street, alley or public right-of-way to access the Public Wastewater System.

E. To meet the requirements of this policy, individual ejector or grinder pumps, Low Pressure Sewer Systems, Off-road Public Wastewater Lines, or Public Wastewater Pump Stations may be required to serve some lots, parcels or projects.

102.2 Ranking of Method of Providing Public Wastewater Service

A. The method of providing public wastewater service to a development or to lots or parcels within a development shall comply with the following priority ranking order. A higher ranked method is preferable, and if feasible, will be required, over a lower ranked method.

1. Gravity flow public wastewater collection lines located in maintained public or private streets, roads or rights-of-ways with gravity flow or ejector pump pressure private laterals.
2. Low Pressure Sewer System with the public portion of the system located in maintained public or private streets, roads or rights-of-ways and low pressure sewer system private laterals.
3. Gravity flow public wastewater collection lines located in off-road areas with gravity flow or ejector pump pressure private laterals.
4. Low Pressure Sewer System with the public portion of the system located in off-road areas and low pressure sewer system private laterals.
5. Public Wastewater Pump Stations.

B. The proposed method of providing public wastewater service to each project or development shall require review and approval by the SBWRD.

102.3 Off-Road Public Wastewater Lines

A. All wastewater lines that are part of the Public Wastewater System, including gravity flow lines, low pressure sewer system lines, and pump station force mains, shall be located in maintained public or private streets, roads or rights-of-way.

B. If local conditions prevent compliance with this policy, the SBWRD may allow Off-Road Public Wastewater Lines if the following requirements are met.

1. The Developer shall execute an Agreement for Off-Road Public Wastewater Lines in the form contained in Appendix A. The Agreement shall fully indemnify and hold harmless the SBWRD from all costs and damages which may arise due to stoppages and/or overflows in the Off-Road Public Wastewater Line for which the SBWRD is unable to respond due to limited access.
2. The Developer shall pay an Off-Road Public Wastewater Line Maintenance Fee. The amount of the Off-Road Public Wastewater Line Maintenance fee shall be according to the Agreement for Off-Road Public Wastewater Line in Appendix A.
3. The Off-Road lines shall meet the requirements of these SBWRD Standards.
4. A roadway platform meeting the requirements of the standard details in Appendix C shall be provided over the entire length of the Off-Road Public Wastewater Line.
   a. Turn-arounds with a minimum radius of 40' shall be provided at appropriate locations.
   b. If the slope of the surface over the length of the Off-Road Public Wastewater Line exceeds 15%, an alternate access road to each manhole or access and maintenance feature on the line, with a maximum slope of 15% shall be provided.
   c. Maximum grade transition of roadway platform and alternate access road shall be 10% in 50'.
   d. Access easements for all alternate access roads and turnarounds shall be granted to the SBWRD.
5. Revegetation and erosion protection of the off-road corridor shall be provided.
6. Construction operations and revegetation shall meet Summit County requirements for control of noxious weeds.
7. Additional design considerations may be required. These may include, but are not limited to:
   a. Increased pipe sizes and slopes.
   b. Increased 'drop' through manholes.
   c. Limited number of Off-Road line segments.
   d. Use of specific pipe materials, bedding, and construction techniques.

C. Agreements for Off-Road Public Wastewater Line shall be in place and all associated fees paid prior to Final Design Approval.

D. The Developer shall be solely responsible for revegetation and erosion protection of Off-Road Public Wastewater Line corridors for two years following Final Project Approval of the wastewater improvements. Additional Improvement Completion Agreement monies will be required for revegetation and erosion protection during the two year period and the Improvement Completion Agreement shall remain in place during that two year period.

102.4 Low Pressure Sewer Systems (LPSS)

A. Public Wastewater System design shall avoid Low Pressure Sewer Systems. The SBWRD permits the construction of Low Pressure Sewer Systems as part of the Public Wastewater System only under certain limited conditions.

B. The SBWRD will permit Low Pressure Sewer Systems to be used as part of the extension to the

Public Wastewater System only where, in the sole discretion of the SBWRD, the option of providing wastewater service by gravity flow main lines in roads, as described in Section 102.2, is not feasible.

C. If the use of a Low Pressure Sewer System is approved by the SBWRD the following requirements shall be met.
   1. The Developer and Homeowner's Association, or other entity approved by the SBWRD, shall execute an Agreement for Low Pressure Sewer Systems in the form contained in Appendix A.
   2. The Low Pressure Sewer System shall meet the requirements of these SBWRD Standards. The Agreement for Low Pressure Sewer System shall be in place prior to Final Design Approval.

102.5 Public Wastewater Pump Stations

A. Public Wastewater System design shall avoid wastewater pump stations. The SBWRD permits the construction of wastewater pump stations as part of the Public Wastewater System only under certain limited conditions.

B. The SBWRD will permit wastewater pump stations to be used in connection with extensions to the Public Wastewater System only where, in the sole discretion of the SBWRD, no physically feasible, financially reasonable, or legally achievable gravity flow collection system or low pressure sewer system can be constructed to avoid the use of the pump station.
   1. Financially reasonable is defined as the capital cost of a gravity flow or low pressure system with a cost equal to or less than an amount which is equal to three (3) times the total actual (not present value) twenty (20) year operating, maintenance and replacement costs of a pump station. All capital costs, including, but not limited to, designing and constructing a pump station are to be included in the above calculation. Cost estimates used for this evaluation shall be prepared by the Project Engineer and approved by the SBWRD.
   2. Legally achievable means the Developer has no property interest, and cannot acquire an interest in the necessary property, such as an easement, which will allow the applicant to dedicate an easement to the SBWRD for the proposed gravity flow or low pressure system.

C. Wastewater pump stations serving areas outside the natural East Canyon and Silver Creek drainage basins shall not be considered as a design alternative, unless the Developer agrees to pay to the SBWRD a sum equal to 20 years operating, replacement, and repair cost for the pump station.

D. Wastewater pump stations shall be designed and constructed according to these SBWRD Standards Equipment and material which minimize operational costs and other replacement and repair expenses to the SBWRD in the future shall be used.

102.6 Common Private Lateral Wastewater Lines

A. Each residence, building or other facility shall connect to the Public Wastewater System by way of a separate Private Lateral Wastewater Line.

B. The SBWRD will permit a Common Lateral Wastewater Line only under the following conditions.
   1. Multiple buildings (main house, guest house, barn, etc.) located on the same residential lot.
   2. Stacked units where the upper unit(s) has no direct access to a separate Private Lateral wastewater Line.
   3. Individual units that are not stacked provided the following conditions are met.
      a. A separate Private Lateral Wastewater Line to each unit is not feasible.
      b. Laterals shall be located within platted common areas. Dedicated common areas such as crawl spaces, underground parking garages, common yard areas, etc., are acceptable locations.
      c. Limited to projects which are to be platted as condominium developments. The use of Common Lateral Wastewater Lines for projects other than condominium developments, but which meet all Common Lateral Wastewater Line criteria, is subject to the approval of the SBWRD.

C. Grease interceptors shall not be placed on common laterals. All facilities or businesses requiring a grease interceptor shall have a separate grease interceptor.

D. A special notation will be required on the development recordation plat, except for multiple buildings located on the same residential lot. This notation shall read as follows, unless otherwise approved or required by the SBWRD:

> "The units of this (condominium, building, development) are served by a Common Private Lateral Wastewater Line. The (Name of Project) (Homeowner's, Condominium, Building) Association shall be responsible for ownership, operation and maintenance of all Common Private Lateral Wastewater Lines."

E. If re-platting of a lot or development which has been approved with a Common Private Lateral Wastewater Line is proposed, and the re-platting would cause the private laterals serving the lot or development to not be in compliance with this Common Private Lateral Wastewater Line policy, then modifications to the common private lateral(s) serving the lot or development to conform to this policy or, if approved by the SBWRD, revised plat notes addressing

responsibility for ownership, operation and maintenance of the Common Private Lateral Wastewater Line will be required.

F. Common Lateral Wastewater Lines shall have a nominal inside diameter of 6 inches unless the Common Lateral Wastewater Line serves multiple buildings on the same residential lot, in which case a nominal inside diameter of 4 inches may be used. When the cumulative flowrates of buildings or unit grouping requires a wastewater lateral to be sized in excess of 6 inch diameter, a Public Wastewater Collection Line shall be provided in accordance with these SBWRD Standards.

G. Manholes are not allowed to be installed on Common Lateral Wastewater Lines.

H. The connection of Common Lateral Wastewater Lines to the Public Wastewater Collection System shall be as follows:

1. Connect to an existing or proposed manhole. (SBWRD preferred location)
2. Connect to a proposed Public Wastewater Collection Line with an approved lateral connection.
3. Connect to an existing Public Wastewater Collection Line with an approved lateral connection. Connection to an existing Public Wastewater Collection Line is subject to review of the condition of the existing collection line by the SBWRD.

CHAPTER 2
DEVELOPMENT PROCEDURES

SECTION 201
GENERAL

201.1 Minimum Requirements

A. The procedures contained in this Chapter include the minimum requirements necessary for developing wastewater facilities in the SBWRD.

B. Additional meetings, submittals, reviews, etc., may be necessary during the development process as determined by the SBWRD.

201.2 Early Contact with the SBWRD

A. Developers are encouraged to contact the SBWRD early in the development process for all projects in the SBWRD.

B. Because of the historic nature and varied terrain of Park City and surrounding areas, public wastewater service in some areas may be unavailable or limited.

201.3 Submittal Schedules

A. It is the responsibility of the Developer, homeowner, builder, building owner or facility owner to coordinate all requests and submittals to meet the schedules listed in the following procedures.

B. These deadlines should be considered as such, but depending upon the current workload of the SBWRD, submittals which are received just prior to these deadlines may not receive reviews in time to meet desired schedules.

C. The Developer should consider adequate review time by the SBWRD in all requests and submittals.

SECTION 202
PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

202.1 Applicability

A. The development procedures contained in Section 202 shall apply to the extension or modification of the Public Wastewater System and shall be used when extension or modification of the Public Wastewater System is necessary to provide wastewater service to a project.

B. The procedure to connect individual buildings or facilities to the Public Wastewater System through a Private Lateral Wastewater Line is a separate and distinct procedure and shall follow the requirements contained in Section 203.

202.2 LEA Required

A. Approval to design and construct new wastewater facilities intended to become part of the Public Wastewater System or certain Private Wastewater Systems proposed to be connected to the existing Public Wastewater System shall first be obtained from the Board of Trustees.

B. Approval is obtained by following the requirements of Section 202.

202.3 Service Provider Letter

A. The Summit County Planning Department and Park City Planning Department may require the Developer to obtain a Service Provider or Will Serve Letter from the SBWRD during the planning process to demonstrate that Public Wastewater Service is available to a Project.

B. The SBWRD will issue Service Provider letters only after the Initial Developer Meeting, as discussed in Section 202.4, has been held.

C. Service Provider Letters will state that the proposed Project is within the SBWRD boundaries and that the SBWRD can provide wastewater service to the Project provided the established procedures for obtaining said wastewater service are followed as outlined in appropriate sections of the Snyderville Basin or Park City Development Codes.

202.4 Initial Developer Meeting

A. Prior to submittal of an LEA the Developer and the Project Engineer shall meet with the SBWRD District Engineer to explain the proposed project.

B. The Developer shall provide the following information at this meeting:

1. Drawings and maps indicating the location, boundary and configuration of the proposed project.
2. The type of development being proposed.
3. The phasing of the proposed project.
4. The proposed number of Residential Equivalents.
5. The type of wastewater that will be generated by the project.
6. The proposed method of providing public wastewater service to the project.

C. The SBWRD District Engineer will explain the SBWRD development procedures, advise the Developer of the Board of Trustees meeting schedule and provide the Developer with a copy of these SBWRD Standards which include an LEA.

202.5 Acceptance of LEA

A. The Developer and Project Engineer shall become familiar with these SBWRD Standards and the LEA in Appendix A.

B. The Developer shall submit the following items to the

SBWRD a minimum of two weeks prior to a regularly-scheduled meeting of the Board of Trustees.

1. The completed LEA form.
2. LEA Application Fee and Engineering Services prepayment fee. The amount of these fees shall be according to the LEA form in Appendix A.
3. Preliminary wastewater master plan for development prepared according to the requirements of Section 302.2 in the form of AutoCad or compatible electronic files. Provide one paper copy.
4. Preliminary Title Report as of a date within 30 days of the date of submission to the SBWRD, for the property being developed and for all other properties where easements for proposed wastewater lines required to provide wastewater service to the project will be necessary.
5. Other information required by the SBWRD District Engineer which will allow for a complete evaluation of the application.

C. The SBWRD District Engineer will review the capacity of the existing Public Wastewater System to determine if the existing system has adequate capacity for the proposed development. Capacity issues will be addressed according to the LEA.

D. The SBWRD District Engineer will review the information submitted and provide comments or recommendations regarding the preliminary wastewater master plan and other information to the Developer and Project Engineer for incorporation into the drawings.

E. The SBWRD District Engineer will present the LEA with the preliminary master plan and other information to the Board of Trustees at a regularly scheduled Board meeting for consideration.

F. If the LEA is accepted by the Board of Trustees, the SBWRD will notify the Developer of this acceptance and provide a copy of the executed LEA. The SBWRD will retain the original in its files.

G. Approval of the LEA by the SBWRD authorizes the Developer to begin the design of the Public Wastewater System extension or modification.

202.6 Design

A. The Developer and the Project Engineer shall prepare preliminary design plans according to requirements of Chapter 3 and a preliminary plat or site plan according to the requirements of Section 204.

B. The Developer and the Project Engineer shall submit the following to the SBWRD District Engineer for review.

1. One copy of the wastewater master plan which includes any modifications resulting from preparation of the preliminary design plans.
2. One set of preliminary design plans.
3. One copy of the preliminary plat or, if applicable, the preliminary site plan.

C. The SBWRD District Engineer will review the wastewater master plan, preliminary design plans, and preliminary plat or site plan.

D. The SBWRD District Engineer will send a letter of review comments and the "red-lined" wastewater master plan, preliminary design drawings and preliminary plat or site plan to the Developer and/or the Project Engineer.

E. The Developer and the Project Engineer shall prepare final wastewater master plans and final design plans according to the requirements of Chapter 3 and a final plat or site plan according to the requirements of Section 204, make corrections and address issues contained in the preliminary design review letter and submit the following to the SBWRD District Engineer for review.

1. "Red-lined" wastewater master plan, preliminary design plans and preliminary plat or site plan.
2. One copy of the revised wastewater master plan.
3. One set of final design plans.
4. Copies of unsigned grant of easement documents, in an approved form, including descriptions and displays for all wastewater easements required for the project, and if not previously submitted, current Preliminary Title Report for all properties where easements are being granted.
5. One copy of the final plat or final site plan.
6. Any special agreements or permits required for construction of the project.
7. Other information required by the preliminary design review letter.

F. The SBWRD District Engineer will review the final wastewater master plan, final design plans, easement documents, plat and final site plan, and special agreements or permits and send a letter of review comments and "red-lined" final wastewater master plan and final design plans to the Developer and the Project Engineer.

G. The Developer and the Project Engineer shall make corrections or address issues contained in the final design review letter and submit the following to the SBWRD District Engineer for review and approval.

1. "Red-lined" final wastewater master plan, final design plans and final plat or site plan.
2. Four sets of revised full size(24"x36") final design plans.
3. One set of revised half-size (11"x17")final design plans.
4. Original executed approved grant of easement documents with descriptions and displays.
5. Final Title Report for the property being developed and for all other properties where easements are being granted. The date of the Final Title Report shall be within 30 days of the submittal.
6. Final plat or final site plan.

7. Executed special agreements or permits.
8. Construction cost estimate for proposed wastewater system improvements prepared in accordance with the requirements of Section 302.8.

H. The SBWRD District Engineer will review the cost estimate and send a letter to the Developer and the Project Engineer which establishes the Improvement Completion Agreement amount and the Engineering Services Fee amount in accordance with the requirements of the LEA.

I. The Developer shall pay the balance of Engineering Services Fees and, if requesting Plat or site plan approval at this time, establish an Improvement Completion Agreement according to the requirements of Section 205.

J. Upon satisfactory completion of all requirements for final design approval, payment of required Engineering Services Fees, and, if requesting Plat or site plan approval at this time, establishment of an Improvement Completion Agreement, the SBWRD District Engineer will stamp and sign the five sets of final design plans which become the Approved Construction Drawings.

K. Proposed modifications to the Approved Construction Drawings, plat or final site plan, shall be submitted in writing to the SBWRD District Engineer for review and approval prior to incorporation into the project.

202.7 Construction and Inspection

A. A Preconstruction Meeting shall be held according to the requirements of Section 501.2.

B. The Contractor shall construct the project according to the Approved Construction Drawings and the requirements of Chapter 4 and Chapter 5.

C. The SBWRD Inspector will conduct periodic inspections, preliminary inspection and final inspection of the project according to the requirements of Section 501.

D. Proposed modifications to the Approved Construction Drawings, plat or final site plan shall be submitted in writing to the SBWRD District Engineer for review and approval prior to incorporation into the project.

202.8 Substantial Completion

A. In special and limited circumstances, and at the discretion of the SBWRD, Substantial Completion of a project may be granted prior to Final Project Approval.

B. Substantial Completion is granted only when there is a need to issue an Authorization to Use for a building or facility as required in Section 203.2, prior to Final Project Approval and the SBWRD finds that the project can be placed into service while protecting the public health and safety.

C. The Developer shall request in writing that the SBWRD grant Substantial Completion. The request shall be submitted a minimum of two weeks prior to the regularly-scheduled meeting of the Board of Trustees where Substantial Completion Approval is being requested.
   1. The request shall include the specific units or lots for which Substantial Completion is needed
   2. The request shall state that the Developer assumes all responsibility for the wastewater system in the project with respect to ownership, maintenance, and repair or replacement, including all liability from blockages and associated property damage, until Final Project Approval is granted.

D. The following items require completion, submittal and/or approval by the SBWRD District Engineer prior to requesting Substantial Completion.
   1. Completion of all construction "punch list" items except adjusting manholes to final grade after the final lift of paving is installed.
   2. Installation of temporary plywood bottoms in all manholes which require adjustment to final grade.
   3. Submittal of passing acceptance test results as required by Section 515.
   4. Submittal of Record Drawings as required by Section 302.9.
   5. Submittal of Operation and Maintenance Manuals, if applicable, as required by Section 302.10.
   6. Submittal of all executed easements and special agreements required for the project.
   7. Payment of all Engineering Services Fees.
   8. Submittal of an Improvement Completion Agreement that covers all remaining work on the wastewater system improvements, if not previously established.
   9. Final Project Approval of the downstream Public Wastewater System by the SBWRD.

E. Upon completion of these items the SBWRD District Engineer will recommend Substantial Completion of the wastewater system improvements to the Board of Trustees.

F. Substantial Completion is granted by the Board of Trustees at a regularly-scheduled Board meeting.

G. The wastewater system improvements shall remain the responsibility of the Developer with respect to ownership, maintenance, and repair or replacement until Final Project Approval is granted.

202.9 Final Project Approval

A. The Developer shall request Final Project Approval of the completed wastewater system improvements. The request shall be submitted a minimum of two weeks prior to the regularly-scheduled meeting of the Board of Trustees where Final Project Approval is being requested.

B. The following items require completion, submittal,

and/or approval by the SBWRD District Engineer prior to requesting Final Project Approval.

1. Completion and approval of all final construction "punch list" items.
2. Submittal and approval of passing acceptance test results as required by Section 515.
3. Submittal and approval of Record Drawings as required by Section 302.9.
4. Submittal and approval of Operation and Maintenance Manuals, if applicable, as required by Section 302.10.
5. Submittal and approval of all executed easements and special agreements required for the project.
6. Payment of all Engineering Services Fees.
7. Submittal and approval of an Improvement Completion Agreement for the wastewater system improvements, if not previously established.
8. Final Project Approval of the downstream Public Wastewater System by the SBWRD.

C. Upon completion of these items the SBWRD District Engineer will recommend Final Project Approval of the wastewater system improvements to the Board of Trustees.

D. Final Project Approval of the wastewater system improvements is granted by the Board of Trustees at a regularly-scheduled Board meeting.

E. Final Project Approval of the wastewater system improvements results in the following.

1. The start of the warranty period.
2. The SBWRD accepts ownership, responsibility, and maintenance of the wastewater system improvements.
3. If previously established, the Improvement Completion Agreement amount may be reduced according to the requirements of Section 205.4.

202.10 Warranty Period

A. The warranty period for projects with no off-road wastewater lines shall extend to the later of one year from the date of Final Project Approval or the date when all warranty "punch list" items are completed and approved by the SBWRD.

B. If an off-road wastewater line is part of a project, the warranty period on that off-road portion shall extend to the later of two years from the date of Final Project Approval or the date when all warranty "punch list" items are completed and approved by the SBWRD.

C. During the warranty period the Developer shall remain responsible for problems due to defects in materials and workmanship (this also includes elimination of infiltration and inflow) and correcting incomplete or incorrect information on the Record Drawings.

D. The Improvement Completion Agreement shall remain in effect during the warranty period according to the requirements of Section 205.

E. Toward the end of the warranty period, the SBWRD will perform a project warranty inspection. A warranty inspection letter with a "punch list" of deficient items will be issued and sent to the Developer, the Project Engineer and the Contractor.

F. Upon satisfactory completion of the warranty inspection "punch list" items by the Developer, as verified by the SBWRD Inspector, and at the expiration of the warranty period, the SBWRD District Engineer will recommend to the Board of Trustees the release of the remaining amount in the Improvement Completion Agreement to the Developer according to the requirements of Section 205.

G. The Board of Trustees approves the release of the Improvement Completion Agreement at a regularly-scheduled board meeting.

SECTION 203
PRIVATE LATERAL WASTEWATER LINE CONNECTIONS TO THE PUBLIC WASTEWATER SYSTEM

203.1 Applicability

A. The development procedures contained in Section 203 shall apply to the actual connection of buildings and other facilities to the Public Wastewater System through a Private Lateral Wastewater Line. This procedure is separate and distinct from the procedure for Public Wastewater System Extensions and Modifications contained in Section 202.

B. Projects that require extension or modifications of the Public Wastewater System shall follow the procedures contained in Section 202 for those extensions and modifications and shall follow the procedures in Section 203 for the actual connection of the building or other facility to the Public Wastewater System.

C. Projects that require issuance by the SBWRD of a Service Provider or Will Serve letter shall follow the requirements of Section 202.3.

203.2 Wastewater Service Application and Authorization To Use Letter Required

A. Prior to connecting any residence, building or other facility to the Public Wastewater System, or prior to remodeling any existing residence, building or other facility that is connected to the Public Wastewater System, the homeowner, building owner, facility owner or authorized representative shall submit a Wastewater Service Application to the SBWRD and pay appropriate Application and Impact fees. Evidence of payment of fees to the SBWRD is required by the Summit County and Park City Building Departments prior to issuance of a Building Permit.

B. Prior to occupying any residence, building or facility

in the SBWRD, the homeowner, building owner, facility owner, or authorized representative shall acquire an Authorization To Use letter from the SBWRD. The Authorization To Use letter is required by the Summit County and Park City Building Departments prior to issuance of a Certificate of Occupancy/Compliance.

203.3 Approved Public Wastewater System

A. Prior to receiving an Authorization to Use letter from the SBWRD for any residence, building or other facility connecting to the Public Wastewater System, all portions of the Public Wastewater System downstream of the Private Lateral Wastewater Line connection shall have received Final Project Approval according to Section 202.9 or, in special circumstances, Substantial Completion according to Section 202.8.

B. In special limited circumstances and at the discretion of the SBWRD, the actual physical connection of the Private Lateral Wastewater Line to the Public Wastewater System may be allowed on a case by case basis prior to Final Project Approval or Substantial Completion of the downstream Public Wastewater System. The following information shall be submitted for evaluation by the SBWRD.
   1. The Developer shall request in writing that the SBWRD allow the connection.
      a. The request shall include the specific units or lots for which connection is needed.
      b. The request shall describe the current status of the Public Wastewater System extension or modification.
      c. The request shall describe the proposed schedule for completion of all items required for Final Project Approval of the Public Wastewater System extension or modification as outlined in Section 202.9.
      d. The request shall state that the Developer assumes all responsibility for connections to the Public Wastewater System in the project until Final Project Approval is granted.
   2. The homeowner, builder or authorized representative proposing to connect a Private Lateral Wastewater Line to the Public Wastewater System shall request in writing that the SBWRD allow the connection.
      a. The request shall include the lot requesting authorization to connect.
      b. The request shall describe the proposed schedule for completion of the home or building and the anticipated date when an Authorization to Use will be needed.
      c. The request shall state that the homeowner, builder or authorized representative acknowledges that the Public Wastewater System required to provide service to the home or building has not received Final Project Approval and that an Authorization to Use letter will not be issued by the SBWRD until the Developer has met the requirements for Final Project Approval or Substantial Completion.
   3. The SBWRD will evaluate the status of the downstream system and the information submitted and, if appropriate, allow the connection.
   4. The authorization to physically connect to the Public Wastewater System prior to Final Project Approval or Substantial Completion of the downstream Public Wastewater System will not constitute an Authorization to Use by the SBWRD.

203.4 Wastewater Service Application and Payment Of Fees For Single Family Residences

A. The homeowner, builder or authorized representative shall apply to the SBWRD for wastewater service by submitting the following information.
   1. Wastewater Service Application as contained in Appendix B.
   2. Floor plan of all levels of the proposed residence.
   3. Site plan indicating the following items.
      a. Property lines of the subject property and adjacent properties.
      b. Adjacent streets.
      c. Proposed location of the building on the property.
      d. Proposed driveways, retaining walls, landscaping, and other site features that may affect the routing and construction of the Private Lateral.
      e. Existing utility easements. Encroachment into these existing easements is not allowed.

B. Additional information may be required by the SBWRD for lots with non-typical Private Lateral installations. Non-typical installations include lots requiring ejector pumps, lots requiring long or complicated lateral routing and other similar installations. SBWRD will advise the applicant of the additional information required for review.

C. The SBWRD District Engineer and Accounting Department will review the information submitted and provide the following information to the homeowner, builder or authorized representative at the time Fees are paid. For typical Private Lateral installations this information will generally be available 24 hours (excluding weekends) after application is made. Additional time may be required during periods of high demand or if additional information from the homeowner, builder, or authorized representative is required.
   1. Impact Fees and Administration Fees as

determined by the Impact Fee Calculation form.

2. Notification if a floor plan check, after construction of the residence, is required.
3. Private Lateral construction specifications, details, and other applicable special conditions as contained in the Lateral Construction Information form. This information shall be provided to the contractor constructing the Private Lateral and the Contractor shall have this information on-site when lateral inspections occur.
4. Copies of available record information contained in SBWRD files that pertain to the Private Lateral connection for this lot. This information shall be provided to the contractor constructing the Private Lateral and the Contractor shall have this information on-site when lateral inspections occur.

D. The homeowner, builder, or authorized representative shall pay the Impact Fees and Administration Fees to the SBWRD.

E. The SBWRD will issue a receipt for payment of Impact Fees and Administration Fees. This receipt is required by the Summit County and Park City Building Departments prior to issuance of a Building Permit.

203.5 Wastewater Service Application And Payment of Fees For Duplexes, Condominiums, Hotels, Restaurants, Commercial Buildings, Industrial Facilities and Other Similar Facilities

A. The building or facility owner or authorized representative shall apply to the SBWRD for wastewater service by submitting the following information.
   1. Wastewater Service Application as contained in Appendix B. The Wastewater Service Application will be filled out by the SBWRD with information provided by the building or facility owner when the plans and other information discussed below are submitted.
   2. A copy of the Preliminary Site Plan and, if applicable, Preliminary Plat, for the project as required by Summit County or Park City. In addition to the information required by the City or County, the following information shall be included as part of the Preliminary Site Plan submittal to the SBWRD.
      a. Location of the existing Public Wastewater System collection line and, if applicable, the Private Lateral stub to which the Private Lateral will be connected. If this information is not known by the applicant, the SBWRD will provide copies of any available record information contained in its files.
      b. Proposed routing of the Private Lateral with proposed size, lengths, slopes, minimum depth of bury, etc..
      c. Sizing calculations of the Private Lateral for larger facilities.
      d. Proposed locations of bends and cleanouts.
      e. Proposed locations and sizing calculations of grease interceptors and sampling manholes, if required.
      f. Proposed method of connection of the Private Lateral to the Public Wastewater System (i.e., connect to existing Private Lateral stub, saddle connection on main line, etc.).
   3. Floor plan of all levels of the proposed building or facility.
   4. Plumbing plans for the building or facility.
   5. Industrial Waste and Pretreatment Questionnaire as contained in Appendix B.

B. The SBWRD District Engineer and Accounting Department will review the information submitted and send a letter of review comments to the building or facility owner.

C. The building or facility owner shall prepare and submit a Final Site Plan and, if applicable, Final Plat, according to Park City and Summit County requirements and include the corrections or address issues contained in the SBWRD review letter.

D. The SBWRD District Engineer and Accounting Department will review the Final Site Plan and, if applicable, Final Plat, and other information submitted.

E. The SBWRD will advise the building or facility owner concerning the Impact Fees and Administration Fees for the building or facility as determined by the Impact Fee Calculation form in Appendix B.

F. The building or facility owner shall pay the Impact Fees and Administration Fees.

G. Upon satisfactory completion of all requirements for Final Site Plan or Final Plat approval and payment of required Impact and Administration Fees, the SBWRD District Engineer will send a letter to the building or facility owner advising that the SBWRD is prepared to sign the Final Site Plan or Final Plat.

H. The building or facility owner shall submit the Final Site Plan or Final Plat original to the SBWRD District Engineer for signature. The signed Final Site Plan or Final Plat is required by the Summit County and Park City Building Departments prior to issuance of a Building Permit.

I. The building or facility owner shall provide a copy of the signed Final Site Plan to the contractor constructing the Private Lateral. The approved Final Site Plan shall be on-site when lateral inspections occur.

203.6 Construction and Inspection

A. The Contractor shall schedule inspections with the SBWRD Inspector and the SBWRD Inspector will conduct inspections of the Private Lateral according to the requirements of Section 502.
B. The Contractor shall construct the Private Lateral Wastewater Line according to the following.
   1. Information provided to the homeowner, builder, or authorized representative by the SBWRD at the time Fees are paid.
   2. Approved plans.
   3. The requirements of Chapter 4 and Chapter 5.

203.7 Notice of Conditions

A. Construction of Private Lateral Wastewater Lines shall be in accordance with SBWRD standards.
B. In situations where the construction of a Private Lateral Wastewater Line does not meet all SBWRD standards, the homeowner, building owner or facility owner shall correct the deficiencies. However, as allowed on a case by case basis by the SBWRD, and after evaluating the deficiencies, the homeowner, building owner or facility owner may choose to sign a Notice of Conditions form contained in Appendix B
   1. The Notice of Conditions identifies what the deficiencies are.
   2. The Notice of Conditions requires a notarized signature of the property owner or authorized agent that has signing authority from the property owner
   3. The Notice of Conditions is recorded against the property and will remain with the property in perpetuity.
   4. After recording, the Notice of Conditions is held in the SBWRD files.
C. In order to remove the Notice of Conditions at some later date, the deficiencies requiring the Notice of Conditions shall be corrected by the homeowner, building owner or facility owner. Repairs must be inspected and approved by the SBWRD.

203.8 Authorization to Use

A. The homeowner, builder, building owner, facility owner or authorized representative shall request that an Authorization to Use be issued.
B. The following items require completion, submittal, and/or approval by the SBWRD prior to requesting issuance of an Authorization to Use.
   1. Payment of Impact fees and Administration fees .
   2. Floor Plan Check by SBWRD, if required.
   3. Construction of the Private Lateral Wastewater Line to SBWRD standards as verified by the SBWRD Inspector or a Notice of Conditions is submitted in accordance with the requirements of Section 203.7.
   4. The Public Wastewater System to which the Private Lateral Wastewater Line connects has received approval in accordance with the requirements of Section 203.3.
C. Upon completion of these items the SBWRD District Engineer will sign the Authorization to Use form. The completed form will then be made available to the homeowner, builder, building owner or facility owner.

SECTION 204
PLAT AND FINAL SITE PLAN APPROVAL PROCEDURES

204.1 General

A. Summit County and Park City require review and approval by the SBWRD of all plats and final site plans for properties within the SBWRD boundary prior to approval of the plat or final site plan.
B. Approval of the plat or site plan by the SBWRD shall be evidenced by the signature of the SBWRD District Engineer on the SBWRD signature block.
C. Plats and final site plans shall meet the requirements of Section 302.5.

204.2 Plat and Site Plan Submittal and Review

A. The Developer, building owner or facility owner shall submit plats and site plans to the SBWRD for review in accordance with Park City or Summit County requirements.
B. If the project includes the extension or modification of the Public Wastewater System, the Developer, building owner or facility owner shall follow the procedures contained in Section 202.
C. If the project involves a Private Lateral Wastewater Line connection to the Public Wastewater System, the Developer, building owner or facility owner shall follow the procedures contained in Section 203.

204.3 Plat and Site Plan Approval

A. Final Plat Approval.
   1. The following items shall be completed, submitted and approved by the SBWRD District Engineer prior to requesting Final Plat approval.
      a. Final design approval, in accordance with Section 202.6 or, if applicable, final site plan approval, in accordance with Section 203.5.
      b. All Engineering Services Fees paid in accordance with the LEA.
      c. Off-road Public Wastewater System Maintenance Fee paid, if applicable.
      d. An Improvement Completion Agreement established in accordance with the requirements of Section 205.
B. Final Site Plan Approval.
   1. The following items shall be completed, submitted and approved by the SBWRD District Engineer prior to requesting Final Site Plan approval
      a. All items in Section 204.3.A.

b. Impact Fees and Administration Fees paid

SECTION 205
IMPROVEMENT COMPLETION AGREEMENT PROCEDURES

205.1 General

A. An Improvement Completion Agreement with the SBWRD shall be established by the Developer in accordance with the requirements of the LEA.
B. The Improvement Completion Agreement shall have the form as contained in Appendix A.
C. The Improvement Completion Agreement shall remain in effect from the time it is established through the Warranty Period.

205.2 When An Improvement Completion Agreement Is Established

A. An Improvement Completion Agreement shall be established on a project at the earliest occurrence of one of the following.
   1. Prior to Final Project Approval.
   2. Prior to Substantial Completion Approval.
   3. Prior to Plat Approval.
   4. Prior to Final Site Plan Approval, if approval of the Final Site Plan for the project is requested prior to Final Project Approval and an extension or modification of the Public Wastewater System is required to provide wastewater service to the project.
   5. Prior to acceptance by the SBWRD of Impact Fees for any building or facility located in the Project if a building permit from Park City Municipal Corporation or Summit County is requested by the Developer or other builder prior to Final Project Approval and an extension or modification of the Public Wastewater System is required to provide wastewater service to the project.
B. If a project includes an extension or modification to the Public Wastewater System and the modification will impact the ability of the SBWRD to provide wastewater service to existing system users, as determined by the SBWRD in its sole discretion, the Improvement Completion Agreement shall be established prior to Final Design Approval.

205.3 Improvement Completion Agreement

A. The initial Improvement Completion Agreement amount shall be 125% of the estimated construction cost of the extensions or modifications of the Public Wastewater System required for the Project.
B. The total estimated construction cost for the wastewater system improvements shall be determined by the SBWRD District Engineer after reviewing an estimate of construction costs prepared by the Project Engineer according to the requirements of Section 202.6.
C. If the project has been partially completed prior to the establishment of the Improvement Completion Agreement, the status of construction will be reviewed and the Improvement Completion Agreement amount established accordingly.

205.4 Release of Improvement Completion Agreement Funds

A. Release of Improvement Completion Agreement funds shall be in accordance with the requirements of the Improvement Completion Agreement.
B. The Developer shall submit a written request to the SBWRD District Engineer for release of the Improvement Completion Agreement funds. The request shall include a summary of the project status prepared by the Project Engineer. The request shall be submitted a minimum 2 weeks prior to a regularly scheduled Board meeting.
C. The SBWRD District Engineer will review the request for release and, if appropriate, recommend the release amount to the SBWRD Board of Trustees at a regularly-scheduled Board of Trustees meeting. The release amount is based on the requirements of the Improvement Completion Agreement.
D. The SBWRD Board of Trustees approves the Improvement Completion Agreement release at a regularly-scheduled Board meeting.

CHAPTER 3
DESIGN REQUIREMENTS

SECTION 301
GENERAL

301.1 Minimum Requirements

A. The design requirements contained in this Chapter include the minimum requirements necessary for the design of wastewater facilities in the SBWRD.

B. Proposed designs deviating from these regulations will be reviewed by the SBWRD on a case by case basis upon the submittal by the Project Engineer of any additional data, computations, exhibits, etc., as required by the SBWRD.

301.2 Prohibited Waste Discharges

A. Wastewater systems shall be designed to exclude wastes prohibited from being discharged to the Public Wastewater System and clear water connections as defined in the most recently adopted SBWRD *Resolution Fixing and Prescribing the Procedure for Determining Equitable Charges and Fees and Adopting Procedures for the Provision of Wastewater Services Provided by Snyderville Basin Water Reclamation District, Summit and Wasatch Counties, Utah, and Providing Certain Prohibitions*, which is on file at the SBWRD.

SECTION 302
SUBMITTAL REQUIREMENTS FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

302.1 Description

A. The design of Public Wastewater System extensions or modifications shall include the submittals and required information described in this Section. The procedures for submitting the information and receiving approval are contained in Section 202.

302.2 Wastewater Master Plan

A. A wastewater master plan shall be submitted for all proposed projects.

B. The wastewater master plan shall consist of drawings, calculations, tables, etc. that adequately describe and document the location, routing, and sizing of the proposed wastewater system for the project.

C. The wastewater master plan shall include the following information.
   1. The location of the development within the SBWRD.
   2. The boundary of the proposed project.
   3. The type of development.
   4. Other properties, outside of the proposed development, that would require wastewater service through the proposed development.
   5. The configuration of the proposed development with roads, lots, proposed buildings, etc. shown.
   6. The number of lots, units, or rooms; commercial area, restaurants and other similar facilities; industrial area; and all other proposed facilities and areas that will contribute wastewater flows to the wastewater system.
   7. The estimated residential equivalents (REs) associated with the various uses within the proposed development.
   8. A conceptual layout of the wastewater system required to provide wastewater service to each lot or facility of the proposed development.
   9. Capacity requirements and size of the wastewater system features.
   10. Location of the proposed connection to the Public Wastewater System.

D. On smaller projects without multiple phases, the required wastewater master plan information can be included on the overall wastewater system plan required as part of the final wastewater system design.

E. Wastewater master plans submitted to the SBWRD shall be 24"x36" in size.

302.3 Preliminary Wastewater System Design

A. The preliminary wastewater system design shall meet the requirements contained in Section 303.

B. The preliminary wastewater system design shall include the following items.
   1. Site Location Map. The proposed project shown on a vicinity map indicating adjacent streets, projects, etc. The township, range, and section shall be indicated.
   2. Topographic Map. A topographic map of the area to be provided with wastewater service. This information may be included on the wastewater system layout plan.
   3. Wastewater System Layout. Plan of the proposed project indicating the following items with appropriate labeling:
      a. The proposed location for connection of the proposed wastewater system improvements to the existing SBWRD wastewater collection system. SBWRD manhole numbering shall be included.
      b. Location of the proposed wastewater system improvements in relation to streets, property lines, lots, other existing and proposed utilities, etc.
      c. Proposed public wastewater collection lines and manholes, private laterals, and other wastewater system features.

d. Lots or proposed facilities that may require ejector pumps for wastewater service, if applicable.

4. Proposed Low Pressure Sewer System facilities, if applicable, with appropriate design calculations.
5. Proposed wastewater pump stations, force mains and appurtenances, if applicable, with appropriate design calculations.
6. Estimated maximum number of units to be serviced by the proposed system and the estimated peak and average wastewater flows anticipated to come from the proposed project, as defined in Section 303.1.

C. Preliminary Design plans submitted to the SBWRD shall be 24"x36" in size.

302.4 Final Wastewater System Design

A. The final wastewater system design shall meet the requirements contained in Section 303, and review comments from the preliminary design review.
B. The final wastewater system design drawings shall include the following items:
1. Title Page.
a. Project Name.
b. Owner/Developer Name.
c. Project Engineer Name.
d. State of Utah Professional Engineer's Stamp and Signature.
e. Location map showing township, range and section and surrounding area of project.
f. Construction site identified as "project."
g. Sheet Index.
h. Construction notes including the following.
1. Note stating that the construction of the wastewater system improvements shall conform with the *SBWRD Development Procedures, Design Standards and Construction Specifications*.
2. Benchmark elevation.
3. Basis of bearing for wastewater system (ties to plat and/or Section Line) or coordinate system.
i. Date.
2. Index Sheet: Plan view of the entire development or phase of development indicating the areas and wastewater lines shown on each plan and profile drawing. This information may be shown on the Overall Wastewater System Plan.
3. Overall Wastewater System Plan: Plan view of entire development or phase of development indicating the following.
a. Scale and North arrow. Scale shall not exceed 1" = 500'.
b. Streets, lots or parcels, and proposed buildings indicated and labeled or numbered. The lot or parcel numbering system shall be consistent throughout the project.
c. Existing and proposed Public Wastewater System indicating with labeling: manhole location, size, stationing, and numbering (existing manholes referenced with the SBWRD manhole number); pipe size; pipe type; and stubs.
d. Private Lateral Wastewater Lines to all parcels or building units shown and labeled.
e. This plan may be an overall utilities plan.
f. The information shown on this plan shall be consistent with the information shown on the plan and profile drawings.
g. If the entire project can be shown on one plan and profile drawing as described below, an overall wastewater system plan will not be required.
4. Plan and Profile Drawings (Plan and Profile shall be shown on the same sheet) - Plan View.
a. Scale and North arrow. Scale shall not exceed 1" = 40'.
b. Street names.
c. Right-of-way lines and widths.
d. Parcel or lot lines.
e. Lots or buildings numbered. This numbering system shall be consistent throughout the project.
f. Existing and final contours.
g. Existing and proposed Public Wastewater System indicating: pipe size, length (centerline of manhole to centerline of manhole) and material; deflection angles of wastewater lines at manholes or bearings of lines; curve information if curvilinear alignment; manhole size, type and numbering; existing manholes referenced with the SBWRD manhole number; and wastewater stubs with size, slope, length, deflection angle or bearing, and pipe material; wastewater pump stations, force mains, and appurtenances, if applicable; and Low Pressure Sewer System and appurtenances, if applicable.
h. Private Lateral Wastewater Lines shown to all parcels or building units indicating: parcel or building unit to be served by lateral; pipe size, slope, length and material; deflection angle or bearing; mid-line bends with lengths between bends; elevation at end of lateral; cleanout locations, if applicable; and sanitary sewer stationing of private lateral at connection to main line.
i. Building pad location and elevation for each parcel or building unit to which private laterals are being extended or indication of how depth of main line and laterals was

established.

j. Existing and proposed easements shown, with type (i.e., temporary, permanent, nonexclusive utilities, sewer, water, access) and recording information indicated.

k. Existing and proposed: pavement edges and width; sidewalks, walkways and paths (concrete, pavement, or gravel); curb and gutter; all structures (i.e., buildings, retaining walls, tunnels); fences and retaining walls; trees and shrubs.

l. Existing and proposed: water lines (including fire hydrants and service lines); irrigation and drainage ditches; storm drainage structures and pipe; utilities (existing, proposed, buried, and above ground) including power lines, telephone lines, gas lines, etc.

m. Erosion control notes.

5. Plan and Profile Drawings - Profile View.
   a. Information shown shall be consistent with the plan view (i.e., direction of flow, manhole stationing, existing land features, utilities, etc.).
   b. Scale. Scale shall not exceed 1" = 40' horizontal and 1" = 10' vertical.
   c. Existing and final grades shown at center line of wastewater lines or centerline of road if wastewater line is within the roadway.
   d. Profile of crossings with existing and proposed utilities including water lines, storm drain lines, power lines, telephone lines, and gas lines. Provide elevations of wastewater lines, water lines or storm drain lines at crossing.
   e. Profile of crossings with existing and proposed streets including curb, gutter, and sidewalk.
   f. Profile of parallel ditches within 10' horizontally of wastewater lines or ditches that cross the wastewater line.
   g. Proposed Public Wastewater System indicating: size and flow line (invert) elevation of all existing and proposed wastewater lines at connections to the existing SBWRD collection system; profile of proposed wastewater line flow line and top of pipe shown to scale; road stationing with centerline offsets to proposed manholes and wastewater line stationing based on wastewater line alignment; pipe size and material; distance from centerline of manhole to centerline of manhole; flow line elevations of all lines entering manholes at the inside manhole wall; slope of wastewater line (shown to hundredths of a percent), manhole type and size; manhole stationing and numbering; manhole rim elevations; special bedding, backfill and compaction requirements, if required; special pipe protection measures, if required; minimum cover noted; erosion control notes; and other special notes and instructions as required for construction of the wastewater system.
6. Detailed plans for wastewater pump stations meeting the requirements of Section 303.10, if applicable.
7. Details
   a. Applicable SBWRD Standard Details as contained in Appendix C.
   b. Manhole base details as required by Section 303.8.
   c. Any additional Details required for items not covered by the Standard Details.

C. Final wastewater system design drawings shall be formatted by the Project Engineer to provide individual layers for ease in adapting electronic record drawing file information into the SBWRD wastewater collection Geographic Information System (GIS)

D. Final wastewater system plans submitted to the SBWRD shall be 24"x36" in size.

E. Drawings shall be clear, legible, and conform to acceptable drafting practices. Design drawings shall be consistent with the standards in the industry for wastewater system construction drawing.

F. It is recommended that the design drawings be set up to meet the requirements for Record Drawings as discussed in Section 302.9 with regard to State Plane Coordinates and elevations.

302.5 Preliminary and Final Plat and Site Plan

A. The submittal and approval process for preliminary and final plats and site plans shall be in accordance with the requirements of Section 204.

B. The following information shall be included on the plat or site plan
   1. A signature block for the SBWRD in the following form:

SNYDERVILLE BASIN WATER RECLAMATION DISTRICT

Reviewed for conformance to Snyderville Basin Water Reclamation District standards on this _____ day of _____, 20_____.

By: _____

   2. All existing SBWRD easements located on or adjacent to the property being platted or developed. Reference to the easement recording information shall be included.
   3. All proposed SBWRD easements for Public

Wastewater System collection lines.

a. Public roadways where Public Wastewater System collection lines will be located shall be specifically dedicated for use by the SBWRD in the owner's dedication language.
b. Easements for Public Wastewater System collection lines located outside of streets or roads dedicated as public rights-of-way shall be granted to the SBWRD by an SBWRD Grant of Easement form as contained in Appendix A. The location of the easement shall be shown on the plat or site plan and reference to the easement recording information indicated.

4. Where applicable, lots that may require ejector pumps for wastewater service identified.
5. Where applicable, lots that will connect to a Low Pressure Sewer System identified and the following plat note included on the plat:

> Lots designated as Low Pressure Sewer System lots shall be required to install a low pressure grinder pump station and appurtenances consistent with the SBWRD Public Low Pressure Sewer System installed for the development. The _ (Property owner, Homeowner's Association, Condominium Association, etc.) _ shall be responsible for operation, maintenance and repair of the low pressure grinder pump station and appurtenances.

6. Where applicable, a note regarding Common Private Lateral Wastewater Lines according to Section 102.6.
7. Where applicable, a note regarding ownership and maintenance responsibilities of individual Private Lateral Wastewater Lines located in common areas designated as public and private easements.
8. Where applicable, a note regarding adjustment of manholes in private roads and other paved areas as follows:

> At the time of any resurfacing of (_ Private Road name or paved area) _, the _ (Homeowner's Association, Condominium Association, Property Owner, etc.) _ shall be responsible to adjust wastewater manholes to grade according to Snyderville Basin Water Reclamation District (SBWRD) standards. Prior notification of the adjustments and inspection by the SBWRD is required.

9. Other notes or information as required by the SBWRD.

302.6 Easements

A. Permanent easements for constructing, operating and maintaining the Public Wastewater lines, including access within the easement, shall be required for all Public Wastewater lines not located in dedicated public roadways. Permanent easements shall be submitted on the standard SBWRD Grant of Easement Form contained in Appendix A.
B. A Final Title Report for all properties where easements are being granted shall be submitted with the Grant of Easement Form.
   1. The Final Title Report shall demonstrate that the grantor of the easement is the owner of the property where the easement is being granted
   2. The Final Title Report shall demonstrate that there are no encumbrances on the property that would prevent the SBWRD from exercising its rights as contained in the Grant of Easement Form.
   3. The date of issue of the Final Title Report shall be within 30 days of the date the Easement is executed and submitted.
C. Access easements shall be provided for access to the permanent easement if access to the wastewater lines along the permanent easement alignment is not achievable. Access easements shall be submitted on the standard SBWRD Grant of Easement and Access Easement Form contained in Appendix A.
D. The metes and bounds description of the easements shall be included in the body of the easement forms, not as an attachment to the easement form.
E. A display shall be attached to all easement forms showing the location of the easements in relation to the wastewater line, property lines, section corners, and other pertinent features.
F. Easements for wastewater lines shall be granted independent of other utilities.
G. All permanent and access easements shall be a minimum 20' wide.
H. Additional easement width shall be provided for wastewater lines exceeding 10' in depth, as determined from the finished grade to the top of pipe. An additional 2' of easement width shall be provided for each foot of depth beyond 10'.
I. The wastewater line shall be centered within the permanent easement.
J. Permanent Easements shall extend 10' beyond the center of the last manhole or last section of Public Wastewater line.
K. The permanent easement shall include turnarounds with a diameter of 40' where required for access.
L. The SBWRD will generally record all signed easements with the County Recorder within two weeks of signing.

302.7 Special Agreements and Permits

A. All special agreements or permits required for construction of proposed Public Wastewater System extensions or modifications shall be submitted, reviewed by the SBWRD, and executed along with the final design plans according to Section 202.6.

B. The developer shall submit documentation assuming responsibility for all costs and work associated with any third party agreements, easements, or permits which the SBWRD may be required to enter into for the project.

302.8 Construction Cost Estimate

A. A construction cost estimate prepared by the Project Engineer and approved by the SBWRD shall be used to establish the amount of the Improvement Completion Agreement and Engineering Services Fees.

B. The construction cost estimate shall include, as separate line items, the following items as applicable
   1. Wastewater main line, each size and type.
   2. Wastewater lateral, each size and type.
   3. Wastewater manhole, each size.
   4. Connection to existing manhole.
   5. Television inspection.
   6. Street cuts (including pavement and curb replacement).
   7. Manhole platform.
   8. Trench dike
   9. Maintenance access roadway.
   10. Revegetation and/or landscaping.
   11. Trench rock removal (including import material replacement).
   12. Existing manhole adjustment.
   13. Special construction items (i.e., borings, casings, dewatering, wetland restoration, temporary sewer, etc.).

C. Unit costs shall be consistent with current local construction costs and shall be acceptable to the SBWRD.

302.9 Record Drawings

A. The Developer shall assure that all data for Record Drawings is collected.

B. The Record Drawing set shall consist of the Approved Construction Drawings, including approved revisions, with all annotations and graphical representations modified to reflect the as-constructed condition of the Public Wastewater System improvements and Private Lateral Wastewater Lines.

C. The Record Drawing set shall include: title page, overall wastewater system plan, plan and profile sheets, and special detail sheets. Landscaping plans, road cross-sections, erosion control plans, miscellaneous detail sheets, etc., that do not affect the construction or operation of the wastewater system shall not be included. Sheets not included in the Record Drawing set shall be lined-out in the drawing sheet index.

D. Sheet size shall be 24"x36".

E. Record Drawings shall be legible and scalable and must allow for clear photocopies.

F. Record Drawings shall include all information required for final wastewater system design drawings according to Section 302.4 and the following additional items:
   1. SBWRD manhole and structure numbers for new manholes and structures based on SBWRD numbering system. These numbers will be provided by SBWRD as part of the first Record Drawing review.
   2. Two swing ties, or measured distances, to the private lateral stub marker for each lot or building and any cleanouts on private lateral stubs installed as part of the project. These ties shall be from the two front property corners, or a "nail-in-curb" projected from the property corner, unless other points of reference are specifically approved by SBWRD. Swing ties that cross onto other Record Drawing sheets shall include a note on each sheet indicating associated feature. Laterals shall not cross from sheet to sheet.
   3. Any field information obtained by the contractor.
   4. The location of the installed wastewater lines within easements. If revised easements are required, a copy of revised easements shall be submitted with the initial Record Drawing submittal for review by the SBWRD.
   5. Written certification by the Project Surveyor or Project Engineer that a field survey of existing as-constructed wastewater system information has been performed and has been incorporated into the Record Drawings.

G. A copy of the Record Drawings shall be submitted to the District Engineer for review prior to scheduling a final inspection.

H. The final Record Drawing submittal shall consist of signed revised easements, if required, one set of plotted mylar drawings and a digital file of all sheets in the Record Drawing set submitted on a clearly labeled CD.

I. The digital files shall be submitted in a format that is compatible with the SBWRD GIS software (ESRI's ArcGIS) such as AutoCad or other similar programs.

J. The digital files shall be converted from the project's ground survey coordinates to the State Plane Coordinate System (Utah North, NAD83, U.S. survey foot) by applying the appropriate rotation and elevation scale factors. All elevations shall be referenced to a survey quality benchmark and the North American Vertical Datum of 1988 (NAVD 88).

K. Any incorrect or modified information shown on the Record Drawings found during the warranty period

shall be corrected by the Developer and Project Engineer and the corrected sheets resubmitted.

302.10 Operation and Maintenance Manuals

A. An Operation and Maintenance Manual, prepared by the Project Engineer and approved by the SBWRD, shall be required for wastewater pump stations.

B. Submittal Requirements.
   1. One copy of a preliminary draft of the Operation and Maintenance Manual shall be submitted at the 50% stage of construction for review and approval by the SBWRD. No release of Improvement Completion Agreement monies beyond 40% will be approved until this submittal occurs.
   2. One copy of the final draft of the Operation and Maintenance Manual shall be submitted at the 90% stage of construction for review and approval by the SBWRD. Comments from previous reviews shall be addressed. No release of Improvement Completion Agreement monies beyond 80% will be approved until this submittal occurs.
   3. Four copies of the final approved Operation and Maintenance Manual shall be submitted prior to Final Project Approval of the pump station.

C. Content.
   1. General description of the facility and how it operates.
   2. Detailed description of all components and how they function in relation to other components.
   3. Operating procedures for the overall facility and for its specific components under all operating conditions.
   4. Maintenance procedures and schedules.
   5. Technical guidance for troubleshooting.
   6. Manufacturer's recommended spare parts list and special tools list.
   7. Record drawings of the pump station and force mains showing as-constructed condition and meeting the requirements of Section 302.9.
   8. Certified pump curves for the installed system.
   9. Drawings, schematic diagrams, wiring diagrams, etc. as required to adequately describe the as-constructed facility and its components.
   10. Catalog cut sheets, equipment test certifications, and other information for all components of the station. Catalog cut sheets shall be marked to indicate the specific equipment models, serial numbers, etc. included in the station.
   11. Other information as required by the SBWRD.

SECTION 303
DESIGN CRITERIA FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

303.1 Basis Of Design

A. Design Period.
   1. The wastewater system shall be designed to serve the estimated ultimate tributary area at buildout.
   2. The wastewater system design shall be based on the best information available, including the SBWRD *Master Plan Study*, *Sewer Collection System Plan*, current development regulations, and approved planning reports when available.

B. Design Capacity: Main lines shall be designed to carry not less than the design peak flow from the tributary area as follows:
   1. Design Peak Flow.
      a. 8" through 15" gravity lines: 4.0 times the design average flow.
      b. Larger than 15" gravity lines: 2.5 times the design average flow.
      c. Low Pressure Sewer System: According to system manufacturer's recommendations. All gravity lines downstream of the Low Pressure Sewer System shall be designed for the greater of the peak pumping rate of the Low Pressure Sewer System and the peaking factors described above.
   2. Design Average Flow: 320 gallons per Residential Equivalent per day, including infiltration.
      a. The number of Residential Equivalents assigned to single family residential subdivision lots, condominiums and other similar units shall be based on the projected number of bedrooms or living sections that will be built on the lot or unit as submitted by the Developer and approved by the SBWRD (One bedroom or living unit is equivalent to 1/3 RE). If this information is not available, the number of Residential Equivalents will be based on similar type developments in the area of the proposed development.
      b. The number of Residential Equivalents assigned to lots in commercial and industrial subdivisions or other similar type developments shall be based on projected water usage for the type of development proposed as submitted by the Developer and approved by the SBWRD.

303.2 Location

A. The location of all wastewater lines that are part of the Public Wastewater System shall comply with the

requirements of Section 102.2.

B. If construction of a new wastewater line in an existing road is detrimental to the existing road, is cost prohibitive as determined by the SBWRD, or an alternative is in the best interest of the SBWRD, the new line may be located along the edge of the road.
   1. Manholes or other access and maintenance features on the line shall be located a maximum 10' from the back of curb or edge of asphalt.
   2. A Manhole Platform meeting the requirements of the standard detail in Appendix C shall be provided.
   3. Grading around the manholes shall provide for road side drainage and drainage away from the manhole.
   4. Roadway shoulder with steep slopes.
      a. Special grading shall be required for manholes located on steep slopes within roadway shoulder areas.
      b. An acceptable design for grading under this circumstance shall be submitted to the SBWRD for approval.
      c. A minimum distance of 3' from the edge of the manhole to any slope retention shall be required.

303.3 Protection of Water Supplies

A. Wastewater system appurtenances shall be kept remote from public water supply wells, other water supply sources and structures, and water distribution systems. The following requirements shall be observed at all times.

B. The wastewater system shall be designed in accordance with the rules and requirements of *State of Utah Rule for Public Drinking Water Systems* as contained in *R309-550, UAC, Facility Design and Operation: Transmission and Distribution Pipelines* and *R309-600, UAC, Drinking Water Source Protection for Groundwater Sources*.

C. The Project Engineer shall be responsible to review Drinking Water Source Protection Plans and Management Programs for the project area and incorporate the requirements into the wastewater system design.

D. The Project Engineer shall show existing wells or springs on the construction drawings and indicate horizontal distances from the well head to the wastewater system.

E. Horizontal and vertical pipe separation between culinary water lines and wastewater system main lines and private lateral lines shall comply with the following requirements.
   1. Wastewater main lines and private laterals shall be installed a minimum 10' horizontally from any existing or proposed water main or service.
   2. If local conditions prevent a ten foot horizontal separation, the wastewater line may be laid closer than 10' to a water main provided:
      a. The reduced separation is approved by the SBWRD and the water system authority. The Project Engineer may be required to submit justification for the conditions preventing separation to be maintained.
      b. The top of the wastewater line shall be at least 18" below the bottom of the water line.
      c. Wastewater main line pipe material shall be ductile iron with mechanical or restrained joints or HDPE with butt-fusion welded joints. Private lateral pipe material shall be ductile iron with mechanical or restrained joints, PVC with solvent-weld joints or HDPE with butt-fusion welded joints. Water line materials shall comply with *State of Utah Rule for Public Drinking Water Systems*. Other pipe materials are subject to specific approval by the District and the water authority.
      d. The wastewater line is laid in a separate trench, or
      e. The water main is laid on an undisturbed earth shelf on one side of the wastewater line trench with a minimum 24" horizontal separation between the water and wastewater line, or
      f. The water main is laid in a wastewater line trench, compacted to 95% of the Modified Proctor Density or greater, with a minimum 24" horizontal separation between the water and wastewater line.
   3. Where wastewater main lines and private laterals cross water mains and services, the wastewater line shall be installed a minimum 18" below the water line, as measured from outside of pipe to outside of pipe.
   4. If local conditions prevent a minimum vertical separation of 18" to be maintained between the wastewater line and water line, reduced separation may be allowed with the following requirements:
      a. The reduced separation and routing is approved by the SBWRD and the water system authority. The Project Engineer may be required to submit justification for the conditions preventing separation to be maintained.
      b. The vertical separation shall be maximized but in no case shall the pipes be in contact.
      c. Wastewater main line pipe material shall be ductile iron with mechanical or restrained joints or HDPE with butt-fusion welded joints. Private lateral pipe material shall be ductile iron with mechanical or restrained joints, PVC with solvent-weld joints or HDPE with butt-fusion welded joints.

Water line materials shall comply with *State of Utah Rule for Public Drinking Water Systems*. Other pipe materials are subject to specific approval by the District and the water authority. Special design requirements may be required.

d. Minimum depth requirements for the wastewater line as contained in Section 303 shall be met.

5. If local conditions prevent the water line from crossing over the wastewater line, the wastewater line may be routed over the water line with the following requirements:
   a. The routing is approved by the SBWRD and the water system authority. The Project Engineer may be required to submit justification for the conditions preventing separation to be maintained.
   b. A minimum 18" vertical separation shall be maintained between the lines, as measured from outside of pipe to outside of pipe.
   c. Wastewater main line pipe material shall be ductile iron with mechanical joint or HDPE with butt-fusion welded joints. Private lateral pipe material shall be PVC with solvent-weld joints or HDPE with butt-fusion welded joints. Water line materials shall comply with *State of Utah Rule for Public Drinking Water Systems*. Other pipe materials are subject to specific approval by the District and the water authority.
   d. Special bedding, consisting of cement treated backfill or untreated base course material compacted to 95 %of the Modified Proctor Density, shall be required to be placed between the water line and the wastewater line.
   e. Minimum depth requirements for the wastewater line as contained in Section 303 shall be met.

F. The separation of wastewater lines from all secondary water system lines and irrigation lines 6" diameter and greater shall comply with the rules and requirements in Paragraph E.

303.4 Separation From Other Utilities

A. Wastewater main lines and private lateral lines shall be located below all existing and proposed utilities with a minimum separation of 18" for main lines and 12" for private lateral lines, as measured from outside of pipe to outside of pipe or utility line.

B. If local conditions prevent the wastewater lines from being located below other utilities, the wastewater line may be routed over the other utilities with the following requirements:
   1. The routing is approved by the SBWRD and the utility authority. The Project Engineer may be required to submit justification for the conditions preventing this requirement from being met.
   2. A minimum vertical separation of 18" for main lines and 12" for private lateral lines from outside of pipe to outside of pipe or utility line shall be maintained.
   3. Special bedding, consisting of cement treated backfill or untreated base course material to 95% of the Modified Proctor Density, shall be required to be placed between the existing pipe or utility line and the wastewater line.
   4. Minimum depth requirements for the wastewater line as contained in Section 303 shall be met.

C. If local conditions prevent a minimum vertical separation of 18" for main lines and 12" for private lateral lines between the wastewater line and other utilities, reduced separation may be allowed with the following requirements:
   1. The reduced separation and routing is approved by the SBWRD and the utility system authority. The Project Engineer may be required to submit justification for the conditions preventing separation to be maintained.
   2. The vertical separation shall be maximized but in no case shall the pipes be in contact
   3. Wastewater main line and private lateral line shall be constructed of ductile iron pipe with mechanical joints and special design requirements may be required.
   4. Special bedding, consisting of cement treated backfill or untreated base course material compacted to 95%of the Modified Proctor Density, shall be required to be placed between the existing pipe or utility line and the wastewater line.
   5. Minimum depth requirements for the wastewater line as contained in Section 303 shall be met.

303.5 Site Improvements Within Public Wastewater Line Easements

A. Permanent structures shall not be located within easements.

B. Trees and other major landscaping features shall not be located within easements.

C. Lighting poles, retaining walls and large landscape rocks shall not be located within easements.

D. Irrigation systems within easements shall be designed to minimize interference with the wastewater line alignment. Major feeder, valves, and controllers shall not be located within the easement.

E. Walks and trails shall be designed to minimize interference with the wastewater line alignment. When walks, private driveways or trails are utilized as access roadways, the pavement or trail section shall be designed to support wastewater maintenance equipment (heavy axle) without damaging the surface.

303.6 Gravity Flow Main Lines

A. Line Size: 8" minimum diameter.

B. Line Depth.
   1. The depth of gravity flow main lines should be sufficient to provide gravity service to the lower building level(s) of each lot. This is determined from the roadway elevation at the center of the lot plus an allowance for 2 percent slope on laterals from the center of the anticipated building pad to the proposed wastewater main. If the depth of a gravity line is required to exceed 16' to provide gravity service to lots, alternative design measures which will eliminate the lines with excessive depth may be required. including:
      a. Realignment of the proposed wastewater lines.
      b. Off-road wastewater lines.
      c. Ejector or grinder pumps for those lots requiring the excessive depth.
   2. The minimum depth of gravity flow main lines shall be 5' from the top of the pipe to the finished grade elevation.

C. Slope.
   1. Gravity flow main lines shall be designed and constructed for mean flow velocities of not less than two 2.0 feet per second, based on Manning's formula. A Manning's "n" value of 0.013 shall be used for all pipe materials.
   2. Pipe slopes shall be calculated using the horizontal distance from inside manhole wall to inside manhole wall and the flow line elevations at the inside manhole wall.
   3. Minimum slopes: The following are the minimum slopes which shall be provided; greater slopes are recommended, especially in the upper reaches of the wastewater system. Any line segment that has any portion of the line with a slope less than minimum shall be re-installed. :

Sewer Size	Minimum Slope in Feet per 100 Feet (%)
8"	0.40
10"	0.28
12"	0.22
14"	0.17
15"	0.15
16"	0.14
18"	0.12
21"	0.10
24"	0.08

   4. Maximum slopes: The slope of the wastewater line should generally be less than 67 percent (1½:1). Special design consideration, including pipe anchoring and pipe material, shall be given to wastewater lines with slopes greater than 33.3%.

D. Pipe Anchors.
   1. Wastewater lines on slopes 3:1 (33.3 percent) or steeper shall be anchored to prevent displacement unless the pipe is butt fusion welded HDPE, or restrained joint or mechanical joint ductile iron.
   2. Pipes with bell and spigot joints shall be anchored immediately down gradient of bells with pipe anchors as follows:
      a. Not over 26' center-to-center on slopes 3:1 to 2:1 (33.3 percent to 50 percent.)
      b. Not over 16' center-to-center on slopes steeper than 2:1 (50 percent).

E. Alignment.
   1. Gravity flow main lines shall be designed on straight horizontal and vertical alignments between manholes. Curvilinear alignments meeting the requirements of Section 303.7, may be allowed on a case by case basis as approved by the SBWRD.
   2. Wastewater lines shall be located at a sufficient distance from curb and gutter and other structures to eliminate disturbance during possible future repair of the sewer line.

F. Marking Tape.
   1. Marking tape shall be installed directly above the pipe, along the entire length of gravity flow main lines.
   2. The tape shall be located at a depth of 2' to 3' above the top of the pipe.
   3. The warning tape depth shall be consistent along the entire length of the line.

303.7 Curved Gravity Flow Main Lines

A. Gravity flow main lines may be designed and constructed on curvilinear horizontal and vertical alignments on a case by case basis as approved by the SBWRD. If the use of curvilinear lines is approved the following criteria shall apply.

B. The requirements of Section 303.6 shall apply.

C. Pipe material shall be HDPE meeting the requirements of Section 402.3.

D. The number of horizontal and vertical curves in a line segment shall be minimized.

E. Minimum slope: 5% unless the following special construction procedures are used in which case 3% minimum.
   1. Installed pipe must be surveyed by a qualified surveyor every 10' to demonstrate that a 3% slope is maintained.
   2. Any line segment that has any portion of the surveyed line with a slope less than 2.5% shall be re-installed.
   3. Survey notes shall be submitted to the SBWRD to demonstrate compliance with these requirements.
   4. The party responsible for performing the survey

and submitting survey notes shall be determined during the Pre-construction Meeting.

F. Minimum radius of horizontal and vertical curves: 100' unless specifically approved by the District Engineer in which case special construction procedures similar to those contained in paragraph E shall be used. Radiuses less than 50' shall not be allowed

G. The construction methods and procedures that will be used to assure that the lines are constructed to the design horizontal and vertical alignment shall be submitted and approved by the SBWRD.

H. Additional construction and as-constructed surveying will be required to provide accurate location information for the as-constructed line. This information shall be indicated on the Record Drawings.

I. Marking Tape.
   1. Marking tape shall be installed directly above the pipe, along the entire length of all curved gravity flow main lines.
   2. The tape shall be located at a depth of 2' to 3' above the top of the pipe.
   3. The warning tape depth shall be consistent along the entire length of the line.

303.8 Manholes

A. Diameter:
   1. Manholes shall have a minimum inside diameter of 4'.
   2. Manholes with the following conditions shall have an inside diameter of 5'.
      a. Manholes constructed with an inside drop structure.
      b. Manholes with a depth greater than 16'.
      c. Manholes connecting to lines 18" and greater.
      d. Low Pressure Sewer System flushing connections and combination air valve manholes.
   3. An evaluation to determine if a larger diameter manhole is required to accommodate connecting lines and provide an adequate shelf in the base of the manhole for maintenance shall be conducted for the following situations.
      a. Manholes with 4 or more main lines or private lateral wastewater lines connecting to the manhole.
      b. Manholes with the angle between any adjacent connecting lines less than 100 degrees.
      c. Other configurations as required by the SBWRD.
      d. A detail of the manhole base shall be provided on the construction drawings for these manholes. The detail shall be drawn to scale and shall include the deflection angle and flow line elevation of all connecting lines.

B. Location.
   1. Manholes shall be installed at both ends of each main line segment; at all changes in pipe size; at all changes in alignment or grade (unless a curved gravity flow main line); and at intervals not to exceed 400' for lines 15" in diameter or smaller, or 500' for lines 18" in diameter and larger.
   2. Manholes shall be placed within a 5-foot offset from the street center line whenever possible. If circumstances warrant and as specifically approved by the SBWRD, manholes may be located outside the 5-foot offset. However, in these special cases the manhole shall be located within the pavement with a minimum distance of 2.5' required between edge of pavement, concrete curb or gutter, and edge of manhole rim.
   3. Manholes shall not be located in waterways, gutters or drainage swales.
   4. Manholes shall not be placed within 10' of storm drains, catch basins, or in low points where catch basins are located.
   5. Watertight, seal-down covers shall be provided in areas subject to flooding below the 100 year floodplain.
   6. Cleanouts shall not be used as an alternative to manholes on sewer lines 8" in diameter and greater
   7. With the exception of sampling manholes installed according to pretreatment requirements, manholes shall not be placed on private lateral lines.
   8. Manholes shall not be located within sports playing field areas or where exercise activities may occur.

C. Drop through Manholes.
   1. The minimum elevation difference between the flow line of incoming and outgoing lines in manholes (minimum drop) as calculated at the inside manhole wall shall meet the more restrictive of the following criteria.
   2. Slope of connecting lines:
      a. Minimum slope to 5%.
         1. 4-foot diameter manhole: 0.2'.
         2. 5-foot diameter manhole: 0.25'.
      b. 5% and above: Drop required to match slope of connecting lines. Provide smooth transition through manhole.
   3. Angle between incoming and outgoing line less than 110 degrees: 0.5'.
   4. Pipe Size Transitions: Meet requirements of Section 303.8.D.
   5. The flow line (invert) elevations at the inside

manhole wall of all connecting lines shall be shown on the construction drawings.

6. A detail of the manhole base, including a section along the length of the flow line, shall be required for manholes with a connecting line with a slope 20% and greater, or when requested by the SBWRD.

D. Pipe Size Transitions.
   1. Where pipe diameters change at manholes, the flow energy gradient shall be continuous.
   2. The 0.8 depth of the incoming pipe shall be placed no lower than the 0.8 depth of the outgoing pipe with proper allowance for any manhole head loss, or as required to provide proper flow.
   3. Where a wastewater main line intersects with a manhole located on a major collector or trunk line, the flow line of the incoming wastewater line should be at or above the crown of the collector or trunk line.

E. Drop Manhole Connections.
   1. Drop manhole connections shall be avoided in the design of the wastewater collection system and will require approval on a case by case basis by the SBWRD.
   2. Drop manhole connections shall be required whenever the elevation difference between the flow lines of the incoming pipe and the outgoing pipe, as calculated at the inside manhole wall, exceeds 18".
   3. Drop connections shall be constructed with an internal drop.
   4. Drop manholes shall be a minimum 5' diameter.
   5. If a drop manhole is to be constructed at an existing 4-foot diameter manhole, the existing manhole shall be replaced with a 5-foot diameter manhole and the drop constructed.

F. Shallow Manholes:
   1. Shallow manholes shall be required for manhole depths less than 6'.
   2. Shallow manholes shall be indicated on the construction drawings.

G. Sufficient information shall be shown on the construction drawings to allow for efficient design review, manufacture, construction and inspection of the manhole components and installed manhole.

303.9 Low Pressure Sewer Systems

A. Proposed Low Pressure Sewer Systems and manufacturers shall be approved by the SBWRD.

B. The design of the Low Pressure Sewer System shall be based on the system manufacturer's recommendations for line sizing and maximum total system head with the following minimum requirements.

C. Line Size: shall be sized to provide a minimum velocity of 2.0 feet per second while minimizing head losses through the system during system operation.

D. Maximum Total System Head: shall not exceed the system manufacturer's recommended allowable head for the pump system being proposed at any point on the Low Pressure Sewer System. Total system head consists of static (elevation) head plus accumulated friction losses through the system.

E. Detailed calculations for each branch of the Low Pressure Sewer System, including the following minimum information, shall be required.
   1. Number of units connected to the Low Pressure Sewer System.
   2. Design maximum flow.
   3. Pipe size.
   4. Design maximum velocity.
   5. Friction losses.
   6. Static(elevation) head.
   7. Total head.

F. Minimum Line Depth: shall be located below all other utilities with the required vertical separation from other utilities and shall have a minimum depth of 7' from the top of the pipe to the finished grade elevation.

G. Vertical Alignment: shall minimize the number of high points, low points and significant changes in grade on the system.

H. Horizontal Alignment.
   1. Placed at a horizontal offset of 5' from the street center line.
   2. Located at a sufficient distance from curb and gutter and other structures to eliminate disturbance during possible future repair of the line.
   3. Not placed within 5' of catch basins, vaults or other similar structures.

I. Connection of the Low Pressure Sewer System main line to the gravity wastewater collection system shall occur at a manhole and shall meet the following requirements.
   1. The invert of the Low Pressure Sewer System main line shall enter the manhole 0.5' above the invert elevation of the gravity outlet line unless the depth of the Low Pressure Sewer System main line would exceed 9', in which case a drop within the manhole will be allowed.
   2. The manhole base shall have a formed channel from the Low Pressure Sewer System main line to the gravity outlet line to minimize disturbance of the wastewater entering the manhole.
   3. The interior of the manhole to which the Low Pressure Sewer System main line is connected shall have Manhole Interior Coating meeting the requirements of Section 404.18 applied to all interior concrete surfaces to minimize hydrogen sulfide attack.
   4. The receiving manhole shall be designed and located with consideration for proximity to existing and future residences, businesses and

other facilities which may be affected by potential wastewater odors generated in the Low Pressure Sewer System main line that may be released at the manhole.

5. Odor control devices shall be installed at the discretion of the SBWRD.

J. Appurtenances
1. Combination air valves and flushing connections shall be included in the design of the Low Pressure Sewer System. The location of these valves on the system shall be approved by the SBWRD and should meet the following general guidelines.
2. Combination air valves should be installed at system high points, at significant changes in grade where air pockets can form and at intervals of 2,000' to 2,500' in long horizontal runs that lack a clearly defined high point.
3. Flushing connections shall be installed at the terminal end of each main line, wherever two or more main lines come together and feed into another main line and at other locations, as determined by the SBWRD, that will facilitate operation and maintenance of the system.
4. The location of manholes containing these appurtenances should generally follow the requirements for manhole locations under Section 303.8.

K. Marking Tape.
1. Marking tape shall be installed directly above the pipe, along the entire length of all Low Pressure Sewer System Main Lines.
2. The tape shall be located at a depth of 2' to 3' above the top of the pipe.
3. The warning tape depth shall be consistent along the entire length of the line

303.10 Wastewater Pump Stations

A. The SBWRD Wastewater Pump Station policy in Section 102.4 shall be followed.

B. Wastewater pump stations shall meet the Utah Department of Environmental Quality, Division of Water Quality pump station design requirements as outlined in R317-3-3, Utah Administrative Code, Sewage Pumping Stations.

C. In addition to the above requirements, wastewater pump stations shall meet the following requirements.
1. Type of Pump Station.
   a. Pump stations shall generally be of the submersible pump type.
   b. A minimum of two pumps, each capable of pumping the total design flow, shall be provided.
   c. The pump station controls shall provide for automatic alternating of the lead pump.
2. Design Flows.
   a. Pump station structures, equipment and piping shall be designed to handle the ultimate tributary flow at buildout.
   b. Provisions for smaller interim flows shall be provided for in the design of the pump station.
3. Property Ownership: The property on which the pump station is located shall be deeded to the SBWRD.
4. Accessibility:
   a. A paved, all-weather access road shall be provided to the pump station.
   b. The access road may be granted by way of an easement.
   c. The Developer may be required to provide ongoing snow removal from the access road as part of the LEA.
5. Security: The pump station equipment and controls shall be adequately protected with appropriate buildings and/or fencing to prohibit unauthorized entry by the public.
6. Weather: The pump station equipment, buildings, vaults, piping, valves, controls, access roads, etc. shall be designed for the weather conditions experienced in the area including sub-zero temperatures, large accumulations of snow, blowing and drifting snow, etc.
7. Equipment Removal: Portable hoists or other equipment shall be provided to facilitate the removal of pumps and other equipment.
8. Flow Measurement: Continuous measuring and recording of wastewater flow shall be provided at each pump station.
9. Alarm, Control and Monitoring System.
   a. A remote alarm, control and monitoring system which allows for remote control and monitoring of the pump station operation and noticing of alarm conditions shall be provided at each pump station.
   b. The system shall be compatible with the SBWRD pump station SCADA system.
10. Emergency Operations:
   a. An in-place, engine driven, emergency generator with an automatic transfer switch shall be provided at each pump station.
   b. A piping connection for a portable pump with appropriate valving and an at-grade connection shall be provided at the pump station to allow pumping of wastewater around the pump station.
   c. The generator shall be fueled by natural gas, if the natural gas supply is available near the pump station, or diesel.
11. Spare Parts and Service.
   a. Equipment and spare parts for all pump station components should be available from local manufactures and suppliers.
   b. Local service representatives shall be

available for assistance with repair of pump station components.

D. Detailed calculations for the wastewater pump station and appurtenances shall be submitted for review and approval.
E. An Operation and Maintenance Manual shall be submitted according to the requirements of Section 302.10, Operation and Maintenance Manuals.
F. Start-up services and training on the completed pump station shall be completed according to the requirements of Section 510.
G. Acceptance testing of the completed pump station shall be completed according to the requirements of Section 515.7.

303.11 Force Mains

A. Number of Lines.
   1. Generally a single force main from the wastewater pump station to the receiving manhole will be adequate. However, if the buildout of the pump station service area will occur over several years, dual force mains may be required to assure adequate velocities in the lines during the early years.
   2. The projected timing of the service area buildout shall be considered during design.
B. Line Size: shall be sized to provide a minimum velocity of 2.0 feet per second while minimizing head losses through the system during system operation.
C. Design Friction Losses.
   1. Friction losses through force mains shall be based on the Hazen Williams formula or other hydraulic analysis to determine friction loss.
   2. When the Hazen Williams formula is used, the design shall be based on a value of C equal to 120.
D. Design Pressure: force mains and fittings, including reaction blocking, shall be designed to withstand normal pressure and pressure surges (water hammer).
E. Detailed calculations for the force main shall be submitted with the pump station calculations.
F. Air Valves.
   1. Combination air valves shall be included in the design of the force main. The location of these valves on the system shall be approved by the SBWRD.
   2. Combination air valves should be installed at system high points, at significant changes in grade where air pockets can form and at intervals of 2,000' to 2,500' in long horizontal runs that lack a clearly defined high point.
   3. Combination air valves shall be sized for the specific location and system configuration.
   4. The location of manholes containing the air valves should generally follow the requirements for manhole locations under Section 303.8, Manholes.
G. Minimum Line Depth: shall be located below all other utilities with the required vertical separation from other utilities and shall have a minimum depth of 7' from the top of the pipe to the finished grade elevation.
H. Vertical Alignment: shall minimize the number of high points, low points and significant changes in grade on the system.
I. Horizontal Alignment.
   1. Located at a sufficient distance from curb and gutter and other structures to eliminate disturbance during possible future repair of the line.
   2. Not placed within 5' of catch basins, vaults or other similar structures.
J. Connection of the force main to the gravity wastewater collection system shall occur at a manhole and shall meet the following requirements.
   1. The force main shall enter the manhole at approximately the same elevation as the gravity outlet line in order to eliminate a drop in the force main within the manhole.
   2. The force main shall enter the manhole as near to 180 degrees from the gravity outlet line as possible.
   3. The manhole base shall have a formed channel from the force main to the gravity outlet line to minimize disturbance of the wastewater entering the manhole.
   4. The interior of the manhole to which the force main is connected shall have Manhole Interior Coating meeting the requirements of Section 404.18 applied to all interior concrete surfaces to minimize hydrogen sulfide attack.
   5. The receiving manhole shall be designed and located with consideration for proximity to existing and future residences, businesses and other facilities which may be affected by potential wastewater odors generated in the pump station and force main that may be released at the manhole.
   6. Odor control devices shall be installed at the discretion of the SBWRD.
K. Marking Tape.
   1. Marking tape shall be installed directly above the pipe, along the entire length of the force main.
   2. The tape shall be located at a depth of 2' to 3' above the top of the pipe.
   3. The warning tape depth shall be consistent along the entire length of the force main.

303.12 Borings

A. Borings under roadways or other similar facilities; consisting of a bored or jacked casing pipe, a carrier pipe and appurtenances; may be approved on a case-by-case basis when a cut and fill installation method is

not allowed by the owner of the roadway or facility.

B. Borings shall be designed in accordance with applicable City, County, State, or Federal standards and requirements.
C. Approval for the boring shall be obtained from the owner of the roadway.
D. Borings under Interstate Highways shall, as a minimum, extend from right-of-way line to right-of-way line.
E. Casing pipe and carrier pipe material, size, length, and flow line elevations shall be shown on construction drawings.
F. Minimum casing diameter shall be 24".
G. The SBWRD may require submittal of additional structural calculations with construction drawings.
H. The carrier pipe shall be Class 51 Ductile Iron Pipe with bell and spigot joints and shall begin and terminate at a manhole. A mechanical joint shall be placed immediately outside either end of the casing pipe and casing end seal.
I. The carrier pipe shall be supported by manufactured casing spacers designed specifically for this application. Redwood skids are not acceptable.
J. Casing end seals shall be installed at either end of the casing pipe to prevent migration of water and soil along the carrier pipe.
K. The design of the boring shall allow for some variance in the installed boring line and grade.
L. Construction drawings shall require the bored portion of the wastewater line to be completed before construction of the adjacent portions of line to allow for discrepancies in alignment and grade which may occur during the boring operation.

303.13 Casings

A. Wastewater lines shall be installed inside casings when additional protection of the line is necessary as determined by the Project Engineer or the SBWRD.
B. The SBWRD may require submittal of additional structural and pipe loading calculations with construction drawings to determine the need for additional protection.
C. Casing pipe and carrier pipe material, size, length, and flow line elevations shall be shown on construction drawings.
D. Minimum casing diameter shall be 24".
E. The carrier pipe shall be Class 51 Ductile Iron Pipe with bell and spigot joints and shall begin and terminate at a manhole. A mechanical joint shall be placed immediately outside either end of the casing pipe and casing end seal.
F. The carrier pipe shall be supported by manufactured casing spacers designed specifically for this application. Redwood skids are not acceptable.
G. Casing end seals shall be installed at either end of the casing pipe to prevent migration of water and soil along the carrier pipe.

303.14 Groundwater Migration

A. The Project Engineer shall consider methods to prevent the continuous migration of groundwater along the trench line. The methods used shall be approved by the SBWRD.

SECTION 304
SUBMITTAL REQUIREMENTS AND DESIGN CRITERIA FOR PRIVATE LATERAL WASTEWATER LINES

304.1 Description

A. The design of Private Lateral Wastewater Lines shall include the submittals and required information described in Section 203. Section 304 covers the criteria that shall be used for the design of Private Lateral Wastewater Lines.
B. Construction, maintenance and ownership for Private Lateral Wastewater Lines from the building to the Public Waster System line, including the connection to the Public Wastewater System line, are considered private and shall be the responsibility of the property owner.
C. However, to protect the Public Wastewater System to which they connect, Private Lateral Wastewater Lines shall meet requirements in these specifications.

304.2 Basis Of Design

A. Private Lateral Wastewater Lines shall conform to applicable parts of the International Plumbing Code. Where the requirements of these SBWRD Standards are more restrictive than the International Plumbing Code, the SBWRD Standards shall govern.
B. Each residence, building or other facility shall connect to the Public Wastewater System by way of a separate Private Lateral Wastewater Line unless the requirements for Common Private Lateral Wastewater Lines in Section 102.5 are met and the Common Lateral Wastewater Line is specifically approved by the SBWRD.
C. Private Lateral Wastewater Lines shall be sized according to requirements of the International Plumbing Code for building sewers.
D. A Private Lateral Wastewater Line stub shall be provided as part of the construction of the Public Wastewater System extension or modification to each lot or building that is part of the development project.
E. If the extension of the Public Wastewater System passes adjacent to other lots or parcels outside of the proposed development with existing buildings or structures that are not connected to the Public Wastewater System, a Private Lateral Wastewater Line stub shall also be provided to those lots or parcels, as determined by the SBWRD.
F. Private Lateral Wastewater Lines shall not connect

directly to Public Wastewater System lines larger than 15" in diameter.

G. In all cases, a manhole shall be used to connect wastewater lines 8" and larger to Public Wastewater System lines.

H. Private Lateral Wastewater Lines shall be gravity flow meeting the requirements of Section 304.6, unless one of the following criteria are met.
   1. The topography of the development would require a gravity flow Public Wastewater line which is located in a paved road to have an excessive depth as defined in Section 303.6.
   2. The lot or building being served is part of an approved Low Pressure Sewer System.
   3. The lot or building being served has received prior approval from the SBWRD as an ejector lot as evidenced by a note on the subdivision plat, and a gravity flow lateral option is still not available.
   4. The existing Public Wastewater line to which the Private lateral will connect is not at a sufficient depth to allow for a gravity flow Private Lateral line.

304.3 Location

A. Private laterals should not be located under driveways, retaining walls or other areas that may restrict access to the private lateral for maintenance and repair or may cause damage to the private lateral.

B. In areas where this cannot be avoided, the SBWRD may require additional cleanouts, material changes, or other precautions as conditions warrant.

304.4 Protection of Water Supplies

A. Private laterals shall meet the requirements of Section 303.3.

304.5 Separation From Other Utilities

A. Private laterals shall meet the requirements of Section 303.4 with the exception that the minimum vertical separation shall be 12".

304.6 Gravity Flow Private Lateral Lines

A. Line Size: 4" minimum diameter. 6" maximum diameter unless specifically approved by the SBWRD.

B. Minimum Depth: 48" from the top of the pipe to the finished grade elevation.

C. Minimum Slope: 1/4" per foot (2 percent).

D. Maximum Slope: 1 foot per foot (100 percent).

E. Alignment.
   A. Private laterals shall be designed on straight horizontal and vertical alignments between bends. Some minor roping or deflection of the private lateral pipe may be allowed.
   B. Curvilinear alignments meeting the requirements of Section 304.7, may be allowed on a case by case basis as approved by the SBWRD.

F. Pipe Bends: 11 1/4 degree, 22 1/2 degree, and 45 degree pipe bends may be used to change direction of the pipe. 90 degree bends shall not be used. Individual pipe bends shall be a minimum 18" apart.

D. Pipe Anchors.
   1. Private laterals on slopes 3:1 (33.3 percent) or steeper shall be anchored to prevent displacement unless the pipe is butt fusion welded HDPE, or restrained joint or mechanical joint ductile iron.
   2. Pipes with bell and spigot joints shall be anchored immediately down gradient of bells with pipe anchors as follows:
      a. Not over 26' center-to-center on slopes 3:1 to 2:1 (33.3 percent to 50 percent.)
      b. Not over 16' center-to-center on slopes steeper than 2:1 (50 percent).
      c. Sections of Private laterals that consist of a single length of pipe between bends and exceeds a 3:1 slope shall not be required to install a pipe anchor if the adjoining sections do not exceed a 3:1 slope

304.7 Curved Gravity Flow Private Lateral Lines

A. Gravity flow private lateral lines may be designed and constructed on curvilinear horizontal and vertical alignments on a case by case basis as approved by the SBWRD.

B. If the use of curvilinear lines is approved, the following criteria shall apply.
   1. The requirements of Section 304.6 shall apply.
   2. Pipe material shall be HDPE.
   3. The minimum slope of all portions of the line shall be 3.0 percent.
   4. The number of horizontal and vertical curves shall be minimized.
   5. Minimum radius of horizontal and vertical curves: 50'.

304.8 Cleanouts

A. Cleanouts shall be installed on all gravity flow Private Lateral Wastewater Lines according to the following requirements.

B. Number and Location:
   1. A minimum of one cleanout shall be required on each gravity flow private lateral line.
   2. The cleanout shall be located within 5' of the building being served.
   3. Additional cleanouts on the private lateral shall be located not more than 100' apart as measured from the upstream entrance of the cleanout and for each aggregate change in direction exceeding 135 degrees.
   4. Where specifically approved by SBWRD, bi-directional cleanouts may be installed at intervals not to exceed 200' as measured from the upstream or downstream entrance of the

cleanout.

C. Size: same diameter as the private lateral.

304.9 Pressure Private Lateral Lines

A. Design and installation information such as type and size of pumping system; type and size of pressure pipe; valving; and all other information required for the permanent installation of the system, shall be submitted to the SBWRD for reference purposes.

B. Line Size: shall be sized to provide a minimum velocity of 2.0 feet per second at the ejector pump design pumping rate.

C. Maximum Total System Head: shall not exceed the ejector pump manufactures recommended allowable head for the pump system being proposed. Total system head consists of static (elevation) head plus friction losses through the system.

D. Minimum Depth: 5' from the top of the pipe to the finished grade elevation.

E. Vertical Alignment: shall minimize the number of high points, low points and significant changes in grade.

F. Connection to Gravity Flow Public Wastewater Lines.
   1. The section of private lateral from the street right-of-way or easement line to the Public Wastewater line shall be gravity flow.
   2. A cleanout shall be installed on the gravity line to allow access to the gravity line.

G. Connection to Low Pressure Sewer System Main Lines.
   1. The pressure Private Lateral wastewater line shall include a curb stop valve, curb box, and check valve assembly located at the right-of-way line or easement line. Curb boxes located in pavement shall be traffic rated.
   2. Private lateral stubs constructed as part of a Low Pressure Sewer system shall connect to the Low Pressure Sewer System main lines with an in-line fusion welded tee.
   3. New connections to existing Low Pressure Sewer System main lines shall be by way of an electro-fusion pressure tap fitting specifically designed for this application.

304.10 Private Lateral Stubs Constructed With Main Lines

A. Private lateral stubs constructed in conjunction with new wastewater main lines shall extend from the Public Wastewater line to a minimum 5' beyond the right-of-way or property line.

B. Private lateral stubs deeper than 15' shall extend to 10' beyond the right-of-way or property line.

C. Laterals in trenches blasted or saw cut into rock shall have the trench over cut 5' beyond the installed end of the lateral stub.

D. The end of the Private Lateral sub shall be capped with a glued-on cap.

E. Gravity private lateral stubs shall include cleanouts if required by Section 304.8.

F. Private lateral stubs constructed as part of a Low Pressure Sewer system shall include a curb stop valve, curb box and check valve assembly located at the right-of-way line or easement line. Curb boxes located in pavement shall be traffic rated.

304.11 Marking Tape

A. Marking tape shall be installed directly above the pipe, along the entire length of all laterals and lateral stubs.

B. The tape shall be located at a depth of 2' to 3' above the top of the pipe.

C. The warning tape depth shall be consistent along the entire length of the lateral and throughout the project.

304.12 Grease Interceptors, Oil Separators, Sand Interceptors and Sampling Manholes

A. A grease interceptor, oil separator or sand interceptor, located outside the facility or building, shall be provided as part of the Private Lateral Wastewater line of any commercial, industrial, and institutional facility or building that has the potential of introducing substances that would be detrimental to the Public Wastewater System, as determined by the SBWRD according to the SBWRD Pretreatment Program.

B. A separate sampling manhole shall be provided with all grease interceptors and oil separators.

C. Only grease or oil laden waste shall discharge to the interceptor. Sanitary waste shall be excluded from the interceptor.

D. Building sewers transporting sanitary waste shall connect to the Private Lateral Wastewater line at or downstream of the sampling manhole.

E. The structures should be located considering maintenance access and the potential for odors.

F. Venting of the structure through a a vent stack shall not be allowed.

G. The capacity of the grease interceptor shall be according to the requirements of the International Plumbing Code or as directed by the SBWRD. The minimum capacity of grease interceptors shall be 1,000 gallons.

304.13 Private Lateral Casings

A. Private Lateral Wastewater lines shall be installed inside casings when additional protection of the line is necessary as determined by the SBWRD.

B. To allow for some variation in how the carrier pipe is positioned in the casing pipe, the casing pipe shall be installed at a minimum 3% slope.

C. Casing end seals shall be installed at either end of the casing pipe to prevent migration of water and soil along the carrier pipe.

304.14 Private Lateral Borings

A. Private Lateral Wastewater lines shall not be installed using the boring method unless specifically approved by the SBWRD.

CHAPTER 4
MATERIAL REQUIREMENTS

SECTION 401
GENERAL

401.1 Minimum Requirements

A. The material requirements contained in this Chapter include the minimum requirements necessary for construction of wastewater facilities in the SBWRD.
B. Contractor shall submit material cut sheets and specifications for proposed materials, as directed by the SBWRD, to demonstrate compliance with the SBWRD Standards.
C. Materials proposed for incorporation into the work that do not conform to these specifications shall require written approval by the SBWRD prior to delivery to the job site.
D. Any material or equipment not conforming to the Approved Construction Drawings and/or these SBWRD Standards or has not received prior written approval by the SBWRD shall be removed from the project.

401.2 Use of Materials

A. All materials and equipment furnished for permanent installation in the work shall be new, unused, and undamaged when installed or otherwise incorporated in the work.
B. No material or equipment shall be used by the contractor for any purpose other than that intended or specified.

SECTION 402
GRAVITY PIPE

402.1 Acrylonitrile Butadiene Styrene (ABS) Pipe:

A. Pipe: ASTM D 2661, D 2751, or F 628.
B. Fittings: ASTM D 3311, ASTM D 2661.
C. Joints.
   1. Elastomeric Seal: ASTM C 1173 and D 3212.
   2. Solvent Cementing: ASTM D 2235.
D. Permitted for 4" and 6" diameter gravity Private Lateral Wastewater Lines only. Shall not be used for ejector pump pressure lines or any public wastewater line.

402.2 Ductile Iron Pipe

A. Pipe: ASTM A-746
   1. Cement mortar lining according to ANSI C 104
   2. Standard asphaltic exterior coating.
   3. Minimum wall thickness Class 51.
B. Fittings: ANSI A21.10. Fittings shall be consistent with the specified pipe.
C. Joints: ANSI A21.11 and shall be mechanical joint, approved restrained joint, or push-on type as specified on Approved Construction Drawings.
D. Additional Corrosion Protection: Polyethylene encasement conforming to ASTM A 674 shall be required on all Ductile Iron Pipe installations.
E. Permitted for 4" thru 24" diameter wastewater lines.

402.3 High Density Polyethylene (HDPE) Pipe

A. Materials: Virgin resins, Cell Classification meeting or exceeding PE 345464C as defined in ASTM D 3350, resins shall be listed by the Plastic Pipe Institute in its pipe-grade registry TR-4.
B. Pipe and Fittings:
   1. ASTM Material Designation Code: PE 3408 high density, extra high molecular weight.
   2. SDR 17 in accordance with ASTM F 714.
   3. Outside diameter to be ductile iron pipe size (DIPS) or iron pipe size (IPS).
   4. Marked in accordance with ASTM F 714.
   5. Pipe shall be manufactured with an integral color coded stripe of HDPE, color green.
C. Joints: Zero leak-rate heat-fusion joint conforming to ASTM D 3261.
D. Permitted for 4" thru 12" diameter wastewater lines.
E. Minimum slope requirements in accordance with Section 303.7 shall apply.

402.4 Polyvinyl Chloride (PVC) Pipe

A. Material: PVC plastic having a cell classification of 12364 or 12454 as defined in ASTM D1784
B. Pipe and Fittings:
   1. 4" thru 15" diameter: ASTM D 3034, SDR-35.
   2. 18" thru 27": ASTM F 679 (Large diameter solid wall), SDR 35.
   3. Minimum pipe stiffness shall be 46 psi when tested in accordance with ASTM D 2412.
   4. Fittings shall be specifically designed for the joint type used. Fittings designed for gasketed type joints shall not be used for solvent welding.
C. Joints:
   1. Integral-bell gasketed joints. Rubber gaskets shall be factory installed and conform to ASTM D 3212, F 477 or F 1803.
   2. Joints on 4" and 6" diameter pipe may be solvent cement joints conforming to ASTM D 2855. A purple primer conforming to ASTM D 656 and solvent cement not purple in color and conforming to ASTM 2564 shall be used.
D. Pipe lengths shall not be greater than 20 feet.

SECTION 403
PRESSURE PIPE

403.1 Ductile Iron Pipe

A. Pipe: ASTM A-746
   1. Cement mortar lining according to ANSI C 104
   2. Standard asphaltic coating on the exterior.
   3. Pressure Class and minimum wall thickness shall be based on specific requirements of installation with minimum wall thickness Class 51.

B. Fittings: ANSI A21.10. Fittings shall be consistent with the specified pipe.

C. Joints: ANSI A21.11 and shall be mechanical joint, approved restrained joint, or push-on type as specified on Approved Construction Drawings.

D. Additional Corrosion Protection: Polyethylene encasement conforming to ASTM A 674 shall be required on all Ductile Iron Pipe installations.

E. Thrust Blocking: Appropriate thrust blocking, designed specifically for the pressures and soil conditions encountered, shall be installed at all fitting.

403.2 High Density Polyethylene (HDPE) Pipe

A. Materials: Virgin resins, Cell Classification meeting or exceeding PE 345434C as defined in ASTM D 3350, resins shall be listed by the Plastic Pipe Institute in its pipe-grade registry TR-4.

B. Pipe and Fittings:
   1. ASTM Material Designation Code: PE 3408 high density, extra high molecular weight.
   2. 1 ½" thru 12" diameters. SDR and Pressure Class shall be based on specific requirements of installation with minimum SDR 11 and Pressure Class 160 in accordance with ASTM F 714.
   3. Outside diameter to be ductile iron pipe size (DIPS) or iron pipe size (IPS).
   4. Marked in accordance with ASTM F 714.
   5. Pipe shall be manufactured with an integral color coded stripe of HDPE, color green.

C. Joints: Zero leak-rate heat-fusion joint conforming to ASTM D 3261.

D. Thrust Blocking: Appropriate thrust blocking, designed specifically for the pressures and soil conditions encountered, shall be installed at all fitting.

403.3 Polyvinyl Chloride (PVC) Pipe

A. Material: PVC plastic having a cell classification of 12454 as defined in ASTM D1784.

B. Pipe and Fitting.
   1. 1 ½" thru 3" diameters: ASTM D 1785, Schedule 40.
   2. 4" thru 12" diameters: AWWA C900 . DR and Pressure Class shall be based on specific requirements of installation with minimum DR 18 and Pressure Class 150.

C. Joints.
   1. 1 ½" thru 3" diameters. Solvent cement joints conforming to ASTM D 2855. A purple primer conforming to ASTM D 656 and solvent cement not purple in color and conforming to ASTM 2564 shall be used.
   2. 4" thru 12" diameters. Integral-bell gasketed joints conforming to ASTM D31339. Rubber gaskets shall be factory installed and conform to ASTM F 477.

D. Fittings: ANSI A21.10. Fittings shall be consistent with the specified pipe.

E. Thrust Blocking: Appropriate thrust blocking, designed specifically for the pressures and soil conditions encountered, shall be installed at all fittings.

SECTION 404
MANHOLES

404.1 General

A. Manholes shall be watertight and shall be constructed with precast reinforced concrete bases, wall and cone sections, grade rings and castings. Steps shall be installed in all manholes. Cast-in-place concrete bases will be allowed only for connection of new main lines to existing main lines as specifically approved by the SBWRD.

404.2 Precast Concrete Bases

A. Shall conform to ASTM C 478 and standard detail "Precast Manhole With Precast Base" in Appendix C. Shall include a precast base riser section with invert and shall be supplied with a flexible pipe connector for each pipe entering the manhole.

B. Invert:
   1. An invert shall be provided for each pipe, including private laterals, entering the manhole.
   2. Inverts shall be full depth. The cross-sectional shape of the invert shall be uniform for the entire length and shall match the lower halves of the inflow and outflow pipe up to the springline of the pipe and shall be vertical from the springline to the top of the pipe.
   3. In certain situations extra depth of the channel may be required to contain the wastewater flow in the channel.
   4. If a change in pipe diameter occurs at the manhole, a smooth transition from one size to the other shall be provided.
   5. The invert shall have a uniform grade from inflow to outflow pipe flow lines with no areas of flat or reverse grade.
   6. Changes in flow direction shall be smooth, uniform, and made with the longest radius possible. Short radiuses or abrupt changes in direction will not be allowed.
   7. The junction where the pipe abuts the invert shall be manufactured specifically for the type of

pipe connecting to the manhole such that the flowline of the pipe matches the flowline of the invert.

8. The junction shall be constructed so that the distance from the inside of the manhole wall to the end of the pipe when installed is 5" for HDPE pipe and 3" for all other pipe material.
9. Minimum drop through manhole as required by Section 303.8.

C. Apron: Minimum 2% cross-slope.
D. Private Lateral Wastewater Line connections to Pre-cast Base:
   1. Private Lateral Wastewater Line connections to pre-cast bases shall meet the requirements for flexible pipe connector and inverts listed above.
   2. In addition, the elevation of the lateral line entering a manhole shall be at or above the springline of the main line.
   3. The number of Private Lateral Wastewater Lines connecting directly to each manhole shall be limited to two (2). Exceptions shall be as approved by the SBWRD.
E. Steps: Shall be located over the largest apron of the manhole base.

404.3 Cast-in-Place Concrete Bases

A. Shall conform to standard detail "Cast-in-Place Manhole Base"in Appendix C and applicable portions of ASTM C-478, and shall include a precast wall section with a cast-in-place invert.
B. The cast-in-place concrete base shall be located at the approximate midpoint of an individual pipe section on the existing main line in order to avoid including a joint of the existing pipe line within the new manhole base.
C. The material around the existing pipe shall be removed to a minimum 12" below the bottom of the pipe and radially from the center of the new manhole a sufficient distance to allow for placement of bedding material and concrete as discussed below.
D. The existing pipe shall be adequately supported to prevent settlement or damage.
E. A minimum 6" depth of compacted bedding material shall be placed to provide a level subgrade for the cast-in-place base.
F. The initial precast wall section shall be supported on concrete blocks and adjusted to proper alignment and grade prior to pouring the invert. The concrete blocks shall be positioned to not interfere with the coring of the base for placement of the new pipe and shall not be exposed in the finished manhole base.
G. The precast wall section shall not bear directly on the existing pipe.
H. Prior to placing the concrete, the outside of the existing pipe shall be cleaned and pipe to manhole adapters, located at each outside manhole wall, shall be installed on the existing pipe.
I. Prior to placing the concrete, a circular form extending from the prepared subgrade to a minimum 6" above the top of the highest pipe entering the manhole shall be installed and anchored. The form shall be a minimum 12" greater in diameter than the outside of the manhole section wall and shall be located concentric with the manhole section.
J. The cast-in-place invert shall be a continuous pour of Class 4000 concrete and shall meet the following requirements.
   1. Concrete shall be at least 6" in thickness below the bottom of the existing pipe and shall extend at least 6" radially measured from the outside of the precast manhole wall section.
   2. The concrete on the outside of the manhole shall extend a minimum 6" above the top of the highest pipe that will connect to the manhole and shall be level for the full circumference of the manhole.
   3. The concrete on the inside of the manhole shall extend to the top of the highest pipe that will connect to the manhole.
   4. The concrete shall be formed around the existing pipe to provide an invert in the manhole. The bottom half of the existing pipe will remain in place to form the bottom of the invert. The concrete above the existing pipe shall be formed to provide a uniform channel with vertical sides that matches the diameter of the pipe from springline to the top of pipe.
   5. In certain situations extra depth of the channel may be required to contain the wastewater flow in the channel.
   6. After the cast-in-place base has been completed and cured for a minimum of 48 hours and after the wall section, cone and casting have been placed and tested, the top half of the existing pipe shall be removed to within 3" of the manhole wall in the length of the pipe and to the springline of the pipe in the width.
   7. Rough edges of the pipe and concrete thus exposed shall be ground smooth and, if necessary, grouted with epoxy grout in such a manner as to produce a smooth and acceptable finish.
   8. Minimum drop through manhole as described in Section 303.8.
   9. Apron: Minimum 2% slope.
K. Any portion of the existing line damaged shall be repaired or replaced by the contractor as approved by the SBWRD.
L. Debris and construction material shall not be allowed to enter the existing wastewater system.
M. If debris and construction material does enter the existing wastewater system the Contractor shall be responsible for removal of the material, as approved by SBWRD.

N. Connections of new pipe to Cast-in-place manholes.
   1. After invert has been poured and cured, the cast-in-place base shall be core drilled at the design elevation to accept a flexible pipe connector and to form a full depth invert for the new pipe.
   2. A flexible pipe connector shall be installed in the core drilled base to provide a watertight seal.
   3. Installation of pipe in flexible pipe connectors shall be per manufacturer's recommendation.
   4. Additional forming of the core drilled invert by chipping and grouting may be required to provide a smooth transition to the existing invert.
O. Private Lateral Wastewater Line Connections to Cast-in-Place Base:
   1. The connection of Private Laterals to cast-in-place bases shall meet the requirements listed in item M above.
   2. In addition, the elevation of the Private Lateral line entering a manhole shall be at or above the springline of the main line.
P. Concrete: Class 4000, 28-day minimum compressive strength of 4000 psi and contain not less than 6-1/2 bags of low alkali, Type II or Type V Portland Cement per cubic yard per ASTM C-150.

404.4 Manhole Sections

A. Precast reinforced concrete conforming to ASTM C 478.
B. Joints: Tongue and groove type specifically designed for type of joint sealant material being used.
C. Lifting Insert: Designed to not extend completely through section wall with a minimum 3/4" cover from inside of wall.
D. Steps: Installed in all sections except sections in shallow manholes
E. Cone sections shall be of the eccentric type.

404.5 Grade Rings

A. Precast reinforced concrete conforming to ASTM C 478.
B. Designed to meet H-20 live loading.
C. Sizes: 2", 4" or 6" height.
D. Grade rings with cracks or visible damage shall not be accepted.

404.6 Flat-Slab Lid

A. Precast reinforced concrete conforming to ASTM C 478.
B. Designed to meet H20 live loading.
C. Joints: Tongue and groove type compatible with manhole sections and specifically designed for type of joint sealant being used.
D. Opening for casting shall be centered in lid.
E. Allowed only on manholes meeting the requirements of standard detail "Shallow Manhole" in Appendix C.

404.7 Frame and Cover

A. Standard Frame and Cover
   1. Cast iron conforming to ASTM A48 Class 30.
   2. Combined minimum weight of 400 pounds with the cover approximately 150 pounds and the frame approximately 250 pounds.
   3. Frames.
      A. Shall be of the cone construction, D&L Supply A 1181, Olympic Foundry, or approved equal.
      B. Shall not have slots for dust pans.
      C. Frames with flat slab construction are not allowed.
   4. Covers.
      A. 24" in diameter, non-vented with pick hole for removal.
      B. Low profile waffle pattern, D & L Supply A 1180-WP, Olympic Foundry, or approved equal.
      C. Marked "SEWER."
B. Frost Proof Frame and Cover
   1. Cast iron conforming to ASTM A48 Class 30.
   2. Combined minimum weight of 445 pounds.
   3. Frames.
      A. Shall be of the cone construction, D&L Supply A 1019, Olympic Foundry, or approved equal.
      B. Shall not have slots for dust pans.
      C. Frames with flat slab construction are not allowed.
   4. Covers.
      A. 27 3/4" in diameter, non-vented with pick hole for removal.
      B. Low profile waffle pattern, D & L Supply A 1019, Olympic Foundry, or approved equal.
      C. Marked "SEWER."
C. Water-tight seal-down frames and covers.
   1. Shall be of the gasket and bolt-down type.
   2. Countersunk, hexagonal stainless steel bolts.
D. Metal Adapter Rings (Risers).
   1. Shall only be allowed for adjusting the top of frame elevation on existing manholes for pavement overlays as approved by the SBWRD.
   2. Shall not be allowed on manholes constructed as part of a new development project.
   3. The maximum depth of adapter rings shall be 4".
   4. The maximum number of adapter rings shall be 2.
   5. D&L Supply G-2088 thru G-2093, Olympic Foundry or approved equal.
   6. Shall not have slots for dust pans.
   7. Shall include 4 set-screws to anchor ring to existing frame.
   8. Shall be compatible with the existing frame being adjusted.

404.8 Manhole Steps

A. Shall conform to ASTM C 478 with ½" deformed grade 60 steel reinforcing rod encased in polypropylene conforming to ASTM 2146, Type II, Grade 16906.
B. Uniform vertical spacing for entire depth of manhole with maximum vertical spacing of 16" between.
C. Vertically aligned with less than 1" deviation.
D. Securely anchored in manhole sections.

404.9 Flexible Pipe Connector (Boot)

A. Shall conform to ASTM C-923.
B. Manufactured and sized specifically for the type and size of pipe connecting to the manhole.

404.10 Pipe to Manhole Adapter

A. "Romac Style 'LCT' Manhole Adapter Gasket" as manufactured by Romac Industries, Inc., A-Lok Water-Stop (wedge type) as manufactured by A-Lok Products, Inc., or approved equal.

404.11 Joint Sealant Material

A. Shall meet one of the following requirements.
   1. Gasket: ASTM C 443.
   2. Flexible butyl blend sealant (mastic): ASTM C 990.

404.12 Concrete

A. Pre-cast : Shall meet the requirements of ASTM C-478.
B. Cast-in-place: Class 4000: 28-day minimum compressive strength of 4000 psi and contain not less than 6 ½ bags of low alkali, Type II or Type V Portland Cement per cubic yard and air entrainment per ASTM C-150.

404.13 Non-Shrink Grout

A. High strength, non-shrink, non-metallic, natural aggregate grout.
B. Surfaces shall be prepared and grout shall be prepared and placed according to manufacturer's directions.

404.14 Epoxy Grout

A. High strength, non-shrink, 100% solids, 3 component epoxy grout system.
B. Surfaces shall be prepared and grout shall be prepared and placed according to manufacturer's directions.

404.15 Brick for Manhole Adjustment

A. Cut sections of fired-clay units cut to appropriate sizes.
B. Sections of cinder or cement based masonry units shall not be used.

404.16 Asphalt Pavement for Manhole Collars

A. Hot-mix asphalt, ½" aggregate mixture.

404.17 Thermoplastic Riser Form

A. Thermoplastic riser form: As manufactured by Whirlygig® or approved equal.
B. Sealant for Thermoplastic riser: One-compound, all purpose, polyurethane sealant. Sikaflex® Construction Sealant as manufactured by Sika Chemical; Dynatrol®I-XL as manufactured by Pecora Corporation or approved equal.

404.18 Manhole Interior Coating

A. Two component, 100% solids, high build epoxy based coating system. Sikagard® 62 as manufactured by Sika Chemical; Devcon Epoxy Concrete Sealer as manufactured by Devcon; Duralkote® High Build Epoxy Coating as manufactured by Tamms Ind., or approved equal.
B. Surfaces shall be prepared and coating material shall be prepared and applied according to manufacturers directions.

SECTION 405
LOW PRESSURE SEWER SYSTEMS

405.1 General

A. The design of the Low Pressure Sewer System shall meet the requirements of Section 303.9.
B. The proposed Low Pressure Sewer System and appurtenances shall be consistent within each development.

405.2 Main Line Materials

A. Low Pressure Sewer System pipe: HDPE pressure pipe meeting the requirements of Section 403.2.
B. Flushing Connections.
   1. Manhole: 5' diameter meeting the requirements of Section 404.
   2. Ball Valve: Nickle-plated brass body with Type 316 stainless steel ball and stem, full port, vinyl coated steel lever-style handle, threaded, minimum 150 psi working pressure. Size of in-line valve shall match main line size. Flushing connection valve shall be 3/4".
   3. Universal Coupling: 316 stainless steel, 110 psi working pressure, 3/4". Air King Universal Coupling as manufactured by Dixon Valve and Coupling Co. or approved equal.
   4. Pressure Hose: Type P(EDPM) tube with synthetic, high tensile textile cord reinforcement and Type P(EDPM) cover. 3/4" inside diameter, minimum 250 psi working pressure. Gates Adapta Flex™ as manufactured by Gates Corporation or approved equal. Connectors shall be brass barbed hose fittings with minimum 250 psi working pressure.
   5. Pipe Supports.
      a. Saddle Clamp Support: Two piece, full circle saddle clamp support with neoprene

liner to isolate and protect pipe. All metal items shall be stainless steel. Standon Model C92 as manufactured by Material Resources Inc. or approved equal.

b. Saddle Support: One piece, 50% circumferential cradle support with neoprene liner to isolate and protect pipe. All metal items shall be stainless steel. Standon Model S36 as manufactured by Material Resources Inc. or approved equal.

6. Miscellaneous Pipe and Fittings: Threaded, schedule 40 brass.

C. Combination Air Valve.

1. Manhole: 5' diameter meeting the requirements of Section 404.
2. Sewage Combination Air Release and Air/Vacuum Valve with Accessories. ValMatic Series 800 as manufactured by ValMatic Valve and Manufacturing Company or approved equal.
3. Miscellaneous Pipe and Fittings: Threaded, schedule 40 brass.

405.3 Private Lateral Wastewater Line Materials

A. Individual low pressure grinder pump station: Environment One GP2000 series as manufactured by Environment One Corporation.

B. Low Pressure Sewer System pipe: HDPE pressure pipe meeting the requirements of Section 403.2.

C. Private Lateral Components:

1. Combination curb stop valve/check valve assembly with valve box: Engineered Thermoplastic Service Lateral Components for SDR 11 HDPE pipe as manufactured by Environment One Corporation.
2. Valve box shall be arch pattern.
3. Valve boxes shall include valve operator extension rod.
4. Valve boxes located in traffic areas shall be traffic rated iron.

SECTION 406
WASTEWATER PUMP STATIONS

406.1 General

A. Equipment and materials proposed for wastewater pump stations shall be reviewed and approved by the SBWRD during the design review process.

B. As a minimum the pump station construction shall incorporate the following features.

1. Wet Well Structure
   a. Concrete structure with integrally cast PVC lining system, T-Lock PVC Lining as manufactured by Ameron International or approved equal.
   b. All exposed concrete surfaces that cannot be manufactured with PVC lining system shall be coated with an approved coating system designed specifically for wastewater environments.
   c. All pipe and conduit penetrations shall be sealed to the lining system according to the lining system manufacturer's recommendations.
2. Wet Well Metal Items.
   a. All metal items within the wet well including guide rails, lifting cable or chain, anchor bolts, fasteners, clips, etc., shall be stainless steel.

SECTION 407
PIPE COUPLINGS

407.1 Main Line Pipe Couplings

A. Concrete Pipe, Asbestos Cement Pipe, Clay Pipe and dissimilar pipe material with outside diameters of approximately the same diameter.

1. 8" thru 15" diameter -
   a. Flexible PVC pipe connector with stainless steel shear ring as manufactured by Fernco, Inc. or approved equal
   b. Ductile iron pipe coupling sleeve with stainless steel bolts and transition gaskets as required, minimum 12" length: Romac Style "501" as manufactured by Romac Industries or approved equal.
   c. Stainless steel sewer clamp coupling with stainless steel bolts, minimum 12" length: JCM 102 Universal Clamp Coupling - multi band, as manufactured by JCM Industries; Powerseal Model 3122 - double band as manufactured by Powerseal Pipeline Products Corporation, or approved equal.
2. 18" and larger - As approved by District Engineer.

B. Ductile Iron Pipe: Ductile iron pipe coupling sleeve, mechanical joint, minimum 12" length.

C. HDPE Pipe: HDPE Electro fusion coupling as manufactured by Central Plastics Company, or approved equal.

D. PVC Pipe.

1. PVC pipe coupling sleeve, ASTM D 3034, SDR 35, bell ends designed to slide over pipes to form a watertight connection.
2. Ductile iron pipe coupling sleeve, mechanical joint, minimum 12" length. Transition gaskets as required.
3. Stainless steel sewer clamp coupling with stainless steel bolts: JCM 102 Universal Clamp Coupling, Powerseal Model 3121AS, or approved equal.

E. Ductile Iron Pipe to PVC or HDPE Pipe: Ductile iron pipe coupling sleeve, mechanical joint, minimum 12" length with transition gasket. Romac Style "501" as manufactured by Romac Industries or approved equal.

F. HDPE Pipe to PVC Pipe:
   1. Heat fusion gasketed transition bell.
   2. Electro fusion gasketed transition bell.
   3. Ductile iron pipe coupling sleeve, mechanical joint, minimum 12" length with transition gasket. Romac Style "501" as manufactured by Romac Industries or approved equal.

G. Couplings for other pipes of dissimilar material with outside diameters that are not approximately the same: Flexible PVC pipe connector as manufactured by Fernco, Inc. or approved equal.

H. Coupling bolts shall be greased with non-oxidizing grease and the coupling shall be wrapped with polyethylene sheeting and taped.

407.2 Private Lateral Wastewater Line Pipe Couplings

A. Shall meet the requirements of Section 407.1 for the type of pipe being used.

B. "No-hub" type couplings shall not be used.

SECTION 408
BEDDING AND BACKFILL MATERIAL

408.1 Bedding and Initial Backfill Material

A. Manufactured, angular, crushed stone or rock, or crushed stone/sand mixtures meeting one of the following gradations when tested in accordance with ASTM D 2487.

B. Shall be a clean mixture free from organic matter.

	Open Graded	Dense Graded
US Stand. Sieve	Percent Passing	
1 ½"	100	100
3/4"	95-100	95-100
#4	0-10	10-50
#200	0-5	0-5

408.2 Final Backfill Material

A. Final backfill material in Public or Private roads, streets and rights-of-way shall meet the requirements of applicable City, County or State standards and permits.

B. Final backfill material in areas of Off-Road Wastewater Lines, as defined in Section 101.6, shall be acceptable material free of hard clods, frozen material or excessive amounts of large rocks. If existing material cannot meet compaction requirements, acceptable import material will be required.

408.3 Cement Treated Fill Material (Flowable Fill)

A. Cement treated fill shall consist of low alkali Type II Portland cement, water, non-plastic sand or concrete aggregate, and other additives to meet the performance requirements.

B. Performance Requirements: Unconfined compressive strength per ASTM D4832.
   1. 10 psi minimum in 24 hours.
   2. 100 psi maximum in 28 days.

408.4 Untreated Base Course Material

A. Untreated base course material shall consist of clean, hard, tough, durable and sound mineral aggregates that consist of crushed stone, crushed gravel or crushed slag; free of detrimental and organic matter.

B. Gradation. Shall conform to Utah Department of Transportation specification for Untreated Base Course as follows:

	1 1/ 2 Inch	1 Inch	3/4 Inch
US Stand. Sieve	Percent Passing		
1 1/2"	100	-	-
1"	-	100	-
3/4"	81 - 91	-	100
½"	67 - 77	79 - 91	-
3/8"	-	-	78 - 92
#4	43 - 53	49 - 61	55 - 67
#16	23 - 29	27 - 35	28 - 38
#200	6 - 10	7 - 11	7 - 11

408.5 Trench Dike Material

A. Cement Treated Fill Material: Shall meet the requirements of Section 408.3.

SECTION 409
CASINGS

409.1 Casings Under Roadways

A. Casings shall meet the requirements of the applicable City, County or State standards.

B. As a minimum, casings shall be steel pipe conforming to ASTM A 139, Grade A.

C. Joints between sections of casing pipe shall be welded around the full circumference to provide a water-tight joint.

D. Minimum casing diameter shall be 24".

E. Minimum wall thickness shall be in accordance with the following:

Casing Diameter (inches)	Nominal Wall Thickness (inches)
24	0.312
30	0.438
36	0.462

409.2 Other Main Line Casings

A. Casings required on main lines under retaining walls or other structures shall be steel pipe conforming to ASTM A 139, Grade A.
B. Joints between sections of casing pipe shall be welded around the full circumference to provide a water-tight joint.
C. Minimum casing diameter shall be 18".
D. Minimum wall thickness shall be in accordance with the following:

Casing Diameter (inches)	Nominal Wall Thickness (inches)
18	0.312
24	0.312
30	0.438
36	0.462

409.3 Casing Spacers

A. Maximum of 5' separation between spacers.
B. Band shall be 14 gauge heat fused PVC coated steel.
C. Risers shall be 10 gauge heat fused PVC coated steel welded to the band.
D. Liner shall be PVC.
E. Runners shall be reinforced plastic.
F. Hardware shall be cadmium plated.
G. Spacer configuration shall be restrained with spacer intervals and locations per manufacturer's recommendations.
H. Spacers shall be concentric.

409.4 Casing End Seals

A. Casing end seal shall be a pull-on type (wrap-around type is not acceptable) comprised of 1/8" thick synthetic rubber compound sized to fit the carrier pipe and casing.
B. Stainless steel bands shall be used to secure the end seal to the pipe

409.5 Private Lateral Wastewater Line Casings

A. Casings on private laterals 6" diameter and smaller shall be 8" diameter Ductile Iron Pipe meeting the requirements of Section 402.2.

SECTION 410
MISCELLANEOUS MATERIAL

410.1 Marking Tape

A Marking tape shall be a type specifically manufactured for marking underground utilities and meeting the following requirements.
1. Tape shall be of a Mylar acid and alkali-resistant polyethylene film.
2. Tape width shall be 2" minimum on laterals and 3" minimum on main lines. Minimum thickness shall be 0.004".
3. Tape color shall be GREEN and shall bear a continuous printed inscription "SEWER."

410.2 Caps for Main Line and Private Lateral Stubs

A. Glued, fused or gasketed cap.
B. Expansion type (Brandt™) plugs shall not be used.

410.3 Off-road Manhole Marker

A. 2" inside diameter by 10' long, Schedule 40, galvanized steel pipe.
B. Bury Depth: 3'.
C. The exposed portion of the marker shall be painted green.

410.4 Private Lateral Wastewater Line Stub Marker

A. Wood 2"x4" or larger wrapped with marking tape.
B. The exposed portion of the marker shall extend a minimum 2' above final grade.
C. The exposed portion of the marker shall be painted green.

410.5 Cleanout Cap

A. Threaded brass or cast iron cap in cast iron body or cast iron blind cap.
B. Cast iron body or cast iron blind cap shall be connected to cleanout riser pipe with flexible-type neoprene coupling as manufactured by FERNCO or approved equal or no-hub type connector to provide a water-tight connection.

410.6 Cleanout Ring and Cover

A. Paved Areas: Cast iron conforming to ASTM A48 Class 30 similar to D&L Supply H-8030 or approved equal. Ring and cover shall be cleaned and painted with an asphalt coating prior to delivery to site.
B. Landscaped Areas: Sprinkler irrigation box and cover or other appropriate enclosure.

410.7 Private Lateral Wastewater Line Saddles

A. Private lateral saddles on all gravity main line pipe material except HDPE shall be "Romac 'CB' Sewer Saddle" as manufactured by Romac Industries Inc., or approved equal.

B. Private lateral saddles on gravity flow HDPE main line pipe shall be electro fusion HDPE branch saddles.
C. Private Lateral saddles on Low Pressure Sewer System main lines shall be electro fusion HDPE high volume tapping tees.

410.8 Grease Interceptors, Oil Separators and Sand Interceptors

A. Precast reinforced concrete structure consisting of a vault with integral floor, vault riser sections, baffle wall, lid, grade rings, frames and covers, and piping.
B. Precast vault, vault riser sections, and lid.
   1. Shall be designed by a Registered Professional Engineer licensed in the State of Utah.
   2. Loading condition:
      a. Walls designed for a saturated equivalent fluid at rest.
      b. Design surcharge loading: AASHTO H-20 truck load.
   3. Concrete: Minimum 28-day compressive strength of 4000 psi.
   4. Reinforcing steel: ASTM A615 Grade 60.
   5. Concrete cover over reinforcing steel: Minimum 1 ½".
C. Grade rings and Manhole Adjustment Materials: meeting requirements of Section 404.
D. Frame and cover: meeting requirements of Sections 404.7.
E. Piping: PVC with solvent weld joints meeting the requirements of Section 402.4.
F. Piping connection to precast vault: Flexible Pipe Connector (Boot) meeting the requirements of Section 404.9.
G. Joints between vault, vault riser sections, lid, grade rings and frame and cover shall be sealed with flexible butyl blend sealant (mastic) meeting the requirements of Section 404.11.

CHAPTER 5
CONSTRUCTION REQUIREMENTS

SECTION 501
INSPECTION OF PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

501.1 General

A. Inspection of Public Wastewater System extensions and modifications by the SBWRD will include the following activities.
   1. Preconstruction Meeting.
   2. Periodic Inspections.
   3. Preliminary Inspection.
   4. Final Inspection.
   5. Warranty Inspection.

B. All work and materials shall be subject to inspection by the SBWRD until the end of the warranty period.

C. The SBWRD Inspector shall have access to the work at all times.

D. Inspections conducted by the SBWRD Inspector will be according to the Approved Construction Drawings and these SBWRD Standards.

E. Inspections will be conducted as appropriate and as time and scheduling permits, as determined by the SBWRD.

F. The Contractor shall notify the SBWRD Inspector a minimum 24 hours prior to the following.
   1. Start of construction.
   2. Any change of schedule.
   3. Work to be conducted on weekends, or holidays.

G. The SBWRD will notify the Project Manager of any non-conforming work or material as soon as practical after that non-conforming work or material becomes known to the SBWRD.

H. The Contractor shall make necessary corrections. Non-conforming work or material will not be approved by the SBWRD and shall be removed.

501.2 Preconstruction Meeting

A. A preconstruction meeting, specifically for wastewater system construction, shall be held for all projects that include extensions and modifications to the Public Wastewater System.

B. The preconstruction meeting shall be held after final design approval and prior to the start of construction.

C. The preconstruction meeting shall be scheduled through the SBWRD and will generally be held at the SBWRD office.

D. The preconstruction meeting will be under the direction of the SBWRD.

E. The following individuals shall be present at the preconstruction meeting.
   1. Owner, Developer, Project Manager, or designated project representative.
   2. Project Engineer.
   3. Project Surveyor, if different than the Project Engineer.
   4. General Contractor for project.
   5. Contractor performing actual wastewater system construction.
   6. SBWRD District Engineer and SBWRD Inspector.
   7. Other individuals requested to attend by the Developer, Contractor or SBWRD .

E. The preconstruction meeting will follow the format outlined in "Preconstruction Meeting" contained in Appendix A.

501.3 Periodic Inspections

A. The SBWRD Inspector conducts periodic inspections of the wastewater system extensions and modifications during the course of construction.

B. The primary areas of interest for the periodic inspections are as follows.
   1. Pre-construction Checks.
      a. Locate and become familiar with existing/proposed public wastewater system tie-ins.
      b. Verify that necessary plugs are in-place prior to construction.
   2. Approved Plans: Verify that Approved Construction Drawings are on site and being used by the Contractor for construction of the wastewater improvements.
   3. Material verification: Verify that pipe, in-line wyes, bedding and initial backfill materials, manholes (bases, wall sections and cones) castings and lids, etc., conform to the specifications and the Approved Construction Drawings.
   4. Manholes.
      a. Verify conformance to manhole details and specifications
      b. Observe manhole base placement and stacking of sections.
      c. Verify all joints are sealed according to specifications.
      d. Verify proper grouting of pipe to manhole interface.
      e. Verify proper core drilling, if required.
      f. Verify acceptable conformance to cast-in-place requirements, if required.
   5. Installation of Pipe.
      a. Check grades and alignments with Approved Construction Drawings.

b. Conduct periodic inspection of main line installation.
c. Visual inspection of lines prior to stacking manholes.

6. Pipe Bedding.
   a. Verify conformance to bedding details and specifications.
   b. Observation of bedding material, backfill and compaction.
7. Lateral Stubs.
   a. Verify location of wye or other connection to main line.
   b. Verify length and slope.
   c. Inspect and verify bedding, pipe and end cap, initial backfill, marking tape and installation and end of stub marker.
   d. Inspect cleanout construction, if required.
   e. Inspect installation of curb stop valve, verify concrete support block and check valve assembly, if Low Pressure Sewer System.
8. Other System Features: Verify conformance to specifications and Approved Construction Drawings.
9. Utility Encounters: Verify conformance with proper separation and crossing requirements.
10. Air Tests, Pressure Tests, Vacuum Tests and TV Inspection: Observe air tests, pressure tests, vacuum tests and TV inspection, unless testing firm has been approved by SBWRD.

C. Inspection reports for each visit to the site will be prepared by the SBWRD Inspector.

501.4 Preliminary Inspection

A. After installation of the pipe, manholes and other features and backfilling of trenches and prior to paving and final adjustment of manholes to grade, the Contractor shall request that the SBWRD conduct a preliminary inspection.
B. All low-pressure air tests, vacuum tests, hydraulic pressure tests and TV Inspections of the installed system, meeting the requirements of Section 515, shall be performed prior to the preliminary inspection
C. Testing results and TV inspection videos shall be provided to the SBWRD for review prior to the preliminary inspection.
D. The SBWRD will perform the preliminary inspection and review the test results and TV inspection video.
E. The Contractor shall provide an individual familiar with the newly constructed wastewater system to assist the SBWRD Inspector with the preliminary inspection.
F. The primary areas of interest for the preliminary inspection are as follows.
   1. Construction of manholes and inverts.
   2. Condition of pipe.
   3. Cleanliness of pipe.
   4. Construction of other system features.
   5. Private Lateral stub markers.
   6. Deficiencies noted during periodic inspections.
G. The SBWRD will prepare a preliminary inspection letter with a "punch list" of deficient items. A copy of the preliminary inspection letter will be sent to the Developer, the Project Engineer and the Contractor.
H. The Contractor shall correct the deficient items listed in the preliminary inspection letter and advise the SBWRD Inspector when the items are complete.
I. The SBWRD Inspector will verify completion of the deficient items.
J. Plywood bottoms shall be placed in the manholes after the preliminary inspection items have been completed in order to protect the system from debris resulting from the paving and manhole adjustment process. The plywood bottoms shall remain in place until after the final inspection.
K. After the deficient items have been corrected and verified, paving and final adjustment of manholes to grade may occur.

501.5 Final Inspection

A. After completion of paving and adjustment of manholes to grade, and after submittal of Record Drawings as required by Section 302.9, the Contractor shall request that a final construction inspection be performed.
B. The SBWRD will perform the final inspection. .
C. The Contractor shall provide an individual familiar with the newly constructed wastewater system to assist the SBWRD Inspector with the final inspection.
D. The primary areas of interest for the final inspection are as follow
   1. Preliminary inspection "punch list" items.
   2. Adjustment of manholes to final grade.
   3. Alignment and tolerances of cone, grade rings, and frame and cover.
   4. Private Lateral stub markers.
   5. Placement of off-road manhole markers.
   6. Final grading around off-road manholes.
   7. Revegetation.
   8. Access roads.
   9. All other items required for completion of the project.
E. The SBWRD will prepare a final inspection letter with a "punch list" of deficient items. A copy of the final inspection letter will be sent to the Developer, the Project Engineer and the Contractor.
F. The Contractor shall correct the deficient items listed in the final inspection letter and advise the SBWRD Inspector when the items are complete.
G. The SBWRD Inspector will verify completion of the deficient items.
H. When all deficient items have been completed and upon approval and direction by the SBWRD, the Contractor shall remove plywood bottoms and all plugs installed on the system.

501.6 Warranty Inspection

A. The SBWRD will conduct a warranty inspection according to Section 202.10.

SECTION 502
INSPECTION OF PRIVATE LATERAL WASTEWATER LINES

502.1 Scheduling Inspection Appointments

A. Prior to starting construction of the Private Lateral Wastewater line, and at various times during the construction process, the Contractor shall contact the SBWRD to request a Private Lateral inspection.
B. Contractors shall call for an inspection a minimum of 1 day (excluding weekends) prior to the time it is needed. Same-day or spot inspections will not be provided. During periods of heavy inspection requests, additional notice may be necessary
C. Inspections are scheduled on a first-come first-served basis.
D. If an inspection is scheduled and the construction is not ready for the inspection at the scheduled time, the contractor will be required to schedule another inspection with the SBWRD at the next available time slot.
E. Excessive call-back inspections caused by the contractor not being ready for an inspection at the scheduled time may result in additional Administration Fees being charged to the homeowner, building owner or facility owner.

502.2 Required Inspections

A. Inspections by the SBWRD Inspector are required at the following times.
    1. New Private Lateral Connections.
        a. If a direct connection of the Private Lateral to an existing Public Wastewater System collection line or manhole is required, inspection of the coring operation and installation of the saddle or manhole connection is required.
        b. After installation of the Private Lateral pipe, fittings and other appurtenances but prior to backfilling.
        c. When deficiencies in the installation noted during a prior inspection are corrected and ready for re-inspection.
    2. Grease Interceptors and Sampling Manholes.
        a. After placement of the grease interceptor and sampling manhole but prior to backfilling.
        b. After backfilling, paving and adjustment of frame and cover to grade.
    3. Abandoned Private Laterals: If an existing Private Lateral to the Public Wastewater System is abandoned, the abandonment shall be inspected prior to backfilling.
    4. Damaged Private Laterals: If an existing Private Lateral is damaged the repair shall be inspected by the SBWRD Inspector prior to backfilling.

502.3 Inspections

A. The Contractor shall have a copy of the Private Lateral Construction Information and, if applicable, the approved site plan on site during inspections.
B. The primary areas of interest for inspections of Private Lateral Wastewater Lines are as follows.
    1. Material verification: Verify that pipe, fittings, couplings, bedding and initial backfill materials, cleanout caps, ring and cover, and other material conform to the specifications.
    2. Installation of Pipe.
        a. Check slope and alignments.
        b. Visual inspection of lines prior to backfilling.
    3. Couplings: Verify alignment of pipe and couplings and conformance to specifications.
    4. Connections: Verify that connections to manholes, main lines or stubs and to the building stub meet the specifications.
    5. Pipe Bedding: Verify conformance to bedding details and specifications.
    6. Marking tape: Verify that marking tape is on site for installation.
    7. Cleanouts: Verify that standpipe is vertical and that fittings, cap, ring and cover, and other material conform to specifications.
    8. Other Features: Verify conformance to specifications.
    9. Utility Encounters: Verify conformance with proper separation and crossing requirements.
C. The SBWRD Inspector will perform or witness tests on the Private Lateral Wastewater Line as required by Section 516.
D. The SBWRD inspector will document the location and other aspects of the Private Lateral Wastewater Line.
E. The Contractor shall provide an individual familiar with the newly constructed private lateral to assist the SBWRD Inspector with the inspection.
F. The SBWRD Inspector will advise the Contractor's on-site representative of any deficient items at the time of the inspection and, if required, will prepare a Partial Inspection letter that documents those deficient items. A copy of the Partial Inspection Letter will be sent to the homeowner, building owner or authorized representative and the Contractor.
G. The homeowner, building owner or authorized representative and the Contractor shall correct the deficient items listed in the Partial Inspection Letter and schedule another appointment with the SBWRD Inspector according to Section 502.1.
H. The SBWRD Inspector will verify completion of the incomplete items and repair of deficient items.

SECTION 503
GENERAL CONSTRUCTION REQUIREMENTS

503.1 Protection of the Existing Public Wastewater System

A. No connection to the existing Public Wastewater System or to existing Private Lateral Wastewater Line stubs shall be made without approval of the SBWRD and inspection by the SBWRD Inspector.
B. No modification of the existing Public Wastewater System or existing Private Lateral Wastewater Lines shall be made without approval of the SBWRD and inspection by the SBWRD Inspector.
C. The Public Wastewater System and Private Lateral Wastewater Lines shall be protected from damage. Any damage to the existing system resulting from the Contractor's operation shall be corrected by the Contractor at his expense.
D. All repairs to the Public Wastewater System shall be observed by the SBWRD Inspector.

503.2 Excluding Construction Debris and Material From the Existing Public Wastewater System

A. All construction debris and material, including groundwater, native soil, bedding material, backfill material, pipe and other construction material, garbage, etc., shall not be placed in or allowed to enter the existing Public Wastewater System.
B. The Contractor shall conduct his operations and provide adequate controls to exclude this debris and material from the system.
C. Any debris or construction material that does enter the existing Public Wastewater System shall be removed by the Contractor at the Contractors expense.
    1. Any costs incurred by the SBWRD in removing the debris or construction material will be billed to the Contractor.
    2. A video inspection of the cleaned downstream lines demonstrating that the debris and construction material has been removed shall be provided by the Contractor.

503.3 Maintaining Existing Wastewater Flows

A. Wastewater flows in the existing wastewater system shall be maintained at all times.
B. Bypass pumping, temporary bypass piping, or other means required to divert wastewater flow around the construction site shall be provided by the Contractor.
C. Placing a plug and allowing wastewater to back up in existing wastewater lines will not be allowed.
D. A bypass plan shall be submitted to the SBWRD for review and approval prior to the start of construction.

503.4 Isolation Of New Construction

A. At the start of construction of Public Wastewater System Extensions and Modifications, the Contractor shall install and maintain a plug near the connection of the new construction to the existing Public Wastewater System. The plug shall isolate the new system under construction from the existing system.
B. The location of the plug shall be determined by the SBWRD.
C. The plug shall be anchored to the apron of the manhole as approved by the SBWRD.
D. The plug shall remain in-place until approval to remove the plug is given by the SBWRD.
E. Removal of the plug shall be the responsibility of the Contractor.
F. Removal of the plug shall be witnessed by the SBWRD.
G. Failure to install and maintain this plug will subject the Developer and Contractor to additional final "punch-list" items such as cleaning all existing downstream collection lines as determined by the SBWRD and repair of damage to the existing wastewater system.

503.5 Record Drawing Information Collected by Contractor

A. During construction of Public Wastewater System Extensions and Modifications, the Contractor shall record "As-Built" measurements and information.
B. Information measured and recorded shall include the following.
    1. Private Laterals:
        a. Wye location on main line.
        b. Pipe size, slope and length.
        c. Cleanout and bend locations and degree of bend.
        d. Horizontal distance ties from the end of the lateral stub to property corners. In the absence of established property corners, finished surface improvements, preferably sewer manholes or fire hydrants, shall be used.
    2. Location of other utilities encountered.
C. The information recorded shall be incorporated into the Record Drawings as required in Section 302.9
D. A set of the record information shall be maintained at the construction site.
E. The SBWRD Inspector may periodically and independently measure and record installed lateral information for the purpose of verifying submitted Record Drawing information.

503.6 Safety

A. In all cases, the contractor is responsible for safety.
B. The contractor shall be responsible for full compliance with applicable excavation and trenching regulations set forth by the U.S. Department of Labor Occupational Safety and Health Administration; as administered by the Utah Occupational Safety and

Health Division (UOSH) of the Utah Labor Commission.

C. The contractor shall be responsible for full compliance with applicable confined space regulations set forth by the U.S. Department of Labor Occupational Safety and Health Administration, as administered by the Utah Occupational Safety and Health Division (UOSH) of the Utah Labor Commission.

D. The contractor shall furnish and maintain all necessary safety equipment, such as barriers, signs, warning lights, and guards to provide adequate protection for persons and property during all phases of construction.

E. The contractor shall give reasonable notice to the owners of public or private property and utilities when such property and utilities are within the construction area.

F. The contractor shall at all times observe and comply with all Federal, State, and local laws, ordinances, permits and regulations which will in any manner affect the work.

503.7 Materials Handling

A. All material to be incorporated into the project shall be transported, handled and stored in a manner which will insure proper installation in an undamaged condition.

B. The contractor shall replace all material found to be defective or which has been damaged before inclusion in the work.

503.8 Installation of Precast Concrete Products

A. Precast concrete products shall not be installed the first seven days after manufacture.

B. The date stamped on the precast concrete product will be used as the starting date in determining this time period.

C. Any precast concrete product installed within this seven-day period will not be approved by the SBWRD and shall be removed.

SECTION 504
TRENCH EXCAVATIONS

504.1 General

A. Trench Excavation shall include every operation necessary for excavation of all materials of whatever nature within the designated limits of the trenches.

B. Contractor shall support and maintain the excavation with shoring, bracing, trench boxes or other methods.

C. Contractor shall provide for the uninterrupted flow of surface water.

D. Contractor shall protect all utilities, pipes, conduits, culverts, bridges and all other public and private improvements and property which may be endangered by the work.

E. Contractor shall provide temporary support, adequate protection, and maintenance of all underground and surface structures and other obstructions affected by the trench excavation. Any structure that has been disturbed shall be restored or replaced at the Contractor's expense.

504.2 Pavement Removal

A. All pavement removal shall be in accordance with applicable City, County, or State Standards and permits.

504.3 Trenching

A. Alignment: Trench excavations shall be performed to the alignment and grade as indicated on the Approved Construction Drawings.

B. Trench Width
   1. Trenches shall be excavated to provide adequate working space for proper pipe installation, jointing, and embedment.
   2. Minimum sidewall clearance shall be 8".

C. Trench Depth: The trench shall be over-excavated to a minimum depth of one-fourth the pipe diameter (6" minimum) below the bottom of the pipe.

D. Fill Areas.
   1. Trench excavations in fill areas shall extend to the level of native, undisturbed soil.
   2. The area between the native, undisturbed soil and the normal bottom of trench shall be backfilled with suitable material in maximum 12" lifts and compacted to 95% of the Modified Proctor Density as determined by the compaction control test specified in ASTM D-1557 and verified by ASTM D-1556 or ASTM D-2922.
   3. If fill areas were placed with appropriate lifts and compactive effort, evidence of that effort shall be provided to the SBWRD prior to excavation.

E. Trenching Method.
   1. The use of mechanical equipment will be permitted except in locations where machines may cause damage to existing structures, in which case, hand methods shall be employed.
   2. The trenching method used and the width of the trench excavated shall provide adequate space for proper installation of the pipe, manholes and other appurtenances. This shall include placement and compaction of bedding and backfill materials, jointing of pipe and manholes, and haunching of pipe.

504.4 Dewatering

A. All excavations shall be dewatered before any construction is undertaken.

B. Pipe shall be laid only in dry trenches.

C. Concrete shall be placed only on dry, firm foundation material.

D. The Contractor shall have adequate dewatering

equipment on-site.

E. Groundwater shall not be allowed to enter the Public Wastewater System.

504.5 Blasting

A. The Contractor shall comply with all Federal, State, and City laws, rules and regulations governing the keeping, storage, use, manufacture, sale, handling, transportation, or distribution of explosives used for blasting operations.

B. All operations involving the handling, storage, and use of explosives shall be conducted with every precaution by trained, reliable workers under satisfactory supervision.

C. The Contractor shall advise the SBWRD, all utility companies, the Park City or Summit County Public Works Department, and the Park City Police Department or Summit County Sheriff in advance as to when and where charges are to be set off.

D. The Contractor shall be responsible to secure blasting permits from the Park City Building Department, Summit County Building Department and Park City Fire District, as required, prior to blasting.

504.6 Borings and Casings

A. Borings and casings shall meet the requirements of Section 303 and Section 409.

B. The proposed boring method, qualifications and experience of the boring contractor, and other boring related information, as required by the SBWRD, shall be submitted for approval by the SBWRD prior to mobilizing the boring operation.

SECTION 505
PIPE EMBEDMENT

505.1 General

A. Bedding material meeting the requirements of Section 408.1 shall be placed from the bottom of the excavated trench to the bottom of the pipe and compacted to 95% of the Modified Proctor Density prior to placement of the pipe.

B. Bedding material shall extend a minimum depth of one-fourth the pipe diameter (6" minimum) below the bottom of the pipe.

C. After placement of the pipe, additional bedding material shall be placed in maximum 6" lifts to the springline of the pipe.

D. The bedding material shall be shovel sliced and compacted in the pipe haunch areas to insure uniform and continuous bearing along the pipe.

E. Initial Backfill meeting the requirements of Section 408.1 shall be placed and compacted in the trench simultaneously on each side of the pipe in 6" lifts for the full width of the trench in such a manner as not to damage or disturb the pipe.

F. Initial backfill shall be placed to a minimum depth of 12" above the top of the pipe.

G. The initial backfill shall be compacted to 95% of the Modified Proctor Density.

H. The percent of compaction shall be as determined by the compaction control test specified in ASTM D-1557 and verified by ASTM D-1556 or ASTM D-2922.

SECTION 506
PIPE INSTALLATION

506.1 General

A. Alignment and Grade: Pipe shall be laid to the alignment and grades indicated on the Approved Construction Drawings within the following limits.
   1. Alignment: 2"
   2. Grade: ± 1/2"
   3. When installed at minimum allowable slopes, as defined in Section 303.6, the variation in grade listed above shall not be applicable.
   4. The SBWRD reserves the right to require whatever action is necessary to correct (including replacement of all affected sections of line) any unacceptable items generated as a result of pipe installation at less than minimum allowable slopes.

B. Except where a curvilinear alignment has been specifically approved by the SBWRD, pipe shall be laid in a straight line at a uniform grade between manholes on main lines and between bends on Private Lateral lines. Some minor roping or deflection of Private Lateral lines may be allowed.

C. Pipe laying shall begin at the lowest elevation and proceed upstream with the bell end of bell-and-spigot pipe positioned upstream.

D. The interior of all pipe and fittings shall be thoroughly cleaned before installation and shall be kept clean during installation and until the work has been accepted.

E. Pipe shall not be laid in water nor under unsuitable weather or trench conditions.

F. Cold weather wastewater collection line construction requirements in accordance with Section 512 shall be utilized when temperature or weather conditions could affect the final product, or as deemed necessary by the SBWRD. Cold weather construction shall be in accordance with the pipe manufacturer's recommendations.

G. All field cuts shall be made at right angles to the axis of the pipe. All pipe shall be filed and beveled to remove roughness.

H. Pipe material shall be consistent between manholes unless specifically approved by the SBWRD.

I. If a change of pipe material between manholes is approved by the SBWRD the following requirements shall be met.
   1. The connection between different pipe materials

shall be made with pipe couplings meeting the requirements of Section 407.

2. Clearance between pipes at the coupling shall be a maximum of 1/8".
3. Pipes shall be aligned to provide a smooth transition without any lip or misalignment at the joints.
4. Coupling bolts shall be greased with non-oxidizing grease and the coupling shall be wrapped with polyethylene sheeting and taped.

J. Whenever pipe laying is stopped, the open end of the pipe shall be plugged with a watertight plug and the trench shall be properly backfilled to protect the pipe from floating.

K. If adjustment of the position of a pipe length is required after being laid, it shall be removed, relaid and rejointed.

L. Any pipe that has floated due to water entering the trench shall be removed from the trench and the pipe shall be relaid as directed by the SBWRD.

506.2 Pipe Laying

A. In addition to the above general requirements, all pipe installation shall comply with the specific requirements of the pipe manufacturer as follows.
   1. ABS Pipe: ASTM D 2321, "Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe." ASTM D 2751 "Standard Specification for ABS Sewer Pipe and Fittings."
   2. Ductile Iron Pipe: AWWA C 600 "Installation of Ductile Cast-Iron Water Mains and Appurtenances."
   3. PVC Pipe: ASTM D 2321 "Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe."
   4. High Density Polyethylene (HDPE) Pipe: ASTM D 2321 "Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe."

506.3 Connecting to Pipe Stubs

A. The Contractor shall verify that existing pipe stubs are acceptable (i.e., condition, alignment, grade, leakage) prior to connecting to the stub.

B. The acceptability of the stub shall be approved by the SBWRD.

C. Unacceptable main line stubs shall be removed and replaced with new pipe to the manhole or to a location on the stub where the remaining pipe to the manhole is acceptable.

D. Unacceptable Private Lateral stubs shall be removed and replaced to the main line or to a location on the stub where the remaining pipe to the main line is acceptable.

E. The extension of main line pipe stubs shall be accomplished with pipe having the same type, size, and joint type as the existing stub to the next manhole.

F. If new pipe material matching the material of the existing stub is no longer available, then a change of pipe material may be approved by the SBWRD.

G. If a change of pipe material is approved by the SBWRD, the following requirement shall be met.
   1. The connection between different pipe materials shall be made with pipe couplings meeting the requirements of Section 407.
   2. Clearance between pipes at the coupling shall be a maximum of 1/8".
   3. Pipes shall be aligned to provide a smooth transition without any lip or misalignment at the joints.
   4. Coupling bolts shall be covered with non-oxidizing grease and the coupling shall be wrapped with polyethylene sheeting and taped.

506.4 Installing Private Lateral Stubs

A. Private Lateral Wastewater Line stubs installed as part of the main line construction shall be extended at the slope and to the length or location indicated on the Approved Construction Drawings.

B. Lateral stub trenches which require either blasting or rock sawing trenching equipment shall be over excavated to a minimum of 5' beyond the installed stub end to allow re-excavation and extension of the lateral without damage to the existing lateral stub

C. Connection to Main Line.
   1. The connection of Private Lateral Wastewater Lines to the main line shall be an in-line "wye" branch made specifically for wastewater lateral connections.
   2. The "wye" shall be turned up so that the invert of the "wye" branch at the connection is at or above the spring line of the main line.

D. Caps: All stubs shall be plugged at the end of the pipe with a glued, fused or approved gasketed cap. Expansion type (Brandt™) plugs shall not be used.

E. Private Lateral Stub Marker.
   1. Immediately following installation of the Private Lateral stub, a Private Lateral stub marker shall be installed by the Contractor at the end of each lateral stub.
   2. The marker shall be placed straight and erect at the end of the plugged lateral and extended upward to at least 2' above grade.
   3. The exposed portion of the marker shall be painted green.
   4. Record Drawing information required by Section 503.5 shall be collected.
   5. Private Lateral markers disturbed or lost prior to Final Approval shall be reset using accepted survey practices and procedures.
   6. Lateral markers shall be in-place and visible at

the Final Inspection.

SECTION 507
TRENCH BACKFILL AND PAVING

507.1 Trench Backfill in Roads

A. Trench backfill in public or private roads, streets and rights-of-way shall be in accordance with the applicable City, County, or State standards, permits, and/or as designated on Approved Construction Drawings.

507.2 Trench Backfill For Off-Road Lines

A. Trench Backfill for Off-Road Lines, as defined in Section 101.6, shall meet the following requirements.
   1. Backfill material shall meet the requirements of Section 408.2.
   2. Suitable backfill material shall be placed in maximum 12" lifts and compacted to 95% of the Modified Proctor Density as determined by the compaction control test specified in ASTM D-1557 and verified by ASTM D-1556 or ASTM D-2922.
   3. If existing material cannot meet compaction requirements, acceptable import material will be required.

507.3 Marking Tape Installation

A. Marking tape shall be installed directly above the pipe, along the entire length of all wastewater lines.
B. The tape shall be located at a depth of 2' to 3' above the top of the pipe.
C. The warning tape depth shall be consistent along the entire length of the line.

507.4 Pavement Replacement

A. All pavement replacement shall be in accordance with the applicable City, County, or State standards, permits, and/or as designated on Approved Construction Drawings.

SECTION 508
TRENCH DIKES

508.1 Construction Method

A. Trench dikes shall be constructed at the locations indicated and in accordance with details as shown on the Approved Construction Drawings and standard detail drawings.
B. Trench dikes shall be constructed of cement treated fill material.
C. Placement of the cement treated fill material shall occur after pipe installation and placement of bedding and initial backfill material.
D. The bedding, initial backfill and native soil shall be removed for the width and length of the trench dike.
E. The trench dike shall be keyed into undisturbed soil a minimum 12" below the bottom of the pipe embedment material (18" below bottom of pipe) and a minimum 12" beyond each side of the excavated trench.
F. The trench dike shall extend a minimum 12" above the top of the pipe embedment (24" above the top of pipe).
G. Cement treated fill material shall be placed in one continuous pour for the full depth of the trench dike.
H. Care shall be taken while placing the cement treated fill material to assure that displacement or distortion of the pipe does not occur.
I. The area around the trench dike shall remain dewatered for a period of 24 hours after placement of the cement treated backfill material and until the backfill is brought to approximate final grade.

SECTION 509
MANHOLES

509.1 General

A. Manholes shall be constructed at the locations indicated and in accordance with details as shown on the Approved Construction Drawings and standard detail drawings.

509.2 Subgrade

A. Manholes shall be constructed on a stable foundation capable of supporting the imposed loads.
B. A minimum 6" depth of bedding material shall be placed, leveled and compacted to 95% of the Modified Proctor Density as determined by the compaction control test specified in ASTM D-1557 and verified by ASTM D-1556 or ASTM D-2922. prior to placing the manhole bases.

509.3 Manhole Bases

A. Precast Concrete Bases:
   1. Shall meet the requirements of Section 404.2.
   2. Shall be placed so as to be fully and uniformly supported in proper horizontal and vertical alignment.
B. Cast-in-Place Bases on Existing Lines: (prior approval required)
   1. Shall meet the requirements of Section 404.3.
   2. Shall be constructed so as to be fully and uniformly supported in proper horizontal and vertical alignment.
C. Installation of pipe in manhole bases with flexible pipe connectors shall be per manufacturer's recommendation.
D. Installation of pipe in manhole bases where use of a flexible pipe connector is not possible, as approved by the SBWRD, shall include a pipe to manhole adapter placed around the pipe and centered on the manhole wall and grouted with non-shrink grout to

form a watertight seal.

E. In all cases, a watertight manhole to pipe connection is required.

509.4 Wall and Cone Sections

A. Precast wall and cone sections shall be placed and aligned to provide vertical sides.

B. Steps:
   1. Uniform vertical spacing for entire depth of manhole with a maximum 16" vertical spacing between steps.
   2. Vertically aligned with less than 1" deviation.
   3. 24" maximum vertical distance from top of frame and cover to center of top step.
   4. 24" maximum, 12" minimum vertical distance from center of bottom step to manhole apron.
   5. Located over the largest apron of the manhole base.

C. Joints:
   1. Gasket or mastic installed according to manufacturer's recommendations. Grouted joints shall not be used.
   2. Mastic shall be installed when the temperature of the material is above 70 degrees to assure a water tight seal. Heating of the material may be required to achieve a proper seal.

509.5 Backfilling Manholes

A. All backfilling shall be in accordance with the applicable City, County, or State standards, permits, and/or as designated on Approved Construction Drawings.

B. Backfilling shall be accomplished in a manner to prevent damage or disturbance to the installed manholes.

C. Manhole sections disturbed during backfilling shall be removed, rejointed and restacked.

D. Manhole sections damaged during construction shall be replaced with new sections.

509.6 Installation of Temporary Plywood Bottoms

A. Plywood bottoms shall be placed in all manholes after the preliminary inspection to prevent debris from entering the lines.

B. Plywood bottoms shall be constructed of minimum 3/4" CDX plywood with adequate bracing to prevent sagging.

C. The plywood bottom shall be constructed in two or three pieces with a 1/8" maximum clearance at the joints.

D. The plywood shall be placed in the manhole bottom such that the joint is perpendicular to the flow channel.

E. The plywood bottom shall be placed above the crown of all pipes entering the manhole.

F. The plywood bottoms shall remain in place until removal is authorized by the SBWRD.

G. Removal of the plywood bottoms shall be the responsibility of the Contractor.

H. All debris collected on the plywood bottoms shall be removed from the manhole prior to removal of the plywood bottoms.

509.7 Adjustment of Manhole Frame and Cover To Final Grade

A. Manholes In Asphalt Paved Areas.
   1. Manholes located in asphalt paved areas shall be raised to final grade after final paving is completed.
   2. Shall conform to standard details in Appendix C.
   3. The top of the manhole frame shall be 1/2" to 1" below and parallel to the plane of the asphalt paving at the outside edge of the collar.
   4. The distance from the top of the cone to the top of the frame shall generally not exceed 18". Distances greater than 18" require specific approval by the SBWRD. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
   5. Prior to paving, a manhole frame and cover or a circular metal plate shall be placed on top of the cone temporarily to prevent material from entering the manhole. No grade rings shall be placed at this time.
   6. After the final lift of asphalt is placed, the asphalt and base course material shall be removed to a diameter a minimum 32" greater than the diameter of the top of the manhole frame and to a level 6" below the top of the cone and 6" outside the cone. The edge of the asphalt shall be smooth and uniform.
   7. Manhole Adjustment with Grade Rings.
      a. A minimum of one 4" grade ring, and a maximum of two 6" grade rings shall be placed on the cone as required to raise the frame and cover to the proper elevation. As approved by the SBWRD in certain unique situations, a third grade ring may be used to adjust the frame and cover to the proper elevation. In no case shall more than 3 grade rings be used.
      b. The joints between the cone and bottom grade ring and between grade rings shall be made by placing mastic around the midpoint of the cone or grade ring, placing the next grade ring and applying pressure to distribute the mastic material and form a watertight seal.
      c. Mastic shall be installed when the temperature of the material is above 70 degrees to assure a water tight seal. Heating of the material may be required to achieve a proper seal.

d. Adjustment of the frame to the final elevation and to the plane of the asphalt surface shall be accomplished with brick wet-set in non-shrink grout to form a watertight joint with a smooth interior surface. A maximum of one full course of brick may be used.
e. The frame shall be fully and uniformly supported on the brick and non-shrink grout.
f. After the frame has been set to final grade, Class 4000 concrete shall be placed in the excavated area around the cone and grade rings to a level 1" above the top of the flange.
g. The concrete shall be allowed to cure for a minimum of three days prior to placing the asphalt collar.

8. Manhole Adjustment with Whirlygig® or Approved Equal.
   a. Install per manufacturer's recommendations.
   b. Set thermoplastic riser form in a bead of sealant meeting requirements of Section 404.17 to achieve a watertight seal between form and top of manhole cone.
   c. The thermoplastic form shall be anchored to the manhole cone with a minimum of 4 anchors.
   d. After the frame has been set to final grade, Class 4000 concrete shall be placed in the excavated area around the cone and riser form to a level 1" above the top of the flange.
   e. The concrete shall be allowed to cure for a minimum of three days prior to placing the asphalt collar.
9. Metal adapter rings (risers) shall not be used for final adjustment of the frame.
10. Tack coat shall be applied to the cut asphalt edge and the frame prior to asphalt collar placement.
11. An asphalt collar shall be placed and compacted in two 2 1/2" lifts over the concrete. Minimum thickness of the completed asphalt collar shall be 5".
12. The asphalt collar shall be left slightly high to allow for shrinkage and settlement of the asphalt.
13. Asphalt shall be placed and compacted to prevent separation of aggregate materials.

B. Manholes in Concrete Paved Areas.
1. Manholes located in concrete paved areas shall be raised to final grade after placement and compaction of base course material and prior to placement of concrete paving.
2. Shall conform to standard details in Appendix C.
3. When installation is complete, the top of the manhole frame shall be 1/4" below and parallel to the plane of the surrounding concrete paving.
4. The distance from the top of the cone to the top of the frame shall generally not exceed 18". Distances greater than 18" require specific approval by the SBWRD. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
5. Prior to placing base course material, a manhole frame and cover or a circular metal plate shall be placed on top of the cone temporarily to prevent material from entering the manhole. No grade rings shall be placed at this time.
6. After the final lift of base course material is placed and compacted, the base course material shall be removed to a diameter 24" to 30" greater than the diameter of the top of the manhole frame and to a level 6" below the top of the cone.
7. A minimum of one 4" grade ring, and a maximum of two 6" grade rings shall be placed on the cone as required to raise the frame and cover to the proper elevation. As approved by the SBWRD in certain unique situations, a third grade ring may be used to adjust the frame and cover to the proper elevation. In no case shall more than 3 grade rings be used.
8. The joints between the cone and bottom grade ring and between grade rings shall be made by placing mastic around the midpoint of the cone or grade ring, placing the next grade ring and applying pressure to distribute the mastic material and form a watertight seal.
9. Mastic shall be installed when the temperature of the material is above 70 degrees to assure a water tight seal. Heating of the material may be required to achieve a proper seal.
10. Adjustment of the frame to the final elevation and to the plane of the concrete surface shall be accomplished with brick wet-set in non-shrink grout to form a watertight joint with a smooth interior surface. A maximum of one full course of brick may be used.
11. The frame shall be fully and uniformly supported on the brick and non-shrink grout.
12. Metal adapter rings (risers) shall not be used for final adjustment of the frame.
13. After the frame has been set to final grade, Class 4000 concrete shall be placed in the excavated area around the cone and grade rings to a level 1" above the top of the flange.
14. The concrete pavement may then be placed around the manhole.

C. Manholes in Roadway Shoulders.
1. Shall conform to standard details in Appendix C.
2. Roadway shoulders without curb.
   a. Adjustment to final grade shall occur after placement of pavement around manhole.
   b. Adjustment shall meet the requirements of Section 509.7.A or B.

3. Roadway shoulders with curb.
   a. The top of manhole frames shall be set horizontal and flush with the finished grade.
   b. The distance from the top of the cone to the top of the frame shall generally not exceed 18". Distances greater than 18" require specific approval by the SBWRD. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
   c. Grade rings shall be placed on the cone as required to raise the frame and cover to the proper elevation. Bricks set in non-shrink grout are not allowed for adjusting the final elevation of manholes in roadway shoulders with curbs.
   d. The joints between the cone and bottom grade ring, between grade rings, and between the top grade ring and the manhole frame shall be made by placing mastic around the midpoint of the cone or grade ring, placing the next grade ring or frame and applying pressure to distribute the mastic material and form a watertight seal.
   e. Mastic shall be installed when the temperature of the material is above 70 degrees to assure a water tight seal. Heating of the material may be required to achieve a proper seal.

D. Manholes in Off-Road Areas.
   1. Shall conform to standard details in Appendix C.
   2. When installation is complete, the top of the manhole frame shall be horizontal and flush with the surrounding roadway platform
   3. Grading around the manhole shall not result in a depressed area around the manhole.
   4. The manhole frame shall be placed directly on the manhole cone. Grade rings and bricks shall not be used to adjust the final frame elevation on manholes in off-road areas.
   5. The joint between the cone and frame shall be made by placing mastic around the cone, placing the frame, and applying pressure to distribute the mastic material and form a watertight seal.
   6. Mastic shall be installed when the temperature of the material is above 70 degrees to assure a water tight seal. Heating of the material may be required to achieve a proper seal.
   7. An Off-road Manhole Collar shall be installed around the frame and cone.

E. Manholes in Concrete or Asphalt Walkways.
   1. When installation is complete, the top of the manhole frame shall be flush with the surrounding walkway.
   2. Adjustment shall meet requirements of Section 509.7. A or B.

509.8 Drop Manholes

A. Drop manholes shall only be installed where indicated on the Approved Construction Drawings.
B. Drop manholes shall meet the requirements of Section 303.8.E.and the Standard Detail Drawings.

509.9 Connection to Existing Manhole

A. Prior to the start of construction, the condition of the existing manhole shall be assessed by the SBWRD.
B. If the existing manhole is determined by SBWRD to be suitable for core drilling the following procedure shall be followed.
   1. The existing manhole wall and apron shall be core drilled to allow for placement of the new pipe and flexible pipe to manhole connector (boot) in the manhole at the design elevation and provide a channel in the apron for the new line.
   2. The SBWRD Inspector shall witness all core drilling of manholes.
   3. A flexible pipe to manhole connector (boot) shall be installed in the core drilled wall to provide a watertight seal.
   4. The existing apron shall be built up with epoxy grout anchored to the existing concrete with stainless steel anchors or as otherwise directed by the SBWRD Inspector to provide a full depth channel from the new pipe to the existing channel as directed by the SBWRD Inspector.
   5. Chipping, cutting and grinding of the existing apron and channel and finishing with epoxy grout may be required.
   6. The transition from the new invert to the existing invert shall be smooth and uniform and shall provide a long radius sweep to redirect flow to the existing downstream pipe.
C. If the existing manhole is determined by SBWRD to not be suitable for core drilling, the existing manhole shall be removed and replaced with a new manhole with precast base.
D. During the connection of new sewer lines to existing manholes, the alignment of the existing precast sections, grade rings, and castings shall be maintained and the joints between sections, grade rings, and casting, lift holes and connections of existing inflow and outflow pipes shall be watertight.
E. The Contractor shall provide for continuous wastewater flow and shall prevent entrance of any ground water, storm water, debris or dirt into the existing facilities during this construction process.
F. Any damage to the existing manhole or the existing wastewater system shall be repaired by the Contractor at the Contractor's expense.

SECTION 510
WASTEWATER PUMP STATIONS

510.1 General

A. Wastewater pump stations shall be constructed in accordance with the requirements of the Approved Drawings.

510.2 Startup Services

A. Prior to acceptance of the wastewater pump station the manufacturer of all major equipment installed in the pump station shall provide Start-up services for the equipment.

B. A report by the manufacturer confirming that the installation complies with the manufacturer's requirements shall be submitted.

C. All changes recommended by the manufacturer shall be completed

D. A one-year warranty of the equipment shall be included in the report. The one-year warranty will begin on the date the pump station receives Final Project Approval by the SBWRD

510.3 Training

A. A minimum of 4 hours of training shall be provided by the manufacturer of all major equipment for SBWRD operation and maintenance personnel.

B. A proposed training outline and schedule shall be submitted by the Project Engineer for approval by the SBWRD.

SECTION 511
REPAIR OF EXISTING WASTEWATER SYSTEM

511.1 General

A. Existing wastewater lines, manholes and other appurtenances damaged or disturbed during construction shall be repaired or replaced by the Contractor at the Contractor's expense.

B. Notify the SBWRD Inspector 24 hours prior to making repairs. The inspector must be present during the repair.

C. Provide for pumping or diversion of wastewater around the damaged section as required.

511.2 Repair Of Wastewater Lines

A. Cut and remove the broken pipe section. Locate the repair to reduce the number of repair couplings required (removal to the spigot end of the adjacent pipe is preferred).

B. Check remaining pipe for splits and cracks.

C. Remove the existing material below the pipe in the area of the broken pipe section to 6" below the bottom of the pipe.

D. Bedding material meeting the requirements of Section 408.1 shall be placed from the bottom of the excavated trench to the bottom of the pipe and compacted prior to placement of the pipe. Assure that the bedding material is worked under the existing pipe.

E. Insert new pipe section of the same pipe material, inside diameter and outside diameter.

F. The Contractor shall notify the SBWRD if the same pipe material is not available and a suitable replacement pipe material will be determined.

G. Clearance between pipes at the coupling shall be a maximum of 1/8".

H. Pipes shall be aligned to provide a smooth transition through the repaired section without any lip or misalignment at the joints.

I. Install pipe couplings meeting the requirements of Section 407.

J. Coupling bolts shall be covered with non-oxidizing grease and the coupling shall be wrapped with polyethylene sheeting and taped.

K. Additional bedding material shall be placed in maximum 6" lifts to the springline of the pipe.

L. The bedding material shall be shovel sliced and compacted in the pipe haunch areas to insure uniform and continuous bearing along the pipe.

M. Prior to placing initial backfill above the springline of the pipe, the alignment of the repaired pipe section with the existing pipe and the coupling installation shall be inspected to assure proper alignment and installation. If the repair is not properly aligned or installed, remove the couplings and reinstall the repaired section.

N. Initial Backfill meeting the requirements of Section 408.1 shall be placed and compacted in the trench simultaneously on each side of the pipe in 6" lifts for the full width of the trench in such a manner as not to damage or disturb the pipe.

O. Final backfill above the pipe zone, including replacement or installation of marking tape and pavement replacement, shall meet the requirements of Section 507.

511.3 Repair Of Manholes and Other Appurtenances

A. Remove damaged frame and covers, grade rings, wall sections or other features and replace with new materials. Reinstall new materials according to requirements of Section 509.

B. Remove disturbed frame and covers, grade rings, wall sections or other features and reinstall according to requirements of Section 509.

C. Some existing manholes may have joints that do not match new manhole construction material. The SBWRD shall review and approve the proposed method of connecting the new manhole material to the existing manhole.

SECTION 512
COLD WEATHER CONSTRUCTION

512.1 General

D. During cold weather conditions, special precautions shall be used to insure that proper construction is maintained.

E. A cold weather condition is defined as periods where sustained temperatures are 40 degrees and lower.

512.2 Trenching

A. Trench excavation shall be limited to the amount of material that the Contractor can install in one day.

B. Trenches shall be completely backfilled at the end of each day.

C. When frost is encountered, it shall be moved off to the side and not placed in the trench as pipe backfill material.

D. All snow must be removed from the immediate construction area to prevent it from becoming mixed with the pipe zone and pipe backfill material.

E. Dewatering of the trench during cold weather construction shall be designed to discharge all water well away from the project site to prevent any possibility of increasing frost depths.

512.3 Pipe Installation

A. All pipe and fittings shall be protected and installed according to manufacturer's recommendations for cold weather construction.

B. Special consideration shall be given to thermal expansion and contraction.

C. Stresses resulting from extreme temperature variations shall be considered in the design.

D. Additional or supplemental acceptance tests may be required for pipe installed during weather conditions when warmer temperature conditions return.

512.4 Manhole Construction

A. Concrete bases, sections and grade rings shall be adequately cured prior to transporting to the site to insure that deterioration of the concrete, due to freeze-thaw action, does not occur.

B. Mastic used in manhole joints and between grade rings and frames shall be installed when the temperature of the material is above 70 degree to assure a watertight seal. Heating of the material may be required to achieve a proper seal.

C. Grout must be protected from freezing prior to installation and during the cure period.

D. Appropriate equipment shall be available for heating, or protecting the construction materials and for maintaining favorable temperatures after grout is placed.

E. Concrete placed during cold weather conditions shall be in accordance with the American Concrete Institutes requirements for cold weather concreting.

512.5 Manhole Collar Construction

A. Asphalt collars shall be placed only when the surface temperature of the road and manhole materials is at least 50 degrees F. and/or the wind chill factor has not fallen below 30 degrees F, unless otherwise authorized by the SBWRD.

B. Asphalt collars installed under unacceptable weather conditions will be noted by the SBWRD Inspector and may be required to be replaced when weather and site conditions permit.

SECTION 513
PRIVATE LATERAL
WASTEWATER LINES

513.1 General

A. Private Lateral Wastewater Lines shall meet the submittal and design requirements contained in Section 304.

B. The SBWRD Inspector shall witness all Private Lateral Wastewater Line installations before backfilling.

C. Buried Private Laterals not inspected, witnessed or verified shall be re-excavated at the Contractor's expense. As approved by the SBWRD, a video inspection of the installed private lateral meeting the requirements of Section 515.6 may be allowed in place of re-excavation of the buried pipe.

D. Existing Public Wastewater System lines shall remain in service while connecting Private Laterals.

E. Any damage to Public Wastewater System lines resulting from the connection of Private Laterals shall be corrected by the Contractor as directed by the SBWRD at the Contractor's expense.

F. The cost to remove any debris that enters the Public Wastewater System as a result of the connection of the Private Lateral shall be the responsibility of the Contractor.

513.2 Connection to Existing Private Lateral Stubs

A. Prior to connecting to or extending existing gravity or Low Pressure Private Lateral stubs, it shall be the responsibility of the Contractor to verify acceptability of the existing stubs (condition, alignment, grade, leakage, etc.). The SBWRD shall be notified immediately and prior to making a connection to any stub found to be unacceptable.

B. The extension of Private Lateral stubs shall be accomplished with pipe of the same material, size, and joint type as the existing stub.

C. If new pipe material matching the material of the existing stub is no longer available, then a change of pipe material may be approved by the SBWRD.

D. Requirements for approved changes of pipe material.

1. The connection between the different pipe materials shall be made with couplings meeting the requirements of Section 407.

2. Clearance between pipes at the coupling shall be a maximum of 1/8".
3. Pipes shall be aligned to provide a smooth transition without any lip or misalignment at the joints.
4. Coupling bolts shall be covered with non-oxidizing grease and the coupling shall be wrapped with polyethylene sheeting and taped.

E. Test Tee.
1. A test tee shall be installed at the connection to the existing stub to allow for testing of the new construction.
2. The tee shall remain exposed until all testing has been completed, after which the tee shall be plugged and properly backfilled.
3. The test tee plug shall match the type of "wye" fitting used (gasketed, solvent weld, or threaded). Brandt[TM] type expansion plugs shall not be used. If a threaded fitting is used, a thread sealant or glue shall be used on the joint to provide a watertight fit.

513.3 Connection to Existing Gravity Public Wastewater System Main Lines

A. The connection of Private Lateral Wastewater Lines to existing gravity main lines shall be made by installing a Private Lateral saddle fitting meeting the requirements of Section 410.7.
B. A circular hole saw shall be used to core the existing main line. The edges of the cored hole shall be filed to remove burrs from the coring operation. Rough or jagged edges on the cored hole shall not be allowed.
C. The cored hole shall be large enough to prevent the formation of a lip between the saddle fitting and the main line.
D. The SBWRD Inspector shall witness the coring operation.
E. The invert of the saddle fitting shall be at or above the spring line of the main line.
F. Silicon sealant shall be used between the gravity saddle gasket and the existing pipe to insure a watertight seal.
G. Test Tee.
1. A test tee shall be installed on the Private Lateral Wastewater Line, near the saddle connection to the main line to allow for testing of the new construction.
2. The tee shall remain exposed until all testing has been completed, after which the tee shall be plugged and properly backfilled.
3. The test tee plug shall match the type of "wye" fitting used (gasketed, solvent weld, or threaded). Brandt[TM] type expansion plugs shall not be used. If a threaded fitting is used, a thread sealant or glue shall be used on the joint to provide a watertight fit.

513.4 Connection to Existing Public Low Pressure Main Lines

A. The connection of Low Pressure Private Lateral Wastewater Lines to existing Low Pressure Main Lines shall be made by installing a Private Lateral saddle fitting meeting the requirements of Section 410.7.
B. The installation of the tapping tee shall be according to the manufacturer's recommendation.
C. The SBWRD Inspector shall witness the tapping operation.
D. Test Tee.
1. A test tee shall be installed on the Low Pressure Private Lateral Wastewater Line, near the saddle connection to the main line to allow for testing of the new construction.
2. The tee shall remain exposed until all testing has been completed, after which the tee shall be plugged and properly backfilled.
3. The test tee plug shall be fused or threaded. If a threaded fitting is used, a thread sealant or glue shall be used on the joint to provide a watertight fit.

E. A curb stop valve, valve box and check valve assembly shall be installed on the Private Lateral Wastewater Line at the right-of-way line or easement line.

513.5 Connection to Existing Manhole

A. Connection to existing manholes shall be made in accordance with Section 509.9.

513.6 Cleanout Requirements

A. Cleanouts shall meet the requirements of Section 304.8.
B. A concrete support block shall be poured under the wye for the cleanout.
C. Cleanout risers shall be the same size and material as the lateral.
D. Cleanout risers shall be located directly above the private lateral line. Offsetting or laying the cleanout riser over to avoid surfacing in a paved area or other obstruction shall not be allowed.
E. Cleanout risers shall be capped with a cleanout cap.
F. The top of the cleanout cap shall be located 4" to 6" below the finished paved or landscaped surface
G. Cleanouts within paved surfaces and traffic areas shall be provided with a traffic rated cleanout frame and cover.
H. Cleanouts in unpaved and non-traffic areas shall be provided with a sprinkler irrigation box or other similar structure.

513.7 Connection to Building Sewer

A. Connection of the Private lateral to the building sewer exiting the building shall be made with couplings meeting the requirements of Section 407.

B. Clearance between pipes at the coupling shall be a maximum of 1 8"
C. Pipes shall be aligned to provide a smooth transition without any lip or misalignment at the joints.

SECTION 514
GREASE INTERCEPTORS, OIL SEPARATORS, SAND INTERCEPTORS AND SAMPLING MANHOLES

514.1 General

A. Grease interceptors, oil separators, sand interceptors and sampling manholes shall be constructed in accordance with the Standard Details in Appendix C.
B. Grease interceptors, oil separators, sand interceptors and sampling manholes shall meet the submittal and design requirements contained in Section 304.12 and the material requirements contained in Section 410.8.
C. The frame and cover shall be adjusted according to the requirements of Section 509.7.
D. The distance from the top of the interceptor or separator concrete lid to the top of the frame shall not exceed 18". If this distance exceeds 18", a vault riser section shall be added to the interceptor, the concrete lid replaced and the manhole retested.
E. Sampling manholes shall meet the requirements of Section 509 except that the line coming from the grease interceptor or oil separator shall enter the manhole 6" above the channel and protrude 3" from the manhole wall to allow for sampling of the wastewater.
F. The interior of the sampling manhole shall have Manhole Interior Coating meeting the requirements of Section 404.18 applied to all interior concrete surfaces to minimize hydrogen sulfide attack.

SECTION 515
ACCEPTANCE TESTING FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

515.1 General

A. One or more of the following acceptance tests and inspections are required for Public Wastewater System Extensions and Modifications depending on the type of component being tested.
   1. Visual Inspection by the SBWRD Inspector.
   2. Low-Pressure Air Test.
   3. Hydrostatic test.
   4. Manhole Vacuum Test.
   5. TV Inspection.
   6. Pump Station and Force Main Testing.
   7. Compaction Testing.
B. All costs associated with testing and TV Inspections, including retesting and reinspection, shall be the responsibility of the Developer or Contractor.
C. All tests and TV Inspections shall be witnessed by the SBWRD Inspector.
D. The contractor shall give the SBWRD Inspector 24 hours notice of any test or inspection to be performed.
E. Testing firms and TV Inspection firms shall be approved by the SBWRD prior to the testing or inspection. The Contractor shall confirm the status of the testing and TV Inspection firms with the SBWRD prior to the Contractor authorizing testing or inspection.
F. Contractor, testing firm or TV Inspection firm shall provide all plugs, compressors, pumps, gauges, water, video equipment, etc., required to perform tests and TV Inspections.
G. All testing and TV inspection, with the exception of compaction testing, shall occur after backfilling of all pipe and manholes is completed but prior to paving.
H. Test Results Form.
   1. Each item tested shall be noted on a "Public Wastewater System Main Line Test Result" form as contained in Appendix A.
   2. Acceptances, failures, reasons for failure, and retests shall be shown on the form.
   3. The completed form shall be submitted to the SBWRD.
I. A passing test is required on each item tested.
J. Items failing any test or TV inspection shall be repaired or replaced according to the requirements of Section 515.8, and the test or inspection repeated until successful performance of all tests and inspections is achieved.

515.2 Visual Inspection

A. A visual inspection by the SBWRD Inspector of all installed pipe, manholes, laterals, and other features on the Public Wastewater System Extension or Modification is required.
B. The visual inspection shall include all items discussed in Section 501 and shall verify that the system has been installed according to these SBWRD Standards.

515.3 Low-Pressure Air Test

A. A Low-Pressure Air Test shall be performed on the following installed pipes.
   1. The full length of each installed section (manhole to manhole) of gravity flow Public Wastewater main line.
   2. Private Lateral stubs installed in conjunction with the gravity flow main line.
   3. Gravity flow main line stubs.
   4. Gravity flow private lateral stubs connecting directly to a manhole.
B. Method of Testing.
   1. PVC and HDPE Pipe: UniBell UNI-B-6, Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe.
   2. Other Pipe Material: As recommended by the

pipe manufacturer and approved by the SBWRD.

515.4 Hydrostatic Test

A. A hydrostatic test shall be performed on the following installed pipes.
   1. Force Mains.
   2. Low Pressure Sewer System main lines.
   3. Low Pressure Sewer System main line stubs.
   4. Private Lateral stubs installed in conjunction with the Low Pressure Sewer System main lines.

B. Prior to the hydrostatic test the line shall be flushed with an adequate flow volume and rate to remove any debris, silt, gravel, or other material in the line. The SBWRD Inspector shall witness the flushing operation.

C. Method of Test.
   1. The lines to be tested shall be filled with clean water.
   2. Air release taps shall be provided at the pipeline's highest elevations and all air in the system shall be expelled before the test. Insert approved permanent plugs after test has been completed.
   3. The test pressure shall be the greater of 150% of the maximum design pressure or 100 psi.
   4. The test pressure shall be maintained for 2 hours.
   5. Leakage rate shall be less than determined by the formula:

$$Q = \frac{LD \times \text{square root of } P}{133{,}200}$$

Where:

Q = allowable leakage rate, in gallons per hour

L = length of pipe, in feet

D = nominal diameter of pipe in inches

P = average test pressure, in psi (gauge)

   6. Locate and repair defective joints and retest until leakage rate is less than allowable.
   7. Repair any noticeable leakage even if total leakage is less than allowable.

515.5 Manhole Vacuum Test

A. A vacuum test shall be performed on each manhole installed.

B. Each manhole shall be tested to the top of the cone/flat slab section. Grade rings do not have to be included in the test.

C. Method of Testing: ASTM C 1244, Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test, excluding the provision of Paragraph 7.5.

515.6 TV Inspection

A. A TV Inspection shall be performed on the following installed system.
   1. The full length of each installed section (manhole to manhole) of gravity flow Public Wastewater main line.
   2. Gravity flow main line stubs.
   3. Manholes.
   4. Where new manholes are installed on existing public wastewater lines, the connections to the new manhole and the existing wastewater lines 50 feet each side of the new manhole shall be TV Inspected.

B. The TV Inspection shall be performed after all other acceptance testing has been completed and passing tests are achieved.

C. The TV Inspection shall be performed after the lines have been thoroughly cleaned and all dirt, debris, and obstructions have been removed.

D. The TV Inspection shall be performed while water is running in the pipes.

E. The video equipment shall provide adequate illumination of the interior of the pipe to produce a clear and viewable image.

F. The TV Inspection shall not be performed while steam or mist in the pipe obscures visibility. Venting of the line to remove the steam or mist will be required prior to proceeding.

G. Any debris on the camera lens that obscures the video shall be removed prior to proceeding with the TV Inspection.

H. TV Inspection video recordings shall be of an acceptable quality subject to the discretion of the SBWRD. Inadequate results will require re-inspection.

I. The TV Inspection video shall consist of a color digital video, if available, in DVD format, or analog video in VHS format.

J. The TV Inspection video and supporting data for each section of line inspected shall include the following information.
   1. Project name.
   2. Date and time of inspection.
   3. Beginning manhole SBWRD identifying number (e.g., 2-4-07-135).
   4. Ending manhole SBWRD identifying number (e.g., 2-4-07-136).
   5. Camera direction (with flow or against flow).
   6. Starting distance (0' at end of pipe at manhole wall).
   7. Ending distance (to end of pipe a manhole wall).
   8. Type of pipe.
   9. Diameter of pipe.
   10. Lateral connections; location (distance from manhole), orientation (12 o'clock to 11 o'clock), diameter.
   11. Pipe and joint defects identified (type of defect and location).
   12. Low spots or bellies identified (location of beginning and end).

K. All TV Inspection videos and supporting data shall be

turned over to and become the property of the SBWRD.

L. Evaluation Criteria.
   1. Straight Alignments: Each section shall be straight and uniformly graded.
   2. Curvilinear Alignments: Each section shall have uniform horizontal and vertical curves with no signs of distorted or irregular pipe.
   3. Lines with debris, silt or other construction material will not be approved.
   4. Lines that are flat or reverse grade or with a belly or low spot will not be approved.
   5. Lines with damaged pipe, misaligned or displaced joints, or other defects will not be approved.
   6. Lines with improperly installed Private Lateral wyes will not be approved.
   7. Lines with improper connections to manholes will not be approved.
   8. Lines with evidence of infiltration will not be approved.
   9. Other defects, as determined by the SBWRD, will not be approved.

515.7 Wastewater Pump Station Testing

A. 72 Hour Test.
   1. The pump station shall be operated continuously for a period of 72 hours without any failure.
   2. The test shall be conducted with clear water provided by the Contractor. Recycling of the test water shall be provided to minimize the impact on the wastewater system.
   3. All equipment, valves, controls, etc. shall be successfully operated during the 72 hour test.

515.8 Compaction Testing

A. Compaction testing shall be performed on the following installed material.
   1. Trench backfill material for Off-Road Lines, as defined in Section 507.2.
   2. If directed by the SBWRD Inspector, bedding and initial backfill.

B. Frequency of testing.
   1. Off-road Lines: 1 test per lift for every 200' of Off-Road Line.
   2. Bedding and initial backfill: 1 test for every 200' of sewer line.
   3. Frequency of testing may be increased if consistent compaction effort and testing results are not achieved.

515.9 Failed Test Correction

A. Procedure.
   1. Notify SBWRD Inspector of test failure.
   2. Locate leak or defect location, expose, and identify defect.
   3. Contact SBWRD for approval of the proposed correction procedures.
   4. Evaluation is on a case-by-case basis.

B. General evaluation considerations for corrections are as follows.
   1. Damaged main line, damaged wye, or defective joints.
      a. Within 3 pipe lengths or 30' of a manhole or other structure: remove and replace main line to the manhole or structure.
      b. Beyond 3 pipe lengths or 30' of a manhole or other structure: remove and replace the defective area or section. Make pipe coupling repair in accordance with Section 511.2.
   2. Damaged Private Lateral stubs - remove and replace entire length of lateral stub from wye to end cap.
   3. Damaged or defective manholes.
      a. Remove and replace the defective section(s), joint sealant material or other defective feature and re-stack the manhole.
      b. Joint repairs using supplemental sealants or surface grouting of wall sections without removing the sections are not acceptable repair methods and shall not be approved.

SECTION 516
ACCEPTANCE TESTING FOR PRIVATE LATERAL WASTEWATER LINES

516.1 General

A. One or more of the following acceptance test are required for Private Lateral Wastewater Lines depending on the component being tested.
   1. Visual inspection by the SBWRD Inspector.
   2. Exfiltration test or low-pressure air test of all gravity flow private laterals.
   3. Hydrostatic test of all Low Pressure Sewer System private laterals and ejector pump pressure lines.
   4. Exfiltration test or vacuum Test of grease interceptors and sampling manholes.
   5. Dye test.

B. All tests shall be performed or witnessed by the SBWRD Inspector.

C. The Contractor shall provide all plugs, compressors, pumps, gauges, water, etc., required to perform tests.

D. Additional tests may be required by the SBWRD.

E. Defects identified by acceptance testing shall be repaired prior to backfilling, prior to the wastewater lines being approved, or prior to issuance of an Authorization to Use by the SBWRD.

516.2 Visual Inspection

A. A visual inspection of the entire length of Private Lateral Wastewater Line, from the connection to the

Public Wastewater System or Private Lateral Stub installed as part of the Public Wastewater System, to the connection to the building drain line, including clean-outs and other appurtenances, is required.

B. The visual inspection will include items contained in Section 502.

516.3 Exfiltration Test or Low Pressure Air Test of Gravity Flow Private Laterals

A. An Exfiltration Test or Low-Pressure Air Test shall be performed on the following installed pipes.
   1. The full length of each gravity flow Private Lateral Wastewater Line from the Test Tee installed at the connection to the Public Wastewater System or Private Lateral Stub installed as part of the Public Wastewater System, to the connection to the building sewer.
   2. Cleanouts installed as part of the Private Lateral Wastewater Line.

B. Method of Testing:
   1. Exfiltration Test. The Test shall be underway prior to the inspector arriving on-site.
      a. Install plugs in Test Tee and end of lateral line at connection to building drain line to isolate newly installed line.
      b. Install cleanout standpipe to a height 3' above finished grade.
      c. Fill lateral line with water to top of installed cleanout standpipe.
      d. Test shall be maintained as long as necessary to locate all leaks but not less than 2 hours.
      e. Leakage shall not exceed 0.16 gallons/diameter inch/100 feet/hour.
      f. Pipe shall be dewatered upon completion of testing.
   2. Low Pressure Air Test: According to the requirements of Section 515.3.

C. Installation of additional test tees and performing tests in sections may be required for long private lateral lines or private lateral lines with a large elevation difference between each end.

516.4 Hydrostatic Test

A. A Hydrostatic test shall be performed on the following installed pipes.
   1. Low Pressure Sewer System private laterals
   2. Ejector pump pressure lines.

B. The full length of each Low Pressure Private Lateral Wastewater Line or ejector pump pressure line from the Test Tee installed at the connection to the Public Wastewater System or Private Lateral Stub installed as part of the Public Wastewater System, to the connection to the building sewer or pump station shall be tested.

C. Method of Testing: According to the requirements of Section 515.4.

516.5 Exfiltration Test or Vacuum Test of Grease Interceptors and Sampling Manholes

A. An exfiltration test or vacuum test shall be performed on the following items.
   1. Grease interceptor.
   2. Sampling manhole.
   3. All connecting piping and cleanouts.

B. Method of Testing:
   1. Exfiltration Test. The Test shall be underway prior to the inspector arriving on-site.
      a. Install plugs in Test Tee and end of lateral line at connection to building drain line or as otherwise required to isolate newly installed line, grease interceptor and sampling manhole.
      b. Fill grease interceptor with water to minimum 2" above bottom of precast concrete lid. Fill sampling manhole with water to top of casting.
      c. After water level has stabilized additional water shall be added to bring water level back to fill level.
      d. Test shall be maintained as long as necessary to locate all leaks but not less than 30 minutes.
      e. No drop in water level shall occur during the 30 minute test period.
   2. Vacuum Test: According to the requirements of Section 515.5.

516.6 Dye Test

A. A dye test shall be performed on the following installed pipes.
   1. Gravity flow Private Lateral Wastewater Lines.
   2. Ejector pump pressure line connected to a gravity flow Public Wastewater line.

B. Method of testing for gravity flow lines.
   1. The SBWRD Inspector will add dye to the water placed in the private lateral for the exfiltration test through the cleanout standpipe.
   2. At the direction of the SBWRD Inspector, the plug in the test tee will be removed to release the dyed test water.
   3. The SBWRD Inspector will observe the dyed test water as it passes the nearest manhole downstream to the connection of the private lateral to the Public Wastewater System.
   4. If dyed test water is not observed at the nearest downstream manhole or if the flow characteristics of the dyed test water as it passes the nearest downstream manhole are unusual, the SBWRD Inspector will require a second dye test.
   5. If the second dye test is also unsuccessful, the cause of the failed test shall be investigated by the Contractor, the problem causing the failed

test shall be identified and corrected by the Contractor as approved by the SBWRD Inspector, and another dye test shall be performed.

6. A TV inspection of the lateral, performed at the cost of the Contractor, may be required to verify acceptability of the Private Lateral connection to the Public Wastewater System.

C. Method of testing for ejector pump pressure lines shall be similar to the method for testing gravity flow lines except that the dye is placed in the ejector pump wet well and the ejector pump is operated until the dyed test water is observed at the nearest downstream manhole.

516.7 Failed Test Correction

A. Procedure.
   1. Locate leak or defect location, expose, and identify defect.
   2. Receive approval of the proposed correction procedures from SBWRD Inspector.
   3. Evaluation of the proposed correction procedures is on a case-by-case basis.

SECTION 517
CLEANUP

517.1 General

A. All surplus materials, tools, and any temporary structures shall be removed from the construction site by the contractor.

B. All rubbish, dirt or excess earth from the excavation shall be removed by the contractor at the earliest possible date and the construction site left clean and acceptable to the SBWRD.

C. All components of the Public Wastewater System and Private Lateral Wastewater Lines shall be clean and free of any foreign material and will be subject to a high pressure, high volume water wash or a high pressure jet wash.

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

LINE EXTENSION AGREEMENT
FOR
PUBLIC WASTEWATER SYSTEM

This AGREEMENT is made and entered into this _____ day of _____, 20___, by and between _____, a(n) _____ ("DEVELOPER") and the SNYDERVILLE BASIN WATER RECLAMATION DISTRICT, a special district of the State of Utah, ("SBWRD")

This Agreement is made with reference to the following facts:

DEVELOPER is the owner and developer of _____, located _____, in Summit County, Utah ("PROJECT") and is hereby applying to the SBWRD for wastewater service.

The SBWRD has certain requirements for development approval and construction of wastewater facilities in the SBWRD service area which are contained in "Development Procedures, Design Standards, and Construction Specifications for Wastewater Facilities in the Snyderville Basin Water Reclamation District" (SBWRD Standards). The SBWRD Standards are hereby incorporated and made a part of this Agreement by reference.

The SBWRD requires approval of an agreement by the SBWRD Board of Trustees for Developers to begin the design and construction process of new wastewater facilities intended to become part of the Public Wastewater System owned and operated by the SBWRD, modifications to the existing Public Wastewater System, or certain Private Wastewater Systems proposed to connect to the Public Wastewater System.

When this Agreement is accepted by the Board of Trustees, the following terms and conditions shall apply to planning, design, and construction of the Public Wastewater System extension or modification, payment of fees and other costs, and acceptance of the extension or modification for ownership and maintenance by the SBWRD.

AGREEMENT

NOW, THEREFORE, in consideration of the services to be provided by SBWRD and contributions of facilities by DEVELOPER to SBWRD, which are hereby acknowledged by the parties to be adequate to support this Agreement, and the mutual covenants and promises contained herein, the parties hereto agree as follows:

1. **Definitions**: The terms used in this Agreement are defined in the definition of terms contained in the SBWRD Standards.

2. Contact Information.

a. Developer Information:
Company: _____
Contact Person: _____
Mailing Address: _____
Telephone Number: _____ Fax Number: _____
email: _____

b. Project Manager Information:
Company: _____
Contact Person: _____
Mailing Address: _____
Telephone Number: _____ Fax Number: _____
email: _____
( ) Buyer ( ) Agent ( ) Engineer ( )Other:_____

3. Project Information

a. Project Name: _____
b. Type of Project:
( ) Single Family Residential Subdivision ( ) Planned Unit Development
( ) Condominium ( ) Comm./Ind. Subdivision
( ) Residence ( ) Other: _____
c. Legal Description of Property Being Developed: (Attach copy of Description)
d. Projected Construction Start Date: _____
e. Residential Wastewater Discharge:

Estimated Residential Equivalents (REs):
(Provide attachment if necessary)

	Number	Estimated REs/Lot or Unit	Total REs
Single Family Residential Lots	_____	_____	_____
Planned Unit Development Units	_____	_____	_____
Condominium Units	_____	_____	_____
Commercial/Industrial (sq. ft.)	_____	_____	_____
Other: _____		_____	_____
	TOTAL REs		_____

e. Nonresidential Wastewater Discharge: (If applicable)

Estimated Nonresidential Wastewater Quantity and Strength

Average Daily Flow Rate (g.p.m.) _____
Total Suspended Solids (TSS) in mg/l _____
Biochemical Oxygen Demand (BOD) in mg/l _____

4. Term of Agreement

a. This Agreement shall remain in full force and effect until the expiration of the Warranty Period as defined in paragraph 15, unless terminated by the SBWRD as provided herein. The SBWRD may take any of the following actions relative to this Agreement depending on the progress of the PROJECT:

1) If the PROJECT has not received Final Design Approval by the SBWRD within 1 year of the date of this Agreement, this Agreement shall expire. The SBWRD will provide written notice to the DEVELOPER of the expiration of the Agreement. If the DEVELOPER wishes to pursue construction of the Public Wastewater System extension or modification required for the PROJECT after expiration of this Agreement, a new Line Extension Agreement with the SBWRD and payment of additional Engineering Services Fees, as discussed in paragraph 9, will be required.

2) If the PROJECT has received Final Design Approval but construction of the Public Wastewater System extension or modification covered by this Agreement has not begun within 1 year of the date of Final Design Approval, this Agreement and Final Design Approval shall expire. The SBWRD will provide written notice to the DEVELOPER of the expiration of the Agreement and Final Design Approval. If the DEVELOPER wishes to pursue construction of the Public Wastewater System extension or modification required for the PROJECT after expiration of this Agreement, a new Line Extension Agreement with the SBWRD, a new Final Design Approval based on the SBWRD Standards in effect at that time, and payment of additional Engineering Services Fees, as discussed in paragraph 9, will be required.

3) If construction of the Public Wastewater System extension or modification has begun but has not yet received Final Project Approval from the SBWRD within 1 year of the date of Final Design Approval and an Improvement Completion Agreement has not been established for the PROJECT, the SBWRD shall have the following options that the SBWRD may select in its sole discretion:

a) Grant in writing, the DEVELOPER an extension of time in which to reach Final Project Approval.

b) Declare the Line Extension Agreement expired after appropriate notice to the DEVELOPER, in which case the SBWRD shall have no obligation to take further action on the PROJECT. If the DEVELOPER wishes to pursue construction of the Public Wastewater System extension or modification required for the PROJECT after expiration of this Agreement, a new Line Extension Agreement with the SBWRD, a new Final Design Approval based on the SBWRD Standards in effect at that time, and payment of additional Engineering Services Fees, as discussed in

paragraph 9, will be required.

4) If an Improvement Completion Agreement has been established for the PROJECT, the SBWRD may, in its sole discretion, exercise its rights under the Improvement Completion Agreement. The Improvement Completion Agreement is hereby incorporated and made a part of this Line Extension Agreement by reference.

4. Installation of Required Improvements at DEVELOPER's Cost

a. DEVELOPER acknowledges that extension or modification of the Public Wastewater System and extending Private Lateral Wastewater Lines to each lot or unit within the PROJECT is necessary to provide wastewater service to the PROJECT.

b. The cost of designing and constructing the extension or modification of the Public Wastewater System covered by this Agreement and extending Private Lateral Wastewater Lines to each lot or unit within the PROJECT according to SBWRD Standards shall be borne solely by the DEVELOPER because the PROJECT benefits the DEVELOPER's property.

c. DEVELOPER shall provide necessary "wyes" in the Public Wastewater Lines for each lot or unit to be serviced under this Agreement and shall extend Private Lateral Wastewater Line stubs to each lot or unit in accordance with SBWRD Standards.

d. The cost of extending the Private Lateral Wastewater Line from the end of the lateral stub, installed with the main line, to the building or unit shall be the responsibility of the homeowner or building owner. The SBWRD shall not be responsible for this cost. Such work shall conform to SBWRD Standards.

e. Before actual connection of each building or unit to the Public Wastewater System and before a building permit will be approved, the owner or owner's authorized representative thereof shall follow SBWRD procedures for submittal and approval of such connection and pay in full the SBWRD Administration and Impact Fees, at the rate in effect at the time SBWRD authorizes this connection.

f. The SBWRD shall not be responsible for ownership, maintenance or repair of Private Lateral Wastewater Lines or the connection of said Private Lateral Wastewater Line to the Public Wastewater System.

5. Compliance with Standards

DEVELOPER agrees to comply with all procedures and requirements of the SBWRD for the design and construction of the extension or modification of the Public Wastewater System described in this Agreement as contained in the SBWRD Standards.

6. Engineering Services

a. DEVELOPER shall contract with or retain a qualified Project Engineer for the purpose of providing engineering services for the design and construction of the extension or modification of the Public Wastewater System covered by this Agreement. The Project Engineer shall be a Licensed Professional Engineer in the State of Utah.

b. DEVELOPER and DEVELOPER's Project Engineer shall meet all planning, design, construction, and approval requirements as contained in the SBWRD Standards.

c. Inspection of the extension or modification of the Public Wastewater System

covered by this Agreement will be performed by the SBWRD to insure compliance with the SBWRD Standards.

7. Wastewater Service Availability and System Capacity

a. Notwithstanding any other terms of this and any other document of the SBWRD, the obligation of the SBWRD to provide wastewater service pursuant to this Agreement shall be limited to existing and available wastewater system capacity. SBWRD shall have the ability to deny wastewater service if connection to the system will cause an increase in costs of service, affect SBWRD compliance with any governmental regulations or permits, or otherwise prove detrimental to the public interest and the SBWRD.

b. Any user or proposed user whose source or sources of water results in the physical, biological, or chemical alteration of the receiving waters of the SBWRD water reclamation facilities or otherwise increases treatment, service, or other costs shall either be denied connection or shall be required to pay its pro rata share of the costs created by its use of these water sources. These determinations and calculations shall be in the sole discretion of the SBWRD.

c. The obligation of the SBWRD to provide wastewater service pursuant to this Agreement is contingent upon the DEVELOPER obtaining Final Design Approval and Final Project Approval for the PROJECT from the SBWRD according to the SBWRD Standards and the payment of the applicable Impact Fees and other fees or costs applicable to the PROJECT. Wastewater service will not be committed by the SBWRD until the SBWRD receives full payment of all required fees including Impact Fees.

d. Upon submission of the preliminary wastewater system design by the DEVELOPER, the SBWRD shall review the capacity of the existing Public Wastewater System.

1) Should the SBWRD determine, upon review of the capacity and other demands of the existing Public Wastewater System and the anticipated impact of the wastewater quantity or quality contemplated by this Agreement, that the existing Public Wastewater System downstream of the connection of the PROJECT should be modified to increase capacity or otherwise to allow for the additional wastewater load of, or to alleviate other problems created by the PROJECT, the design of any additional Public Wastewater System improvements (new or upgraded) may be included as part of the PROJECT.

2) DEVELOPER's financial and other responsibility for modifying the existing Public Wastewater System pursuant to this provision shall be determined by the SBWRD in its sole discretion.

3) Any modified Public Wastewater System design determined to be DEVELOPER's responsibility by the SBWRD shall be designed by DEVELOPER's Project Engineer and submitted for Final Design Approval to the SBWRD.

4) DEVELOPER agrees to pay for all reasonable costs attendant to modifying the existing Public Wastewater System to incorporate PROJECT. Said costs shall include but are not limited to design and construction of the modified Public Wastewater System.

e. If the SBWRD finds in the course of its planning for the overall SBWRD service area that the extensions or modifications to the Public Wastewater System covered by this

Agreement should be modified in design or increased in capacity to allow for its use in servicing future projects, the design changes to the proposed Public Wastewater System improvements shall be part of DEVELOPER's design and construction responsibility. The method of payment for reimbursement of the increased costs of such design and construction shall be as specified in paragraph 9 of this Agreement. All such reimbursable costs shall be approved by the SBWRD.

8. Reimbursable Costs

a. During planning and design of the extension or modification of the Public Wastewater System covered by this Agreement the SBWRD will evaluate the need for a modification in design or increase in capacity in said extension or modification to allow for its use in providing wastewater service to future projects. If the SBWRD determines that a modification in design or increase in capacity is needed, the DEVELOPER shall initially pay the full cost for the design and construction of these modifications and the SBWRD shall reimburse the DEVELOPER for the required modifications according to the procedures contained in this paragraph 8.

b. DEVELOPER shall submit for review and approval by the SBWRD, documentation in a form acceptable to the SBWRD, of estimated reimbursable costs prior to Final Design Approval. The actual amount of reimbursable costs to be paid to DEVELOPER and the payment schedule thereof shall be determined and agreed upon in writing between SBWRD and DEVELOPER prior to Final Design Approval.

c. Any sums to be reimbursed to DEVELOPER shall be paid by the SBWRD to DEVELOPER following construction and Final Project Approval of the PROJECT and after payment by DEVELOPER of any and all fees or costs due the SBWRD as a result of the terms of this Agreement.

9. Payment of SBWRD Engineering Fees

a. At the time this Agreement was submitted, DEVELOPER deposited with the SBWRD a **non-refundable $100 LEA Application Fee** for the PROJECT for processing of this Agreement.

b. DEVELOPER acknowledges that the SBWRD will incur expenses relating to planning, design review and construction inspection of extensions or modifications of the Public Wastewater System necessary to provide wastewater service to the PROJECT. DEVELOPER agrees to pay SBWRD an **Engineering Services Fee equal to six percent (6%) of the estimated construction cost** of said extensions or modifications to compensate SBWRD for the expenses incurred.

b. The estimated construction cost shall be determined by the SBWRD after reviewing an estimate of construction costs prepared by the DEVELOPER's Project Engineer.

c. At the time this Agreement was submitted, DEVELOPER deposited with the SBWRD a **non-refundable Engineering Services Fee prepayment of $750.00**. The Engineering Services Fee prepayment paid by DEVELOPER shall be applied as a credit toward DEVELOPER's total Engineering Services Fee for the PROJECT.

d. Payment of the remaining portion of the Engineering Services Fee shall be made prior to Plat Approval or Final Design Approval by the SBWRD.

e. Nothing in this Agreement shall preclude the SBWRD from seeking additional Engineering Services Fees in the event the total estimated construction cost is deficient or in the event of changing circumstances.

f. If additional Engineering Services Fees are required, DEVELOPER agrees to pay the amount that becomes due and payable to the SBWRD from DEVELOPER under the terms of this Agreement within 30 days following the first billing of such amount. In the event payment is not made within this time period, DEVELOPER agrees to pay the SBWRD interest on the unpaid balance at the rate of 1.5 percent per month from the date of the first billing until the entire balance is paid in full.

g. If DEVELOPER defaults on or fails to comply with any condition of this Agreement, DEVELOPER agrees to pay all costs of enforcing the terms of this Agreement and all costs of remedying such default or noncompliance the SBWRD may incur, including reasonable attorney fees and associated costs. The SBWRD reserves the right to certify delinquent fees to the Summit County Treasurer for collection as a property tax or to utilize such other collection method or methods selected by the SBWRD.

h. Applicant agrees to pay all fees or costs incurred by the SBWRD that arise from the terms of this Agreement prior to Plat approval, Final Design Approval or Final Project Approval by the SBWRD. If such payments are not made by the DEVELOPER, the SBWRD shall not be obligated to provide these approvals or take further action with respect to the PROJECT.

10. Improvement Completion Agreement

a. DEVELOPER agrees to establish with the SBWRD a properly executed Improvement Completion Agreement (I.C. Agreement) to ensure and guarantee the completion of the extension or modification of the Public Wastewater System, warranty of the work as required by this Agreement and payment to the SBWRD of all amounts due including but not limited to construction costs, engineering fees, inspection fees, administrative fees, and legal fees and costs which may be experienced by the SBWRD under the terms of this Agreement.

b. DEVELOPER shall establish the I. C. Agreement prior to the earliest occurrence of one of the following:

1) Final Project Approval by the SBWRD.

2) Substantial Completion Approval by the SBWRD.

3) Plat Approval or Site Plan Approval by the SBWRD if the DEVELOPER requires approval of the PROJECT dedication plat or site plan prior to the receipt of Final Project Approval.

4) Acceptance by the SBWRD of Impact Fees for any building or facility located in the PROJECT if the DEVELOPER or another builder requests a Building Permit from Park City Municipal Corporation or Summit County prior to the receipt of Final Project Approval.

5) Final Design Approval if the extension or modification to the Public Wastewater System covered by this Agreement will impact the ability of the SBWRD to provide wastewater service to existing system users, as determined by the SBWRD in its sole discretion.

c. The initial I. C. Agreement amount shall be established based on the estimated construction cost of the extensions or modifications of the Public Wastewater System

required for the PROJECT. The estimated construction cost shall be determined prior to Final Design Approval by the SBWRD after reviewing an estimate of construction costs prepared by the DEVELOPER's Project Engineer.

d. The amount of the **I. C. Agreement shall be 125 percent (125%) of the estimated construction cost** as determined by the SBWRD. If the I. C. Agreement is established after construction of the extensions or modifications of the Public Wastewater System has begun, the amount of the I. C. Agreement established at that time will be based on the percent of work completed as defined in the I. C. Agreement. However, the release of funds from the I. C. Agreement will be based on the full I. C. Agreement Amount (125% of the total estimated construction cost).

e. DEVELOPER will be required to establish only one I. C. Agreement or for the PROJECT.

f. Release of funds from the I. C. Agreement to the DEVELOPER shall be made in accordance with the provisions of the I. C. Agreement.

g. The SBWRD will retain not less than 10 percent of the initial I. C. Agreement amount during the Warranty Period as defined in the SBWRD Standards. Said retained amount shall constitute a contingency fund if the facilities are unacceptable in accordance with SBWRD Standards.

11. Easements

a. DEVELOPER shall provide necessary wastewater system easements prior to Final Design Approval granting the SBWRD full right to construct, operate, maintain, repair, replace, augment and/or remove and replace the extension or modification of the Public Wastewater System covered by this Agreement.

b. DEVELOPER shall be responsible for securing and purchasing appropriate wastewater system easements and rights-of-way from third parties at no cost to the SBWRD if any part of the extensions or modifications of the Public Wastewater System covered by this Agreement are to be located on land belonging to third parties.

c. Easements or rights-of-way shall be granted to the SBWRD on the SBWRD standard Grant of Easement form.

12. Violations

a. Should DEVELOPER construct any portion of the extension or modification of the Public Wastewater System covered by this Agreement without first obtaining Final Design Approval by the SBWRD, as evidenced by Approved Construction Drawings stamped and signed by the SBWRD, or without inspection by the SBWRD, the DEVELOPER shall be required, and hereby agrees, at its sole expense, to excavate and remove all portions of the work of extension or modification in violation.

b. DEVELOPER agrees that upon connection of the extension or modification of the Public Wastewater System covered by this Agreement to the existing Public Wastewater System, a watertight plug shall be installed and maintained between the two systems by the DEVELOPER. This plug shall remain in place until the DEVELOPER is notified by the SBWRD that the plug may be removed. DEVELOPER shall be responsible for removal of the plug and a SBWRD representative shall be present for plug removal.

c. If the DEVELOPER fails to comply with the provisions of this paragraph 12, DEVELOPER agrees to repair and pay for all damages to the existing Public Wastewater

System and or the cleaning of the downstream wastewater collection system. In addition, DEVELOPER shall pay $250.00 per day to the SBWRD for each occurrence in which DEVELOPER is found to be in violation of said condition.

13. Substantial Completion

a. Substantial Completion Approval by the SBWRD will be granted only when there is a need to issue an Authorization to Use for a building or facility in the area of the PROJECT prior to Final Project Approval and the District Engineer finds that the requested use is not inconsistent with public health and safety.

b. DEVELOPER shall follow the procedures and complete all items required and meet all standards for Substantial Completion Approval as contained in the SBWRD Standards. The SBWRD shall have no obligation to grant Substantial Completion Approval if all requirements have not been completed.

c. Substantial Completion Approval granted by the SBWRD is only an accommodation to DEVELOPER and shall not relieve DEVELOPER of any project completion responsibility or other responsibility pursuant to this Agreement or the I. C. Agreement.

d. Until the Public Wastewater System is accepted by the District, the DEVELOPER shall retain ownership of the extension or modification of the Public Wastewater System covered by this Agreement which receives Substantial Completion Approval and shall remain solely responsible for all necessary maintenance, repairs, and replacement prior to Final Project Approval.

e. Prior to Substantial Completion Approval the entire Public Wastewater System located downstream of the PROJECT must have received Final Project Approval by the SBWRD.

14. Final Project Approval

a. Upon Final Project Approval, the SBWRD shall accept dedication of and responsibility for the maintenance of the extension or modification of the Public Wastewater System covered by this Agreement. DEVELOPER shall remain responsible for warranty items as defined in paragraph 15.

b. The SBWRD shall have no obligation to grant Final Project Approval for the PROJECT if the proposed extension or modification of the Public Wastewater System covered by this Agreement does not meet the requirements of the SBWRD Standards or if all applicable fees have not been paid in full.

c. Prior to Final Project Approval the entire Public Wastewater System located downstream of the PROJECT must have received Final Project Approval by the SBWRD.

15. Warranty of Improvements

a. DEVELOPER agrees that upon Final Project Approval by the SBWRD of the extension or modification of the Public Wastewater System covered by this Agreement and in accordance with the I. C. Agreement, DEVELOPER shall remain responsible to correct all problems due to defects in material and workmanship and incorrect

information on the Record Drawings during the Warranty Period as defined in the SBWRD Standards.

b. Upon expiration of the Warranty Period the SBWRD shall accept full responsibility for the extension or modification of the Public Wastewater System covered by this Agreement.

16. Transfer of Title

a. Upon receipt of Final Project Approval by the SBWRD for the extension or modification of the Public Wastewater System covered by this Agreement, DEVELOPER transfers, conveys, and warrants to the SBWRD all rights, title, and interest in the new facilities, free and clear of encumbrances, and warrants that the facilities transferred have been constructed in accordance with the requirements, rules, and regulations of the SBWRD.

b. Upon Final Project Approval, the SBWRD shall thereafter be the owner thereof and shall maintain the same.

17. Indemnification

a. DEVELOPER agrees to indemnify, defend, and otherwise hold the SBWRD, its employees, officers, independent contractors, and agents harmless from all claims resulting from the design, construction, and operation of the extension or modification of the Public Wastewater System covered by this Agreement that are approximately caused by the acts or omissions of the DEVELOPER or others under DEVELOPER's control and supervision prior to Final Project Approval by the SBWRD.

c. DEVELOPER and DEVELOPER's Contractor shall be responsible for full compliance with the applicable excavation, trenching, and confined space worker safety regulations of the U.S. Department of Labor Occupational Safety and Health Administration as administered by the Utah Occupational Safety and Health Division.

18. Bonds and Insurance

a. DEVELOPER or DEVELOPER's Contractor shall obtain and maintain in full force and effect throughout the construction period of the PROJECT Labor and Material Payment Bonds for the PROJECT work.

b. DEVELOPER or DEVELOPER's Contractor shall obtain and maintain in full force and effect throughout the construction period of the PROJECT comprehensive general public liability and property damage insurance at the rate of $1,000,000 each occurrence and $2,000,000 aggregate from an insurance company authorized to issue insurance in the State of Utah. The liability and property damage insurance shall include SBWRD as an additional named insured.

c. DEVELOPER or DEVELOPER's Contractor shall have on file with the SBWRD a copy of the Bonds and a certificate from the insurance company evidencing that DEVELOPER has complied with the insurance and bonding requirements stated herein.

19. Property Ownership and Corporate Resolutions

a. DEVELOPER hereby verifies and warrants it is the legal owner, or is legally

authorized to represent the owner of the area of the PROJECT to be served under this Agreement.

b. DEVELOPER hereby warrants that it has permission to enter upon the property of third parties in order to design, construct, inspect, or otherwise ensure access to the facilities governed by this Agreement and grants permission to the SBWRD and its agents to enter upon that property and the property of DEVELOPER covered by this Agreement.

c. DEVELOPER hereby warrants that it has the authority to execute all agreements required under the terms of this Agreement

d. A copy of the Corporate Resolution and/or Power of Attorney authorizing the acts required of DEVELOPER as well as verification of DEVELOPER's right to enter into this Agreement, shall be attached and made a part of this Agreement.

20. Choice of Law

This agreement and the obligations of the parties hereunder shall be governed by and interpreted in accordance with the laws of the State of Utah.

21. Integration

The terms and conditions of this agreement shall constitute the full and complete agreement by and between these parties and shall supersede all prior oral or written agreements, representations, or discussions of the parties and shall be binding upon their heirs, successors, administrators, and assigns.

22. Severability

This agreement is to be considered severable. Should any portion or section of this Agreement be declared invalid or unenforceable, such declaration shall have no effect upon the remaining portions or sections, which shall remain valid and enforceable.

23. Certification

By signing this Agreement DEVELOPER certifies that he/she has personally examined and is familiar with the terms and conditions of this Agreement and the submitted information is true, accurate, and complete.

24. Owner Of Record Acknowledgment

The owner of record of the property where the PROJECT is located acknowledges awareness of and consents to the development of this property. (Attach Preliminary Title Report for property indicating ownership)

_____

Owner Of Record Signature

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

_____
DEVELOPER

_____
Signature

_____
Title

STATE OF UTAH)
: ss.
COUNTY OF _____)

On this ____ day of _____, 20____, _____ personally appeared before me, and being by me duly sworn, did say that he/she is the signer of the within instrument and that the within and foregoing Snyderville Basin Water Reclamation District Line Extension Agreement for Public Wastewater System was signed on behalf of _____ with actual and requisite authority, and said _____acknowledged to me that he/she has fully reviewed and executed the same.

_____
Notary Public

Residing At:

The foregoing Agreement is hereby approved and executed by the Snyderville Basin Water Reclamation District, this _____ day of _____, 20_____.

SNYDERVILLE BASIN
WATER RECLAMATION DISTRICT

_____
Chair, Board of Trustees

ATTEST:

_____
Clerk

Revised and Readopted 4/19/04

Snyderville Basin Water Reclamation District

2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

IMPROVEMENT COMPLETION AGREEMENT

☐ Irrevocable Letter of Credit

☐ Escrow Fund

☐ Cash Deposit Escrow

☐ Surety Bond

(Check One)

This AGREEMENT is made and entered into this _____ day of _____, 200 ___, by and between _____, a(n) _____ ("DEVELOPER") and SNYDERVILLE BASIN WATER RECLAMATION DISTRICT, a special district of the State of Utah, ("SBWRD") for _____ located at _____, hereinafter referred to as "Project."

This Agreement is entered with reference to the following facts:

The DEVELOPER has entered into a Line Extension Agreement For Public Wastewater System (LEA) with the SBWRD dated _____, 200___, which is attached hereto as Exhibit 1 and has agreed under the terms and conditions of the LEA to construct Wastewater Facilities (Facilities) within the SBWRD boundaries.

The SBWRD in the best interest of the public, desires to assure timely and full completion and payment for the wastewater facilities and to guarantee payment of wastewater system fees (engineering, administrative, legal, and other fees) attendant and related to completion of said wastewater facilities that may become due to the SBWRD and to provide collateral for the warranty of the Facilities as required in the LEA.

The Developer will deliver to the SBWRD _____ in compliance with the terms of this Agreement.
(type of collateral)

Now, therefore, in consideration of the LEA executed by the parties and the mutual covenants and conditions set forth herein, the parties hereby agree as follows:

1. Construction Completion. DEVELOPER agrees to fully complete construction of the wastewater facilities described and authorized in the LEA as specifically set forth in the Line Extension Agreement.

2. Source of Funds. To ensure payment of all costs and the timely and full completion of said wastewater facilities, DEVELOPER hereby delivers to and deposits with the SBWRD

a. ( ) an unconditional Irrevocable Letter of Credit,

b. ( ) an Escrow Fund with the District,

c. ( ) a Cash Deposit Escrow in the principal amount of $_____ currently held by the following Depository*: _____

d. ( ) a Surety Bond on the form provided by the District.

DEVELOPER also hereby transfers and signs to the SBWRD the right to demand and collect the proceeds of said funds from the Depository in the event of a failure of DEVELOPER as herein provided. The SBWRD agrees to make no demand until such failure by DEVELOPER to comply with the requirements of this Agreement and/or the LEA.

*Acceptable Depositories shall be Federally insured banks, savings and loans institutions, title companies with a licensed escrow officer conducting business on the premises, or a duly licensed bonding or surety company authorized to do business in the State of Utah.

3. Cash Deposit Escrows. For a Cash Deposit Escrow under Election C. above, the DEVELOPER shall deposit cash in the required amount with the SBWRD to meet the obligations of this Agreement. DEVELOPERS shall earn interest on the deposit at a rate equivalent to the current market rates being earned by the SBWRD's cash management investment account. Such interest shall be credited to DEVELOPER's account. Interest will not be paid by the SBWRD on other options.

4. Release of Funds. FUNDS ARE TO BE RELEASED FROM A CASH DEPOSIT ESCROW WITH A DEPOSITORY ONLY UPON WRITTEN AUTHORIZATION FROM THE SBWRD. Escrow monies may be released from time to time as a result of the completion of all or part of the wastewater facilities with a written partial authorization from the District. A written request from DEVELOPER requesting a release of escrowed funds is required prior to any authorized release. Payment to the SBWRD of all outstanding fees due to the SBWRD is also required prior to any authorized release. The SBWRD shall review the project status in accordance with Exhibit "1" to this Escrow Agreement and verify whether or not all outstanding fees due have been paid. Upon verification of project status and payment of all outstanding fees due, the General Manager will submit the request to the SBWRD's Board of Trustees for approval at a regularly-scheduled Board meeting. The following schedule shall apply to all reductions:

Percentage of Work Completed	Maximum Percentage of Escrow Eligible for Release
30 %	20 %
50 %	40 %
70 %	60 %
90 %	80 %
100 %	90 %

5. Performance by DEVELOPER. When the wastewater facilities have received Final Project Approval, as defined in the terms of the Line Extension Agreement, and the wastewater facilities are found to be acceptable by the SBWRD after a minimum period of one year after Final Project Approval, and fulfillment of all of DEVELOPER's obligations pursuant to the terms and condition of the Line Extension Agreement, the SBWRD agrees to release the remaining escrowed funds or other percentage being held. In the event the wastewater facilities described herein have only received Substantial Completion Approval and the DEVELOPER has failed to fulfill the obligations pursuant to the Line Extension Agreement, the SBWRD shall have the following options that may be selected in its sole discretion: (1) Demand the proceeds of the funds secured by this Agreement and collect said funds from the Depository (which funds shall be used for the completion of the construction), or (2) Give DEVELOPER an extension of time in which to complete the construction.

6. Deficit of Funds. The release of funds does not preclude the SBWRD from seeking additional deposits from DEVELOPER in the event of defects in the wastewater facilities or non-performance of the terms of this Agreement or other changing circumstances.

7. Failure of Performance by DEVELOPER. It is expressly understood and agreed among the parties that this Agreement shall not relieve DEVELOPER from the obligation to install and fully pay for the wastewater facilities referenced herein. Should DEVELOPER fail to install and fully pay for such facilities, and the SBWRD is required to do so, DEVELOPER further agrees to reimburse the SBWRD for all costs, including construction, engineering and legal costs incurred by the SBWRD to install the facilities required hereunder to the extent that these costs are not adequately covered by the principle amounts available to the SBWRD as referenced in Section 2 herein.

8. Terms of Agreement. DEVELOPER agrees to maintain this Agreement in full force and effect and abide by its terms and conditions until notice to cancel or terminate this Agreement is received in writing from the SBWRD.

9. Depository Acknowledgment. The Depository hereby acknowledges that there is on deposit at _____ to the credit of DEVELOPER and the SBWRD the sum or $_____, Account Number _____. Depository agrees to disburse the same in accordance with the terms and conditions set forth herein.

10. Liability of Depository. The Depository shall not be bound in any way by the requirements of any permit or approval described herein and its only duty, liability and

responsibility shall be to hold the funds on deposit and to pay and deliver the funds to such parties under such conditions as are herein set forth.

11. Choice of Law. This Agreement and the obligations of the parties hereunder shall be governed by and interpreted in accordance with the laws of the State of Utah.

12. Integration. The terms and provisions of this Agreement shall constitute the full and complete Agreement by and between these parties and shall supersede all prior oral or written agreements, representations or discussions of the parties and shall be binding upon their heirs, successors, administrators and assigns.

13. Severability. This Agreement is to be considered severable. Should any portion or section of this Agreement be declared invalid or unenforceable, such declaration shall have no effect upon the remaining portions or sections, which shall remain valid and enforceable.

DEVELOPER: _____

By: _____

Address: _____

_____

STATE OF UTAH)
: ss.
COUNTY OF _____)

On this _____ Day of _____, 20____, _____, personally appeared before me, and being by me duly sworn, did say that he/she is the signer of the within instrument, and that the within and foregoing Escrow Agreement was signed in behalf of _____, by authority, and said _____ acknowledged that he/she executed the same.

S
E
A
L

_____
Notary Public

DEPOSITORY: _____

By: _____

Address: _____

_____

STATE OF UTAH)
: ss.
COUNTY OF _____)

On this _____ Day of _____, 20____, _____, personally appeared before me, and being by me duly sworn, did say that he/she is the signer of the within instrument, and that the within and foregoing Escrow Agreement was signed in behalf of _____, by authority, and said _____ acknowledged that he/she executed the same.

S
E
A
L

_____
Notary Public

SNYDERVILLE BASIN
WATER RECLAMATION DISTRICT

_____
General Manager

ATTEST:

_____
Clerk

EXHIBIT A TO THE IMPROVEMENT COMPLETION AGREEMENT

RELEASE SCHEDULE

% OF WORK COMPLETED	COMPLETED WORK REQUIRED	
30 % COMPLETE	PIPE -	INSTALLED AND BACK FILLED TO TRENCH PIPE ZONE LIMITS
	MANHOLE -	BASE INSTALLED
50 % COMPLETE	PIPE-	INSTALLED & BACKFILLED TO ROUGH GRADE
	MANHOLE-	BASE INSTALLED & WALL SECTIONS STACKED TO ROUGH GRADE.
	LATERAL-	INSTALLED & BACKFILLED TO ROUGH GRADE.
70 % COMPLETE	PIPE-	INSTALLED & BACKFILLED TO ROUGH GRADE & AIR-TESTED.
	MANHOLE-	BASE INSTALLED & WALL SECTIONS STACKED TO ROUGH GRADE.
	LATERAL-	INSTALLED & BACKFILLED TO ROUGH GRADE & AIR-TESTED.
	SPECIAL REQ'MTS-	PRELIMINARY INSPECTION REQUIRED.
90 % COMPLETE	PIPE-	INSTALLED, BACKFILLED, AIR-TESTED & PAVEMENT INSTALLED.
	MANHOLE-	INSTALLED (NOT ADJUSTED TO FINISH GRADE). MANHOLE COLLARS NOT INSTALLED. GROUTING COMPLETE.
	LATERAL-	INSTALLED & BACKFILLED TO FINISH GRADE & AIR-TESTED. LOCATION VERIFIED & FULLY EXTENDED.
	SPECIAL REQ'MTS-	COMPLETION OF MAJOR PRELIMINARY INSPECTION "PUNCH-LIST" ITEMS REQUIRED. RECORD DRAWINGS SUBSTANTIALLY COMPLETE.
100 % COMPLETE	PIPE-	INSTALLED, BACKFILLED, AIR-TESTED & PAVEMENT INSTALLED.
	MANHOLE-	INSTALLED (ADJUSTED TO FINISH GRADE). MANHOLE COLLARS INSTALLED GROUTING COMPLETE.
	LATERAL-	INSTALLED & BACKFILLED TO FINISH GRADE & AIR-TESTED. LOCATION VERIFIED & FULLY EXTENDED 2 X 4 MARKER PRESENT.
	SPECIAL CONST.-	ALL ITEMS COMPLETE (I.E. ACCESS ROADS, EROSION PROTECTION, MANHOLE MARKERS, ETC.) REVEGETATION ESTABLISHED.
	SPECIAL REQ'MTS-	FINAL INSPECTION PUNCH-LIST COMPLETE. SIGNED EASEMENTS COMPLETE. RECORD DRAWINGS COMPLETE. FINAL CONSTRUCTION APPROVAL GRANTED.

NOTE:: SEWER MAIN AND LATERAL COMPLETION PERCENTAGE WILL BE ASSESSED ON THE STATUS OF EACH WHOLE SECTION (FROM MANHOLE TO MANHOLE OR ENTIRE LATERAL LENGTH) OF PIPE. THE WORST CONDITION OF EACH SECTION WILL BE USED FOR THE ESTABLISHMENT OF THE PERCENTAGE.

NO PARTIAL COMPLETION ALLOWANCE WILL BE MADE FOR SPECIAL CONSTRUCTION ITEMS UNLESS SPECIFICALLY APPROVED AT THE ESTABLISHMENT OF THE ESCROW AGREEMENT.

Revised and Readopted 4/19/04

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, a corporation duly licensed to conduct surety business in the State of Utah and having its principal office at _____, as surety, are jointly and severally bound unto the Snyderville Basin Water Reclamation District, a special district of the state of Utah, in the sum of:_____ ($ _____) for which payment we jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

Whereas the Snyderville Basin Water Reclamation District, a special District of the state of Utah, ("the District") has approved a sewer improvement project and entered into a Line Extension Agreement (Exhibit 1) with the Principal for the improvement of the _____ _____ Project or Subdivision dated the _____ day of _____, 200_____which requires that the Principal file with the District a bond in the sum of: _____($_____), with surety satisfactory to the District securing to the District the actual compliance of the Principal with the terms and conditions of the approval of the Plat of the _____Subdivision or Project and completion of all required improvements within one (1) year or as otherwise provided in the Line Extension Agreement for the Project or Subdivision as more fully appears in the record of the approval of the Project or Subdivision by the District on the Principal's application, which record is hereby made a part hereof:

Now, therefore, if the Principal shall not complete the improvements, work and installations herein referred to as required by the District according to the District approved designs, plans and specifications, the Principal and Surety shall be in default of the Line Extension Agreement.

Whenever the Principal shall be, and is declared by District to be in default under the Line Extension Agreement for failure to timely complete the required improvements and the District having performed District's obligations thereunder, the Surety shall either promptly remedy the default, or shall promptly cause the completion of the improvements in accordance with the Line Extension Agreement; or, within 60 days of the declaration of default by the District, obtain a bid or bids for completing the improvements in accordance with the Line Extension Agreement and approved Plans and specifications, and upon determination by the District of the lowest responsible bidder, arrange for a contract between such bidder and District, and pay under the contract as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion.

Any suit under this bond must be instituted before the expiration of three (3) years from the date on which District declares a default of the Principal in completion of the required improvements. No right of action shall accrue on this bond to or for the use of any person or corporation other than the District named herein or successors of District.

If it becomes necessary for the District to commence litigation or other informal proceedings to obtain compliance with the Principal and/or Sureties' obligations herein or to collect the amount of the obligation herein when justly due, the Surety shall pay for the use and benefit of the District all costs and fees of every kind and nature including attorneys fees, expended by the District in the enforcement of the rights of the District hereunder.

In witness whereof the said Principal and Surety have caused these presents to be signed and their seals to be affixed hereunto: _____ 200____.

PRINCIPAL:

_____

BY:_____
ITS: _____

SURETY:

_____

BY:_____
ITS:_____

Revised and Readopted 4/19/04

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

AGREEMENT
FOR
OFF-ROAD PUBLIC WASTEWATER LINES

SNYDERVILLE BASIN WATER RECLAMATION DISTRICT
(DEVELOPER NAME)

This AGREEMENT is made and entered into this _____ day of _____, 20___, by and between SNYDERVILLE BASIN WATER RECLAMATION DISTRICT, a special district of the State of Utah, ("SBWRD"), and _____(Developer Name)_____, a(n)_____ ("DEVELOPER").

This Agreement is made with reference to the following facts:

DEVELOPER is the owner and developer of _____(Project Name)_____, a(n) _____(insert description and location of development)_____ situated in Summit County, Utah ("PROJECT").

The SBWRD has agreed to provide wastewater service to the PROJECT in accordance with the provisions of a Line Extension Agreement between SBWRD and DEVELOPER dated _____ ____, 20____. This Agreement does not modify or abrogate the terms of the existing Line Extension Agreement between the parties.

Due to the configuration of the development and the surrounding topography, and as proposed by the DEVELOPER and approved by the SBWRD, the Public Wastewater Line from SBWRD MH # _____ to SBWRD MH # _____ (the OFF-ROAD LINES) will not be located in a public or private street, road or right-of-way.

Accordingly, the parties desire to set forth their respective responsibilities with respect to the installation, operation and maintenance of the OFF-ROAD LINES.

AGREEMENT:

NOW, THEREFORE, in consideration of the service provided by SBWRD and contributions of facilities by DEVELOPER to SBWRD, which are hereby acknowledged by the parties to be adequate to support this Agreement, and the mutual covenants and promises contained herein, and whereas, SBWRD, having an established policy governing the acceptance of Off-Road Public Wastewater Lines, is willing to accept ownership and maintenance responsibilities of the OFF-ROAD LINES in accordance with the terms of said policy which, by this reference, is made a part hereof, and as hereinafter provided the parties hereto agree as follows:

1. Acceptance and Maintenance. SBWRD agrees to accept and begin maintaining the OFF-ROAD LINES constructed under the aforementioned Line Extension Agreement when the project has received Final Project Approval as defined in the SBWRD's "Development Procedures, Design Standards and Construction Specifications", latest edition (SBWRD Standards)

2. Maintenance Fee. DEVELOPER has made a cash deposit with the SBWRD in the amount of $_____ (this represents an amount of $1.00 per foot of OFF-ROAD LINES with a minimum amount of $2,500).

3. Access. DEVELOPER has provided SBWRD access to OFF-ROAD LINES by way of an easement, which may include a permanent easement for the OFF-ROAD LINES and an access easement for access to the permanent easement, for purposes of routine or emergency wastewater line maintenance or repair. The route and grade of the OFF-ROAD LINES corridor or access easement corridor shall be such that service vehicles can reasonably access the wastewater lines for routine or emergency wastewater line maintenance or repair purposes.

4. Revegetation and Erosion Protection. DEVELOPER agrees to revegetate the OFF-ROAD LINES corridor with an approved assortment of grasses and shrubbery and agrees to provide and maintain adequate erosion protection measures along said corridors. Construction operations and revegetation shall meet Summit County requirements for control of noxious weeds. No trees or deep-rooting shrubs will be allowed within the easement area. DEVELOPER agrees to be responsible for revegetation and erosion protection measures, and for maintenance of such revegetation and erosion protection measures of OFF-ROAD LINES corridor for a period of two-years following acceptance of the OFF-ROAD LINES by the SBWRD. In the event of a failure of any revegetation or erosion protection measures or if noxious weeds appear on all or part of the OFF-ROAD LINES corridor during the two-year period, DEVELOPER shall promptly repair or replace the revegetation or erosion protection in the failed area and appropriately remove the noxious weeds. DEVELOPER further agrees to hold SBWRD harmless should a failure of the revegetation or erosion protection measures occurs or if noxious weeds appear in the OFF-ROAD LINES corridor during the two-year period.

5. Indemnity. DEVELOPER agrees to indemnify and hold the SBWRD harmless from all liability, responsibility and costs arising from or relating to stoppages and/or overflows in the OFF-ROAD LINES and for which the SBWRD is unable to respond due to limited access. Developer, for itself, its successors and assigns, waives all claims against SBWRD for damages resulting from said back-up, flooding, or stoppage within the OFF-ROAD LINES.

6. Compliance With Law. DEVELOPER shall comply with all applicable federal, state and local laws, ordinances, rules and regulations.

7. Notice. All notices required or desired to be given hereunder shall be in writing and shall be deemed to have been given on the date of personal service upon the party for whom intended or if mailed, by certified mail, return receipt requested, postage prepaid, and addressed

to the parties at the following addresses:

Name:	Snyderville Basin Water Reclamation District
Address:	2800 Homestead Road
	Park City, Utah 84098

Name:	(Developer)
Address:	_____
	_____
	_____

Any party may change its address for notice under this Agreement by giving written notice to the other party in accordance with the provisions of this paragraph.

8. This agreement shall be binding upon and inure to the benefit of the successors, heirs and assigns of the parties hereto, and to any entities resulting from the reorganization, consolidation, or merger of any party hereto.

9. This Agreement constitutes the entire understanding and agreement between the parties, and supersedes any previous agreement, representation, or understanding between the parties relating to the subject matter hereof.

10. The provisions of this Agreement are not severable, and should any provision hereof be deemed void, unenforceable or invalid, such provision shall effect the remainder of this Agreement, and shall provide grounds for dissolution of the Agreement at the option of the parties in the exclusive discretion of each of them.

11. Any waiver by any party hereto of any breach of any kind or character what so ever by the other party, whether such waiver be direct or implied, shall not be construed as a continuing waiver of or consent to any subsequent breach of this Agreement on the part of the other party.

12. This Agreement may not be modified except by an instrument in writing signed by the parties hereto.

13. This Agreement shall be interpreted, construed and enforced according to the laws of the State of Utah.

14. In the event of default on the part of any party to this Agreement, that party shall be liable for all costs and expenses incurred by the other parties in enforcing the provisions of this Agreement, whether or not legal action is instituted.

15. Time of Essence. Time is expressly made of the essence with respect to the performance of each and every obligation hereunder.

16. Cooperation. The parties shall cooperate together, take such additional actions, sign such additional documentation and provide such additional information as reasonably necessary to accomplish the objectives set forth herein.

17. Knowledge. The parties have read this Agreement and have executed it voluntarily after having been apprized of all relevant information and risks and having had the opportunity to obtain legal counsel of their choice.

18. No Relationship. Nothing in this Agreement shall be construed to create any partnership, joint venture or fiduciary relationship between the parties.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

SNYDERVILLE BASIN WATER RECLAMATION DISTRICT

By: _____

Its: _____

ATTEST:

_____
Clerk

_____ (Developer) _____

a(n) _____

By: _____

Its: _____

STATE OF UTAH
)
: ss
COUNTY OF SUMMIT)

On this _____ day of _____, 200 . _____ appeared before me and acknowledged that this is his signature that he is the duly appointed representative for the above-named company and that he has been duly authorized by that entity to execute this Agreement.

_____
NOTARY PUBLIC

My Commission Expires: Residing at: _____

Revised and Readopted 4-19-04

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

AGREEMENT
FOR
LOW PRESSURE SEWER SYSTEM

SNYDERVILLE BASIN WATER RECLAMATION DISTRICT
(DEVELOPER NAME)
(HOMEOWNERS ASSOCIATION NAME)

This AGREEMENT is made and entered into this _____ day of _____, 20___, by and between SNYDERVILLE BASIN WATER RECLAMATION DISTRICT, a special district of the State of Utah, ("SBWRD"). (Developer Name), a(n) _____ ("DEVELOPER") and (Homeowners Association Name), a(n) _____ ("ASSOCIATION").

This Agreement is made with reference to the following facts:

DEVELOPER is the owner and developer of (Project Name), a(n) (insert description and location of development) situated in Summit County, Utah ("PROJECT").

The SBWRD has agreed to provide sewer service to the PROJECT in accordance with the provisions of a Line Extension Agreement between SBWRD and DEVELOPER dated _____ ___, 20___. This Agreement does not modify or abrogate the terms of the existing Line Extension Agreement between the parties.

The ASSOCIATION was formed for the purpose of owning, operating and maintaining all of the common areas and common improvements within the PROJECT.

(Insert description of lots, parcels or units to be served by the Low Pressure Sewer system). Due to the location of these (lots, parcels, units) (The "LOW PRESSURE LOTS") and the surrounding topography of the PROJECT, it will be necessary for all homes or facilities built on the LOW PRESSURE LOTS to be served by a low pressure sewer system (the "LOW PRESSURE SEWER SYSTEM"). The purpose of the LOW PRESSURE SYSTEM is to pump sewage effluent from the LOW PRESSURE LOTS to the SBWRD gravity sewer system serving the PROJECT.
Accordingly, the parties desire to set forth their respective responsibilities, as well as the responsibilities for the purchasers of the LOW PRESSURE LOTS with respect to the installation, operation and maintenance of the LOW PRESSURE SEWER SYSTEM.

AGREEMENT:

NOW, THEREFORE, in consideration of the service provided by SBWRD and contributions of facilities by DEVELOPER to SBWRD, which are hereby acknowledged by the parties to be adequate to support this Agreement, and the mutual covenants and promises contained herein, the parties hereto agree as follows:

1. Definitions. "Private Laterals", as concerns the LOW PRESSURE LOTS means and includes all of the following facilities: a gravity sewer service line from the buildings with sewer service to a private low pressure grinder pump station; a private low pressure grinder pump station which provides the motive force for the low pressure sewer system; a pressure discharge line with associated valving from the private low pressure grinder pump station to the low pressure sewer main line, and the connection of the pressure discharge line to the low pressure sewer main line;

"Low Pressure Sewer Main Lines (LPSML)", means the following facilities: the low pressure sewer main line located in dedicated roadways or easements, low pressure flushing connections, the connection of the low pressure sewer main line to the gravity sewer system, and other associated facilities, but not the "Private Laterals".

2. Construction of Private Laterals. Each of the purchasers of the LOW PRESSURE LOTS shall be solely responsible for constructing the Private Lateral portion of the LOW PRESSURE SEWER SYSTEM. Private Laterals shall be constructed in strict compliance with construction plans and specifications approved by SBWRD and in accordance with procedures outlined in SBWRD's "Development Procedures, Design Standards and Construction Specifications", latest edition (SBWRD Standards).

3. Construction of the Low Pressure Sewer Main Lines. DEVELOPER shall install at its sole expense, the Low Pressure Sewer Main Lines and any other facilities located in _____(insert description of roads, streets or easements where any LPSML is located)_____ which are deemed by the SBWRD to be necessary to carry sewage effluent from the LOW PRESSURE LOTS to manhole __(insert SBWRD MH number)____, which represents the beginning of the gravity sewer system , as shown on attached Exhibit "A." DEVELOPER shall construct the LPSML strictly in compliance with construction plans and specifications approved by SBWRD and in accordance with procedures outlined in the SBWRD Standards. SBWRD reserves the right to decline to accept the LPSML as a SBWRD facility until all SBWRD requirements for Final Construction Approval, as defined in the SBWRD Standards, are resolved to the satisfaction of the SBWRD.

4. Responsibility for Private Laterals Located on LOW PRESSURE LOTS. Each of the purchasers of the LOW PRESSURE LOTS shall be solely responsible for all costs related to or arising from the maintenance, repairs and replacements of the Private Laterals located on LOW PRESSURE LOTS. SBWRD shall have no liability or responsibility for the operations, maintenance, repair or replacement of or any costs arising from or relating to any of these facilities. All emergency repairs and investigations, questions, complaints, repair requests and

other inquiries from the owners of the LOW PRESSURE LOTS shall be directed to, and resolved by, the ASSOCIATION, and SBWRD shall have no duty or responsibility to respond to any such items, nor shall SBWRD have any liability from damages resulting from the operation of, or any failures in, the Private Laterals.

5. Responsibility for Maintenance and Operation of Low Pressure Sewer Main Lines. The SBWRD shall be responsible for operation, maintenance, repairs and replacements of the LPSML after acceptance of the system by SBWRD. All questions, complaints, repair requests and other inquiries from the owners of the LOW PRESSURE LOTS, however, shall first be directed to, and investigated by, the ASSOCIATION. If the ASSOCIATION determines that the questions, complaints, repair requests or other inquiries are a result of a problem with the Low Pressure Sewer Main Lines, the Association shall then contact the SBWRD for assistance.

6. Indemnity. DEVELOPER and ASSOCIATION jointly and severally agree to indemnify and hold the SBWRD harmless from all liability, responsibility and costs arising from or relating to maintenance, operation of and problems arising from the Private Laterals.

7. Purchaser Notification. DEVELOPER agrees to affix an addendum to each real estate purchase contract for the LOW PRESSURE LOTS informing each purchaser of the terms of this Agreement. Each purchaser shall sign that document prior to closing. The deeds for the purchase of each LOW PRESSURE LOT shall contain similar language.

8. Compliance With Law. DEVELOPER shall comply with all applicable federal, state and local laws, ordinances, rules and regulations.

9. Notice. All notices required or desired to be given hereunder shall be in writing and shall be deemed to have been given on the date of personal service upon the party for whom intended or if mailed, by certified mail, return receipt requested, postage prepaid, and addressed to the parties at the following addresses:

Name: Snyderville Basin Water Reclamation District
Address: 2800 Homestead Road
Park City, Utah 84098

Name: _____(Developer)_____
Address: _____
_____
_____

Name: _____(Association)_____
Address: _____
_____
_____

Any party may change its address for notice under this Agreement by giving written notice to the other party in accordance with the provisions of this paragraph.

10. This agreement shall be binding upon and inure to the benefit of the successors, heirs and assigns of the parties hereto, and to any entities resulting from the reorganization, consolidation, or merger of any party hereto.

11. This Agreement constitutes the entire understanding and agreement between the parties, and supersedes any previous agreement, representation, or understanding between the parties relating to the subject matter hereof.

12. The provisions of this Agreement are not severable, and should any provision hereof be deemed void, unenforceable or invalid, such provision shall effect the remainder of this Agreement, and shall provide grounds for dissolution of the Agreement at the option of the parties in the exclusive discretion of each of them.

13. Any waiver by any party hereto of any breach of any kind or character what so ever by the other party, whether such waiver be direct or implied, shall not be construed as a continuing waiver of or consent to any subsequent breach of this Agreement on the part of the other party.

14. This Agreement may not be modified except by an instrument in writing signed by the parties hereto.

15. This Agreement shall be interpreted, construed and enforced according to the laws of the State of Utah.

16. In the event of default on the part of any party to this Agreement, that party shall be liable for all costs and expenses incurred by the other parties in enforcing the provisions of this Agreement, whether or not legal action is instituted.

17. Time of Essence. Time is expressly made of the essence with respect to the performance of each and every obligation hereunder.

18. Cooperation. The parties shall cooperate together, take such additional actions, sign such additional documentation and provide such additional information as reasonably necessary to accomplish the objectives set forth herein.

19. Knowledge. The parties have read this Agreement and have executed it voluntarily after having been apprized of all relevant information and risks and having had the opportunity to obtain legal counsel of their choice.

20. No Relationship. Nothing in this Agreement shall be construed to create any partnership, joint venture or fiduciary relationship between the parties.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

SNYDERVILLE BASIN WATER RECLAMATION DISTRICT

By: _____

Its: _____

ATTEST:

_____
Clerk

_____ (Developer)

a(n) _____

By: _____

Its: _____

STATE OF UTAH)
: ss
COUNTY OF SUMMIT)

On this _____ day of _____, 200 , _____ appeared before me and acknowledged that this is his signature that he is the duly appointed representative for the above-named company and that he has been duly authorized by that entity to execute this Agreement.

_____
NOTARY PUBLIC

My Commission Expires:

Residing at: _____

_____(Association)_____

a(n) _____

By: _____

Its: _____

STATE OF UTAH)
: ss
COUNTY OF SUMMIT)

On this _____ day of _____, 200 , _____ appeared before me and acknowledged that this is his signature that he is the duly appointed representative for the above-named Association and that he has been duly authorized by that entity to execute this Agreement.

_____
NOTARY PUBLIC

My Commission Expires:

Residing at: _____

When recorded return to:
Snyderville Basin Water Reclamation District
2800 Homestead Road, Park City, Utah 84098

GRANT OF EASEMENT
FOR CONSTRUCTION AND MAINTENANCE OF WASTEWATER COLLECTION AND TRANSPORTATION PIPELINE(S)

, a(n) , Grantor, does hereby convey and warrant to the Snyderville Basin Water Reclamation District, a special District of the state of Utah, (the District) Grantee, of Summit County, Utah, for good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, a permanent easement and right-of-way for the purpose of constructing, operating and maintaining one or more underground pipelines in the easement granted herein for the collection and transportation of wastewater as permitted by the District in the exclusive discretion of the District, over, across, through and under the premises of the Grantor situated in Summit County, Utah which are more specifically described as follows:

(LEGAL DESCRIPTION OF EASEMENT)

Also granting to the Snyderville Basin Water Reclamation District a perpetual right of ingress and egress to and from and along said right-of-way and with the right to operate, maintain, repair, replace, augment and/or remove the pipelines deemed necessary by the District for the collection and transportation of wastewater; also the right to trim, clear or remove, at any time from said right-of-way any tree, brush, structure or obstruction of any character whatsoever, which in the sole judgement of the Grantee may endanger the safety of or interfere with the operation of Grantee's facilities. The Grantor and its successors in interest hereby forever relinquish the right to construct any improvement which would interfere with the operation, replacement or repair of the pipelines constructed and maintained under the provisions of this easement and covenant and agree that no improvement, trees or structures will be constructed over the surface of the easement granted herein, without the express written consent in advance of the Grantee, which would interfere with the right of the Grantee to operate, maintain, repair or replace the sewer pipeline constructed by or for the Grantee.

The easement granted herein is subject to the condition that the Grantee shall indemnify and hold harmless, the Grantor, its heirs and successors against any and all liability caused by the acts

of the Grantee, its contractors or agents, during the construction, operation or maintenance of the sewer pipeline provided for in this easement; the Grantor's right to indemnification or to be held harmless by the Grantee under the terms of this paragraph are expressly conditioned upon prompt and immediate notice to the Grantee of any claim or demand which would cause a claim against the Grantee and upon the Grantees right to defend any claim against the Grantor which would cause a claim of indemnification against the Grantor. This provision shall not be interpreted or construed to waive the rights of the Grantee to the affirmative defenses to claims provided under the Utah Governmental Immunity Act.

WITNESS the hand of said Grantor this _____ day of _____ , 200___.

_____

[Grantor's Name]

STATE OF UTAH)
COUNTY OF SUMMIT)

On the _____ day of _____ , 200__, personally appeared before me _____ the signor of the foregoing instrument, who did personally acknowledge to me that the foregoing easement was executed by the Grantor.

_____

NOTARY PUBLIC
RESIDING AT:

My Commission Expires:

_____

When recorded return to:
Snyderville Basin Water Reclamation District
2800 Homestead Road, Park City, Utah 84098

GRANT OF EASEMENT AND ACCESS EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF WASTEWATER COLLECTION AND TRANSPORTATION PIPELINE(S)

, a(n) , Grantor, does hereby convey and warrant to the Snyderville Basin Water Reclamation District, a special District of the state of Utah, (the District) Grantee, of Summit County, Utah, for good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, a permanent easement and right-of-way for the purpose of constructing, operating and maintaining one or more underground pipelines in the easement granted herein for the collection and transportation of wastewater as permitted by the District in the exclusive discretion of the District, over, across, through and under the premises of the Grantor situated in Summit County, Utah which are more specifically described as follows:

(LEGAL DESCRIPTION OF PERMANENT EASEMENT)

Also granting to the Snyderville Basin Water Reclamation District a perpetual right of ingress and egress to and from and along said right-of-way and with the right to operate, maintain, repair, replace, augment and/or remove the pipelines deemed necessary by the District for the collection and transportation of wastewater; also the right to trim, clear or remove, at any time from said right-of-way any tree, brush, structure or obstruction of any character whatsoever, which in the sole judgement of the Grantee may endanger the safety of or interfere with the operation of Grantee's facilities. The Grantor and its successors in interest hereby forever relinquish the right to construct any improvement which would interfere with the operation, replacement or repair of the pipelines constructed and maintained under the provisions of this easement and covenant and agree that no improvement, trees or structures will be constructed over the surface of the easement granted herein, without the express written consent in advance of the Grantee, which would interfere with the right of the Grantee to operate, maintain, repair or replace the sewer pipeline constructed by or for the Grantee.

Also granting to the Snyderville Basin Water Reclamation District a perpetual right of ingress and egress to the above described permanent easement over, across, and through the premises of the Grantor situated in Summit County, Utah which are more specifically described as follows:

(LEGAL DESCRIPTION OF ACCESS EASEMENT)

The easement granted herein is subject to the condition that the Grantee shall indemnify and hold harmless, the Grantor, its heirs and successors against any and all liability caused by the acts of the Grantee, its contractors or agents, during the construction, operation or maintenance of the sewer pipeline provided for in this easement; the Grantor's right to indemnification or to be held harmless by the Grantee under the terms of this paragraph are expressly conditioned upon prompt and immediate notice to the Grantee of any claim or demand which would cause a claim against the Grantee and upon the Grantees right to defend any claim against the Grantor which would cause a claim of indemnification against the Grantor. This provision shall not be interpreted or construed to waive the rights of the Grantee to the affirmative defenses to claims provided under the Utah Governmental Immunity Act.

WITNESS the hand of said Grantor this _____ day of _____ , 200__.

_____

[Grantor's Name]

STATE OF UTAH)
COUNTY OF SUMMIT)

On the _____ day of _____ , 200__, personally appeared before me _____ the signor of the foregoing instrument, who did personally acknowledge to me that the foregoing easement was executed by the Grantor.

_____

NOTARY PUBLIC
RESIDING AT:

My Commission Expires:

_____

Snyderville Basin Water Reclamation District

2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

WASTEWATER SYSTEM TEST RESULTS

Project: _____

Contractor: _____

The following sections of sewer line and manholes in the above named project were tested according to SBWRD Standards. The results are as follows:

Low Pressure Air/Hydrostatic Test - Lines							Vacuum Test - Manholes			
MH#	MH#	Material	Dia.	Pass	Fail	Retest	MH#	Pass	Fail	Retest

Signed: _____ _____

Testing Agent Date

_____ _____

SBWRD Inspector Date

If a section of sewer line or manhole fails, the following items should be completed:

Section/Manhole(s) that failed: _____

Leak (was)(was not) located: _____

Description of leakage found: _____

Description of action taken: _____

_____

_____

Revised 4/19/04

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

IMPACT FEE CALCULATION

Date Paid _____

Owner Name: _____

Subdivision/Project: _____ Plat: _____ Lot.: _____

Property Address: _____

Tax ID#: _____ Receipt #: _____ Check #: _____

Property Located in: City _____ County _____ *RE = Residential Equivalent

RESIDENTIAL/CONDOMINIUMS

_____Bedrooms/others ÷ _____sq. ft. unfinished Basement/500 sq. ft. ÷ _____ Living sections/Unit

Impact Fee Amount/Unit: $_____ /Unit

multiplied by _____ Units

equals **Gross Impact Fee Amount: $** _____

Total #REs*: _____

COMMERCIAL/RESTAURANT

Business Name: _____

Estimated Wastewater Quantity: _____ (avg. gallons/ day)

divided by 320 gallons/day (avg. daily residential contribution)

equals **Total #REs*:** _____

multiplied by $_____/RE*

equals **Gross Impact Fee Amount: $** _____

Less Reservation of Capacity Fee: _____

(Date: _____ Receipt # _____) $_____

Less Interest Through _____ _____

Net Impact Fee Amount: $_____

Administrative Fee Amount: _____

TOTAL DUE: $_____

Floor Plan Check Required: ( )Yes ( )No

Comments: _____

Floor Plan Check By: _____ Inspection Date: _____

Comments: _____

I certify that the number of living sections shown on the Impact Fee Calculation form is true and correct and that no more than the stated number of living sections will be built without prior notification and payment of fees to the SBWRD. I authorize SBWRD to complete an inspection of the building prior to issuance of an Authorization to Use form. I will pay additional fees should the number of living sections determined by said inspection exceed the stated number. I concur with the net impact fee stated on the Impact Fee Calculation form. I hereby affirm that I am the owner of the property described herein or that I have authorization from the owner to make this application, and I will give a copy of these documents to the owner of the property.

Signature _____ Print Name _____ Date _____

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

WASTEWATER SERVICE APPLICATION

APPLICATION FOR[1]: ( )Single Fam. Res. ( )Condo Duplex[2] ( )Hotel[2,3] ( )Restaurant[2,3] ( )Comm./Ind.[2,3]

Owner Name:_____ Telephone #: _____

Mailing Address:_____

Subdivision/Project:_____ Plat _____ Lot: _____

Property Address: _____

Tax ID#: _____Receipt #: _____

APPLICANT (if different than Owner): ( ) Contractor ( ) Agent ( ) Other: _____

Name: _____ Telephone #:_____

Mailing Address: _____

[1]Floor Plans and Site Plan Required with Application ( ) Attached
[2] Site Plan w/ Private Lateral Connection Information Plumbing Plans Required with Application ( ) Attached
[3] Ind. Waste and Pretreat. Questionnaire and Est. of Wastewater Quantity Required with Application ( ) Attached

ACKNOWLEDGMENT OF RESPONSIBILITY

I am making application to connect to and use the Public Wastewater System owned and operated by the Snyderville Basin Water Reclamation District (SBWRD), and I understand I am responsible for complying with all SBWRD requirements with regard to this request. I understand that RESOLUTIONS have been adopted by the Board of Trustees of the SBWRD to establish fees and conditions of service. I agree to the provisions of these RESOLUTIONS. I acknowledge this application will be processed in accordance with the provisions of the RESOLUTIONS and that this application will be processed in the name of the owner of the property. The owner of the property is the party who the SBWRD will contact regarding any matters pertaining to this application. I understand that the District will consider information from me that may reduce the gross impact fee and have submitted that information if I want it used in the calculation.

I understand that all collection system main lines serving the property covered by this application must be accepted and/or approved for use by the SBWRD prior to occupancy of any building on said property. I understand that all lateral construction shall be completed in accordance with the Private Lateral Construction Information on page 3 and agree to the responsibilities contained therein. I understand the District is not responsible for ownership, maintenance, or repair of private laterals or private lateral stubs.

AFFIRMATION OF OWNERSHIP INTEREST

I hereby affirm that I am the owner of the property described herein or that I have authorization from the owner to make this application.

Name of Applicant: (please print) _____

Signature: _____ Date: _____

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

PRIVATE LATERAL CONSTRUCTION INFORMATION

(Please make this information available to contractor installing lateral)

Owner: _____ Telephone #: _____

Mailing Address: _____

Subdivision/Project: _____ Plat: _____ Lot.: _____

Property Address: _____

Standards for construction, inspection, and approval of Private Lateral Wastewater Lines in the Snyderville Basin Water Reclamation District (SBWRD) are contained in the SBWRD *Development Procedures, Design Standards and Construction Specifications*, available at the SBWRD. **It is the responsibility of the applicant and the applicant's contractor to construct the private lateral according to SBWRD standards.**

Based on a review of the information submitted with the Wastewater Service Application, the following **marked items apply** to the construction of the private lateral for this lot. Other items may also apply which are not listed.

☐ The Public Wastewater System serving this property/project has not been approved for use. **The SBWRD may not allow a connection to the system nor issue "Authorization to Use" until the Public Wastewater System receives Final Project Approval by the Board of Trustees.** Requests to connect to the system prior to Final Project Approval will be considered by the SBWRD only upon submittal of the attached form letter.

☐ Prior to connecting to or extending existing lateral stub, verify acceptability (i.e., condition, alignment, grade, elevation, leakage). Non-functional lateral stubs shall not be used. Notify the SBWRD immediately when this condition is encountered. See attached detail for C.O. Protection. Existing stub record drawing information: Length _____ Bends _____

☐ No record of a lateral stub for this property exists. Make connection to main line per attached detail.

☐ Steep uphill lot, lateral may require pipe anchors per attached detail . Existing stub slope: _____%

☐ Downhill lot, may require a privately owned and maintained ejector pump system.

☐ This area is served by a low pressure sewer system. All lots are required to use an approved, privately owned and maintained low pressure pump system.

☐ A public utility easement containing a Public Wastewater System main line or a SBWRD easement exists on this property. This easement permits SBWRD to enter the property within the easement for routine maintenance and repair, including excavating, backfilling, flushing, cleaning, etc.

☐ Other: _____

_____

The attached plans and/or drawings include the record information contained in the SBWRD files for this lot. It is the intent of the SBWRD to make every reasonable effort to provide our customers with reliable information. However, all data pertinent to collection system locations has been prepared and furnished to the SBWRD by outside sources. Therefore, SBWRD cannot be responsible for the accuracy or completeness of diagrams, drawings, measurements, descriptions, or other information regarding collection system or utility locations.

It is the responsibility of the applicant and the applicant's contractor to verify lateral stub and mainline locations, elevations and grades, floor elevations, and building position to determine adequate drainage of the proposed structure to the existing Public Wastewater System, or to determine if pumping is required.

Source of Data: _____

SBWRD Record Drawing # : _____

Prepared By: _____ Date: _____

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

PRIVATE LATERAL WASTEWATER LINE DETAIL

Subdivision/Project:_____ Plat _____ Lot: _____

Property Address: _____Tax ID _____

Receipt #_____ Acct. #_____ # REs: _____

Owner: _____ Telephone #:_____

General Contractor: _____ Telephone #: _____

Address: _____

Pipeline Contractor: _____Telephone #: _____

Address: _____

Eng. Review By: _____Eng. Review Date: _____

Inspection Request Date/Time: ____/____ By: ___ ____/____ By: ___ ____/____ By: ___

Inspection Date/Time: ____/____ By: ___ ____/____ By: ___ ____/____ By: ___

Arrive/Depart: ____/____ By: ___ ____/____ By: ___ ____/____ By: ___

Inspection Notes:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(Lateral Diagram On Back)

Depth at House: _____ Depth at Street: _____ Test Performed: water___air ___hydro___

Pipe: Size____ Type_____ Color_____ Joints_____ Downstream MH #: _____

Final Inspection By: _____Date:_____

Snyderville Basin Water Reclamation District

2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

AUTHORIZATION TO USE

Property Located in: City _____ County _____

Tax I.D. #: _____ SBWRD Account #: _____

Subdivision/Project_____ Plat: _____ Lot: _____

Property Address: _____

Name and address to which billing is to be sent:

_____

_____

_____

Person requesting approval: _____

Telephone #: _____ Fax #: _____

Address: _____

Wastewater Approval is: Granted _____ Disapproved _____

By: _____ Date: _____
Snyderville Basin Water Reclamation District

Comments: _____

_____

Processed by: _____ Account Activation Date: _____

Faxed: _____

Mailed: _____

Picked up: _____

FOR DISTRICT USE ONLY

Building Type: ( )Single Fam. Res. ( )Condo/Duplex ( )Hotel ( )Restaurant ( )Comm./Ind.

Water Usage _____ # of Units _____ Water Meter #: _____

_____ Impact Fee Paid Receipt #: _____ Date _____

_____ Floor Plan Check Required ( )Yes ( )No

_____ Private Lateral Inspected and Connected Date _____

_____ Main Plugs Removed

_____ Public Wastewater System Approved

_____ Pretreatment Approved

_____ Engineering Fees Paid

_____ Supplementary Engineering Fees Paid

Comments: _____

_____

_____

_____

Title Company: _____

Name: _____

Closing Date: _____

Amount: _____

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

WASTEWATER CALCULATION
NON-RESIDENTIAL ONLY

APPLICATION FOR: ( ) Commercial/Industrial ( ) Restaurant ( ) Hotel

Owner Name:_____ Telephone #: _____

Mailing Address:_____

Subdivision/Project:_____ Plat _____ Lot: _____

Property Address: _____

Tax ID#: _____Receipt #: _____

APPLICANT (if different than Owner): ( ) Contractor ( ) Agent ( ) Other: _____

Name: _____ Telephone #:_____

Mailing Address: _____

The Impact Fee for commercial establishments is based on estimated water usage during the months of November through March. Estimates should be calculated by the project engineer or architect. Actual water usage from similar facilities can also be used. Wastewater flow shall be divided by 320 gallons per unit per day in order to determine the Residential Equivalents (REs). The Impact Fee shall be computed by multiplying the REs times the residential equivalent Impact Fee of a home with three (3) living sections. **Actual average water usage shall be computed after the first averaging period, November through March, (or when accurate information is available) and the user's Impact Fee adjusted accordingly. A refund for overpayment of fees or an invoice for underpayment of fees shall be prepared.**

Type of Business: _____

Business Name: _____

I have calculated the estimated daily water usage for this facility as follows: (attach additional sheets if necessary)

AFFIRMATION OF OWNERSHIP INTEREST

I hereby affirm that I am the owner of the property described herein or that I have authorization from the owner to make this application.

Name of Applicant:_____
(please print or type)

Signature: _____ Date: _____

Snyderville Basin Water Reclamation District
2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

INDUSTRIAL WASTE AND PRETREATMENT QUESTIONNAIRE

PART I

Name of Business: _____

Mailing Address: _____ Telephone #: _____

_____ Fax #: _____

Business Location: _____

Business Contact : Name: _____ Telephone #: _____

Title: _____

Owner of Property: Name: _____ Telephone #: _____

Mailing Address: _____

_____

1. Standard Industrial Classification Code (SIC) #(s) - _____, _____, _____

2. Principal Products or Services.

_____

_____

_____

_____

_____

3. Avg. # of Employees per Shift: 1st _____, 2nd _____, 3rd _____

4. Shift Start Time: 1st _____, 2nd _____, 3rd _____

5. Shift Normally Worked Each Day:

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1st							
2nd							
3rd							

PART II

1. Do you discharge or have the potential to discharge any type or amount of non-sanitary waste into the public sewer system? Yes ____ No ____

2. Do you generate any type or amount of waste that is transported to a location other than a sanitary landfill? Yes ____ No ____

3. Is there a commercial kitchen or food processing facility at this location? Yes ____ No ____

If you answered "no" to all of the questions to Part II, please sign on page #5 and return questionnaire.

If you answered "yes" to any of the questions to Part II, please continue with questionnaire.

PART III

1. Describe manufacturing or service activities at this location.

_____

_____

_____

2. Which of these activities are seasonal?

_____

_____

_____

3. Principal raw materials used.

_____

_____

_____

4. Chemicals used and stored at this location (include cleaning solvents, soaps, oils, waste chemicals, etc.).

_____

_____

_____

5. Are Material Safety Data Sheets (MSDS) on site? Yes ____ No ____

6. Do you have a Spill Prevention Control and Countermeasure (SPCC) Plan? (If yes, please attach copy to this questionnaire.) Yes ____ No ____

PART IV

1. Raw Water Sources:
   Private wells_____gal/day Public supply_____gal/day

2. Describe any water treatment process in use.
   _____
   _____
   _____

3. Wastewater Discharge:
   Average Daily Flow Rate: _____(gpm)
   Peak Daily Flow Rate: _____(gpm)
   Total Annual Flow Volume: _____(million gallons, 2 decimal places)

4. Water Consumption:

Cooling	_____ gal/day	Sanitary	_____ gal/day
Boiler Feed	_____ gal/day	Consumed in product	_____ gal/day
Process	_____ gal/day	Other	_____ gal/day

PART V

1. List all other non-sanitary pollutants discharged into the Public Wastewater System (include oils, solvents, waste chemicals, etc.).

Substance	Quantity/Concentration (if known)
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2. Is discharge of non-sanitary flow intermittent or steady?_____

3. Periods of maximum discharges. _____

4. Do you monitor your discharges? Yes ____ No ___
(If yes, please describe and attach most recent data.)

5. Briefly describe any industrial pretreatment practices employed at this site. Industrial pretreatment is any type of pollution treatment or reduction used before discharge into public sewer system (including oil, grease, sand interceptors, grease traps, sumps, etc.).

6. If sludges, solids, or process waters are produced by industrial pretreatment activities, how are these byproducts disposed of or used?

7. List all other liquid wastes removed from the premises that do not flow to the sewer.

Description	Gal/mo.	Removed by (name & address)	Disposal Site

8. Attach additional sheets for any needed information.

9. On a separate sheet, provide a diagram or sketch showing flow of materials and water from start to finish of all unit processes generating and treating wastewater. This information will enable the District to assess the quality, volume, and peak flows of the discharge.

PART IV

Comments:

To the best of my knowledge, the above statements represent current and accurate information.

Name (please print): _____

Title: _____

Signature: _____

Date: _____

DISTRICT NOTES

When recorded return to:
Snyderville Basin Water Reclamation District
2800 Homestead Road, Park City, Utah 84098

NOTICE OF CONDITIONS

Property : (Subdivision, Plat, Lot)
(Street Address)
Tax ID#: ( )

The Private Lateral Wastewater Line for this property does not conform to Snyderville Basin Water Reclamation District (SBWRD) Specifications.

Deficiencies are as follows:

1.
2.
3.
4.

I am aware of the conditions and accept responsibility for any problems, and attendant costs, related to the use, maintenance, repair or replacement of this line. I acknowledge that Snyderville Basin Water Reclamation District is not responsible for this condition. SBWRD may record this document with the Summit County Recorders office and I understand this Notice will remain with the property in perpetuity.

_____
Owner/ Signing Authority

_____ _____
Title Date

State of Utah)
§
County of _____)

On this _____ day of _____, 20___, personally appeared before me _____, and proved to me on the basis of satisfactory evidence to be the person (s) whose name (s) is (are) subscribed to this instrument, and acknowledged that he (she/they) executed the same.

_____
Notary Public

When recorded please return a copy to the following:
1. Grantor (original)
2. Grantee
3. Snyderville Basin Water Reclamation District,
   2800 Homestead Rd., Park City, UT 84098

GRANT OF EASEMENT
FOR PRIVATE LATERAL WASTEWATER LINE

_____ *(Insert Grantor Name and Address)* _____(Grantor), owner of Lot ____, Plat/Block _____, Park City/Summit County, Utah, as platted, hereby grants a private lateral wastewater line easement in, across, and through said lot to ____ *(Insert Grantee Name and Address)* _____(Grantee), owner of Lot _____, Plat/Block _____, Park City/Summit County, Utah, as platted.

Said easement will be 5 feet in width and located _____ _____ *(describe easement location here)* _____ _____, for the purpose of construction, reconstruction, operation, maintenance, and repair of a private lateral wastewater line.

Upon completion of the initial construction of the private lateral wastewater line and any subsequent repair and replacement activities, Grantee shall restore the surface of the land disturbed to its original condition as is reasonably possible. The Grantee shall be required by this agreement to reasonably restore brush, trees, and other vegetation in the easement area in a manner as to not interfere with the Grantee's ability to gain access to the easement for operation, repair, and replacement activities. The Grantee agrees to be responsible for the replacing or repairing of damage done to the home, driveway, or decking due to leakage or repair of the private lateral wastewater line.

Also, with prior notice to the Grantor, this grant may include a 10 foot wide temporary maintenance easement that is provided for the purposes of maintenance and repair of the private lateral wastewater line as reasonably necessary. All conditions of the easement shall also apply to the temporary easement.

Dated this _____ day of _____, _____.

_____
Grantor

_____
Grantee

(Attach a site plan showing property lines, existing structures, location of private lateral wastewater line, and easement boundaries.)

Snyderville Basin Water Reclamation District

2800 Homestead Road • Park City, Utah 84098 • Phone 435-649-7993 • Fax 435-649-8040

REQUEST FOR WASTEWATER COLLECTION SYSTEM LOCATION AND/OR EXCAVATION MARKING

Date: _____ Time: _____

Request Received By: _____

Subdivision/Project: _____ Plat: _____ Lot: _____

Street Address: _____

Requested By: _____ Telephone #: _____

Mailing Address: _____ Fax #: _____

_____

The attached plans and/or drawings include the record information contained in the Snyderville Basin Water Reclamation District (SBWRD) files for this lot. It is the intent of the SBWRD to make every reasonable effort to provide our customers with reliable information. However, all data pertinent to collection system locations has been prepared and furnished to the SBWRD by outside sources. Therefore, SBWRD cannot be responsible for the accuracy or completeness of diagrams, drawings, measurements, descriptions, or other information regarding collection system or utility locations.

Contractors or others excavating in the vicinity of public wastewater collection lines and private lateral wastewater lines shall be responsible to protect these lines from disturbance or damage. If disturbance or damage occurs, notify SBWRD immediately. Repair of disturbed or damaged lines shall be performed by a qualified contractor at the expense of the individual causing the damage. The SBWRD shall inspect all repairs.

All extensions, replacements, relocations, modifications, repairs, connections to and use of the wastewater facilities within the SBWRD require prior application to and approval by the SBWRD.

Information Provided:

☐ SBWRD Master Maps:

Sheet(s): _____

☐ Record Drawings:

Project: _____

SBWRD Drawing #s: _____

☐ Private Lateral Detail Sheets:

Lot(s): _____

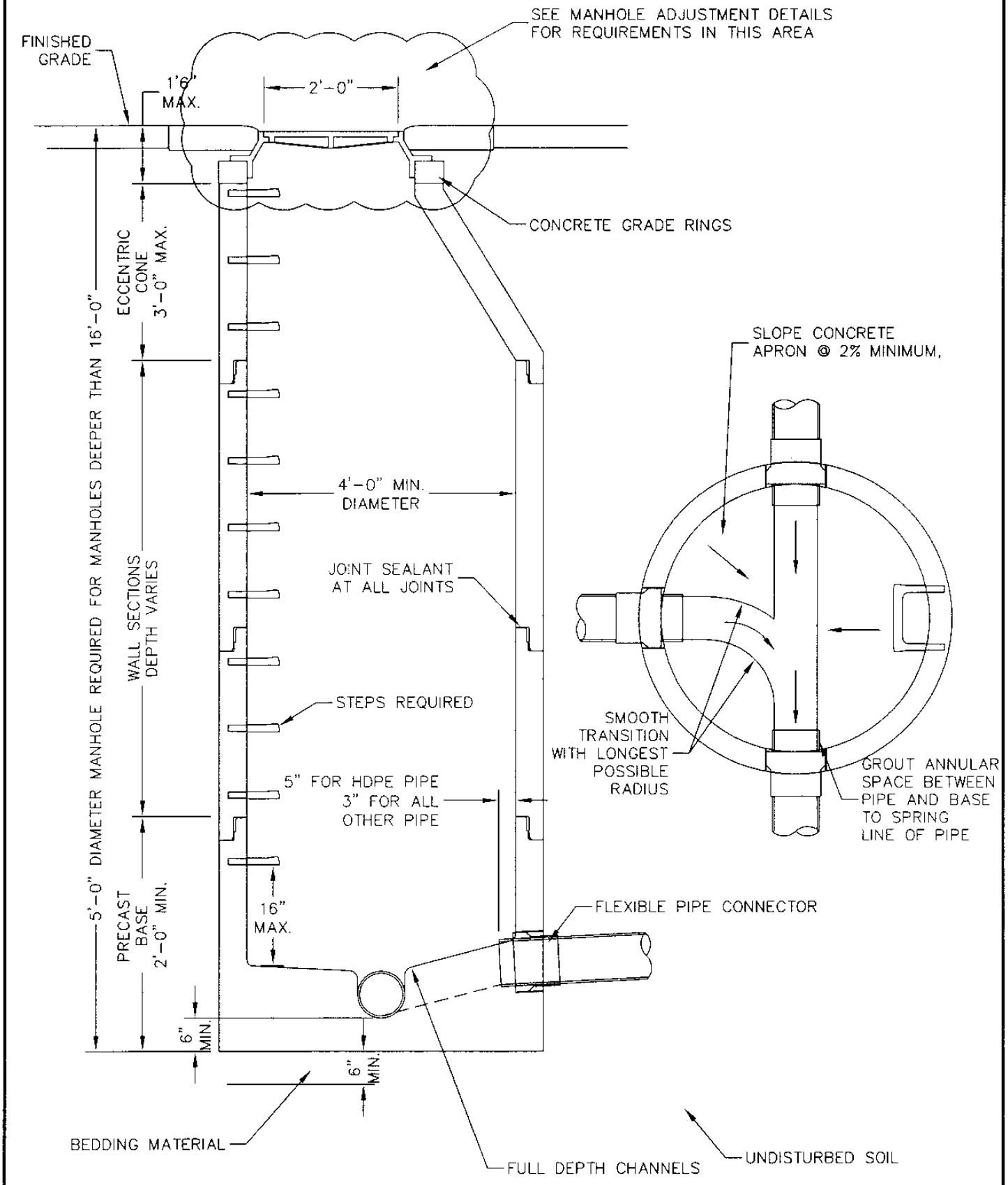
☐ Other: _____

_____

Prepared By: _____ Date: _____

☐Fax ☐ Telephone ☐ Mail ☐ Pickup By: _____

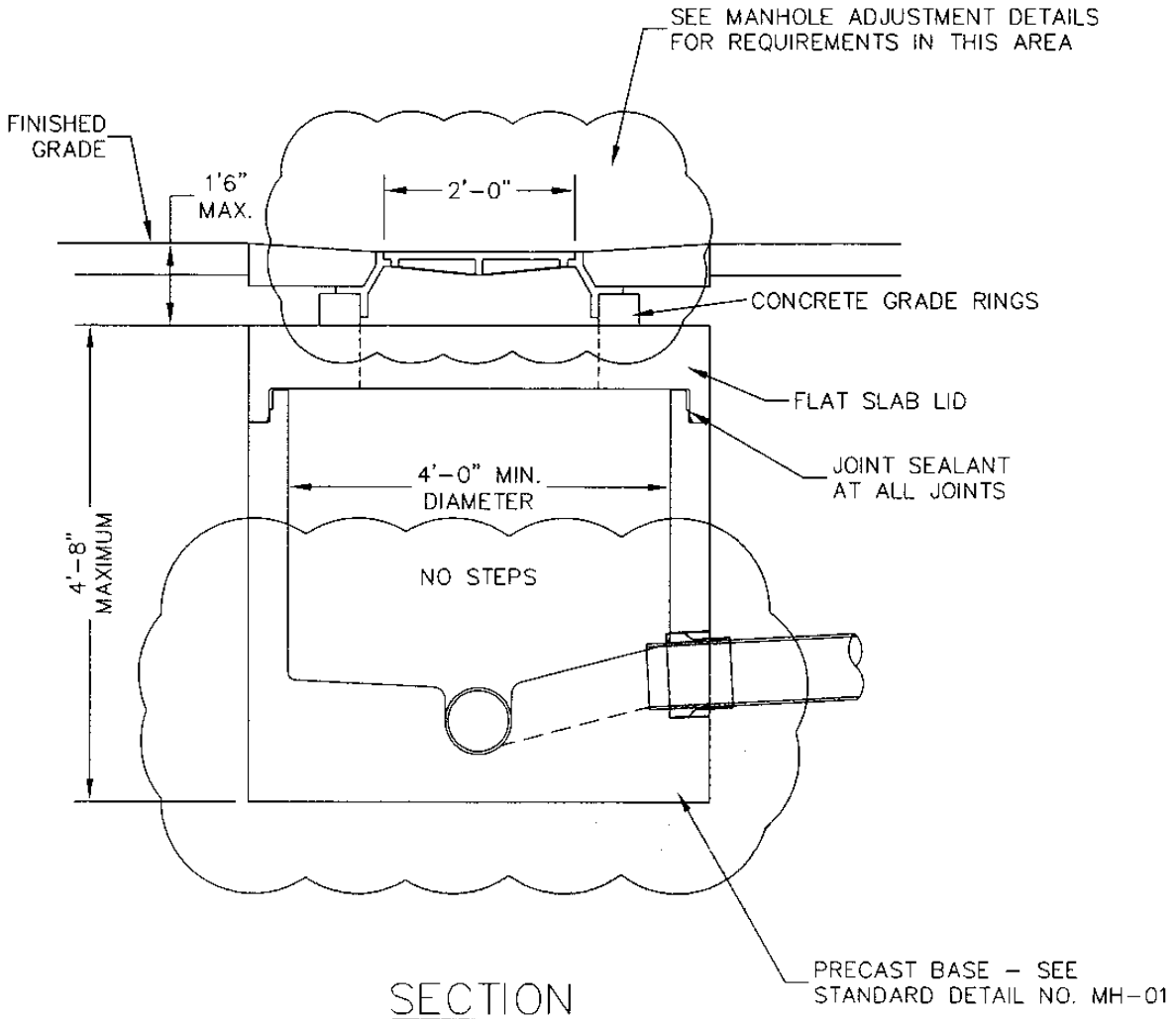
REVISED 4-19-04



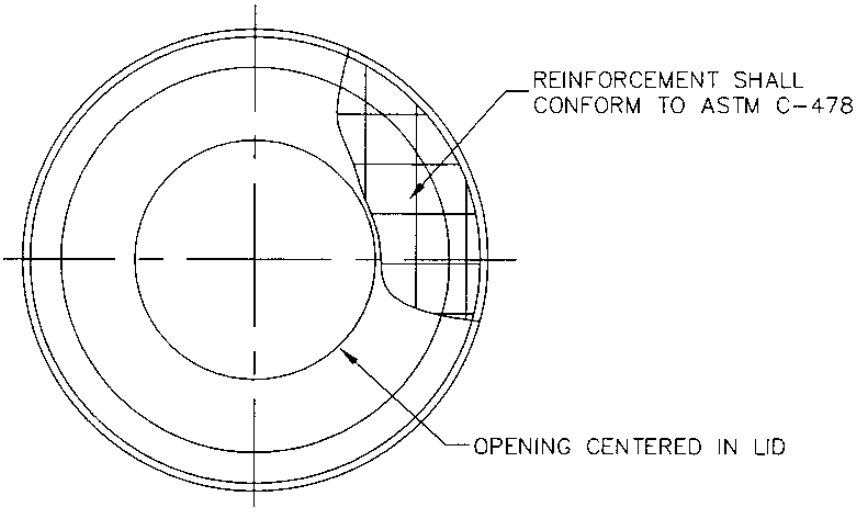
Snyderville Basin Water Reclamation District

PRECAST MANHOLE WITH PRECAST BASE

STANDARD DETAIL
MH-01
Revision Date: 4/19/04



SECTION



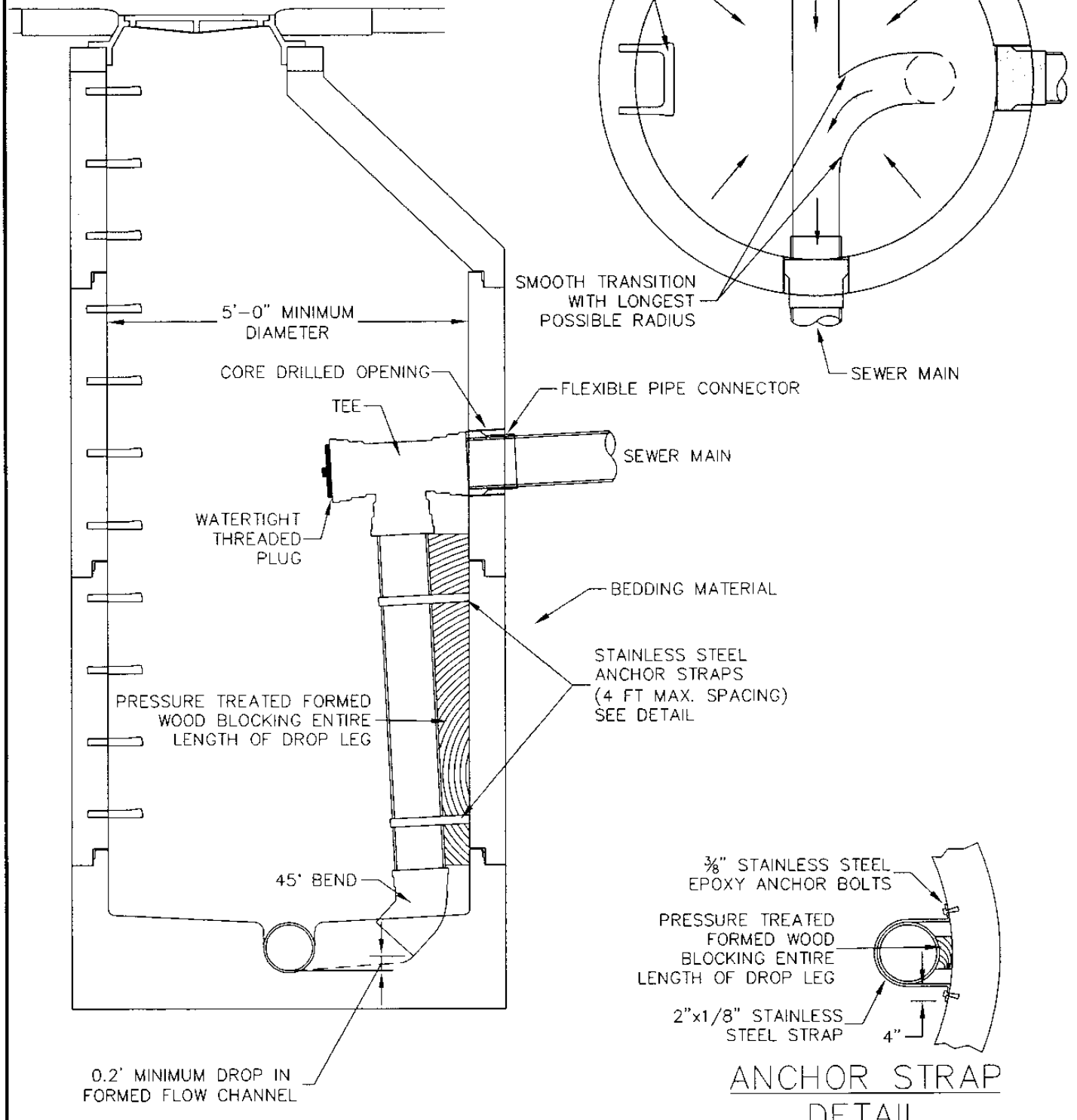
PLAN

Snyderville Basin Water Reclamation District

SHALLOW MANHOLE

STANDARD DETAIL
MH-02
Revision Date: 4/19/04

NOTES:
1. PIPE AND FITTINGS FOR DROP SHALL BE ASTM 3034 SDR 35 PVC.
2. SEE STANDARD DETAIL NO. MH-01 FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS.

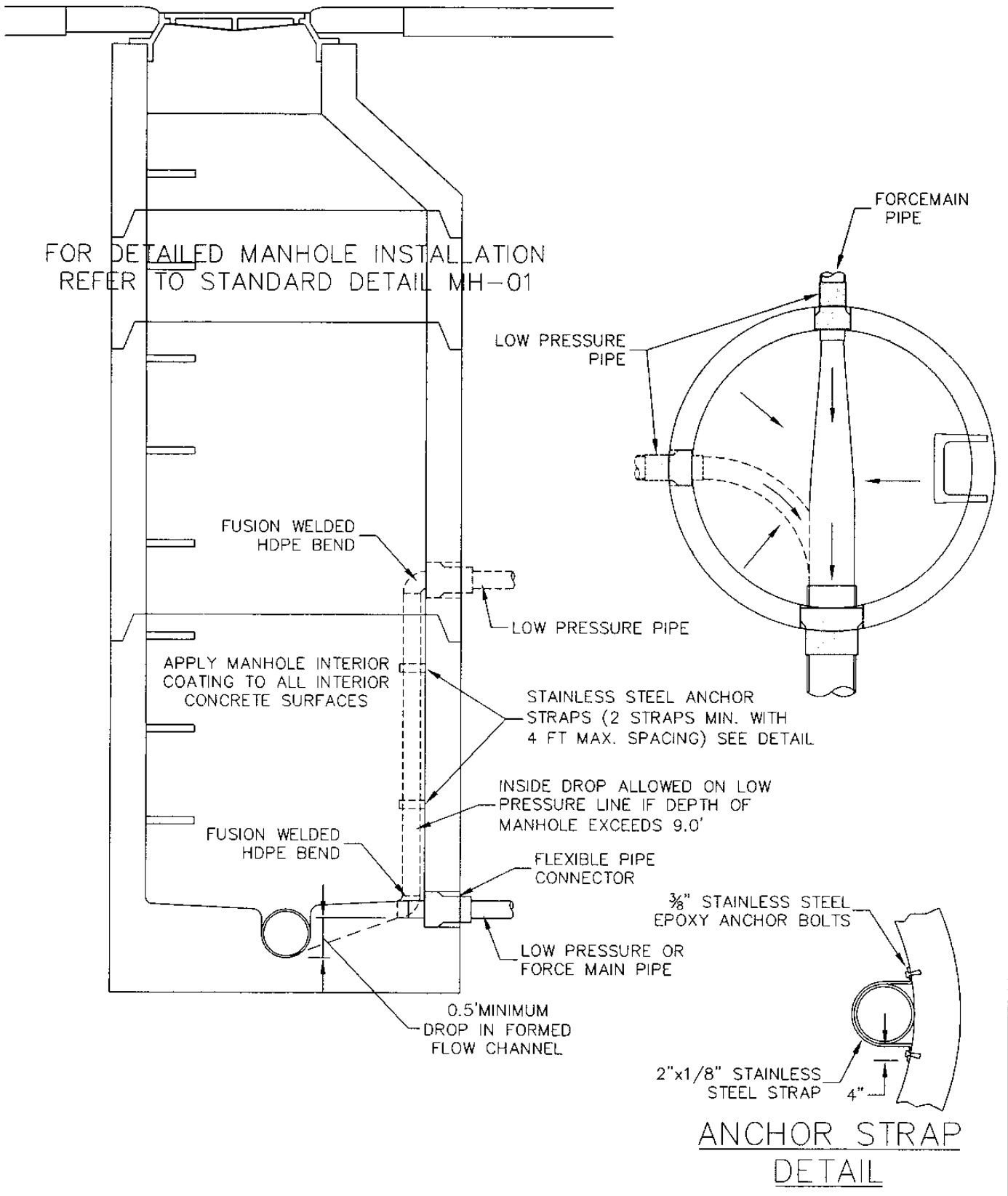


ANCHOR STRAP DETAIL

Snyderville Basin Water Reclamation District

INSIDE DROP MANHOLE

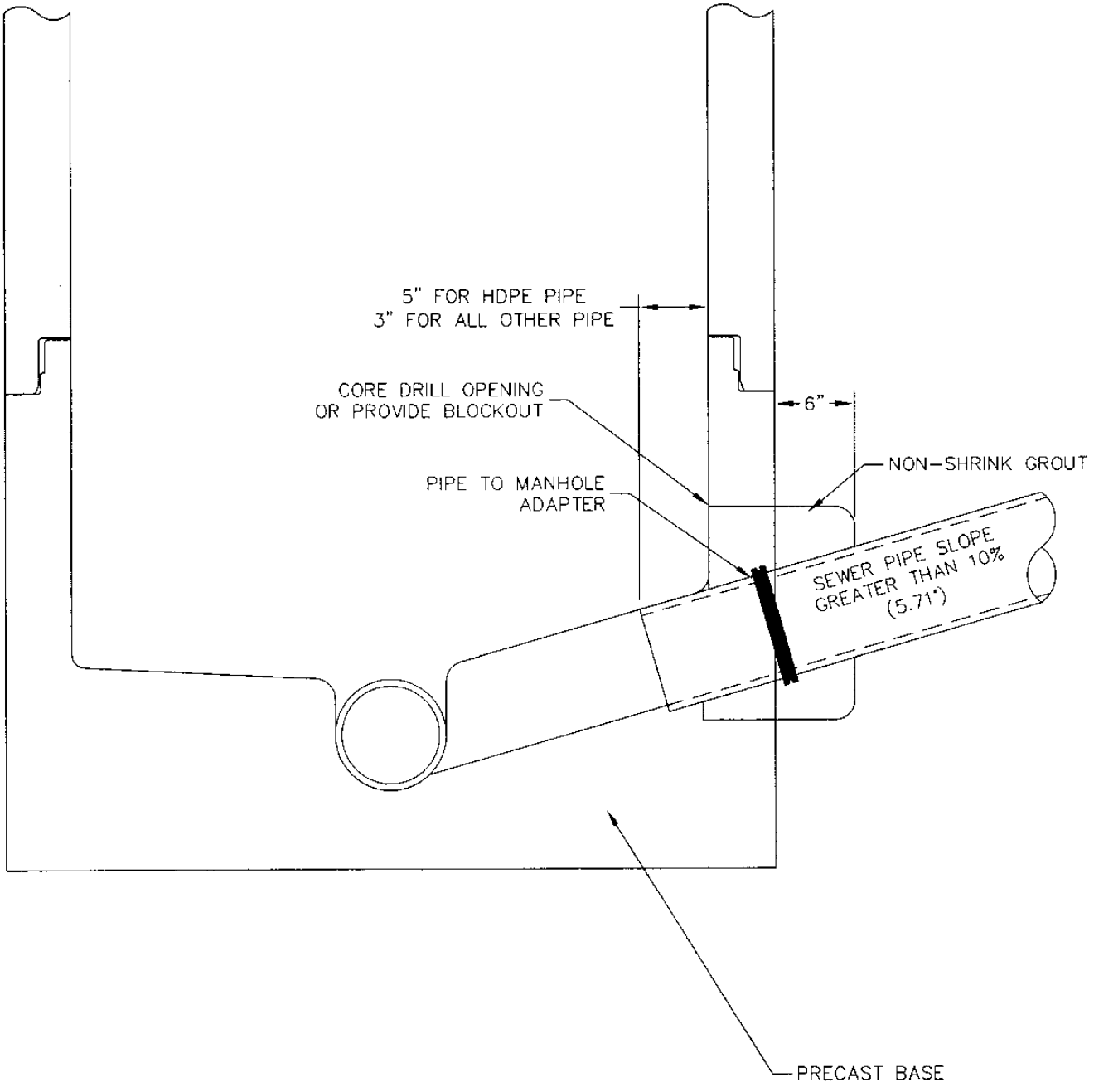
STANDARD DETAIL
MH-03
Revision Date: 4/19/04



Snyderville Basin Water Reclamation District

PRESSURE LINE CONNECTION TO MANHOLE

STANDARD DETAIL
MH-04
Revision Date: 4/19/04



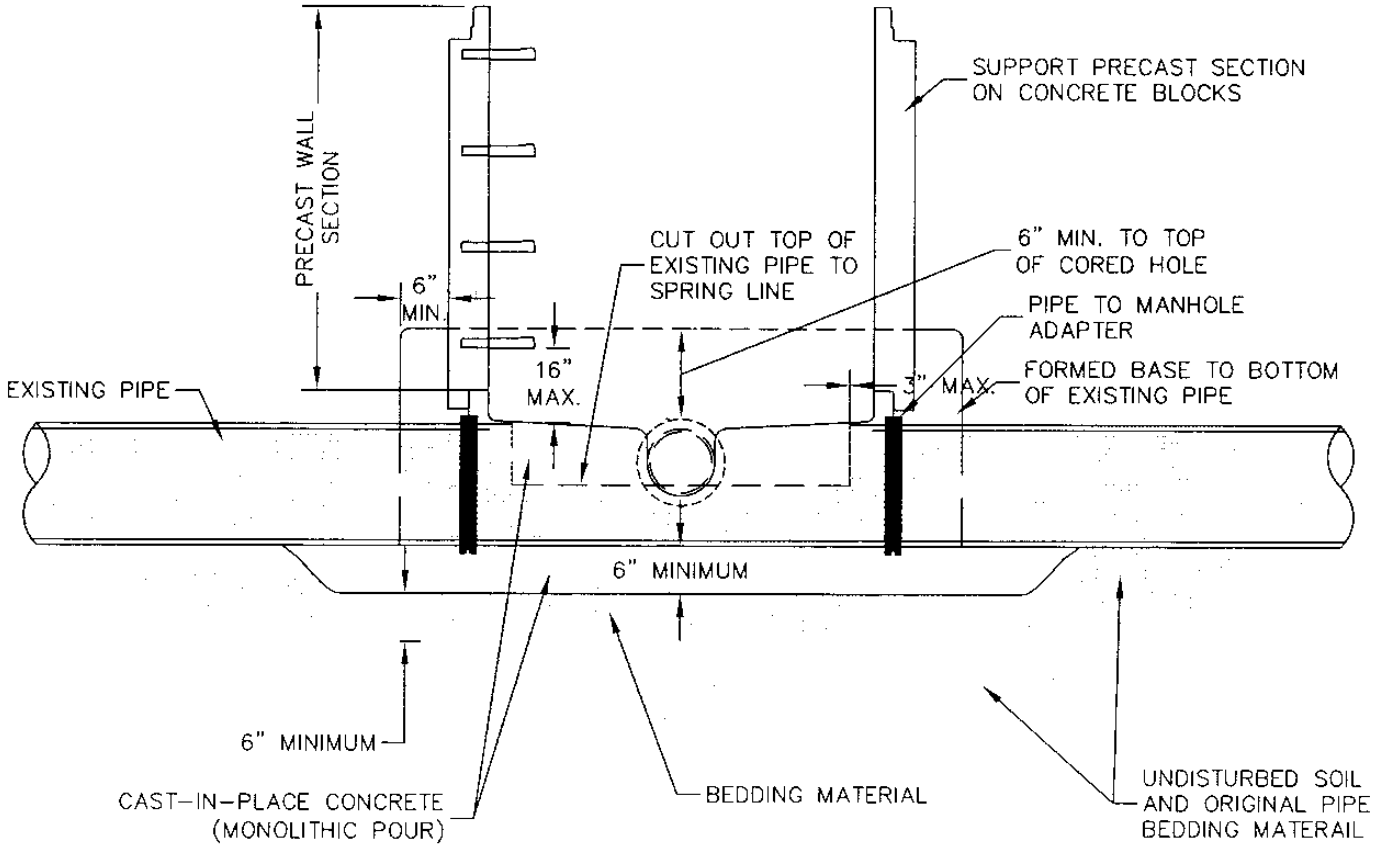
NOTES:

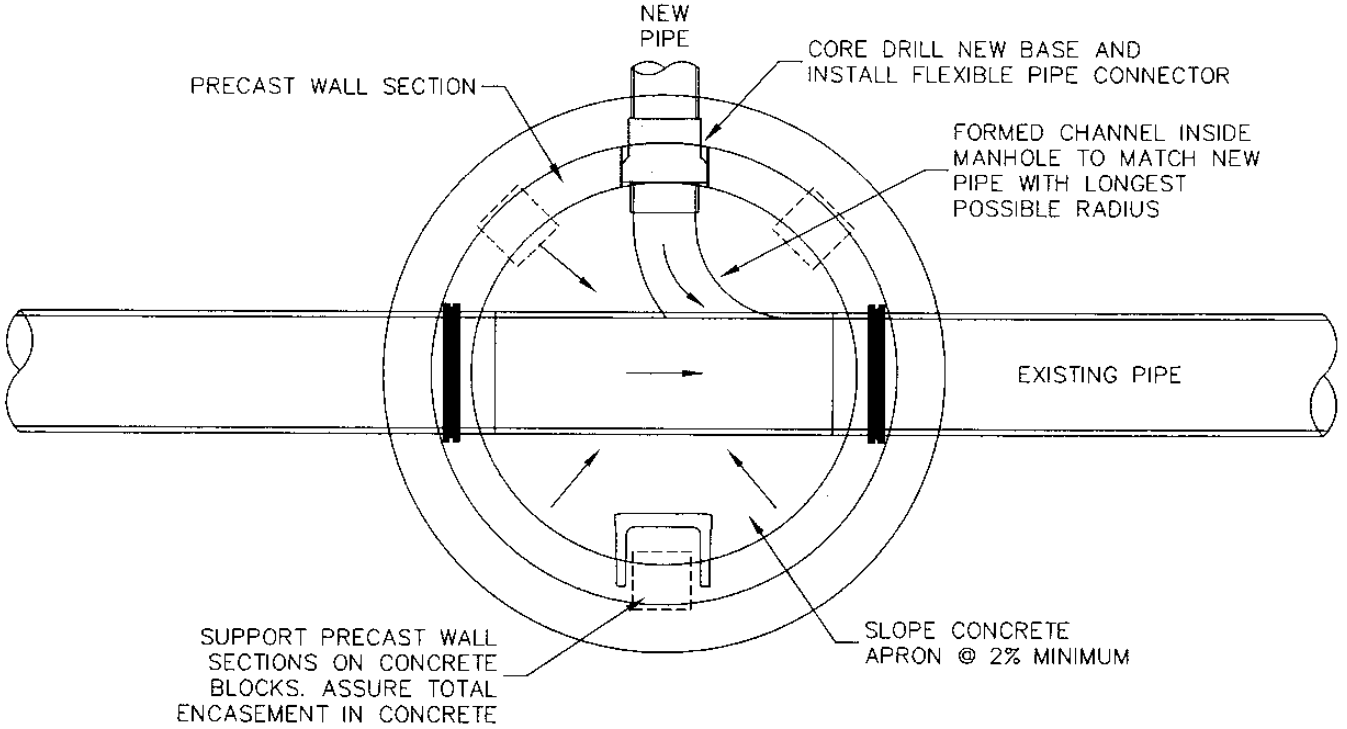
1. PIPES SHALL EXTEND INTO MANHOLE 3".
2. MANHOLE SUPPLIER TO PROVIDE OPENING IN MANHOLE WALL OF SUFFICIENT CLEARANCE TO ALLOW FOR PROPER GROUTING.
3. SLOPE LIMITATIONS ARE BASED ON TYPICAL MANUFACTURER'S REQUIREMENTS FOR PRE-CAST MANHOLE BOOT CONNECTORS AND MAY VARY. CONTRACTOR SHALL CHECK WITH SUPPLIER FOR SITE SPECIFIC SLOPE LIMITATIONS.
4. SEE PRECAST MANHOLE WITH PRECAST BASE DETAIL FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS.

Snyderville Basin Water Reclamation District

PIPE - MANHOLE CONNECTION (PIPE SLOPES GREATER THAN 10%)

STANDARD DETAIL
MH-05
Revision Date: 4/19/04

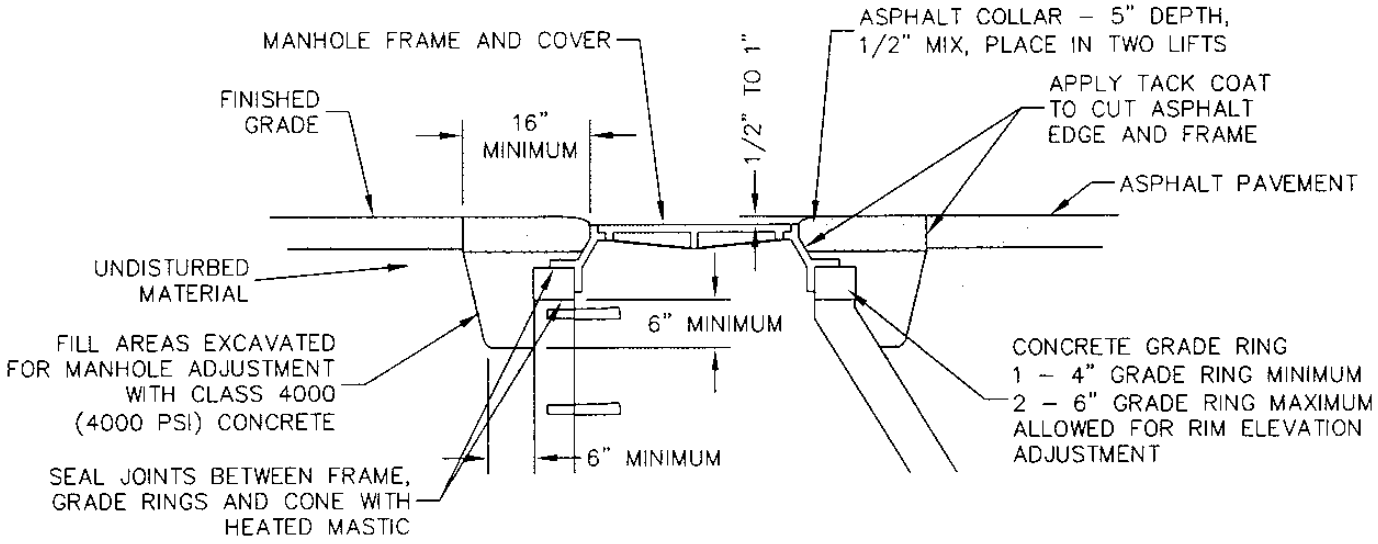




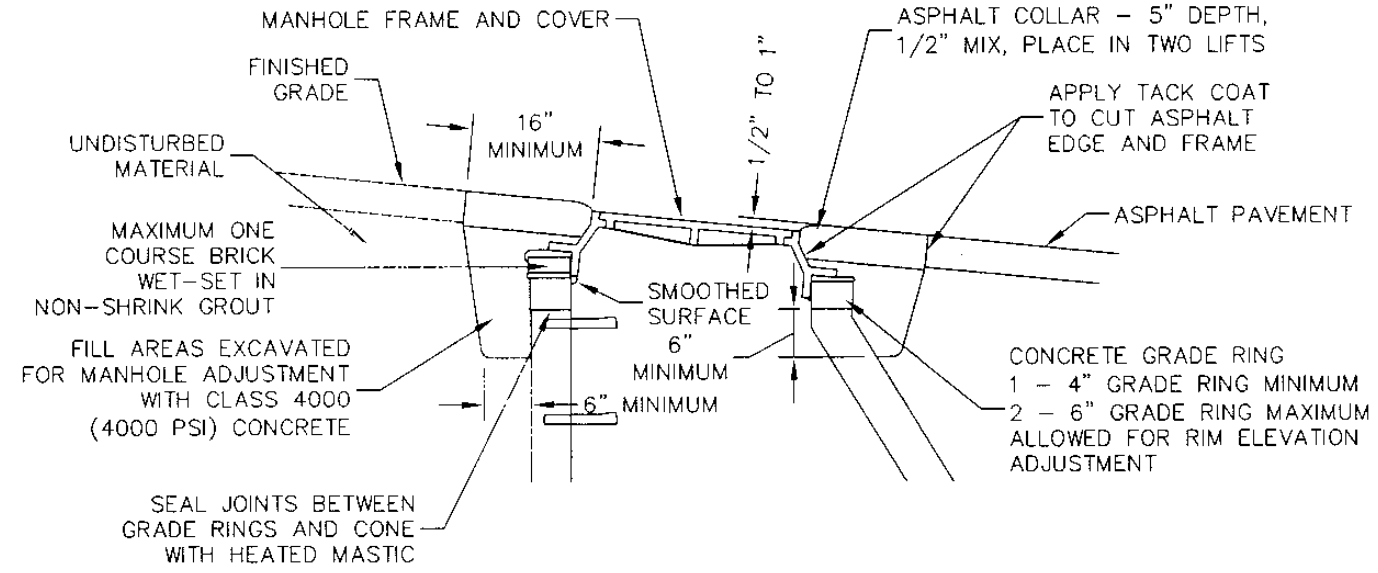
Snyderville Basin Water Reclamation District

CAST-IN-PLACE MANHOLE BASE

STANDARD DETAIL
MH-06
Revision Date: 4/19/04

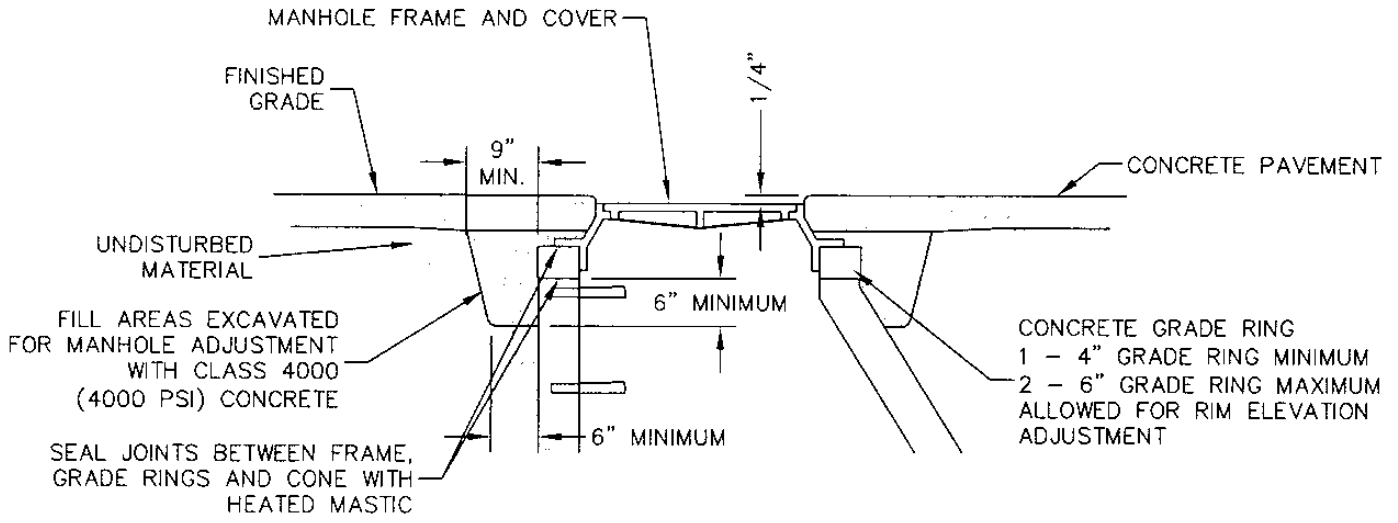


LEVEL SURFACE

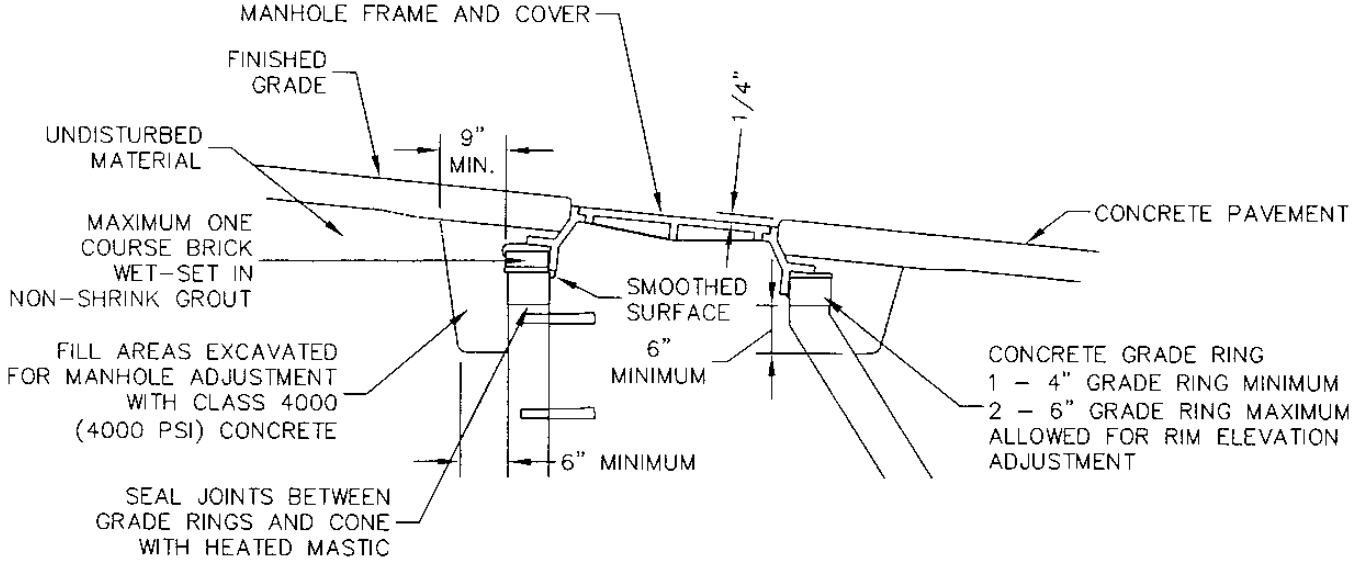


SLOPED SURFACE

Snyderville Basin Water Reclamation District	MANHOLE ADJUSTMENT WITHIN ASPHALT PAVEMENT	STANDARD DETAIL MH-07 Revision Date: 4/19/04



LEVEL SURFACE



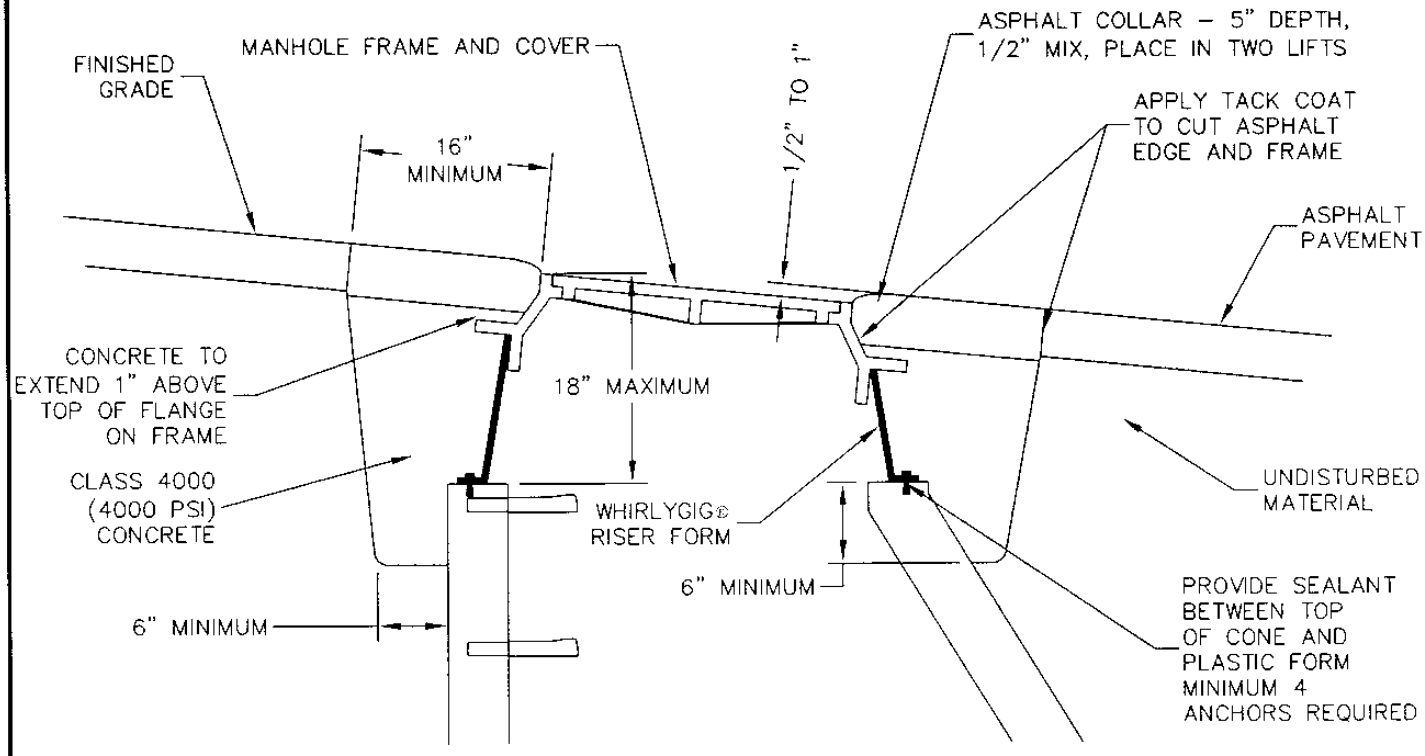
SLOPED SURFACE

NOTE: MANHOLE FRAMES AND COVERS LOCATED IN SIDEWALKS SHALL BE FLUSH WITH SIDEWALK.

Snyderville Basin Water Reclamation District

MANHOLE ADJUSTMENT WITHIN CONCRETE PAVEMENT

STANDARD DETAIL
MH-08
Revision Date: 4/19/04



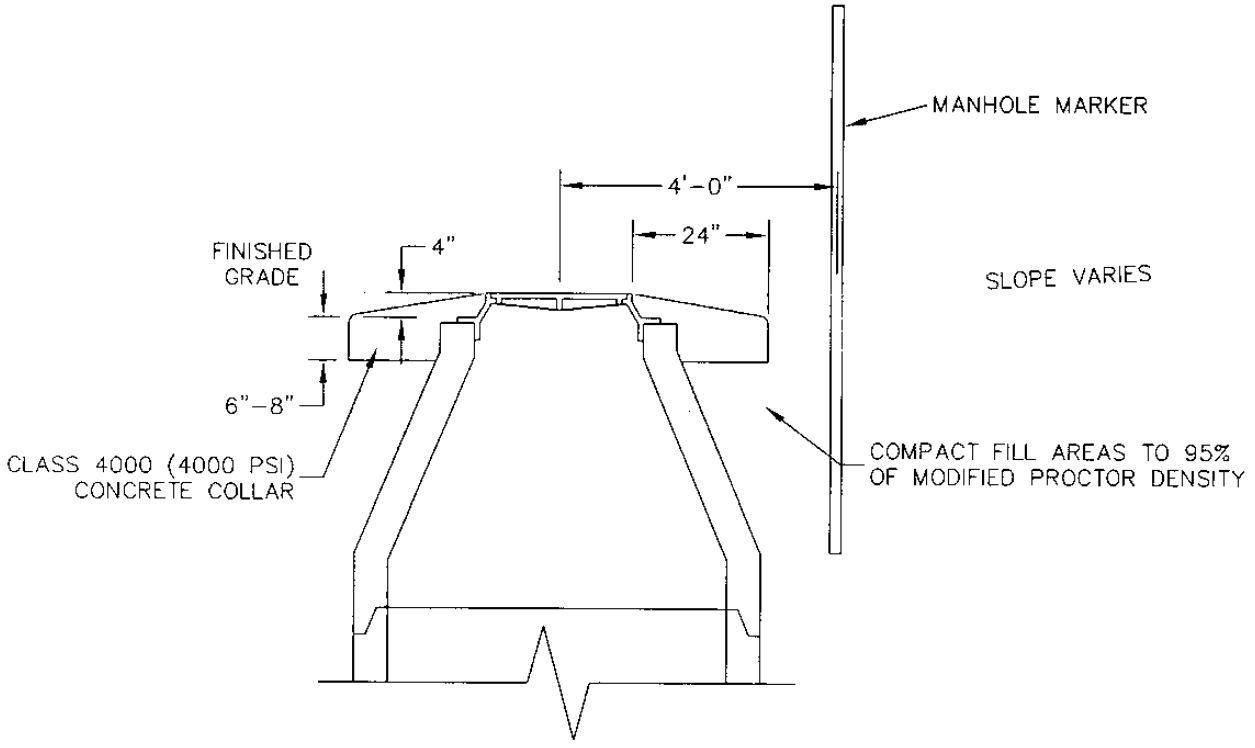
Snyderville Basin Water Reclamation District

MANHOLE ADJUSTMENT WITH WHIRLYGIG® CAST-IN-PLACE RISER

STANDARD DETAIL

MH-09

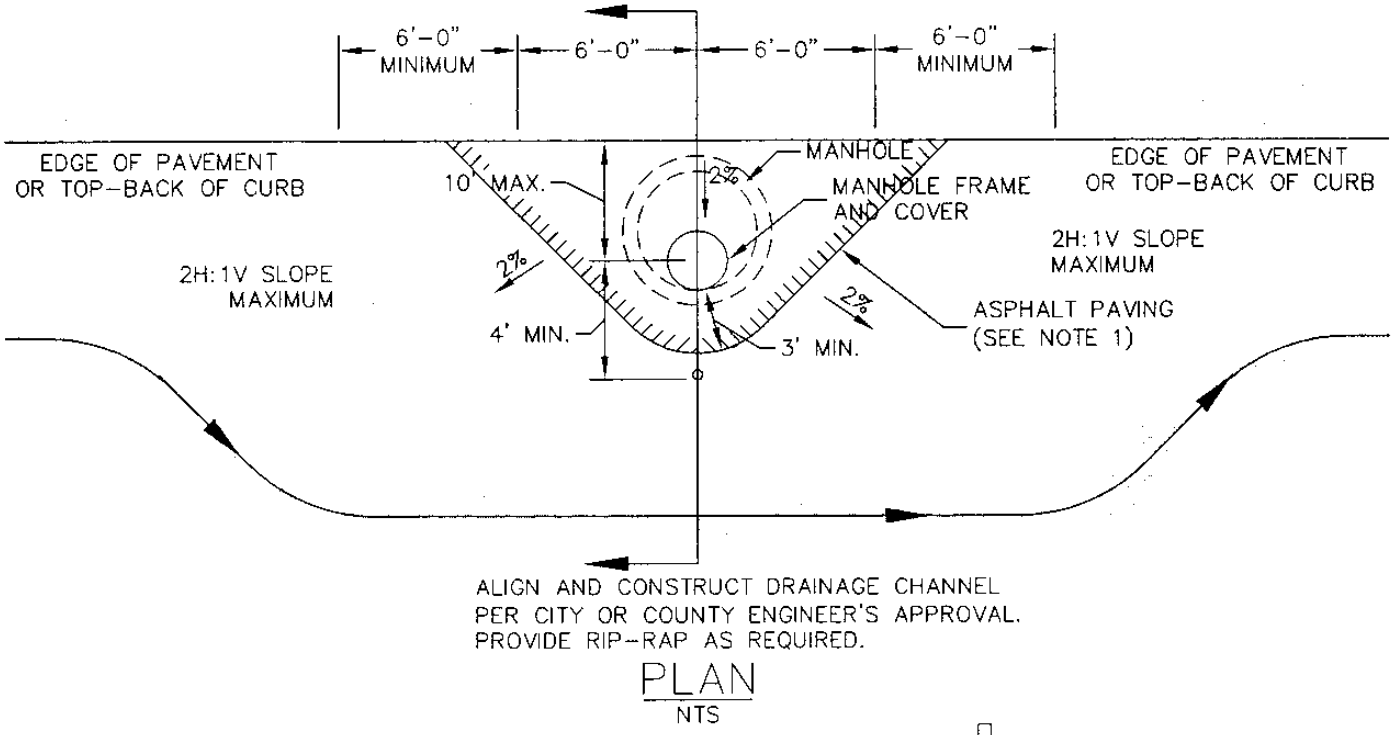
Revision Date: 4/19/04



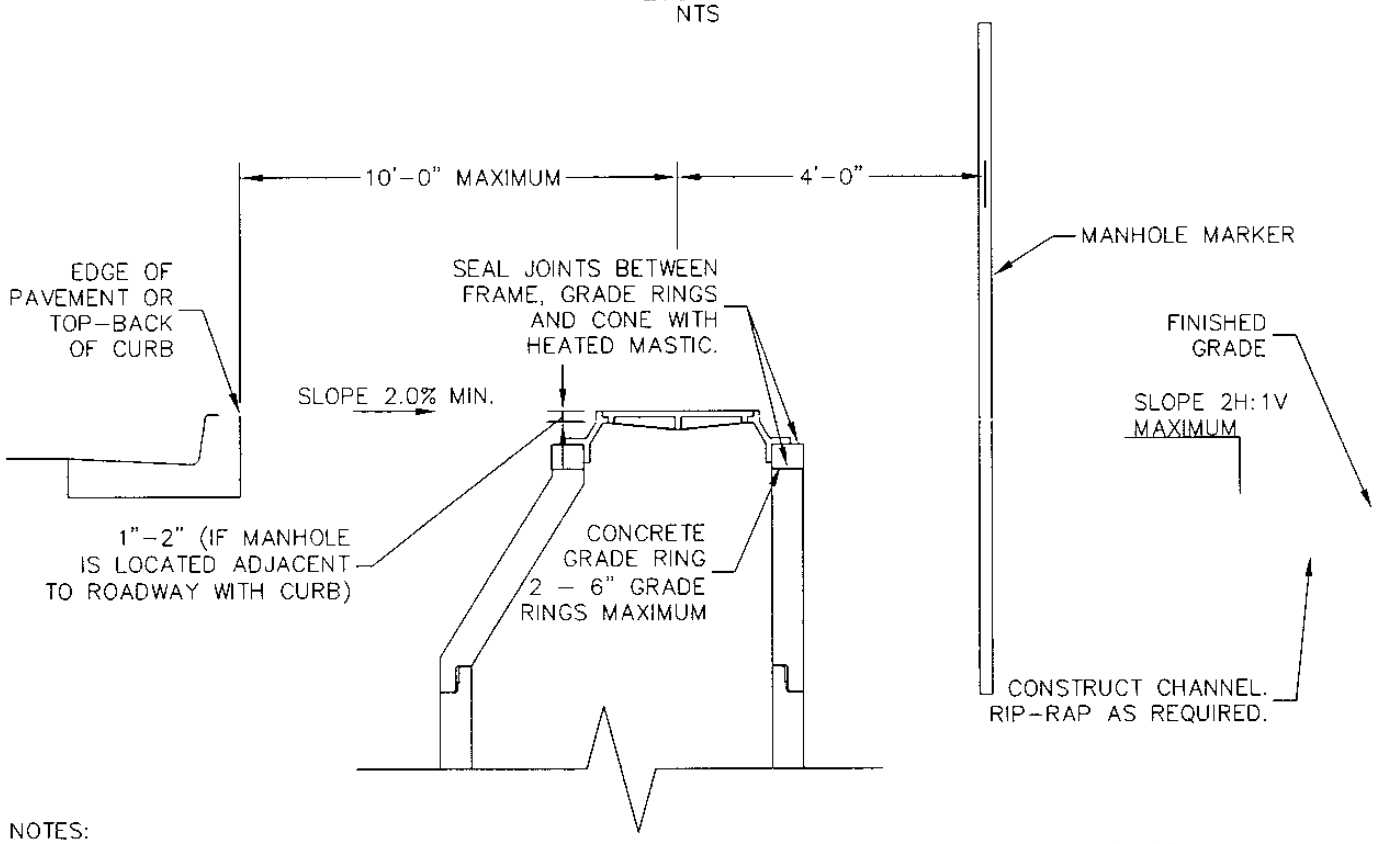
Snyderville Basin Water Reclamation District

OFF-ROAD MANHOLE COLLAR

STANDARD DETAIL
MH-10
Revision Date: 4/19/04



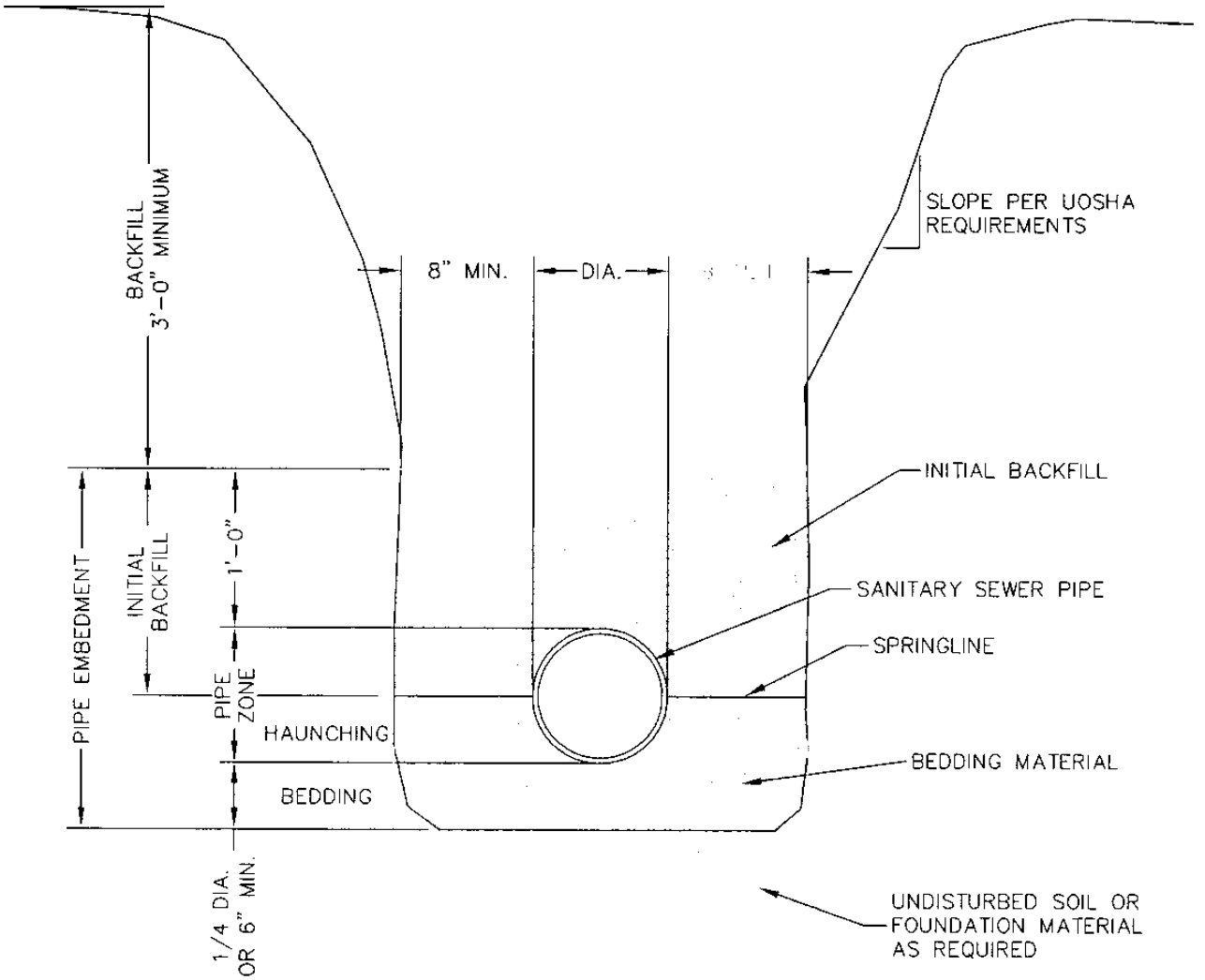
PLAN
NTS



NOTES:

1. MANHOLES LOCATED ALONG ROADS WITH OUT A CURB SHALL HAVE ASPHALT PAVING (2 ½" ASPHALT OVER 6" ROAD BASE) INSTALLED AROUND MANHOLE AS INDICATED. MANHOLE ADJUSTMENT SHALL MEET REQUIREMENTS OF DETAIL MH-07 OR DETAIL MH-09.
2. MANHOLE FRAME AND COVER SHALL BE PLACED IN AN ASPHALT COLLAR ½" TO 1" BELOW FINISHED GRADE IF THE ROAD SHOULDER MAY BE PLOWED.
3. COMPACT FILL AREAS TO 95% OF MODIFIED PROCTOR DENSITY. PROVIDE IMPORT FILL AS REQUIRED.
4. PROVIDE 4" MINIMUM TOPSOIL ON ALL CUT AND FILL SLOPES. RESEED WITH GRASS MIXTURE IN ACCORDANCE WITH CITY OR COUNTY SEED MIX REQUIREMENTS.

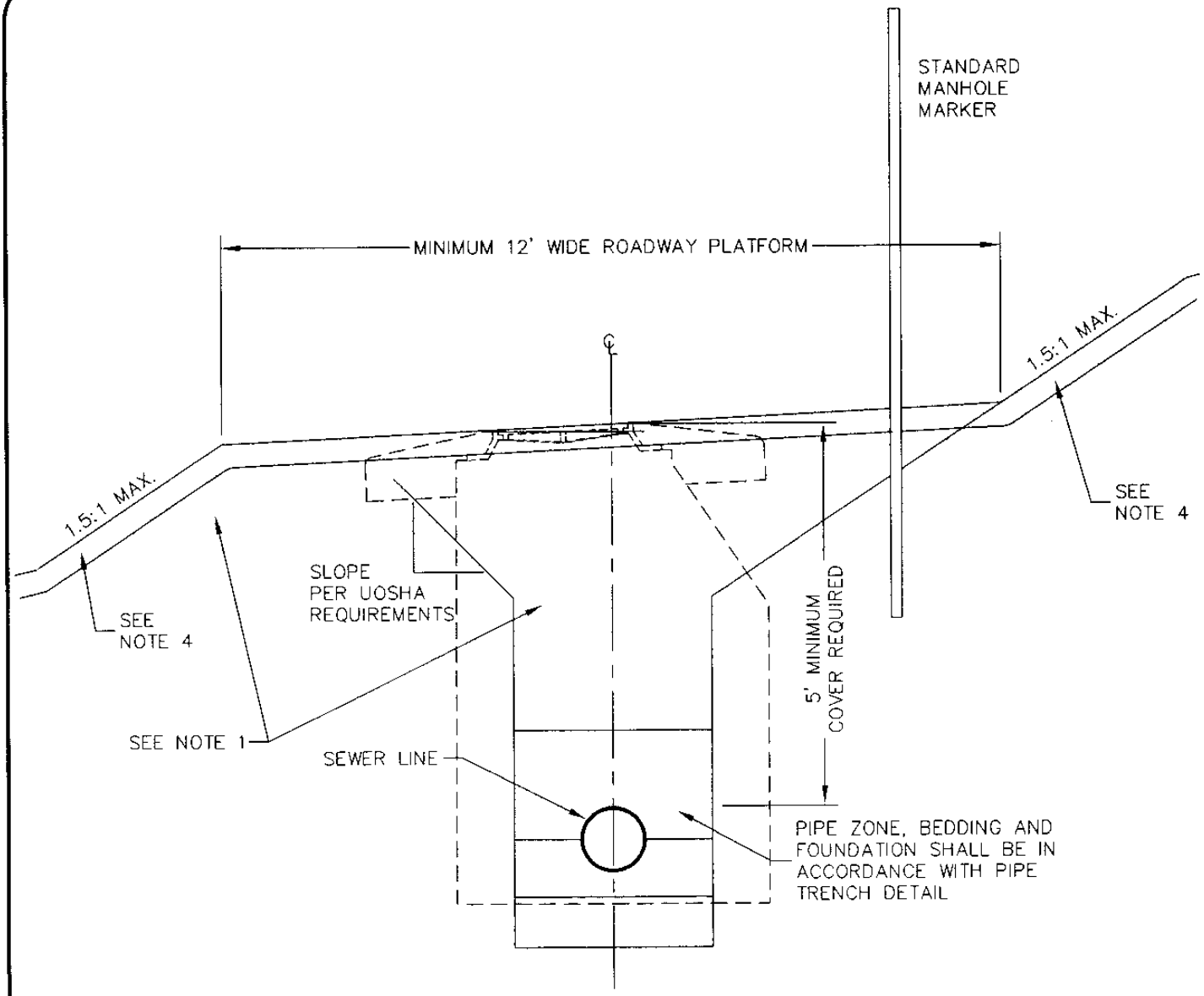
Snyderville Basin Water Reclamation District	MANHOLE PLATFORM	STANDARD DETAIL MH-11 Revision Date: 4/19/04



ALL SUBGRADES

NOTES:
1. BACKFILL IN ROADS, STREETS OR RIGHTS-OF-WAY SHALL BE IN ACCORDANCE WITH APPLICABLE CITY, COUNTY OR STATE STANDARDS.
2. BACKFILL IN OFF-ROAD AREAS SHALL BE IN ACCORDANCE WITH OFF ROAD SEWER LINE TRENCH DETAIL.

Snyderville Basin Water Reclamation District	PIPE TRENCH	STANDARD DETAIL PI-01 Revision Date: 4/19/04



NOTES:

1. BACKFILL MATERIAL ABOVE PIPE ZONE AND IN FILL AREAS SHALL BE ACCEPTABLE MATERIAL FREE OF HARD CLODS OR FROZEN MATERIAL AND EXCESSIVE AMOUNTS OF LARGE ROCKS. COMPACT TO 95% OF MODIFIED PROCTOR DENSITY. IF EXISTING MATERIAL CANNOT MEET COMPACTION REQUIREMENTS IMPORT MATERIAL WILL BE REQUIRED.
2. A ROADWAY PLATFORM WITH A MINIMUM 12' WIDTH AND MAXIMUM 5% CROSS SLOPE SHALL BE PROVIDED OVER ALL SEWERLINES LOCATED OUTSIDE OF PAVED ROADS AND STREETS.
3. CUT AND FILL SLOPES SHALL BE A MAXIMUM OF 1.5 HORIZONTAL TO 1 VERTICAL UNLESS APPROVED BY SBWRD.
4. PLACE 4" MINIMUM TOPSOIL ON ALL CUT AND FILL SLOPES AND ROADWAY PLATFORM. COMPACT TO 90% OF MODIFIED PROCTOR DENSITY. PROVIDE EROSION CONTROL AND REVEGETATION.

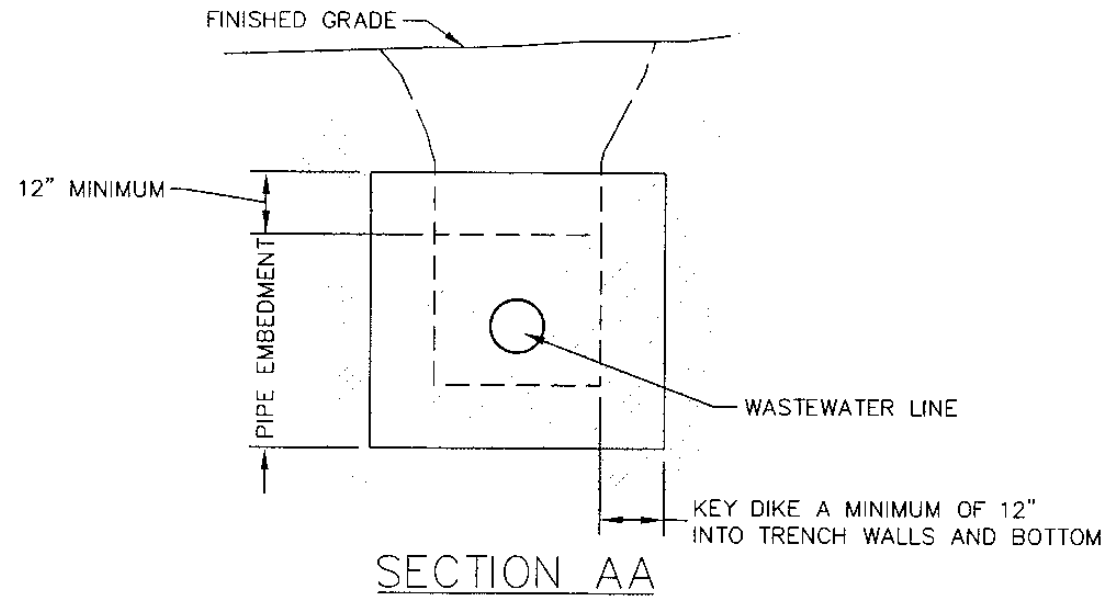
Snyderville Basin Water Reclamation District

OFF-ROAD SEWERLINE TRENCH

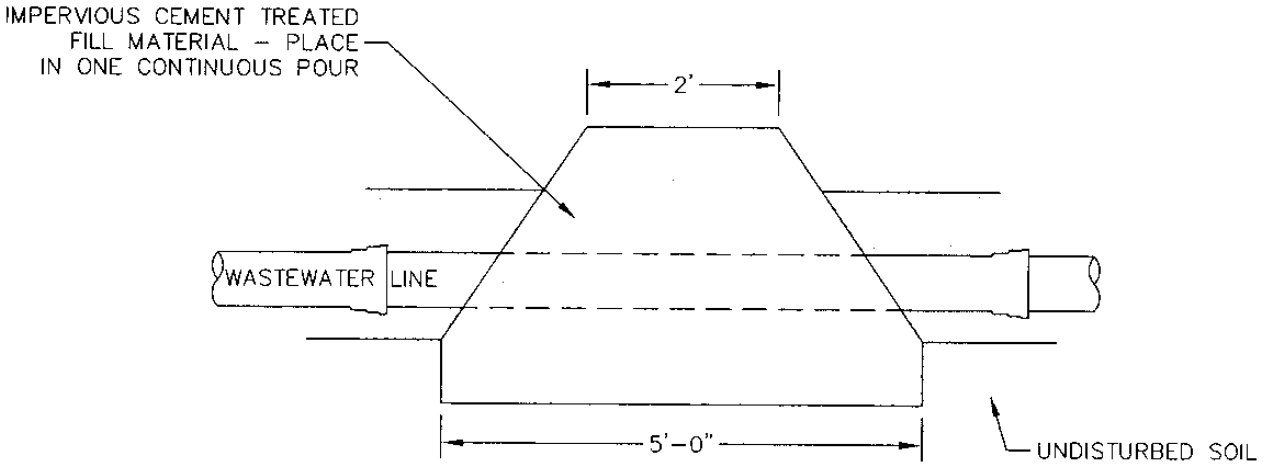
STANDARD DETAIL

PI-02

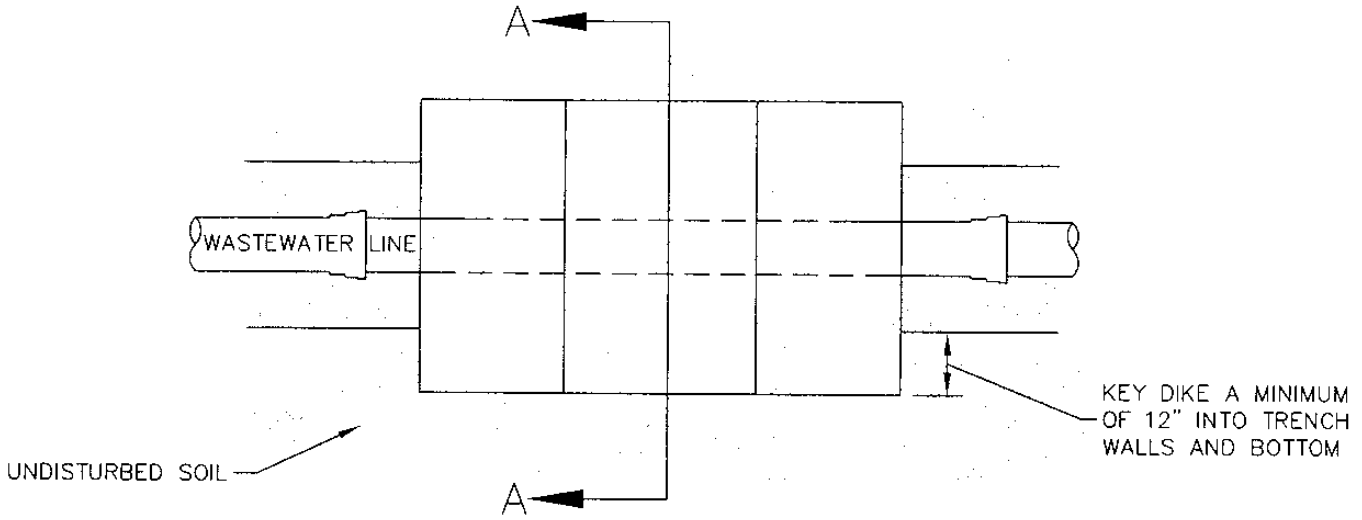
Revision Date: 4/19/04



SECTION AA



PROFILE

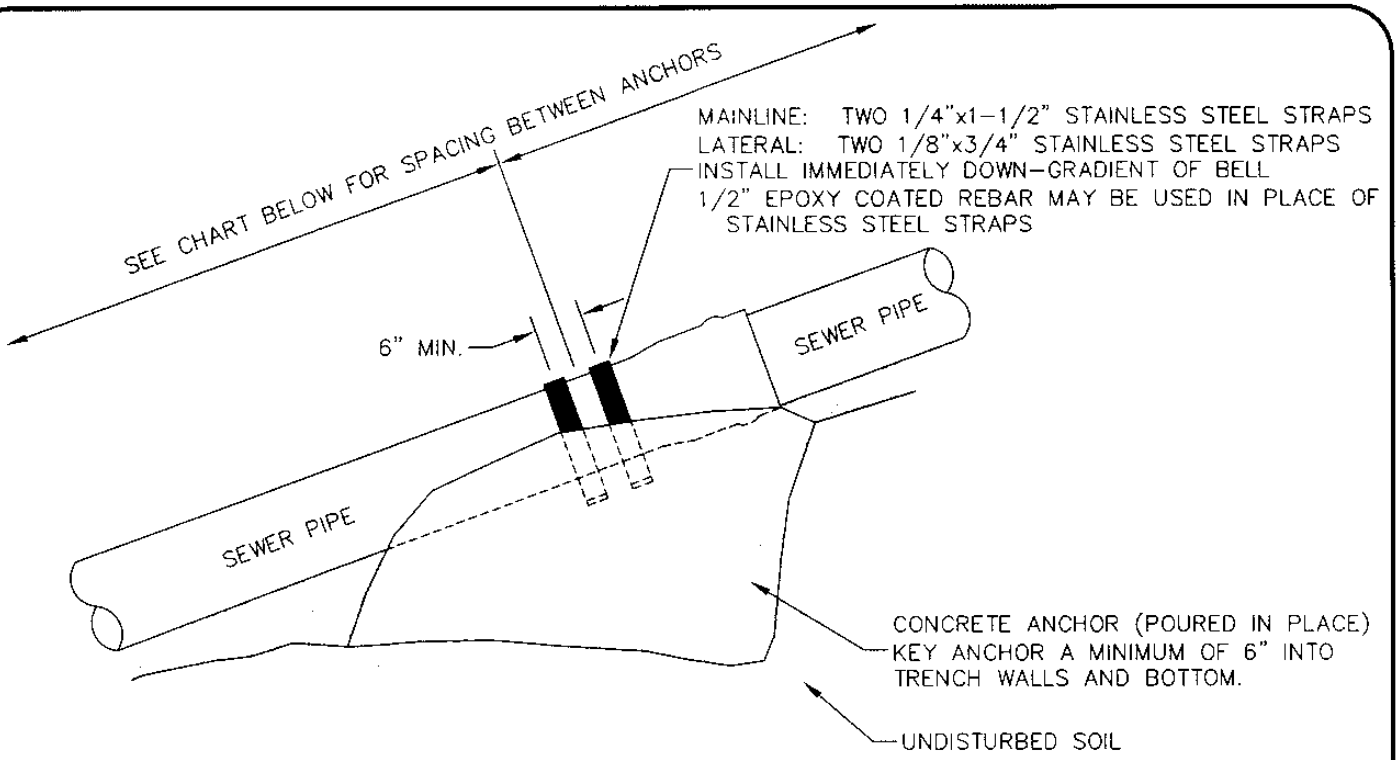


PLAN

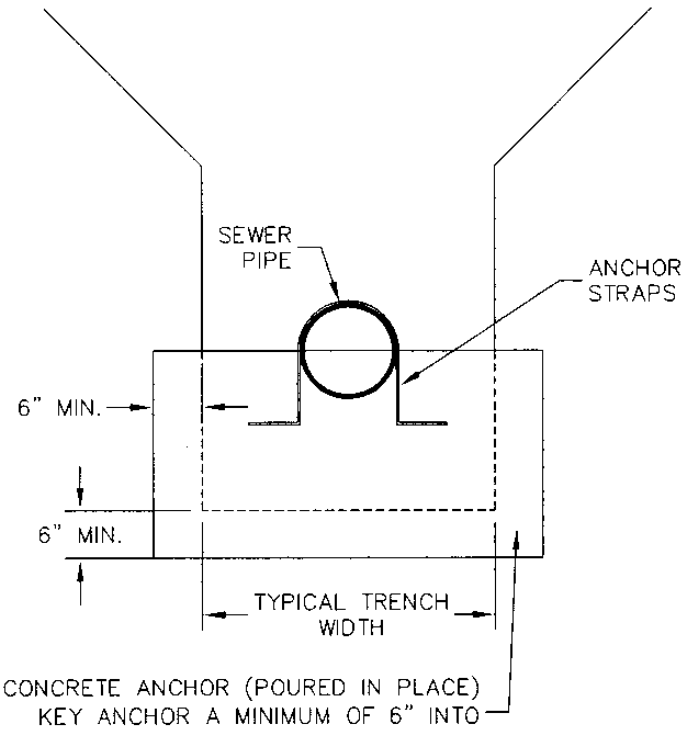
Snyderville Basin Water Reclamation District

TRENCH DIKE

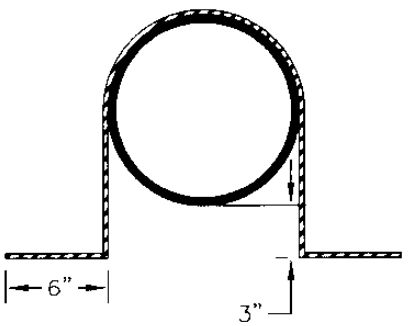
STANDARD DETAIL
PI-03
Revision Date: 4/19/04



PROFILE



SECTION



ANCHOR STRAPS DETAIL

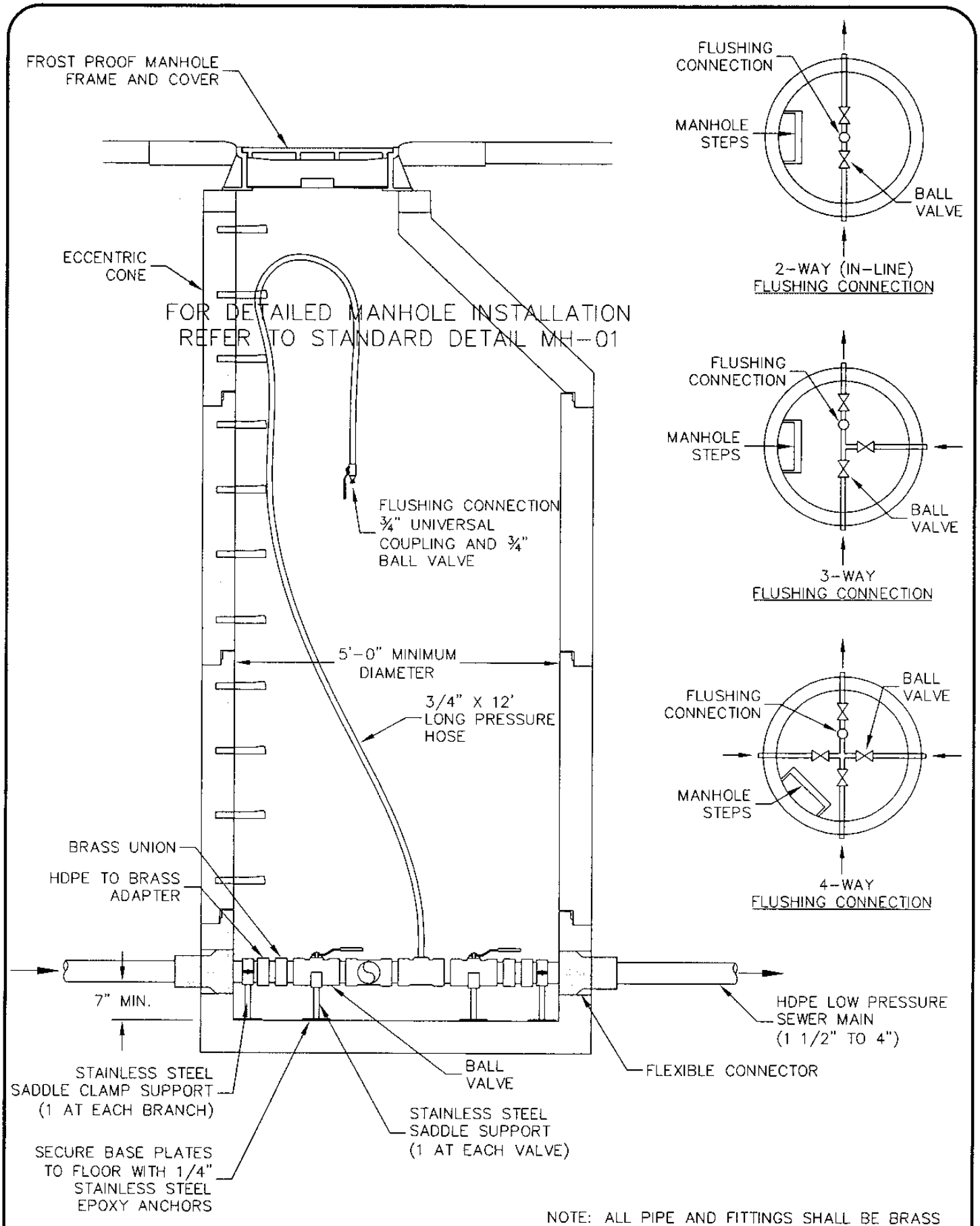
ANCHOR SPACING CENTER TO CENTER

SLOPES 33% TO 50%	26'-0" MAXIMUM
SLOPES 50% TO 100%	13'-0" MAXIMUM
SLOPES GREATER THAN 100% NOT ALLOWED	

Snyderville Basin Water Reclamation District

PIPE ANCHOR

STANDARD DETAIL
PI-04
Revision Date: 4/19/04

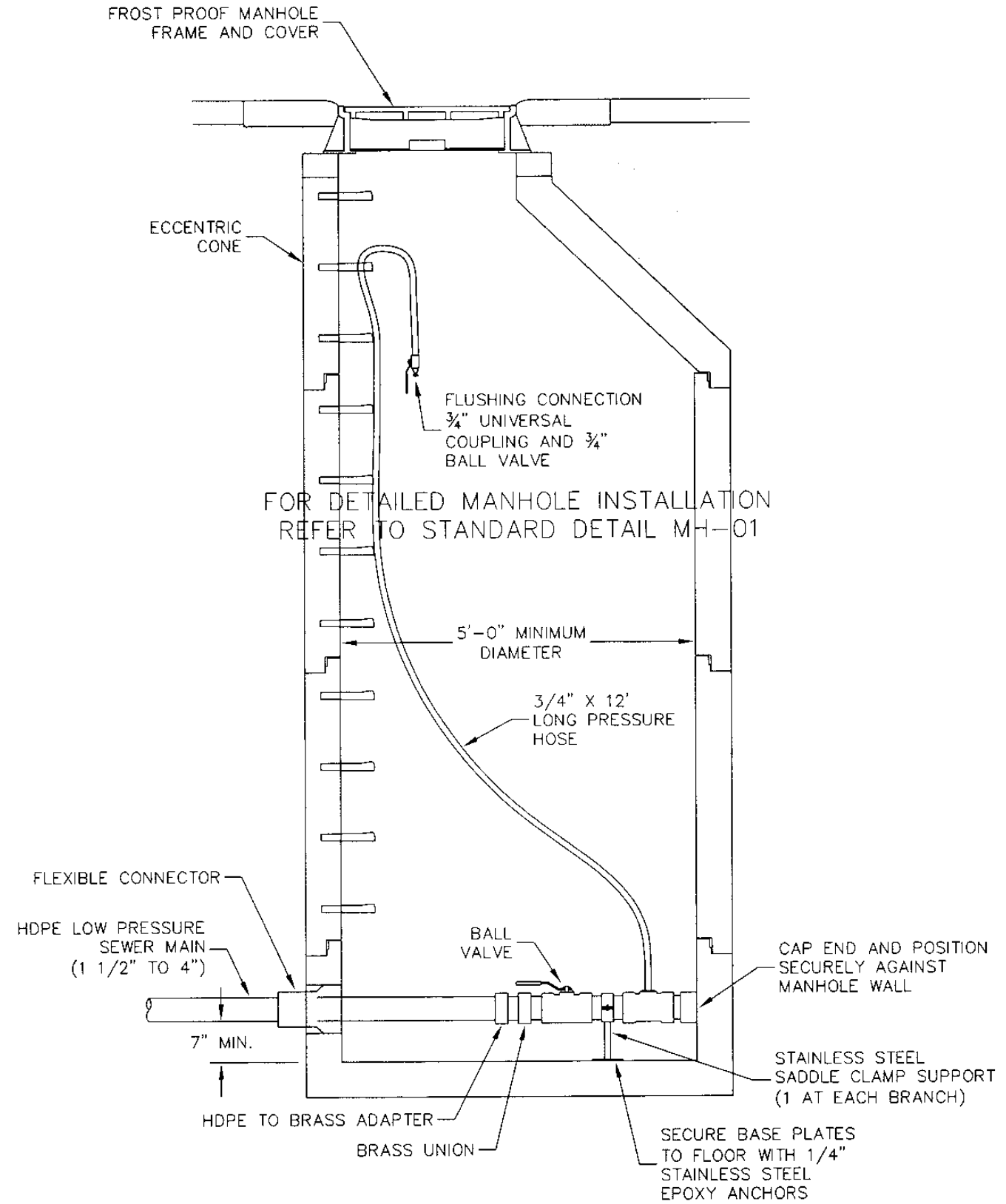


NOTE: ALL PIPE AND FITTINGS SHALL BE BRASS

Snyderville Basin Water Reclamation District

LOW PRESSURE FLUSHING CONNECTION

STANDARD DETAIL
LP-01
Revision Date: 4/19/04

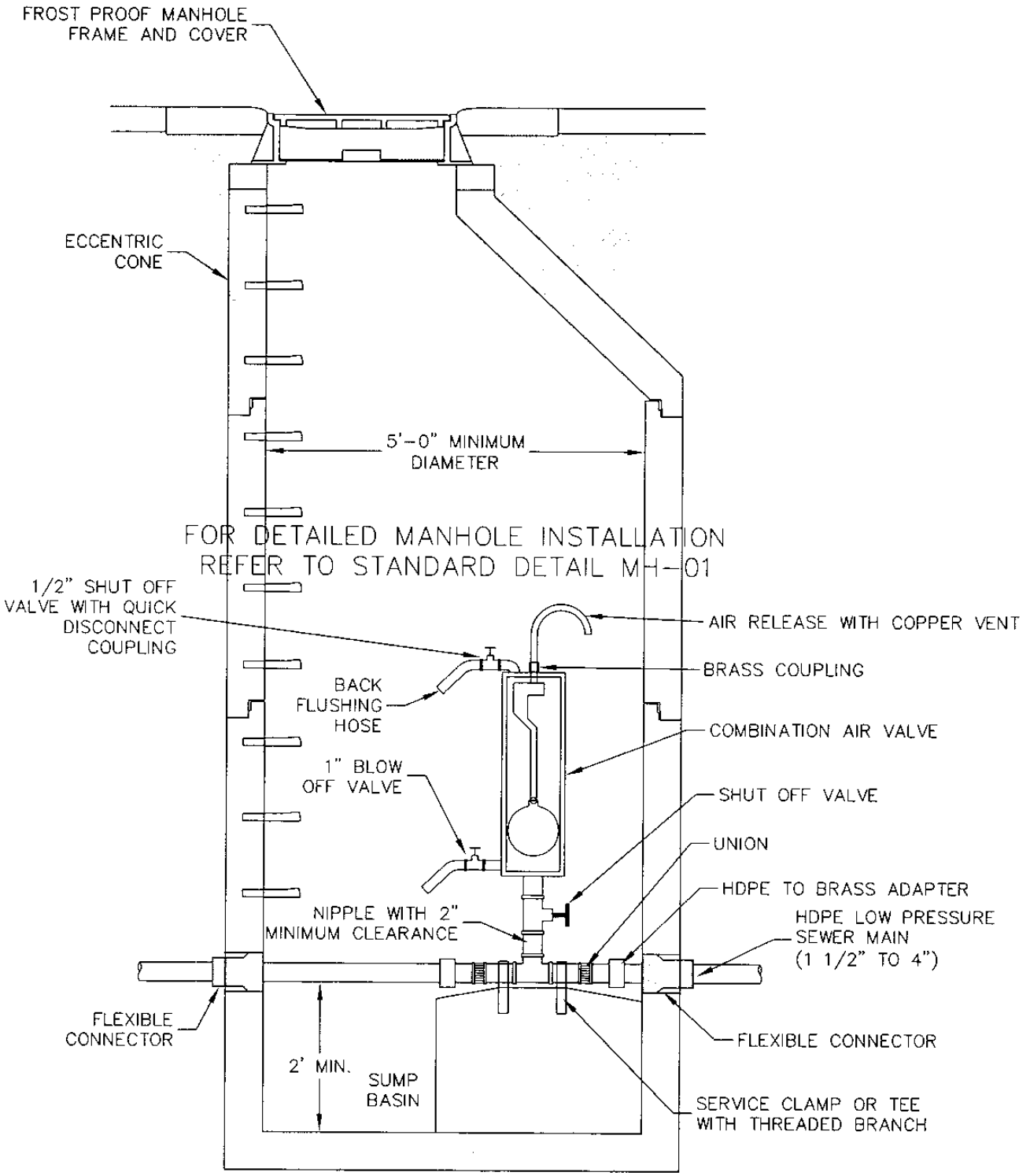


NOTE: ALL PIPE AND FITTINGS SHALL BE BRASS

Snyderville Basin Water Reclamation District

DEAD END LOW PRESSURE FLUSHING CONNECTION

STANDARD DETAIL
LP-02
Revision Date: 4/19/04

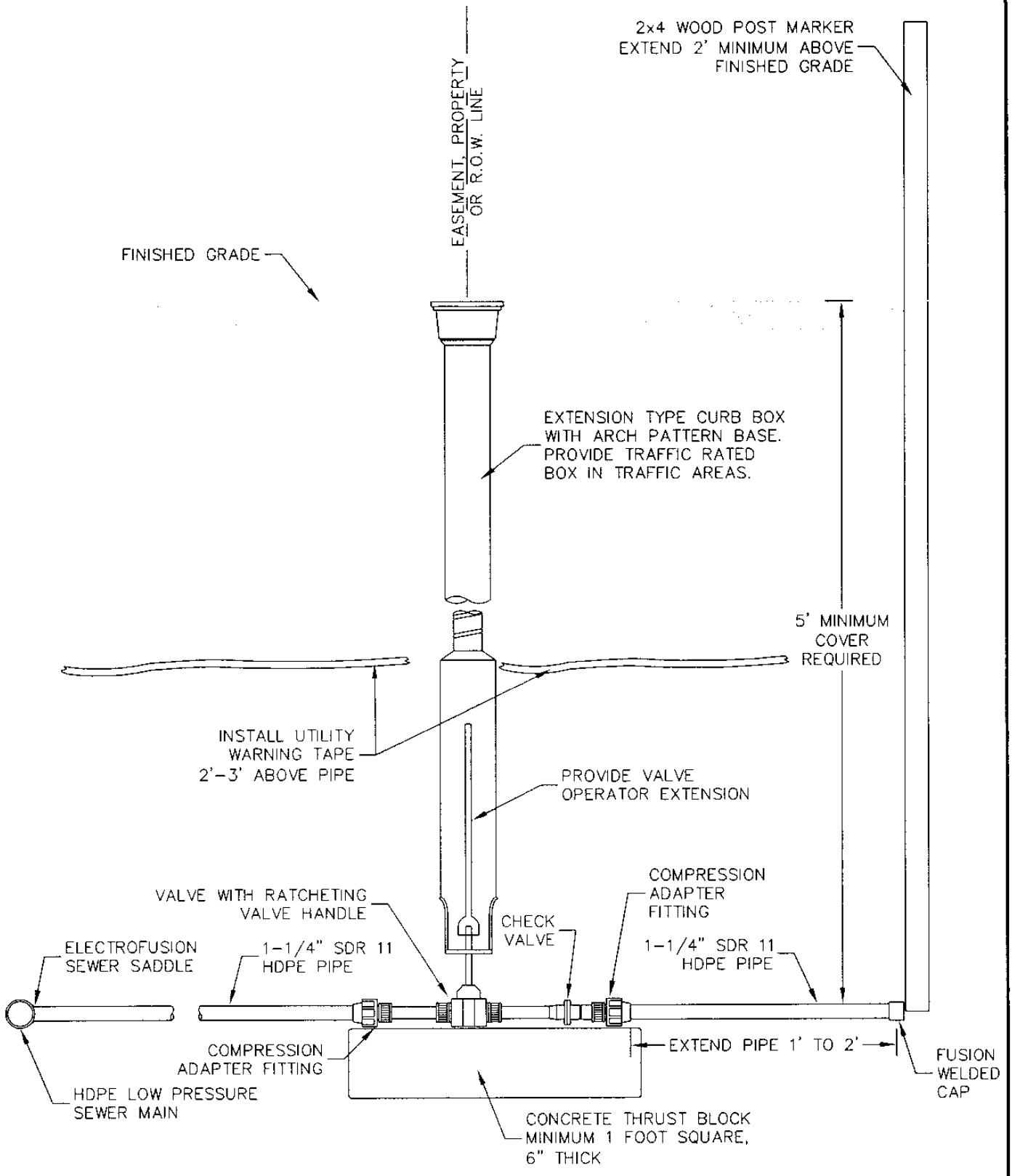


NOTE: ALL PIPE AND FITTINGS SHALL BE BRASS

Snyderville Basin Water Reclamation District

LOW PRESSURE COMBINATION AIR VALVE

STANDARD DETAIL
LP-03
Revision Date: 4/19/04



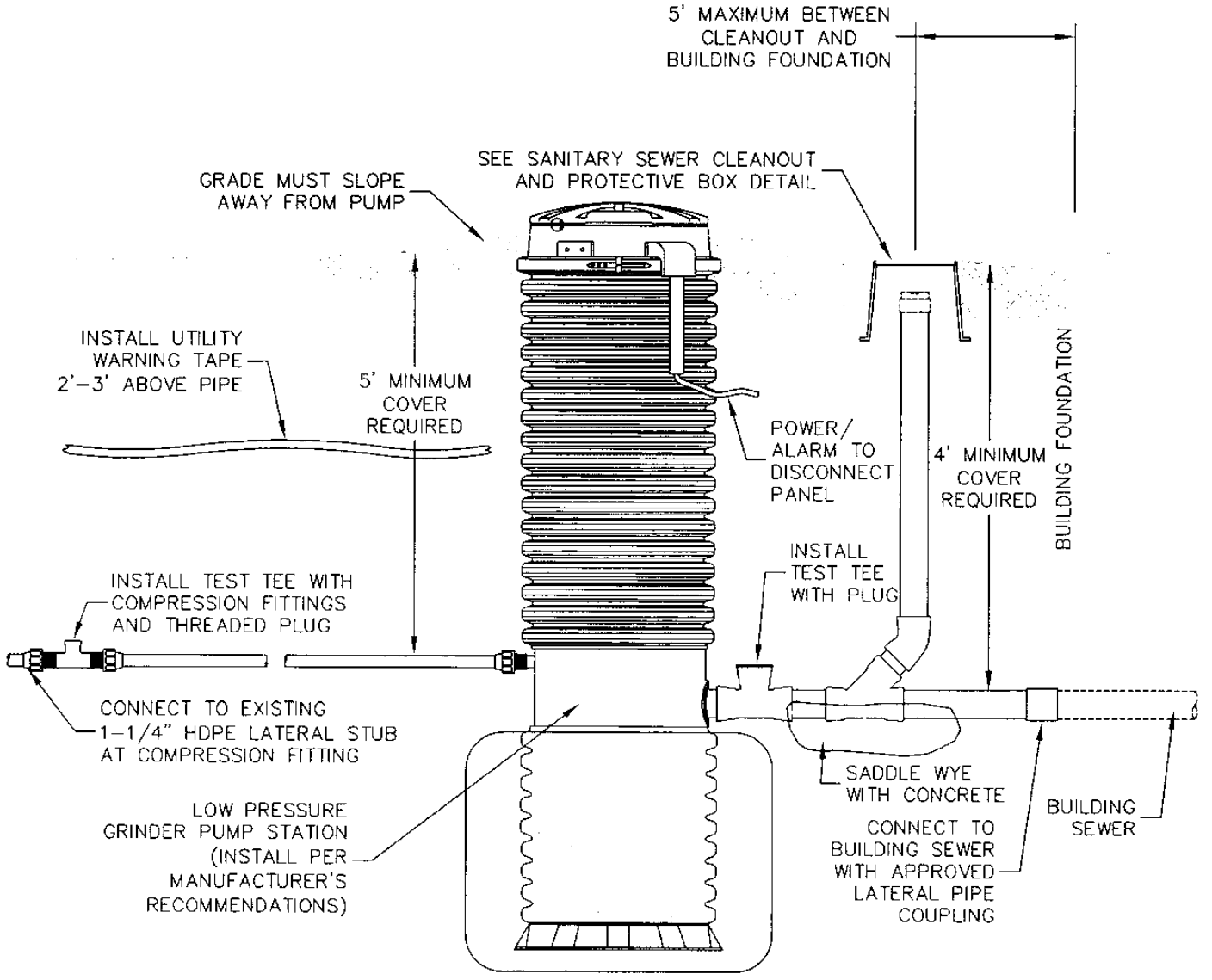
Snyderville Basin Water Reclamation District

LOW PRESSURE PRIVATE LATERAL STUB

STANDARD DETAIL

LP-04

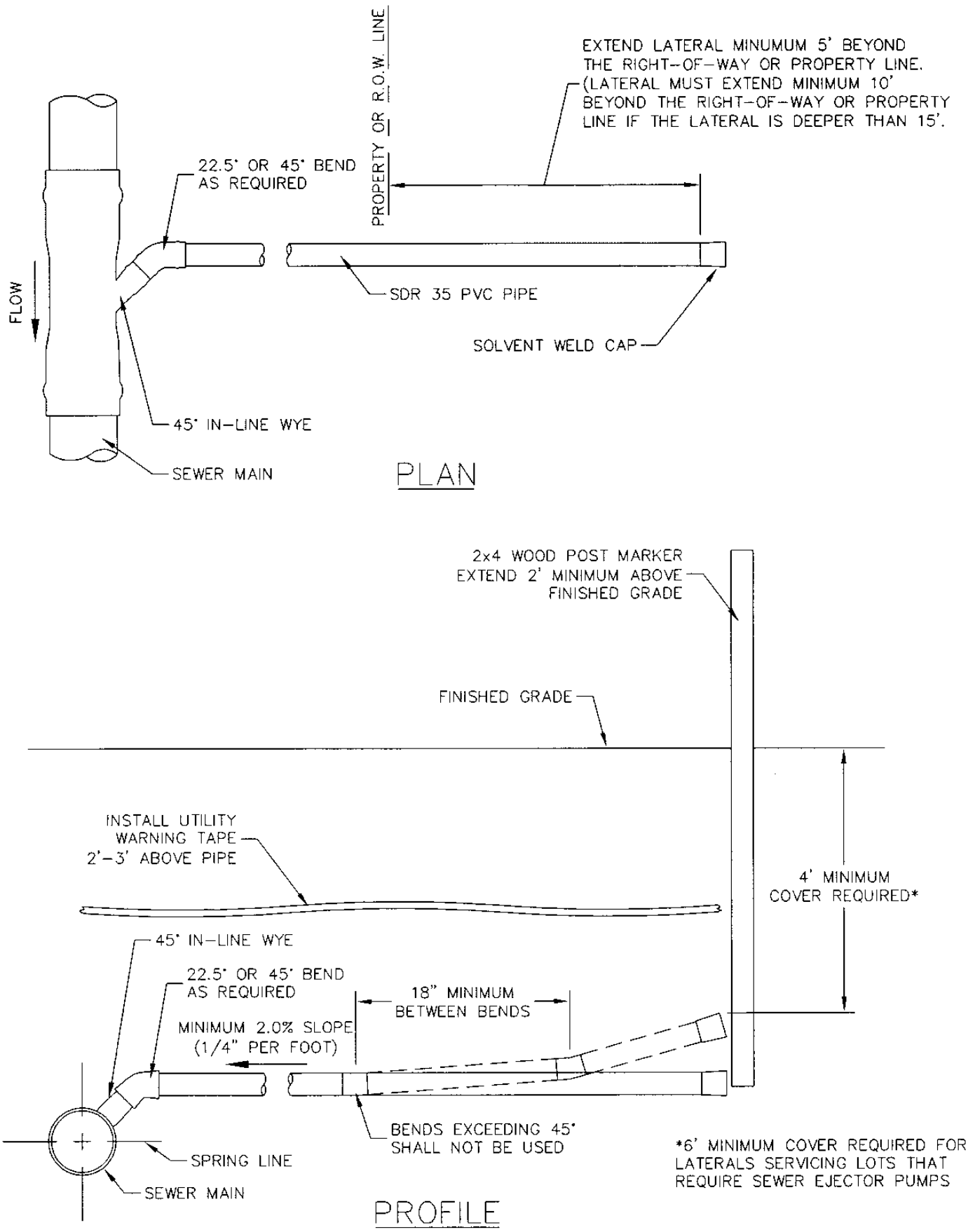
Revision Date: 4/19/04



Snyderville Basin Water Reclamation District

LOW PRESSURE LATERAL STUB TO BUILDING CONNECTION

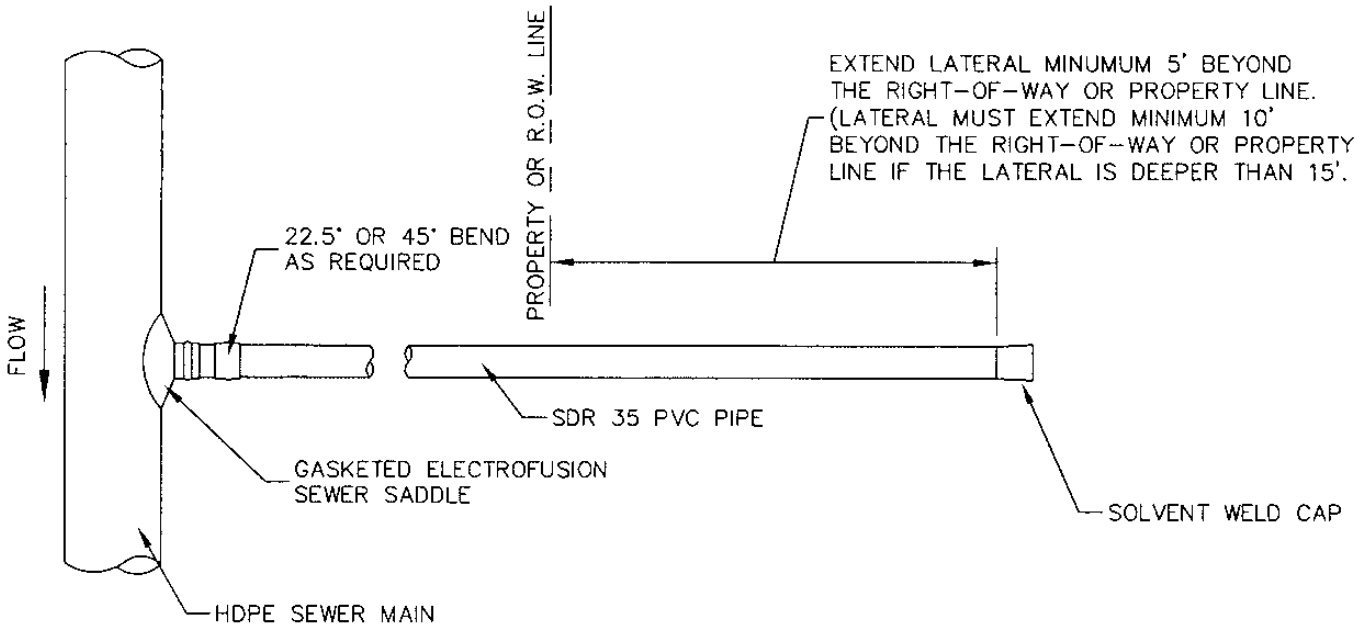
STANDARD DETAIL
LP-05
Revision Date: 4/19/04



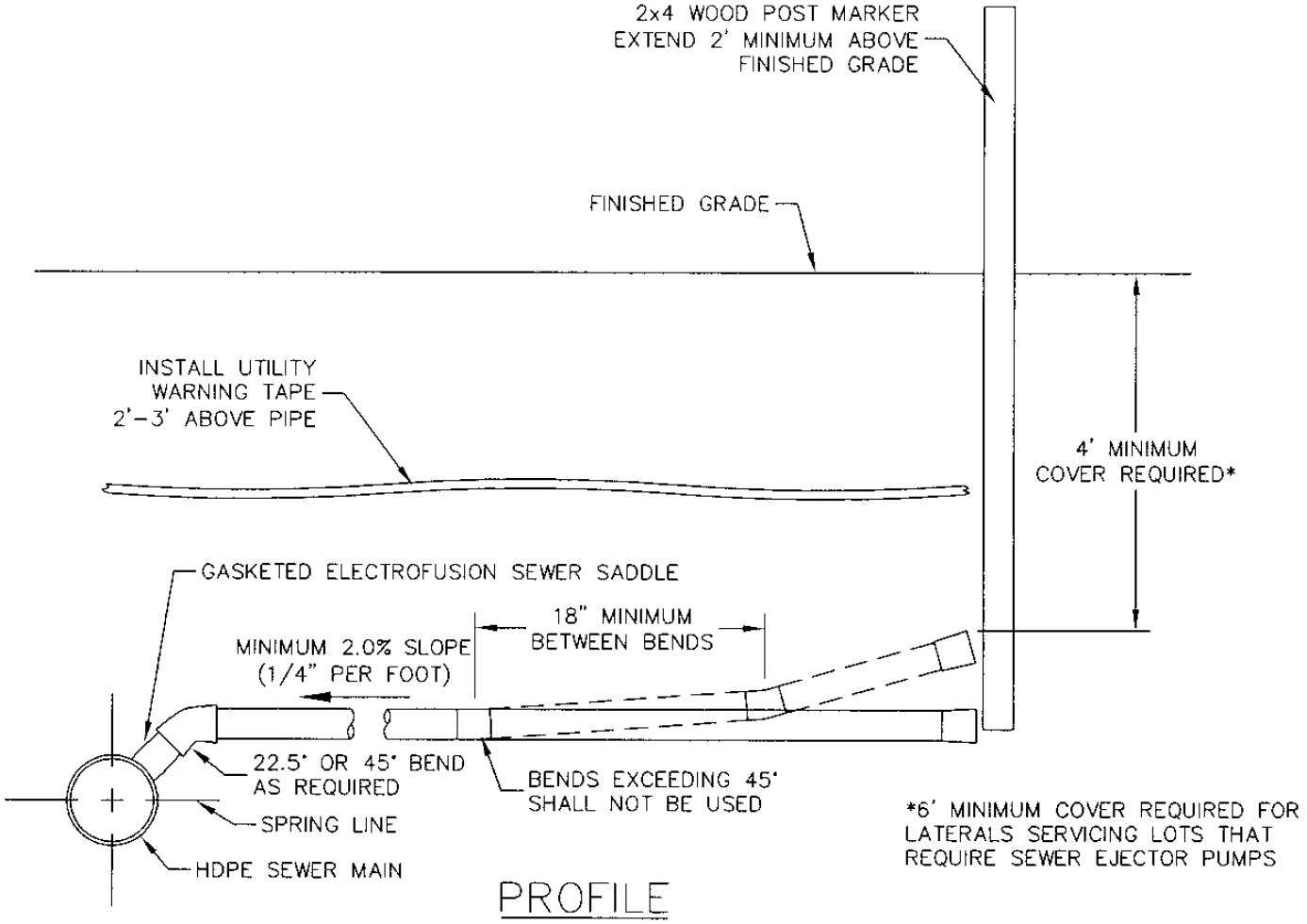
Snyderville Basin Water Reclamation District

PRIVATE LATERAL STUB - GRAVITY FLOW
PVC MAIN LINE TO PVC LATERAL LINE

STANDARD DETAIL
LAT-01
Revision Date: 4/19/04



PLAN



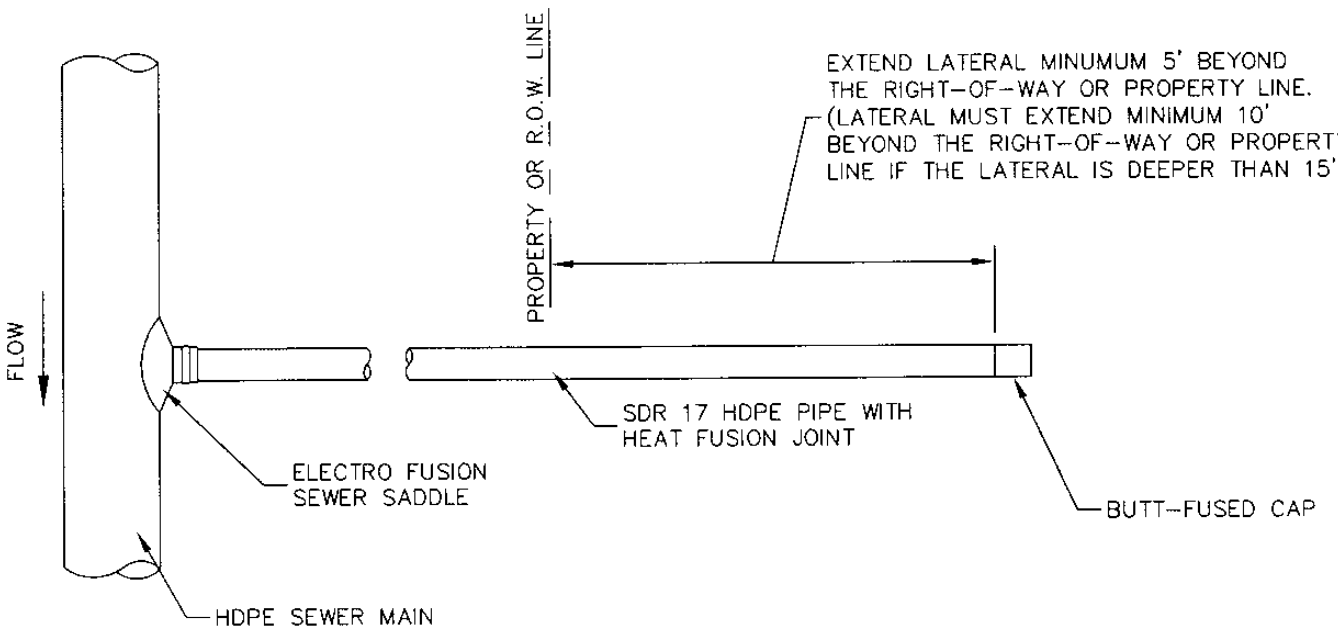
*6' MINIMUM COVER REQUIRED FOR LATERALS SERVICING LOTS THAT REQUIRE SEWER EJECTOR PUMPS

PROFILE

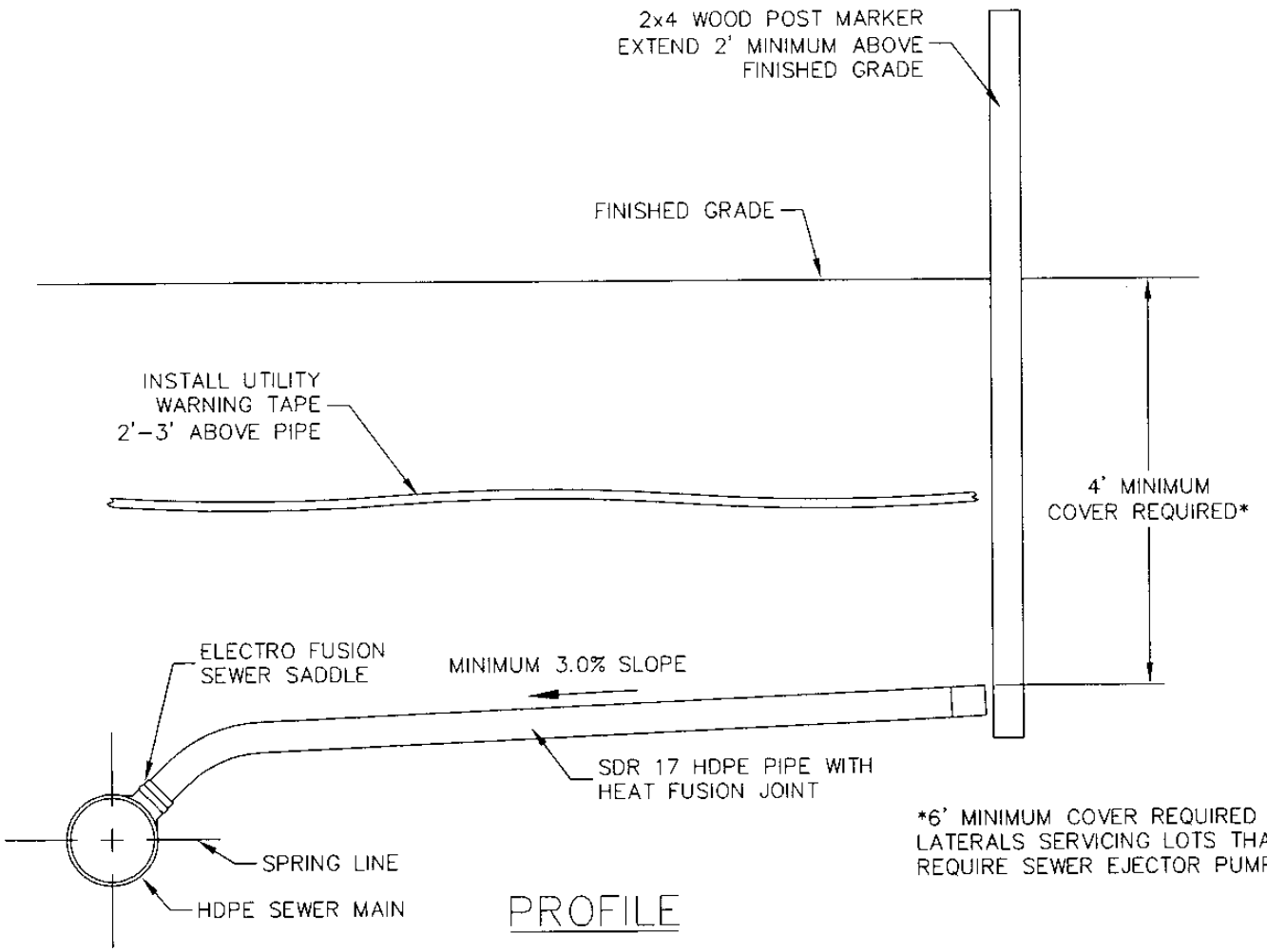
Snyderville Basin Water Reclamation District

PRIVATE LATERAL STUB - GRAVITY FLOW
HDPE MAIN LINE TO PVC LATERAL LINE

STANDARD DETAIL
LAT-02
Revision Date: 4/19/04



PLAN



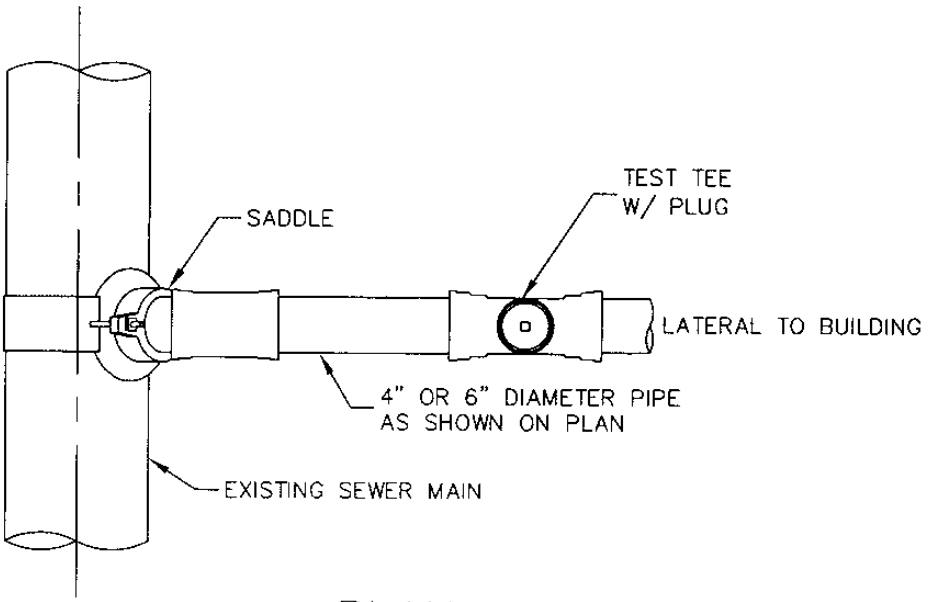
*6' MINIMUM COVER REQUIRED FOR LATERALS SERVICING LOTS THAT REQUIRE SEWER EJECTOR PUMPS

PROFILE

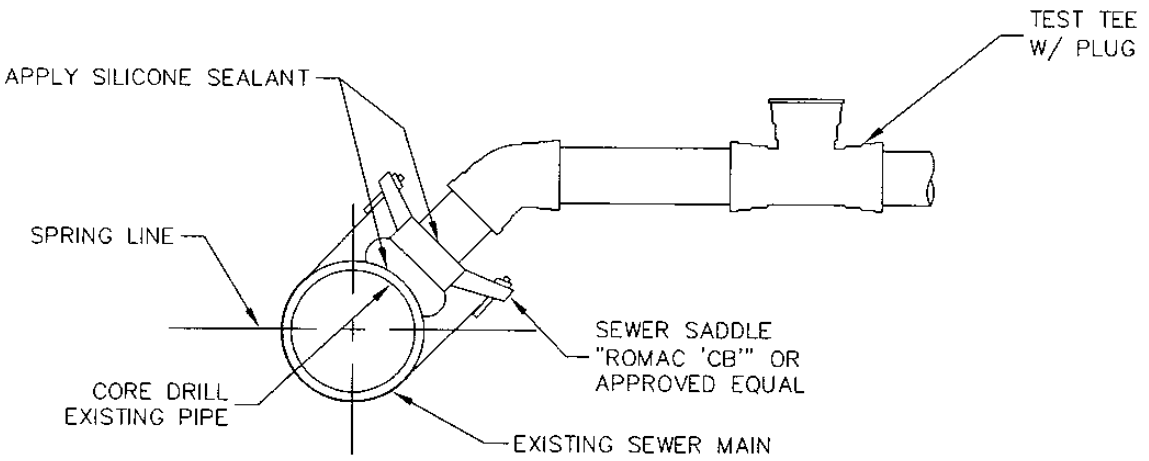
Snyderville Basin Water Reclamation District

PRIVATE LATERAL STUB - GRAVITY FLOW HDPE MAIN LINE TO HDPE LATERAL LINE

STANDARD DETAIL
LAT-03
Revision Date: 4/19/04



PLAN



PROFLIE

FOR DETAILED INFORMATION SEE SPECIFICATIONS

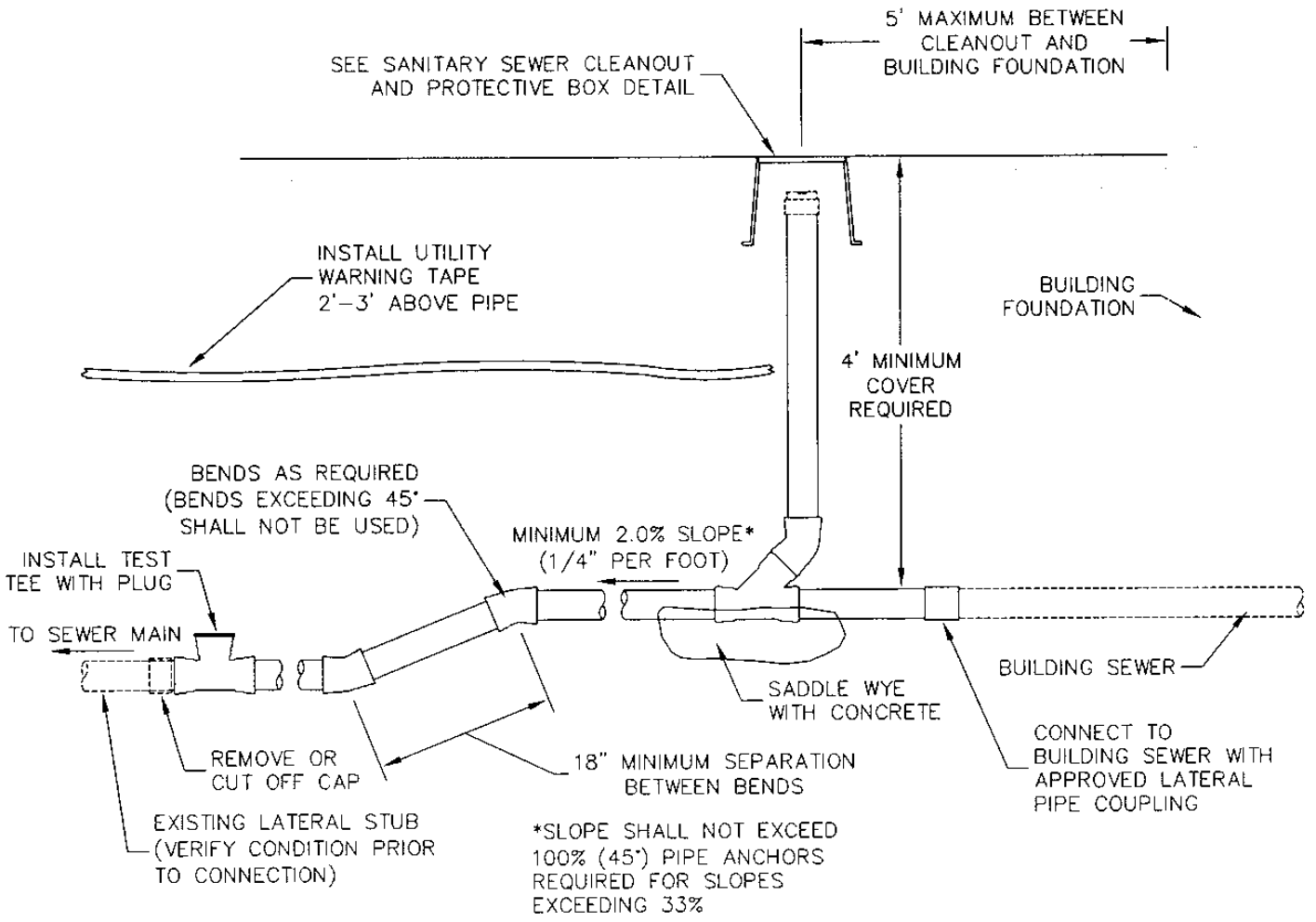
Snyderville Basin Water Reclamation District

LATERAL CONNECTION TO EXISTING SEWER MAIN

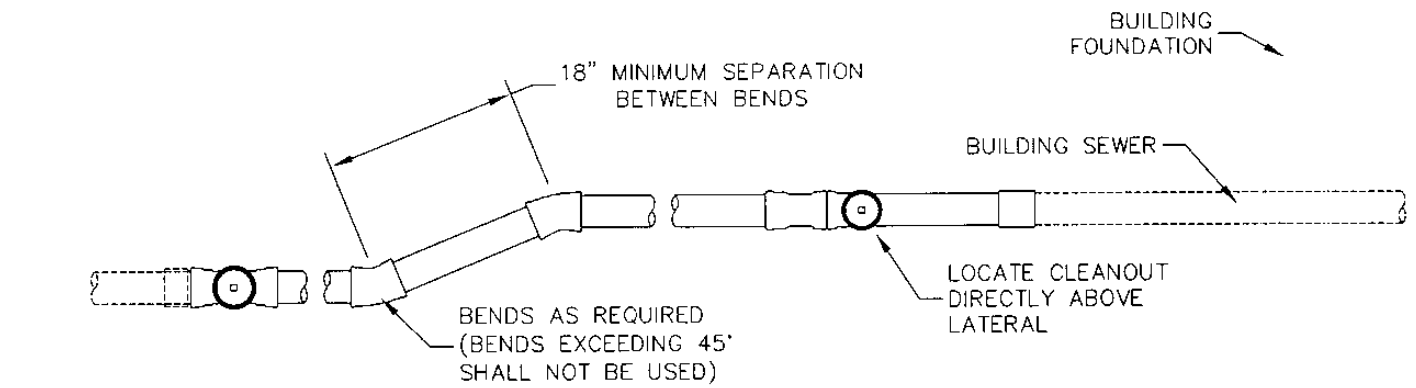
STANDARD DETAIL

LAT-04

Revision Date: 4/19/04



PROFILE VIEW

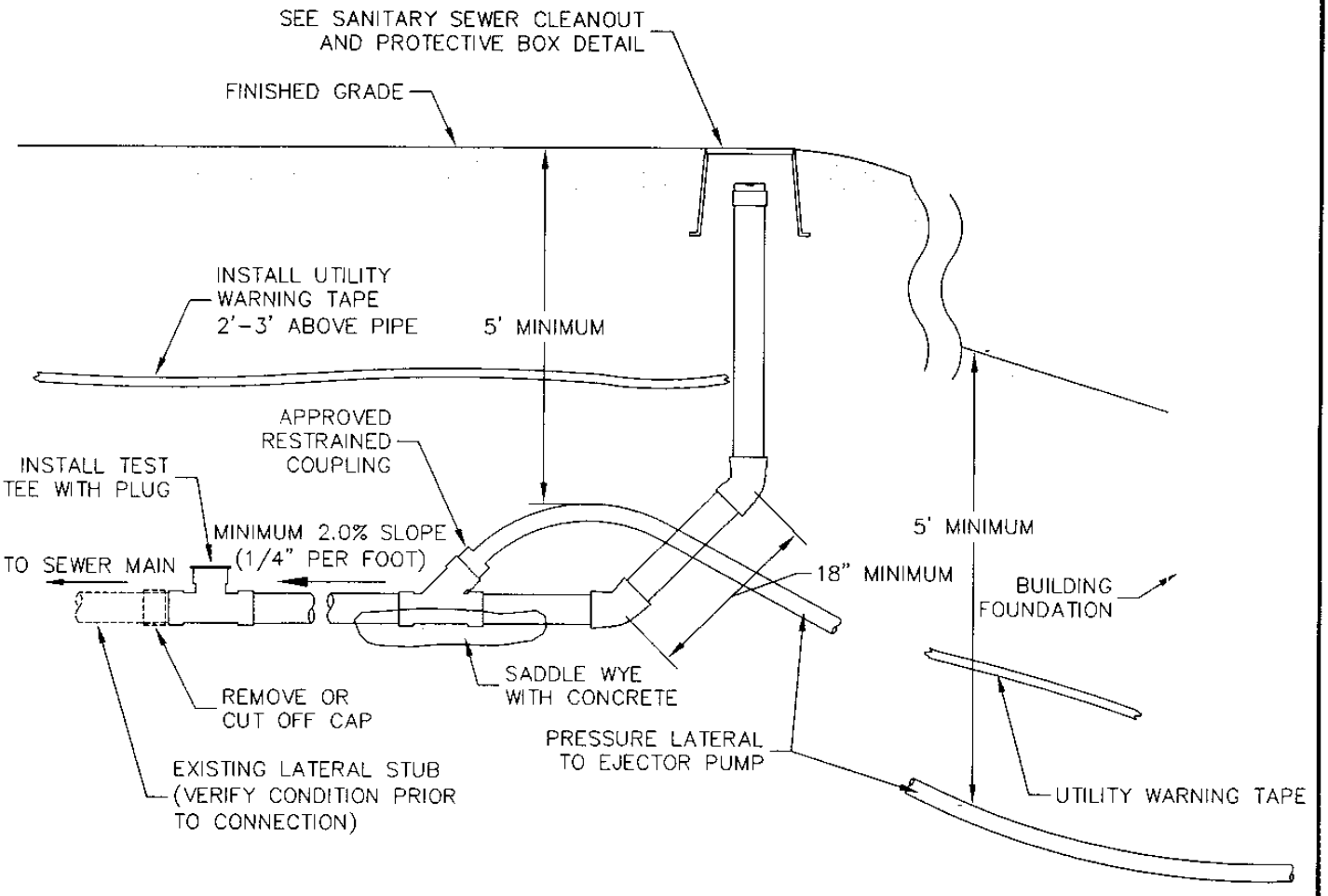


PLAN VIEW

Snyderville Basin Water Reclamation District

GRAVITY LATERAL STUB TO GRAVITY BUILDING CONNECTION

STANDARD DETAIL
LAT-05
Revision Date: 4/19/04



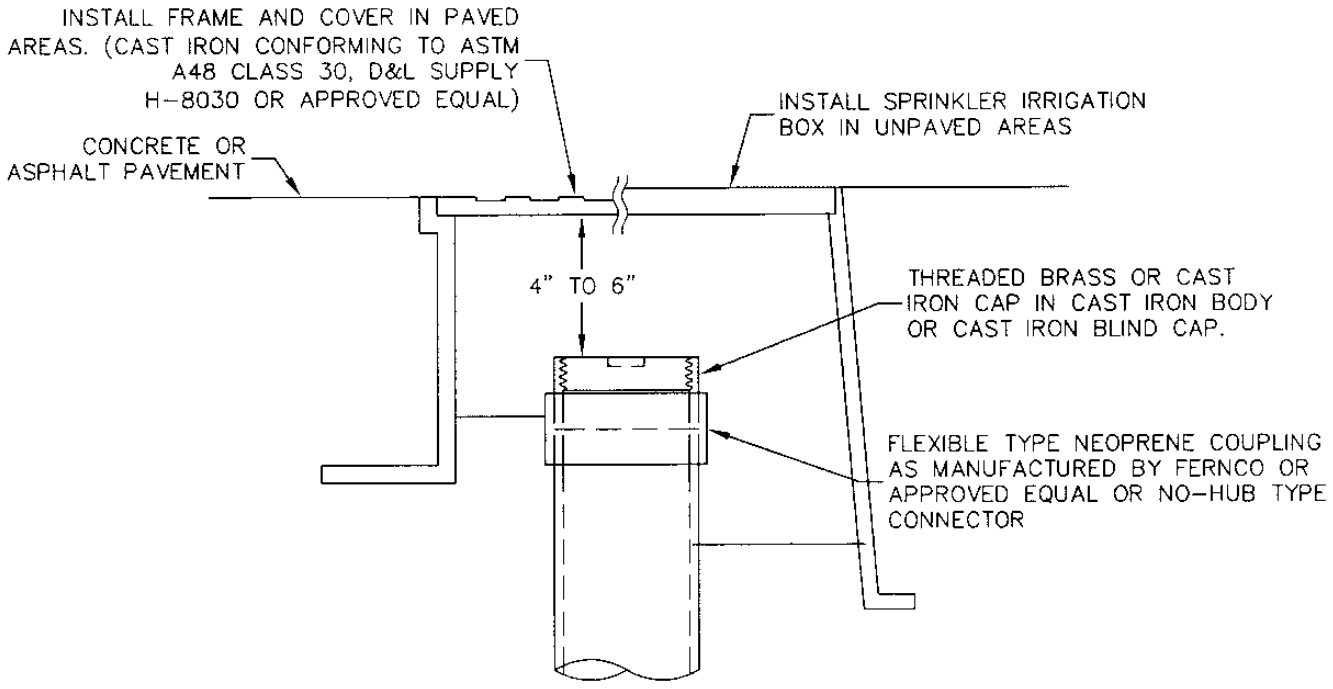
Snyderville Basin Water Reclamation District

SANITARY SEWER PRESSURE LINE TO GRAVITY LINE CONNECTION

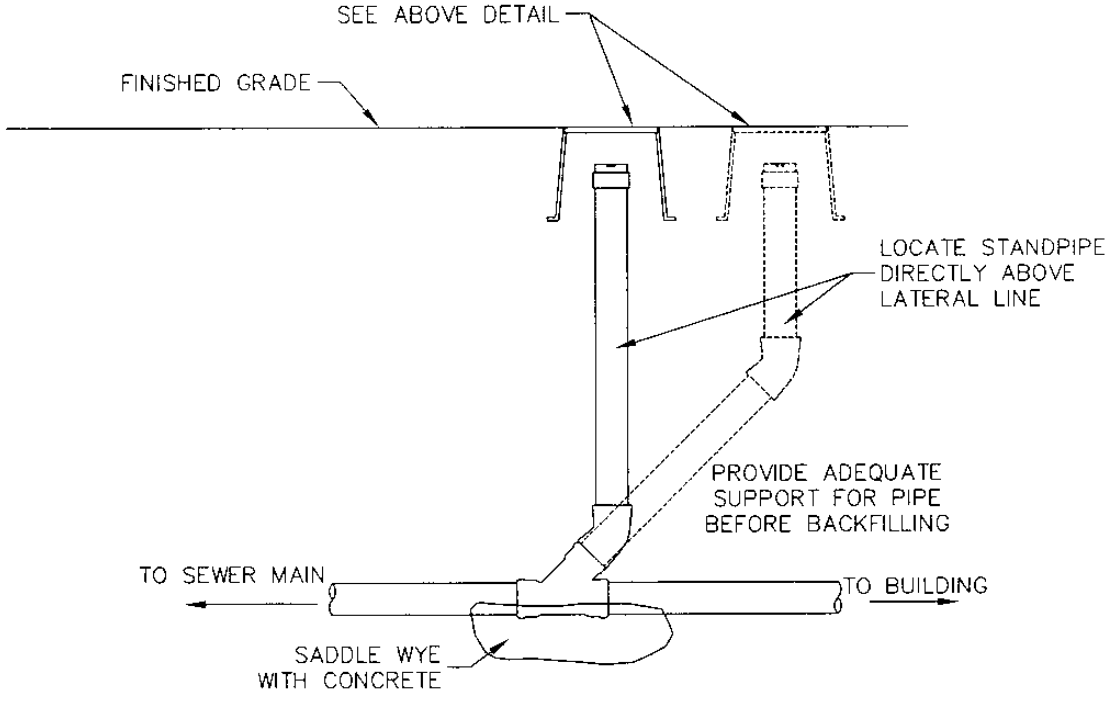
STANDARD DETAIL

LAT-06

Revision Date: 4/19/04



CLEANOUT CAP ASSEMBLY WITH PROTECTIVE BOX

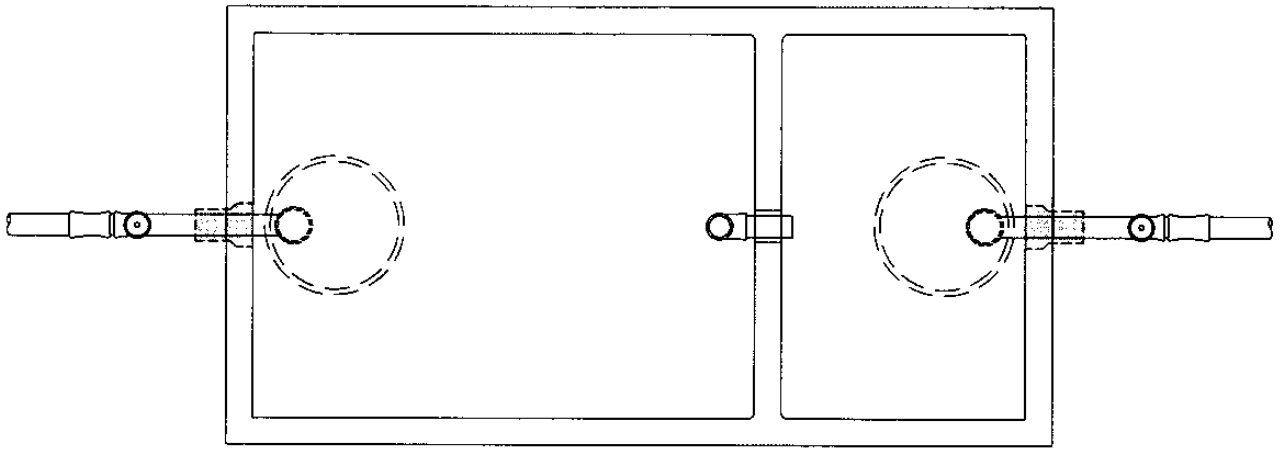


SANITARY SEWER CLEANOUT

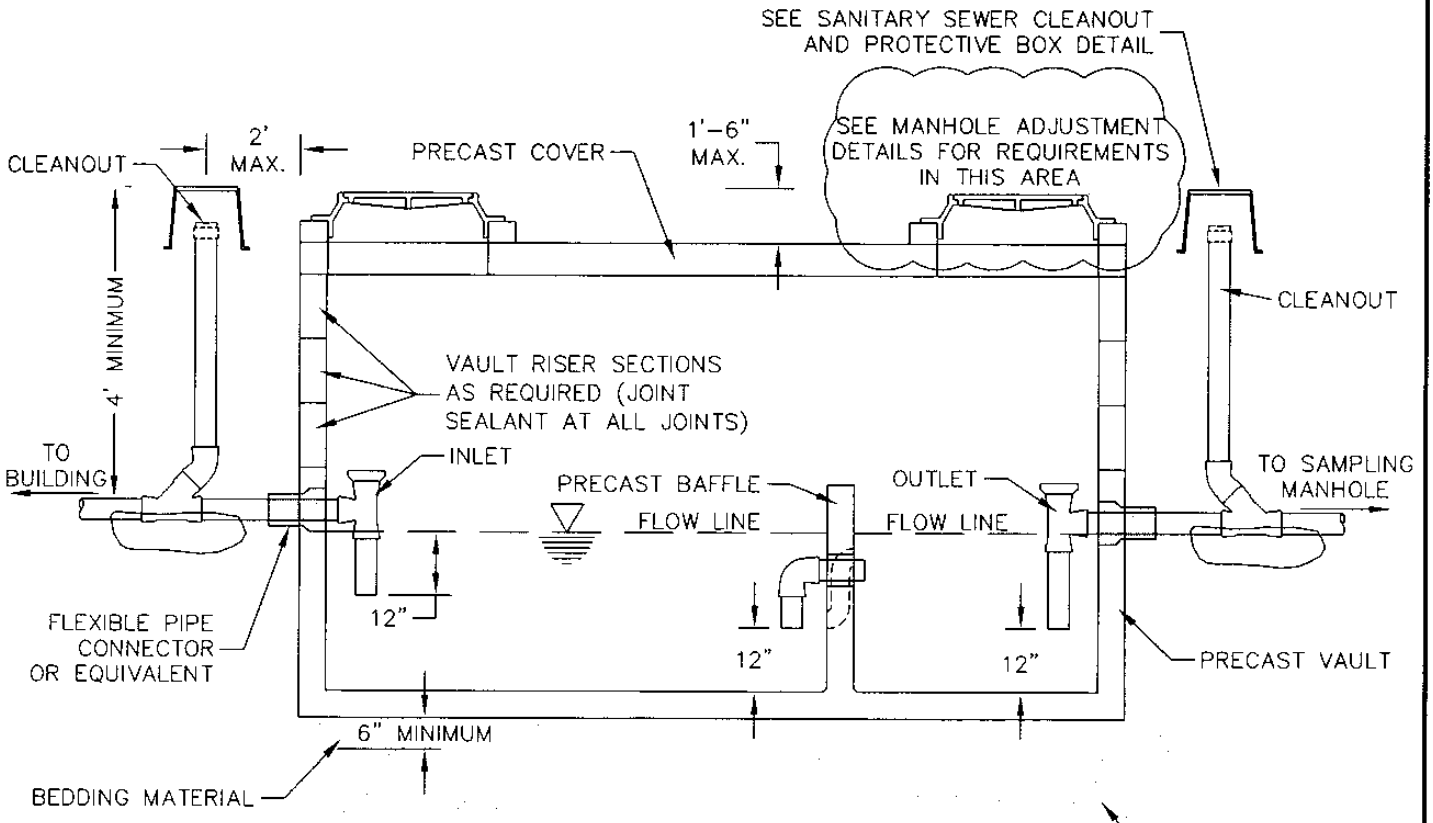
Snyderville Basin Water Reclamation District

SANITARY SEWER CLEANOUT AND PROTECTIVE BOX

STANDARD DETAIL
LAT-07
Revision Date: 4/19/04



PLAN VIEW

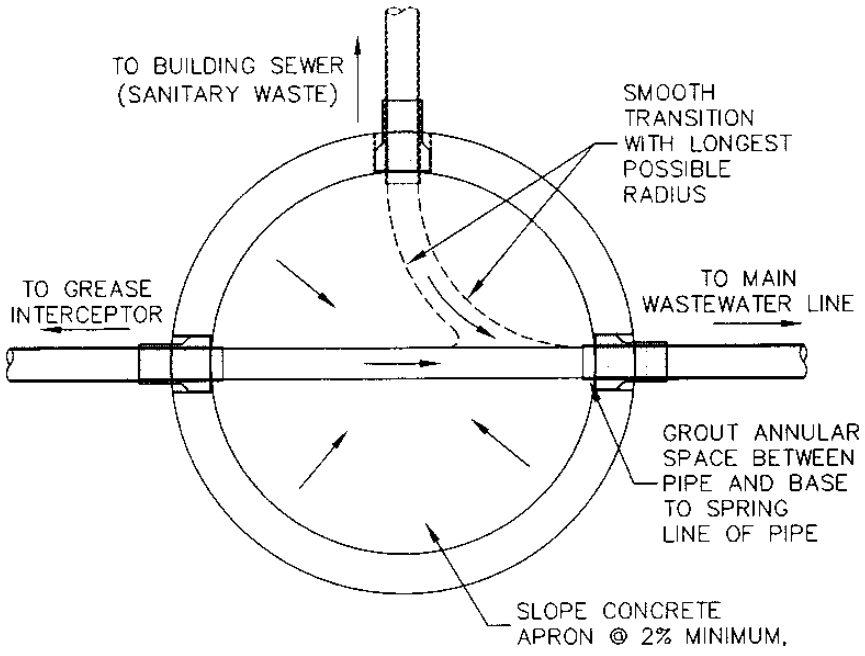


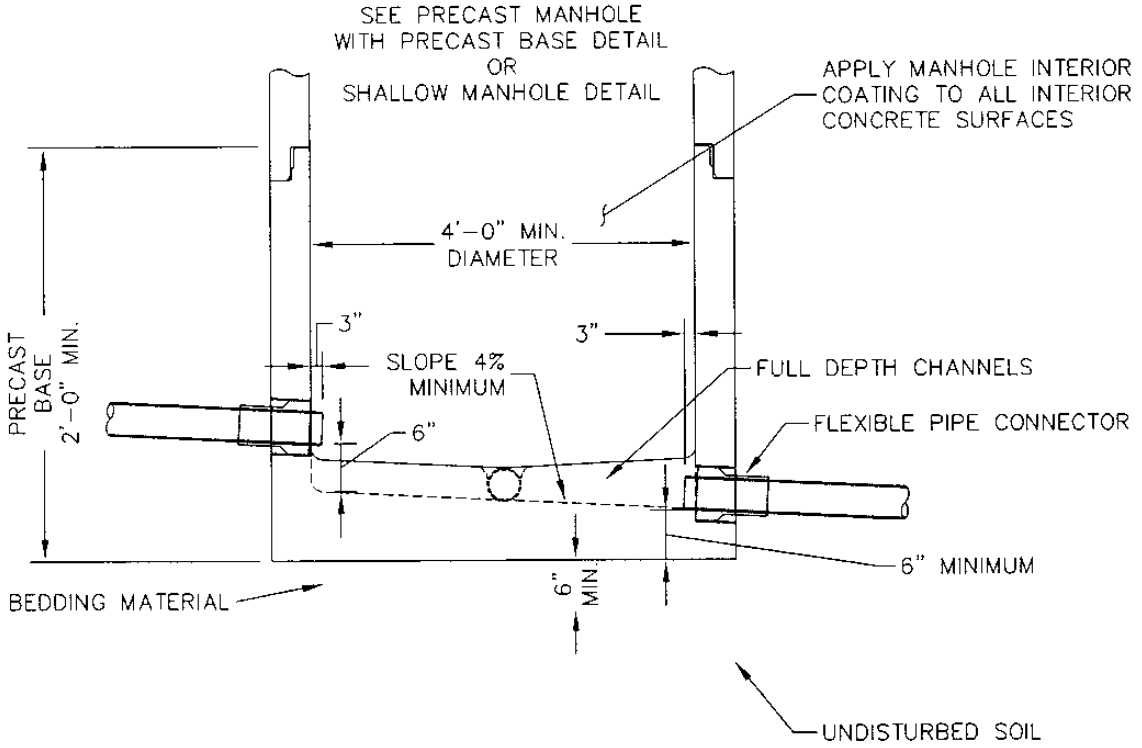
PROFILE VIEW

NOTES:

1. THE GREASE INTERCEPTOR CAPACITY IS DEFINED AS THE STORAGE VOLUME OF THE VAULT BELOW THE OUTLET PIPE ELEVATION.
2. THE GREASE INTERCEPTOR SHALL HAVE A MINIMUM CAPACITY OF 1,000 GALLONS.
3. THE INLET PIPE SHALL BE ONE INCH HIGHER THAN THE OUTLET PIPE.
4. ALL INTERIOR PIPING SHALL BE SOLVENT WELD PVC.
5. VENTING OF GREASE INTERCEPTOR SHALL NOT BE ALLOWED.
6. SANITARY WASTES SHALL NOT BE PLUMBED TO GREASE INTERCEPTOR.
7. THE DIMENSIONS AND CONFIGURATION OF THE VAULT AND BAFFLE SHALL BE ACCORDING TO THE MANUFACTURER'S REQUIREMENTS FOR THE SIZE OF INTERCEPTOR INSTALLED.

Snyderville Basin Water Reclamation District	GREASE INTERCEPTOR	STANDARD DETAIL PT-01 Revision Date: 4/19/04





Snyderville Basin Water Reclamation District	SAMPLING MANHOLE PRECAST BASE	STANDARD DETAIL PT-02 Revision Date: 4/19/04