DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS OF THE JORDAN BASIN IMPROVEMENT DISTRICT

AS AMENDED AUGUST 27, 2024

JORDAN BASIN
IMPROVEMENT DISTRICT

08/27/2024

TABLE OF CONTENTS

CHAPTER 1 – GENERAL REQUIREMENTS AND POLICIES

CHAPTER 2 - DEVELOPMENT PROCEDURES

CHAPTER 4 - MATERIAL REQUIREMENTS

EXIBIT "A" – STANDARD FORMS AND AGREEMENTS

A. Standard Easement Form
B. Standard Access Easement Form
C. Sample Sewer Extension Agreements
    1. Cash
    2. Escrow
    3. Warranty Cash
D. Substandard Lateral Agreement
E. Bill of Sale
F. Certified Survey Form
G. Commercial Wastewater Questionnaire
H. Commercial Sewer Connection Agreement
I. Commercial Sewer Connection Agreement - Existing

EXIBIT "B" – STANDARD DETAIL DRAWINGS

A.	SS-1A	Trench Detail
B.	SS-2A	Standard Manhole
C.	SS-2B	Pour in Place Manhole
D.	SS-2C	Acid Resistant Manhole
E.	SS-2D	Shallow Manhole
F.	SS-2E	Drop Manhole
G.	SS-3A	Lateral Connection
H.	SS-4	Casing Detail
I.	SS-5	Pressurized Lateral
J.	SS-6	Steep Sewer
K.	SS-7	Trench Dikes
L.	SS-8A	Palmer-Bowlus Flume Flow Meter
M.	SS-8B	Palmer-Bowlus Flume Flow Meter
N.	SS-9A	Lift Station Site Plan
O.	SS-9B	Lift Station Elevation View
P.	SS-9C	Lift Station Meter Vault and Wet Well
Q.	SS-10A	Diversion Structure
R.	SS-10B	Diversion Structure Details
S.	PT-1	Interceptor w/o Cleanout
T.	PT-2	Sampling Manhole

CHAPTER 1
GENERAL REQUIREMENTS AND POLICIES

SECTION 1 – GENERAL REQUIREMENTS

101.01 – TITLE

A. These regulations shall be known as Design Standards and Construction Specifications for the Jordan Basin Improvement District (JBID or District.)

101.02 – 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 Jordan Basin Improvement District.

101.03 – INTENT

A. The Board of Trustees of JBID has established certain requirements for development approval and construction of wastewater facilities in the District through adoption of the Design Standards and Construction Specifications and other resolutions and policies.
B. These Design Standards and Construction Specifications have been adopted by the Board of Trustees of the Jordan Basin Improvement District to govern and regulate sewer work pertaining to the Jordan Basin Improvement District and for the benefit of the District. Persons and/or entities performing sewer work within the District must become familiar with and follow these Design Standards and Construction Specifications.
C. 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 District. Certain environmental or site-specific conditions may require the design and construction of the wastewater facilities to exceed the minimum standards and specifications contained in these Design Standards and Construction Specifications. It shall be the responsibility of the Project Engineer and Contractor to identify these conditions and modify the design and installation accordingly, as approved by the District Engineer.
D. The Public Wastewater System is owned by the District. It serves to protect the health and safety of the public, especially users who are connected to the system. All persons and/or entities performing sewer work on the Public Wastewater Lines or on the Private Lateral Wastewater Lines shall construct and install quality facilities which will serve the public and individual users in an economic and efficient manner.
E. These regulations may be amended from time to time by the Board of Trustees of the District.

101.04 – DEFINITIONS

A. **Approved Construction Drawings or Final Design Approval:** Final design drawings approved, stamped, and signed by the District Engineer, which show the characteristics and scope of the Work to be performed. This includes modifications to final design drawings approved by the District Engineer after Final Design Approval is given.
B. **Board of Trustees:** The governing body of the Jordan Basin Improvement District.
C. **Building Permit:** A permit issued by a city or county building department to individual lot or unit owners which authorizes construction or modification of a residence, building or other facility to begin.
D. **Certificate of Occupancy/Compliance**: A certificate issued by a county or city building department 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 or modified in full compliance with all representations made and conditions imposed on its approval.
E. **Commercial Development:** Any development for a business (public or private) that causes or permits the contribution or discharge of wastewater into any of a sewage treatment facility; and who may or may not be subject to the District's Pretreatment Rules and Regulations.
F. **Commercial Wastewater 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 JBID to determine what pretreatment requirements will be required prior to discharging wastewater from the building or facility to the Public Wastewater System.
G. **Common Private Lateral Wastewater Line:** A private lateral which is designed and constructed to serve more than one individual unit.
H. **Completion Security:** An amount equal to the District Engineer's estimate of the cost of the Sewer Improvements, which shall be held by the District as security for the Developer's timely and

workmanlike completion of the Sewer Improvements described herein;

I. **Construction Drawings**: Those drawings prepared by the Project Engineer, which outline the Work to be performed.
J. **Construction Specifications**: That portion of these Design Standards and Construction Specifications consisting of written descriptions of a technical nature for materials, equipment, construction systems, standards and workmanship to be used in all Work.
K. **Contractor:** A person, firm or legal entity with whom the Developer has an agreement to perform the Work for the Project.
L. **Design Review Fees**: Fees paid to JBID by the Developer to compensate the JBID for its time, effort and expense for design reviews, general Project coordination of the extension or modification of the Public Wastewater System required for the Developer's project.
M. **Design Standards and Construction Specifications**: The Design Standards and Construction Specifications and the Standard Detail Drawings adopted by the Board of Trustees.
N. **Developer**: The person, firm or legal entity responsible for developing the Project; and for whom the Work is to be performed.
O. **Development**: The process of developing land within the District by construction of residential, commercial or industrial facilities.
P. **District**: Jordan Basin Improvement District (JBID), a political subdivision of the State of Utah.
Q. **District Engineer**: The person, firm or legal entity appointed by the Board of Trustees as the District's Engineer. Any place in these Design Standards and Construction Specifications where reference is made to the District Engineer the acting District Engineer may be substituted.
R. **District Inspector**: The authorized representative of the District who is assigned to inspect the Project site or any part thereof.
S. **Drawings**: All drawings including the Construction Drawings and the Standard Detail Drawings.
T. **Dwelling Unit** - Any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking, and sanitation.
U. **Easement**: The right, granting JBID permission to cross or otherwise use land to provide sewer service.
V. **Field Order**: A written order affecting a change in the Work, issued by the District Inspector or District Engineer to the Developer or Contractor during construction.
W. **Fill Area**: A length of Sewer Main Line where the invert elevation of the Sewer Main Line is located above the natural ground surface which existed prior to any site grading for the development.
X. **Final Completion**: That date as certified by the District Inspector when the construction of the Project is completed, in accordance with these Design Standards and Construction Specifications.
Y. **Final Design Approval**: See Approved Construction Drawings
Z. **Final Engineering Review Letter (FER)**: A letter written by the District Engineer giving formal notification of the compliant final design drawings after all design review issues have been addressed, easements submitted and any necessary permits obtained
AA. **Final Project Approval**: Approval given by the District Engineer or General Manager indicating that all requirements for construction are completed, including payment of all applicable fees, execution of all easements and submittal of any necessary permits.
BB. **FOG** – Fats, oil and grease of vegetable and animal origin.
CC. **Food Service Establishment (FSE)**: any building, vehicle, place, or structure, or any room or division in a building, vehicle, place, or structure where food is prepared, served, or sold for immediate consumption on or in the vicinity of the premises; called for or taken out by customers; or prepared prior to being delivered to another location for consumption.
DD. **Grease Interceptor**: A structure or device designed for the purpose of removing and preventing fats, oils, and grease from entering the sanitary sewer collection system. These devices are belowground units in outside areas with a minimum capacity of 800 gallons.
EE. **Grease Trap or Hydro Mechanical Grease Interceptor (HGI)**: A device designed for the purpose of removing and preventing fats, oils, and grease from entering the sanitary sewer collection system. These devices are typically compact under-the sink.
FF. **Homeowners Association**: An organization in a subdivision, planned community or condominium that makes and enforces rules for the properties within its jurisdiction.
GG. **Impact Fees**: Fees paid to the JBID by a homeowner, building owner or facility owner to allow connection to and reserve capacity in the Public Wastewater System in accordance with the JBID Impact Fees Policy.
HH. **Industrial Waste Survey**: 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 JBID to determine what pretreatment requirements will be required prior to discharging wastewater from the building or facility to the Public Wastewater System.

II. **Inspection Fees**: Fees paid to the JBID by the Developer to compensate the JBID for its time, effort and expense for general Project coordination and construction inspection of extension or modification of the Public Wastewater System required for the Developer's project.

JJ. **JBID Standards**: These Design Standards and Construction Specifications.

KK. **Nondomestic Wastewater**: All wastewater that is not domestically generated wastewater, or normal strength wastewater, as defined in the JBID Pretreatment Program.

LL. **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 the JBID maintenance equipment.

MM. **Performance Security:** Security provided to insure the satisfactory installation of all sewer improvements in accordance with the required Sewer Extension Agreement. The performance security is equal to the Completion Security and Warranty Security and is furnished by the Developer and delivered in a form satisfactory to the District.

NN. **Petroleum Products** – hydrocarbon fuels, oils, greases, and like products, derived from crude oil

OO. **Permanent Structure**: Any structure which has a footing and/or foundation or cannot be easily relocated.

PP. **Preconstruction Conference**: A meeting held with the JBID Inspector, the Developer and Contractor prior to beginning of the Work, to discuss the Project and the District Construction Specifications.

QQ. **Preliminary Review Letter** (PRE): A letter issued by the JBID, outlining the necessary requirements for a Development to receive a Final Approval.

RR. **Pretreatment Rules and Regulations**: Those rules and regulations adopted by THE JBID relating to the implementation and enforcement of State and Federal pretreatment requirements.

SS. **Private Lateral Wastewater Line (Building Sewer as defined by the IPC)**: 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 includes pipes, cleanouts, ejector pumps and appurtenances located outside of buildings, grease, oil, and sand interceptors and sampling manholes, if required for the building. 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.

TT. **Project**: The development and improvements being constructed, installed, or provided by the Developer or Public Entity.

UU. **Project or Design Engineer:** The person, firm or legal entity with whom an agreement is in place for design of the Work for the Project.

VV. **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.

WW. **Public Entity:** any city, State, Federal or local government;

XX. **Public Utility Easement (PUE)**: An easement granted for use by those utilities which are governed by the Public Utilities Commission.

YY. **Public Wastewater Line**: That portion of the wastewater collection system owned and operated by the JBID and located within dedicated public roadways or within easements granted to the JBID across private roadways or other private property. This shall include gravity flow wastewater lines 8 inches or larger, manholes, and force mains from wastewater pump stations.

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

AAA. **Record Drawings**: Drawings which reflect all changes made during the construction process, and show the coordinates, geometry, and location of all elements of the work completed under the contract.

BBB. **Red-Line Comments (RL):** Comments issued by the JBID, outlining the requirements necessary for the Design Drawings to be in compliance with the Design Standards and Construction Specifications and for the Development to receive a FER Letter.

CCC. **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 the Project according to the Design Standards and Construction Specifications.

DDD. **Residential Equivalent (RU or ERU):** A unit of measurement used to equate wastewater flow from a building or facility to a typical single family residence. The assumed wastewater flow from one Residential Equivalent unit as defined by the District's Sewer System Evaluation Capacity Assurance Plan (SECAP.)

EEE. **Sewer Extension Agreement:** An agreement between the Developer of the land proposed to be developed and the JBID guaranteeing that all wastewater system improvements will be fully and completely constructed as represented by means of an acceptable form of security, which shall be either a letter of credit, escrow fund, or cash deposit in an amount and form satisfactory to the JBID.

FFF. **Sewer Main Line**: Any sewer line owned by the District located within a public street or a District easement that receives sewage from one or more houses or buildings.

GGG. **"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.

HHH. **Standard Detail Drawings**: All the standard drawings, which have been prepared by the District Engineer to show details of how the Work is to be built.

III. **Subcontractor**: An individual or business entity having a direct contract with the Contractor or with any other subcontractor for the performance of a part of the Work at the site.

JJJ. **Substantial Completion**: That date as certified by the District Inspector when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with these Design Standards and Construction Specifications, so that the Project or a specific part of the Project can be utilized for the purposes for which it is intended. Substantial Completion can be revoked if the Contractor does not achieve Final Completion of the Project in a timely manner.

KKK. **Supplier:** Any person or legal entity who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

LLL. **System Evaluation and Capacity Assurance Plan (SECAP)**: The District's written plan, including hydraulic sewer model, which evaluates the existing capacity of each of the District's Sewer Main Lines and the necessary expansion and upsizing of the Public Wastewater Lines.

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

NNN. **Warranty Security**: Ten percent (10%) of the District Engineer's estimate of the cost of the Sewer Improvements, which shall be held as security for the Developer's obligations during the warranty periods described herein.

OOO. **Wastewater Discharge Permit:** The permit required by the JBID prior to discharge by any regulated commercial or industrial facility to the Sewer Main Line.

PPP. **Work**: All labor necessary to produce the construction of the Project according to these Design Standards and Construction Specifications, and all materials and equipment incorporated or to be incorporated in the Project.

QQQ. **Written Notice**: Any written notice to the Developer or Contractor relative to any part of the Work. Said written notice shall be considered delivered and the service thereof completed, when mailed by certified or registered mail to the said Developer and/or Contractors at their last known address, or sent by facsimile, or delivered in person to said Developer, Contractor or their authorized representative.

101.05 – DEVIATIONS

A. In addition to meeting the requirements of these standards and specifications, professional judgment and competent workmanship on the part of the Project Engineer or Contractor is expected.

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

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

D. Decisions made by the District Engineer may be appealed to the Board of Trustees.

101.06 – 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. FSE: Food Service Establishment
F. JBID: Jordan Basin Improvement District
G. JBWRF: Jordan Basin Water Reclamation Facility.
H. IPC: International Plumbing Code.
I. SECAP: System Evaluation and Capacity Assurance Plan
J. SVWRF: South Valley Water Reclamation Facility.
K. TSSD: Timpanogos Special Service District
L. UDOT: Utah Department of Transportation

101.07 – REFERENCED CODES AND STANDARDS

A. When reference is made to a Standard Specification (ASTM, International Plumbing Code, City 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.

101.08 – INDEMNIFICATION OF THE JBID

A. The District, its trustees, employees, officers, 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 Completion and acceptance of the wastewater improvement facilities by the District.
B. The District shall not be responsible for any errors in the design, construction changes required due to an oversight of the Developer and/or Project Engineer, or upgrades required because of lack of planning, incompetence or negligence by the Developer and/or Developer's Engineer.

101.09 – CONTRACTOR LICENSING REQUIREMENTS

A. Contractors performing construction on the wastewater system within the JBID shall possess all licenses required by local and state rules and regulations.
B. At 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 2 – POLICIES

102.01 – 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, without written permission from the property owner, in the form of a Private Lateral Easement.
C. Private Lateral Wastewater Lines may cross platted common areas, and platted private roads within the same platted development, provided 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. To meet the requirements of this policy, additional Public Wastewater Lines, Off-road Public Wastewater Lines, or Public Wastewater Pump Stations may be required to serve more than one lot, parcels or projects.

102.02 - 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 reasonably 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 and pressurized private laterals.

2. Gravity flow public wastewater collection lines located in off-road areas with gravity flow or ejector pump and pressurized private laterals.
3. Public Wastewater Pump Stations.

B. The proposed method of providing public wastewater service to each Project or development shall require review and approval of the District Engineer and if necessary, the Board of Trustees.

102.03 – OFF-ROAD PUBLIC WASTEWATER LINES

A. All wastewater lines that are part of the Public Wastewater System, including gravity flow 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 JBID may allow Off-Road Public Wastewater Lines if the following requirements are met.
   1. The Off-Road lines shall be installed in an Easement (minimum of 20' wide) and must meet the requirements of these JBID Standards.
   2. An access roadway, minimum twelve feet wide and suitable for the JBID maintenance equipment shall be provided over the entire length of the Off-Road Public Wastewater Line.
   3. 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.
   4. Maximum grade transition of roadway platform and alternate access road shall be 10% in 50'.
   5. Access easements for all alternate access roads and turnarounds shall be granted to the JBID.
   6. Revegetation and erosion protection of the off road corridor shall be provided. Revegetation plans shall specifically exclude trees, bushes or other vegetation that would impede travel along the corridor by the JBID personnel and equipment.
   7. Construction operations and revegetation shall meet city or county requirements for control of noxious weeds.
   8. 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.
      e. Easements for Off-Road Public Wastewater Line shall be in place prior to Final Design Approval.
   9. 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.

102.04 – PUBLIC WASTEWATER PUMP STATIONS

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

B. The District 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 District, no reasonably feasible or legally achievable gravity flow collection system can be constructed to avoid the use of the pump station.
   1. 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 JBID for the proposed gravity flow or low pressure system.

C. All wastewater pump stations shall be approved by the District's Board of Trustees, prior to design of the Development.

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

102.05 – COMMON PRIVATE LATERAL WASTEWATER LINES

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

B. The JBID will permit a Common Lateral Wastewater Line only under the following conditions.
    1. Multiple buildings (main house, guest house, barn, garage, commercial buildings, etc.) located on the same lot, provided that appropriate impact and inspection fees are paid.
    2. A detached structure located on the same lot may use a Common Lateral Wastewater line, without payment of additional impact fees, provided that the detached structure has no more than one (1) toilet and one (1) sink.
    3. Stacked units where the upper unit(s) has no direct access to a separate Private Lateral wastewater Line.
    4. Individual units that are not stacked, including:
        a. Apartment building
        b. Projects to be platted as condominium developments provided the following conditions are met:
            i. A separate Private Lateral Wastewater Line to each unit is not feasible.
            ii. Laterals shall be located within platted common areas and maintained by the Home Owners Association.
    5. Connected units that are not stacked provided the following conditions are met:
        a. No more than 4 units may be served by a common sewer lateral
        b. Lateral sewer service must be for a 55+ Senior Community following federally mandated guidelines
        c. Laterals from the common building plumbing shall be located within platted common areas and maintained by the Home Owners Association
        d. The City in which all units reside sends a letter to the District stating they are aware of the common plumbing and they don't object to it.
C. Grease interceptors shall not be placed on common laterals.
D. All facilities or businesses requiring a grease interceptor shall have a separate grease interceptor.
E. 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 District Engineer:
    1. "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."
F. 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 JBID, revised plat notes addressing responsibility for ownership, operation and maintenance of the Common Private Lateral Wastewater Line will be required.
G. Common Lateral Wastewater Lines shall have an inside diameter of 6 inches unless otherwise approved by the District Engineer or the Common Lateral Wastewater Line serves multiple buildings on the same residential lot, in which case an inside diameter of 4 inches may be used. When the cumulative flow rates 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 the JBID Standards.
H. The connection of Common Private Lateral Wastewater Lines to the Public Wastewater Collection System shall be as follows:
    1. Connect to an existing or proposed manhole.
    2. Connect to a proposed Public Wastewater Collection Line with an approved "wye" or "inserta tee" 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 capacity and condition of the existing collection line by the District Engineer.

102.06 – CONNECTION OF SWIMMING POOLS TO PUBLIC WASTEWATER SYSTEM

A. Each commercial pool connection shall limit the discharge rate from the pool(s) to not more than 50 gallons per minute, by the use of a flow restricting device, without written permission of the District Engineer.
B. If and when a pool needs to be drained, the District must be notified at least 24 hours in advance and approve the discharge.

1. Each pool connection shall discharge from the pool(s) only during non-peak hours (i.e. 10 p.m. to 6 a.m.).

102.07 – PRETREATMENT REQUIREMENTS

A. Pretreatment Facilities shall be provided to prevent the discharge of oil, grease, sand and other substances harmful or hazardous to the public sewer or the treatment plant or processes.

CHAPTER 2
DEVELOPMENT PROCEDURES

SECTION 1 – GENERAL

201.01 – MINIMUM REQUIREMENTS

A. The procedures contained in this Chapter include the minimum requirements necessary for developing wastewater facilities in the JBID service area.
B. Additional meetings, submittals, reviews, etc., may be necessary during the development process as determined by the JBID.

201.02 – EARLY CONTACT WITH THE JBID

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

201.03 – 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 JBID, 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 JBID in all requests and submittals.

SECTION 2 - PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

202.01 – APPLICABILITY

A. The development procedures contained in Section 2 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 homes or businesses 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 3.

202.02 – PRELIMINARY REVIEW

A. The Developer shall submit the following for preliminary review via the JBID electronic submission portal, if applicable:
    1. Drawings and maps indicating the location, boundary and configuration of the proposed project.
    2. The appropriate development questionnaire.
    3. An overall development plan, including, 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.
B. The District Engineer or designee will review preliminary submittals and capacity of the existing Public Wastewater System to determine if the existing system has adequate capacity.
C. If acceptable, the District will review the preliminary submittals and issue a Preliminary Review Letter that will state that the proposed Project is within the JBID service area and if the JBID anticipates being able to provide wastewater service to the Project. It will also indicate the requirements which must be met to obtain Final Project Approval, allowing construction to begin.

202.03 – DESIGN AND DEVELOPMENT REVIEW PROCESS

A. The Developer and the Project Engineer shall prepare design drawings according to requirements of the District's Design Standards found in Chapter 3.
B. The Developer and the Project Engineer shall submit the following to the District Engineer for review via the JBID electronic submission portal.
    1. If applicable, one copy of the wastewater master plan which includes any modifications resulting from preparation of the preliminary design drawings.
    2. One pdf of the preliminary Design Drawings, including plan and profile views of all sewer lines.
    3. One copy of the preliminary plat or, if applicable, the preliminary site plan.
C. The District Engineer or designee will review the wastewater master plan, preliminary design drawings, and preliminary plat or site plan.
D. The District Engineer or designee will send 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 work together to prepare final wastewater master plans and final design drawings according to the requirements of the District's Design Standards and a final plat, make corrections and address issues contained in the preliminary design review letter and submit the following to the District Engineer for review via the JBID electronic submission portal:
   1. "Red-lined" wastewater master plan, preliminary design drawings and preliminary plat or site plan.
   2. One copy of the revised wastewater master plan.
   3. One pdf set of final Design Drawings.
   4. Legal descriptions for all wastewater easements required for the Project including, the Grantor's name and parcel numbers.
   5. An exhibit (8.5" X 11" size) of the easement showing:
      a. Property lines
      b. Street names
      c. Easement
      d. Title block and north arrow
   6. One copy of the final plat or final site plan.
   7. Any special agreements or permits required for construction of the Project.
   8. Other information required by the Red-lined comments.

F. The District Engineer or designee will review the final wastewater master plan, final design drawings, easement documents, plat and final site plan, and special agreements or permits and will either send to the Developer and the Project Engineer review comments and "red-lined" final wastewater master plan and final design drawings to the Developer and the Project Engineer or if the Project appears to be in compliance with the JBID Standards, will issue a FER Letter. This letter will outline any necessary requirements for the Development to receive Final Project Approval, including but not limited to payment of all fees, execution of all easements and agreements and submittal of any necessary executed permits.

G. If necessary, the Developer and/or the Project Engineer shall make corrections or address issues contained in the Red-Line comments and submit the following to the District Engineer for review and approval.
   1. "Red-lined" final wastewater master plan, final design drawings and final plat or site plan.
      .
   2. One PDF set of the revised final design drawings.
   3. Original executed approved grant of easement documents with descriptions and displays.
   4. Final plat or final site plan.
   5. Executed special agreements or permits.

H. The District Engineer will review the final wastewater master plan, final design drawings, easement documents, plat and final site plan, and special agreements or permits and upon finding all having satisfactory compliance with the Design Standards and Construction Specifications, the District Engineer will issue a FER. This letter will outline any necessary requirements for the Development to receive Final Project Approval, including but not limited to payment of all fees, execution of all easements and agreements and submittal of any necessary executed permits.

I. Upon issuance of a FER Letter the District Engineer will stamp and sign the final design drawings which become the Approved Construction Drawings.

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

202.04 – SECURITY REQUIREMENTS

A. The Developer shall submit security that the work will be completed in accordance with the Design Standards and Construction Specifications, Performance Security equal to the District Engineer's estimate of the cost of the Sewer Improvements ("Completion Security") plus an additional 10% of such Completion Security for Standard Warranty Period ("Warranty Security.")

B. If the all of the Work (including curb, gutter, asphalt, pins, collars, etc.) in the Subdivision is to be completed prior to the Subdivision Plat being signed by the District, the developer may submit, as security that the work will remain in good condition through the Warranty Period, Cash equal to 10% of the Completion Security for Standard Warranty Period, but in no situation less than $10,000 ("Warranty Security").

C. Performance Security shall be in the form of cash, an escrow deposit or letter of credit and shall be accompanied by the District's Sewer Extension Agreement.

D. The Developer shall submit, as security that the work in Fill Areas will remain free from defects during the Extended Warranty Period, security satisfactory to the District in an amount equal to one hundred percent (100%) of the District

Engineer's estimated cost of the Work located within the Fill Areas, which security shall be issued prior to final acceptance of the Sewer Main Line by the District, The security required to be provided by the Developer for the Standard Warranty Period shall be separate and distinct from the security provided under this Subsection for those portions of the Project which are installed in Fill Areas.

E. All financial institutions posting security (whether escrow or Letter of Credit) shall be licensed to do business in the State of Utah.

202.05 – FINAL ENGINEERING APPROVAL AND PRECONSTRUCTION REQUIREMENTS

A. After receipt of a FER, the Developer must complete the following, where applicable, in order to receive Final Project Approval, schedule a preconstruction meeting and begin construction:
   1. For developments which require the extension or modification of the public wastewater system:
      a. A sewer extension agreement must be executed and appropriate security submitted.
      b. Pay all required design review, inspection and other fees.
      c. Submit all necessary submittals to the District for review and approval, including:
         i. All product submittals
         ii. All required easements executed for recordation.
         iii. Any permits required from other private or public entities having jurisdiction over the work.
   2. For a Development which does not require the extension or modification of the Public Wastewater System, including all Commercial Developments.
      a. A Sewer Extension Agreement and/or Commercial Connection Agreement must be executed and appropriate security submitted.
      b. Pay all required Impact, Pretreatment, Design Review, Inspection and other fees.
      c. Submit all necessary submittals to the District for review and approval, including:
         i. All product submittals
         ii. All required easements executed for recordation.
         iii. Any permits required from other private or public entities having jurisdiction over the work.

B. After all of the foregoing items are completed, the developer shall request a Preconstruction Conference.
   1. The agenda shall be as follows:
      a. Welcome (attendees list distributed)
      b. Construction requirements
      c. Security reductions
      d. Contractor's schedule
   2. The required attendees are:
      a. Contractor
      b. Inspector
   3. The optional attendees are:
      a. Developer or developer's representative
      b. District engineer
      c. Design engineer
      d. City personnel
      e. Other

C. If a preconstruction conference is not scheduled before one year from the date on the FER, all engineering approvals shall be invalidated and the developer must begin the process over again. The design review fee, inspection fee, and impact fees shall be assessed based on the current fee schedule.

202.06 – CONSTRUCTION AND INSPECTION

A. Any necessary Contractor submittals shall be made according to the requirements of Section 501.02.

B. After all necessary Contractor submittals are approved by the District Engineer, a Preconstruction Meeting shall be held according to the requirements of Section 202.05.

C. The Contractor shall construct the Project according to the Approved Construction Drawings and the requirements of Chapter 4 and Chapter 5 of these Design Standards and Construction Specifications

D. The District Inspector will conduct a preliminary inspection prior to construction, periodic inspections during construction, and final inspection of the Project according to the requirements of Section 501.

E. Modifications to the Approved Construction Drawings plat or final site plan shall be discussed with the District Inspector and where changes affecting capacity or design locations requiring easement modification, shall be submitted in writing to the District Engineer for review and approval prior to incorporation into the Project.

F. All construction shall be completed within two years of execution of the Sewer Extension Agreement.

202.07 – SUBSTANTIAL COMPLETION

A. Upon completion of the following, Substantial Completion of a Project may be requested in writing by the Developer:
   1. Sewer installed in accordance with the Design Standards and Construction Specifications, including Private Lateral Wastewater Line installed to every lot
   2. Television inspection of all Sewer Main Lines, by the JBID personnel.
   3. Required testing is performed and results submitted to the District Inspector, including, but not limited to:
      a. Air Test Pipe
      b. Leak Test
      c. Compaction Test
      d. Vacuum Test Manholes
      e. Deflection Test
      f. Hydrostatic test of pressure lines
   4. Submits
      a. As-constructed drawings showing the physical location of all sewer mains, laterals, inspection tees, wye branches, manholes and other facilities as they are actually installed, in an electronic format (pdf format) acceptable to the District.
      b. Certified Survey, on the JBID's form, signed by a licensed Surveyor including manhole coordinates, rim and invert elevations, in Utah Central NAD83 foot coordinate system.
      c. Lateral Locations

B. If applicable, upon issuance of Substantial Completion, the developer may request a reduction of the Performance Security equivalent to 80% of the Completion Security.

202.08 – FINAL PROJECT COMPLETION

A. The Developer shall request in writing Final Project Completion of the completed wastewater system improvements after the following:
   1. Completion and approval of all final construction "punch list" items.
   2. Installation of all curb, gutter, road base, asphalt, manhole collars, and lateral location marker.
   3. False bottoms and plugs removed.
   4. Existing pipe in the tie in manhole is cut out and all manholes are clean.
   5. Submittal of Bill of Sale in accordance with the Sewer Extension Agreement requirements.
   6. Submittal of the "as-constructed" drawings" and satisfactory waivers of any mechanic's or materialman's liens.
   7. Final Project Completion of all downstream Public Wastewater System(s).

B. If applicable, upon issuance of Final Project Completion, the developer may request a security reduction equivalent to 100% of the Completion Security.

C. Final Project Completion of the wastewater system improvements results in the following:
   1. The start of the warranty period.
   2. The JBID accepts ownership, responsibility, and maintenance of the wastewater system improvements.

202.09 – WARRANTY PERIOD

A. The standard warranty period shall extend one year from the date of Final Completion

B. 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 any repair of any backfill settlement) and correcting incomplete or incorrect information on the Record Drawings.

C. In locations where sewer improvements are installed in a Fill Area, the developer shall be required to warrant the sewer improvements are free from defects in materials and workmanship (this also includes elimination of infiltration and inflow any repair of any backfill settlement) and correcting incomplete or incorrect information on the Record Drawings for a period of two years.

D. No sooner than sixty days prior to the end of a warranty period, the JBID will perform a Project warranty inspection which may include a television inspection of the installed wastewater system. A warranty inspection letter with a "punch list" of deficient items will be issued and sent to the Developer.

E. The Developer shall ensure that all deficient items are corrected prior to the end of the warranty period.

F. In the event any repair, replacement or other work is required under the Warranty, the term thereof shall immediately be extended for a period of one (1) year (or if in a Fill Area, 2 years), commencing the date the repair, replacement or work is completed; and in such event, the District shall be entitled to withhold release of the Warranty

Security until completion of the extended warranty period.

G. Upon satisfactory completion of the warranty period and any extension thereof, the Developer shall be relieved of responsibilities for the Sewer Improvements and any remaining securities shall be released.

SECTION 3 - PRIVATE LATERAL WASTEWATER LINE CONNECTIONS TO THE PUBLIC WASTEWATER SYSTEM

203.01 – APPLICABILITY

A. The development procedures contained in this Section 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 2.

B. Projects that require extension or modifications of the Public Wastewater System shall follow the procedures contained in Section 2 for those extensions and modifications and shall follow the procedures in Section 3 for the actual connection of the building or other facility to the Public Wastewater System.

C. All lots within a new subdivision, where sewer is available, shall be required to connect to the sewer system.
   1. Sewer shall be deemed available when the District's sewer line is within 300' x the number of lots or 300', whichever is greater, of the nearest property line of the new subdivision.
   2. If sewer is not deemed available, a dry line sewer, in accordance with the District's Design Standards and Construction Specifications must be designed and installed. Design shall conform to the District's Design Standards and Construction Specifications.

203.02 – IMPACT FEES

A. Prior to connecting any residence, building or other facility to the Public Wastewater System, or prior to remodeling any building or other facility that is connected to the Public Wastewater System the homeowner, building owner, facility owner or authorized representative shall pay applicable Impact fees.

B. Impact fees are calculated and based upon the District's Current Fee schedule, the Impact Fee Facility Plan and Impact Fee Analysis.

203.03 – APPROVED PUBLIC WASTEWATER SYSTEM

A. Prior to connecting any residence, building or other facility 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 Completion according to Section 202.08 or, with a written request, in special circumstances, Substantial Completion according to Section 202.07.

203.04 – VARIANCE REQUESTS FOR PREMATURE CONNECTION

A. In special limited circumstances and at the discretion of the JBID, 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 of the downstream Public Wastewater System. If approved, a separate indemnification agreement shall be required. The following information shall be submitted for evaluation by the JBID.
   1. The Developer and homeowner, builder or authorized representative shall request in writing that the JBID allow the connection.
   2. The request shall include the specific units or lots for which connection is needed.
   3. The request shall describe the current status of the Public Wastewater System extension or modification.
   4. The request shall describe the proposed schedule for completion of all items required for Final Project Approval of the Public Wastewater System extension.
   5. 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.
   6. The request shall describe the proposed schedule for completion of a home or building and the anticipated date when occupancy will be needed.
   7. 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 Certificate of Occupancy will not be signed by the JBID or issued by the City until the Developer has met the requirements for Final Project Approval or Substantial Completion.

8. The District Engineer will evaluate the status of the downstream system and the information submitted and, if appropriate, allow the connection.
9. The authorization to physically connect to the Public Wastewater System prior to Final Project Approval of the downstream Public Wastewater System will not constitute an authorization to use by the JBID.
10. Premature use will subject the Developer to additional liability for cleaning of the Sewer Main Line and any potential damage to the Sewer Main Lines or facilities connected thereto.

203. 05 – WASTEWATER SERVICE AND PAYMENT OF FEES FOR NEW SINGLE FAMILY RESIDENCES, CONDOMINIUMS OR TOWNHOMES

A. Prior to the payment of any fees or connection to the Public Wastewater System, any applicable Development plat shall be signed by the District, in accordance with Section 02.04.03.
B. The homeowner, builder, or authorized representative shall pay the Impact, Inspection and other fees to the JBID. The JBID will not schedule inspections before fees have been paid.
C. The JBID will issue a receipt for payment of all paid fees. The homeowner, builder, or authorized representative is encouraged to retain all receipts as proof of payment of said Fees.
D. Prior to connection, the homeowner, builder or authorized representative shall contact the JBID Administrative Services Department to ensure all the JBID requirements are met, fees paid and the downstream Public Wastewater System is ready to receive the connection.
E. The JBID Administrative Services Department, when requested, will provide the following information to the homeowner, builder or authorized representative:
    1. Impact, Inspection and other Fees due and owing as determined by the JBID Standard Fee Schedule.
    2. Upon request, Private Lateral Wastewater Line construction specifications, details, and other applicable special conditions as contained in the Lateral Construction Instructions.
    3. Available record information contained in the JBID files that pertain to the Private Lateral connection for the lot.
    4. Available inspection times.
F. For lots with non-typical Private Lateral Wastewater Line installations (non-typical installations include lots requiring ejector pumps, lots requiring long (100'+) or complicated lateral routing and other similar installations) the homeowner, builder or authorized representative may be required to submit to the JBID for review the following:
    1. 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. The proposed location and design information of the non-typical Private Lateral Wastewater Line installation
        e. Proposed driveways, retaining walls, landscaping, and other site features that may affect the routing and construction of the Private Lateral Wastewater Line.
        f. Existing utility easements.
            i. Encroachment into these existing easements is not allowed.

203.06 – WASTEWATER SERVICE APPLICATION AND PAYMENT OF FEES FOR FOOD SERVICE ESTABLISHMENTS, COMMERCIAL BUILDINGS, INDUSTRIAL FACILITIES AND OTHER SIMILAR FACILITIES

A. The building or facility owner or authorized representative shall apply to the JBID for wastewater service by submitting the following information.
    1. Commercial Wastewater Questionnaire form as contained in Appendix A.
    2. A copy of the preliminary site plan and, if applicable, preliminary plat, for the Project. In addition the following information shall be included as part of the preliminary site plan submittal to the JBID.
        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 JBID 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, nose on 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.

B. The District Engineer or designee and Pretreatment Department will review the information submitted and send review comments to the building, facility owner or designee and the Design Engineer of record.
C. The building or facility owner shall prepare and submit a Final Site Plan and, if applicable, Final Plat and include the corrections or address issues contained in the JBID review comments.
D. The District Engineer or designee will review the Final Site Plan and, if applicable, Final Plat, and other information submitted.
E. Upon finding the submittal in satisfactory compliance with the Design Standards and Construction Specifications, the District Engineer or designee will issue a Final Engineering Review Letter. This letter will outline any necessary requirements for the Development to receive Final Project Approval, including but not limited to payment of all fees, execution of all easements and agreements and submittal of any necessary permits.
F. JBID will advise the building or facility owner concerning the Impact, Inspection and other Fees for the building or facility as described in the District's Consolidated Fee Schedule as adopted by the District's Board of Trustees.
G. The building or facility owner shall pay the Impact, Inspection and other Fees.

203.07 – CONSTRUCTION AND INSPECTION

A. Upon completion of the forgoing items, the Contractor shall schedule all Residential inspections with the JBID Administrative Services Department and all Commercial Inspections with the JBID Engineering Department.
B. The District Inspector will conduct inspections of the Private Lateral according to the requirements of Section 5.
C. The Contractor shall construct the Private Lateral Wastewater Line according to the following:
   1. Approved plans, if required.
   2. Upon request, lateral installation instructions provided to the homeowner, builder, or authorized representative by the JBID at the time Fees are paid.
   3. The requirements of Chapter 4 and Chapter 5.

203.08 – NOTICE OF SUBSTANDARD LATERAL

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

203.09 – CERTIFICATE OF OCCUPANCY

A. The homeowner, builder, building owner, facility owner or authorized representative may request

that a Notice of Occupancy be signed by the District Engineer or their designee.

B. The following items must be complete, submitted, and/or approved by the JBID prior to requesting signature.
   1. Payment of all fees.
   2. Review of Drawings by the JBID, if required.
   3. Construction of the Private Lateral Wastewater Line to the JBID minimum standards as observed by the District Inspector or a Notice of Substandard Lateral Agreement is submitted in accordance with the requirements of Section 203.07.
   4. The Public Wastewater System to which the Private Lateral Wastewater Line connects has received approval in accordance with the requirements of Section 203.03.
   5. A Wastewater Discharge Permit Application, if required.
   6. Upon completion of these items, the District Engineer or their designee will sign the Certificate of Occupancy form issued by the city.

SECTION 4 - PLAT APPROVAL PROCEDURES

204.01 – GENERAL

A. Salt Lake and Utah County and each City the District serves requires review and approval by the JBID of all plats, including plat amendments, and final site plans for properties within the JBID boundary prior to approval of the plat.

B. Approval of the plat by the JBID shall be evidenced by the signature of the JBID General Manager or Board Chairman, in absence of the General Manager, on the JBID signature block.

C. Plats shall meet the requirements of Section 302.04.

204.02 – PLAT SUBMITTAL AND REVIEW

A. The Developer, building owner or facility owner shall submit plats to the JBID for review as outlined herein.

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.

204.03 – PLAT APPROVAL

A. Final Plat Approval.
   1. The following items shall be completed, submitted and approved by the District Engineer prior to requesting Final Plat approval.
      a. Final Design Approval, in accordance with Section 202.05, including posting of the necessary security
      b. If only Warranty Security was posted, all Work must be complete in accordance with Section 202.08 Final Project Completion.
      c. A title report not more than 60 days old.
      d. A plat signing fee must be paid.
   2. The District Engineer or designee shall review the plat, title report, and other District records to ensure:
      a. All District easements and other items of record are shown or dictated on the plat.
      b. All parcels and lots listed on the plat have sewer service availability.
      c. Any required easements for the Development are properly recorded.
      d. In locations where private sewer laterals cross adjacent lots, private sewer lateral easements are dedicated.
      e. All applicable notes are placed on the plat, as required in Section 302.05.
   3. After review and approval by the District Engineer:
      a. The General Manager or Board Chairman, in the absence of the General Manager, signs the plat.
      b. The District Engineer will issue a sewer availability letter for the Board of Health.
      c. Final Project Approval shall be deemed granted.

SECTION 5 - SEWER EXTENSION AGREEMENT PROCEDURES

205.01 – GENERAL

A. A Sewer Extension Agreement with the JBID shall be established by the Developer.
B. This agreement shall have the form as contained in Appendix A.
C. This agreement shall remain in effect from the time it is established through the Warranty Period.

205.02 – WHEN A SEWER EXTENSION AGREEMENT IS ESTABLISHED

A. A Sewer Extension Agreement shall be established on a Project at the earliest occurrence of one of the following:
    1. After receiving Final Engineering Approval.
    2. Prior to approval of any subdivision plat.
    3. Prior to holding the preconstruction meeting
    4. Prior to construction beginning.

205.03 – SEWER EXTENSION AGREEMENT

A. The Sewer Extension Agreement shall be accompanied by the appropriate security consisting of 110% of the District Engineer's 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 District Engineer.

205.04 – RELEASE SEWER EXTENSION AGREEMENT FUNDS

A. Release of Sewer Extension Agreement funds shall be in accordance with the requirements of the Sewer Extension Agreement.
B. The Developer shall submit a written request to the District Engineer or designee for release of the Sewer Extension Agreement funds. If requested, the request shall include a summary of the Project status prepared by the Developer.
C. The District Engineer or designee will review the request for release and, if appropriate, recommend the release amount to the JBID General Manager. The release amount is based on the requirements of the Sewer Extension Agreement.

CHAPTER 3
DESIGN REQUIREMENTS

SECTION 1 - GENERAL

301.01 – MINIMUM REQUIREMENTS

A. The design requirements contained in this Chapter include the minimum requirements necessary for the design of wastewater facilities in the JBID.
B. Proposed designs deviating from these regulations will be reviewed by the JBID on a case by case basis upon the submittal by the Project Engineer of any additional data, computations, exhibits, etc., as required by the JBID.

301.02 – PROHIBITED WASTE DISCHARGES

A. The design of the sewer system shall comply with all applicable District's Pretreatment Rules and Regulations.
B. Wastewater systems shall be designed to exclude wastes prohibited from being discharged to the Public Wastewater System, including storm water, clean water and other contaminants as described in the District's Pretreatment Rules and Regulations.

301.03 – CODES AND STANDARDS

A. The design of all sewer lines shall be based upon the following codes and standards.
    1. ASCE Manual and Reports on Engineering Practice No. 60, Gravity Sanitary Sewer Design & Construction
    2. Salt Lake County Board of Health Regulation 13 – Wastewater Disposal Regulation
    3. Utah Division Of Water Quality Administrative Rules For Design Requirements For Wastewater Collection, Treatment And Disposal Systems (Rule R317-3)
    4. Chapters 7 And 10 Of The International Plumbing Code,
    5. W.E.F. Manual Of Practice FD-4, Design Of Wastewater and Storm Water Pumping Stations
    6. JBID Wastewater Pretreatment Rules and Other Applicable Regulatory Agencies Regulations, As Amended**.**

SECTION 2 -SUBMITTAL REQUIREMENTS FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

302.01 – 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.

302.02 – WASTEWATER MASTER PLAN

A. If requested by the District, 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 JBID.
    2. The boundary of the proposed Project.
    3. The type of development (commercial or residential).
    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 (RUs) 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 and/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 JBID shall be in pdf format.

302.03 – WASTEWATER SYSTEM DESIGN

A. The final wastewater system design shall meet the requirements contained in Section 3 of this Chapter.

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 surrounding area of project and the construction site identified as "Project."
    f. Sheet Index.
    g. Construction notes, including the following:
        i. "All construction shall comply with Jordan Basin Improvement District's Design Standards and Construction Specifications."
        ii. "Contractor shall field verify locations and invert elevations of existing manholes and other utilities before staking or constructing any new sewer lines."
        iii. "Four feet of cover is required over all sewer lines."
    h. Benchmark elevation.
    i. Basis of bearing for wastewater system (ties to plat and/or Section Line) or coordinate system. This information may be shown on the subdivision plat.
    j. Plan set print 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 as defined below.
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, and numbering; 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. Grading Plan.
    a. Existing and Final Contours
5. Plan and Profile drawings (Plan and Profile shall be shown on the same sheet) - **Plan View.**
    a. Scale and North arrow.
    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 Drawings.
    f. Existing and proposed Public Wastewater System, including coordinates of all manholes.
    g. Private Lateral Wastewater Lines shown to all parcels or building units indicating: parcel or building unit to be served by lateral; pipe size, slope, and material; mid-line bends with lengths between bends; connection points, cleanout locations, if applicable.
    h. Existing and proposed easements shown, with type (i.e., temporary, permanent sewer, or, access) and recording information indicated.
    i. 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 trees and shrubs.
    j. Existing and proposed: water lines (including fire hydrants and service lines); irrigation and drainage ditches; storm drainage structures and pipe;

utilities (existing, buried, and above ground) including power lines, telephone lines, gas lines, etc.

6. Plan and Profile Drawings - **Profile View.**
   a. Required for all Sewer Main Lines 8-inches and larger.
   b. Information shown shall be consistent with the plan view (i.e., direction of flow, manhole stationing, existing land features, utilities, etc.).
   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 and storm drain 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 canals and ditches within 10' horizontally of wastewater lines, ditches that cross the wastewater line, and ditches parallel to roadways where wastewater laterals must cross ditch.
   g. Proposed Public Wastewater System indicating: size and flow line (invert) elevation of all existing and proposed wastewater lines at connections to the existing JBID collection system; profile of proposed wastewater 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.
   7. Detailed plans for wastewater pump stations meeting the requirements of section 303.09, if applicable.
   8. Details
      a. Applicable Standard Detail Drawings as contained in Appendix B.
      b. Manhole base details as required by Section 303.08.
      c. Any additional Details required for items not covered by the Standard Details.

C. A complete pdf set of Final wastewater system drawings submitted to the JBID.
D. Drawings shall be clear, legible, and conform to industry drafting practices. Design drawings shall be consistent with the standards in the industry for wastewater system construction drawing.
E. It is recommended that the design drawings be set up to meet the requirements for Record Drawings as discussed in Section 302.08 with regard to State Plane Coordinates and elevations.

302.04 – 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
   1. A signature block for the JBID in the following form:

JORDAN BASIN IMPROVEMENT DISTRICT

Approved by Jordan Basin Improvement District this _____ day of _____, 20_____.

By:_____
General Manager

   2. All the existing JBID easements located on or adjacent to the property being platted or developed. Reference to the easement recording information shall be included.
   3. All the proposed JBID easements for public wastewater system collection lines.
      a. Easements for Public Wastewater System collection lines shall be granted to the JBID by a JBID Easement form as contained in Appendix A. The location of the easement shall be shown on the plat and/or site plan and reference to the

easement recording information indicated.

4. All sewer agreements pertaining to the property being platted or developed. Reference to the recording information shall be included.
5. The required plat notes shall be included on the plat, unless otherwise approved by the District Engineer:
   a. In locations where the sewer is less than eleven feet deep: “Contractor shall verify sewer lateral depth and set foundation elevation to provide adequate fall into sewer lateral. Buildings with a basement may not have sewer service available for basement.”
   b. In locations of low lots, “Contractor shall verify sewer lateral depth and set foundation elevation to provide adequate fall into sewer lateral. Buildings with a basement may not have sewer service available for basement.”
   c. In locations where private ejector pumps will be required: “Lot ___ will be required to connect to the sewer system with a private ejector pump, which will be operated, owned and maintained by the lot owner.”
   d. On all commercial plats: “The signature of Jordan Basin Improvement District on this plat does not constitute approval of the owner(s) sewer lines or facilities. The owner(s) of the property must provide satisfactory plans to the District for review and approval before connecting to the District's sewer system and will be required to comply with the District's rules and regulations."
   e. Where applicable, a note regarding Common Private Lateral Wastewater Lines according to Section 102.05.
   f. 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.
6. Other notes or information as required by the JBID.

302.05 – EASEMENTS

A. Wherever possible, sewer lines shall be located in public streets or rights-of-way.
B. Permanent easements for constructing, operating, maintaining and replacing the Public Wastewater lines, including access within the easement, shall be required for all Public Wastewater lines not located in existing dedicated public roadways. Legal descriptions and Exhibits for permanent easements shall be submitted to the JBID, and will be placed on the standard the JBID Easement Form contained in Appendix A.
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. Legal descriptions and Exhibits for all Access Easements shall be submitted to the JBID and will be placed on the standard the JBID Access Easement form contained in Appendix A.
D. An Exhibit shall show the location of the easements in relation to the wastewater line, property lines, section corners, and other pertinent features.
E. Easements for wastewater lines shall be granted independent of other utilities.
F. All permanent and access easements shall be centered on the sewer line and a minimum of 20' wide.
G. For Off-road Public Wastewater Lines, additional easement width shall be provided for wastewater lines exceeding 15' 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 15'. Not to exceed 30’ wide.
H. Permanent Easements shall extend a minimum 10' beyond the center of the last manhole or last section of Public Wastewater line. An additional 1' of easement length shall be provided for each foot of depth beyond 15'.
I. The permanent easement shall include turnarounds with a diameter of 40' where required for access.
J. The JBID will record all signed easements with the County Recorder.

302.06 – 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 JBID, and executed along with the final design drawings according to Section 202.06.
B. The developer shall submit documentation assuming responsibility for all costs and work associated with any third party agreements, easements, or permits which the JBID may be required to enter into for the Project, as shown in Appendix “A”.

302.07 – RECORD DRAWINGS

A. The Developer shall ensure 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 as determined by a field survey conducted by the Project Surveyor.
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., which 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. Record Drawings shall be submitted to the District in a PDF format.
E. Record Drawings shall be legible and scalable.
F. Record Drawings shall include all information required for final wastewater system design drawings according to Section 302.04 and the following additional items:
    1. Any field information obtained by the contractor.
    2. 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 JBID.
    3. 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.
    4. A written document outlining, the measured distance to the private lateral stub marker for each lot or building installed as part of the Project. This distance shall be from the closest front property line, unless other points of reference are specifically approved by the JBID.
G. The Record Drawing submittal shall include signed revised easements, if required.
    1. Revised legal descriptions for sewer easements shall be required when the sewer lines are more than 5' outside of the center of easements.
H. The digital files shall include a file with GPS coordinates of all manholes, including rim elevations and dip depth and shall be converted from the Project's ground survey coordinates to the State Plane Coordinate System (Utah North, NAD83, and 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).
I. 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.

302.08 – WASTEWATER PUMP STATIONS' OPERATION AND MAINTENANCE MANUALS

A. An operation and maintenance manual, prepared by the Project Engineer and approved by the JBID, 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 prior to approval for construction for review and approval by the JBID.
    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 JBID. Comments from previous reviews shall be addressed. No release of Security beyond 80% will be approved until this submittal occurs.
    3. Two copies and one PDF copy 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 302.08.

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 JBID.

SECTION 3 - DESIGN CRITERIA FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

303.01 – BASIS OF DESIGN

A. Design Period.
   1. The wastewater system shall be designed to serve the estimated ultimate tributary area at build out.
   2. The wastewater system design shall be based on the best information available, including the JBID hydraulic capacity model, current development regulations, city zoning 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.
   2. Design Average Flow: 100 gallons per capita per day. Commercial contributions shall be determined based upon actual and projected contributions from existing developed, comparable data.
   3. Unless otherwise approved and/or required by the District Engineer:
      a. Gravity lines 8” through 15” shall be designed to flow no more than half full during peak flow.
      b. Sewer lines larger than 15” in diameter shall be designed to flow three-fourths full.
      c. The sewer shall be upsized or extended (stubbed) as required by the District Engineer.
         i. The Developer may apply for a sewer upsizing and/or extension reimbursement, when said extension is outside the public right of way and extension or upsizing is not necessary for servicing the Project.
         ii. No sewer lateral connections shall be made to extensions or stubs, without a manhole at the end of said stub.

303.02 – LOCATION

A. The location of all wastewater lines that are part of the Public Wastewater System shall comply with the requirements of Section 102.02.

B. If construction of a new wastewater line is to be located in a road is in the best interest of the JBID:
   1. Manholes or other access and maintenance features on the line shall be located outside of waterways or swales and at least 5' from the waterway and if possible and practical at least 5' from the lip of curb to the edge of the manhole collar.
   2. The Design Engineer shall ensure that grading around the manholes provide for road side drainage and drainage away from the manhole.
   3. Roadway shoulders with steep cut or fill 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 JBID for approval.
      c. A minimum distance of 5' from the edge of the manhole to any slope retention shall be required.

303.03 – 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.
   1. 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.
   2. If applicable, 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.

3. 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.
4. Horizontal and vertical pipe separation between culinary water lines and wastewater system main lines and private lateral lines shall comply with the following requirements.
    a. Horizontal separation: Wastewater main lines and private laterals shall be installed a minimum 10' horizontally from any existing or proposed water main or 2' from any service, measured edge of pipe to edge of pipe.
    b. Vertical separation at crossings: Where wastewater main lines or private laterals must cross culinary water lines, wastewater lines shall be at least 18" below the bottom of the water line, measured edge of pipe to edge of pipe.
        i. If local conditions prevent the required separation, wastewater and water shall be designed installed per the requirements of the Sewers Section of Utah Division of Water Quality Administrative Rules for Design Requirements for Wastewater Collection, Treatment and Disposal Systems (Rule R317-3-2) and Utah Division of Water Quality Administrative Rules R309-550-7. Separation of Water Mains and Transmission Lines from Sewers.

B. In all circumstances, the requirements of the water authority shall govern section 303.03.

303.04 – SEPARATION FROM OTHER UTILITIES

A. Except as outlined in Section 303.03 above, Sewer Main Lines and Private Lateral Wastewater Lines shall be located below all existing and proposed utilities with a minimum separation of 18" for main lines and 12" for Private Lateral Wastewater Lines, measured edge of pipe to edge 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 JBID 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 horizontal separation of 5' for main lines and 2' for private lateral lines from edge of pipe to edge of pipe or utility line shall be maintained.
    3. A minimum vertical separation of 18" for main lines and 12" for private lateral lines from edge of pipe to edge of pipe or utility line shall be maintained.
    4. Flowable fill 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.
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 JBID 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 Wastewater Lines may be required to be constructed of HDPE with fusion welded joints, as determined by the JBID. Special design requirements may also be required.
    4. Special bedding, consisting of cement treated backfill or untreated base course material compacted to 96% 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.

303.05 – SITE IMPROVEMENTS WITHIN PUBLIC WASTEWATER LINE EASEMENTS

A. Permanent Structures shall not be located within Public Wastewater Line easements.

B. Trees and other major landscaping features shall not be located within Public Wastewater Line easements.
C. Lighting poles, retaining walls and any structure with a footing shall not be located within Public Wastewater Line easements.
D. Irrigation systems within Public Wastewater Line easements shall be designed to minimize interference with the wastewater line alignment. Driveways or streets with snowmelt or heating systems imbedded in the pavement shall not be located within Public Wastewater Line easements.
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 without damaging the surface.
F. The District Engineer may, on a case by case basis and at the direction of the JBID Board of Trustees, allow certain surface improvements and landscaping features to be located within Public Wastewater Line easements. If encroachments into the sewer Easements are allowed, an appropriate Encroachment Agreement shall be executed by the property owner and the JBID.

303.06 – 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 plus an additional 12” for the transition from the main line to the lateral.
   2. The minimum depth of gravity flow main lines from the top of the pipe to the pipe invert shall be as follows:
      a. The design minimum depth shall provide required cover over gravity and pressurized laterals, as applicable, to protect from freezing (4’ minimum.)
      b. The design minimum depth shall provide adequate cover to provide sewer service to basements, where required (11’ minimum.)
      c. Where basements are likely to be built and the sewer is less than 11’ deep, a shallow sewer note shall be placed on the plat in accordance with Section 302.05.
C. Minimum Slope.
   1. Pipe slopes shall be calculated using the horizontal distance from inside of the manhole wall to the inside of the manhole wall and the flow line elevations at the inside manhole wall.
   2. Gravity flow main lines shall be designed and constructed with slopes sufficient to achieve flow velocities of not less than 2.0 feet per second for the anticipated design peak flow, based on Manning’s formula.
      a. A Manning’s "n" value of 0.011 shall be used for all pipe materials.
D. If site constraints such as topography or depth of existing wastewater lines results in pipe slopes less than those required to achieve a velocity of 2.0 feet per second, alternative design measures which eliminate the flat lines may be required including:
   1. Realignment of the proposed wastewater lines.
   2. Individual ejector or grinder pumps for those lots requiring the flat lines.
   3. Off-road wastewater lines.
   4. Exceptions to the requirement to achieve a velocity of not less than 2.0 feet per second for the anticipated design peak flow shall be specifically approved by the JBID on a case by case basis.
   5. Unless approved by the District Engineer, the minimum slope of any line segment shall not be less than the following.

Sewer Size	Minimum Slope in Feet per 100 Feet (%)
8”	0.4
10”	0.28
12”	0.22
15”	0.15
18”	0.12
21”	0.1
>21”	0.1

      a. Any line segment that has any portion of the line with a slope less than minimum shall be re-installed.
E. Maximum slopes
   1. The slope of the wastewater line should generally be less than 67 percent (1½:1).
   2. Pipe material for pipes on slopes 15% or greater shall be fusion welded HDPE.
   3. Special design consideration, including pipe anchoring and pipe material, shall be given to wastewater lines with slopes greater than 15.0%.
   4. Pipe Anchors.

a. Wastewater lines on slopes that require pipes to be greater than 15% or steeper shall be anchored to prevent displacement.

5. Pipes on slopes 15% or greater shall be anchored immediately down gradient of welds with pipe anchors as follows:
   a. Not over 36' center-to-center on slopes 15 percent to 35 percent.
   b. Not over 24’ center-to-center on slopes 36 percent to 50 percent.
   c. Not over 16’ center-to-center on slopes steeper than 2:1 (50 %).

F. Alignment.
1. Gravity flow main lines shall be designed on straight horizontal and vertical alignments between manholes. Curved alignments meeting the requirements of Section 303.07 may be allowed on a case by case basis as approved by the District Engineer.
2. Wastewater lines shall be located at a sufficient distance (at least 5 feet clearance) from curb and gutter and other structures to eliminate disturbance during possible future repair of the sewer line.

G. Marking Tape.
1. Marking tape shall be installed where required by the District Inspector.
2. Marking tape shall be installed vertically above the pipe, along the entire length of gravity flow main lines.
3. The tape shall be located at a depth of 1' to 3' above the top of the pipe.
4. The warning tape depth shall be consistent along the entire length of the line.
5. Where other utilities are crossed, a second strip of marking tape may be required between the utility and the wastewater line.

303.07 – CURVED GRAVITY FLOW MAIN LINES

A. Gravity flow main lines may be designed and constructed on curved horizontal and vertical alignments on a case by case basis as approved by the District Engineer. If the use of curved lines is approved the following criteria shall apply.
B. The requirements of Section 303.06 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 JBID 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 District Engineer.
1. 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.

H. Electronic Marker.
1. Place Electronic Omni Markers at intervals as per the manufacturer’s recommendations and as directed by the District Inspector but not more than twenty (20) feet, and at depths no greater than four (4) feet.

I. Marking Tape.
1. Where required by the District Inspector, marking tape shall be installed vertically above the pipe, along the entire length of all curved gravity flow main lines.
2. The tape shall be located at a depth of 1' to 3' above the top of the pipe.
3. The warning tape depth shall be consistent along the entire length of the line.
4. Where other utilities are crossed, a second strip of marking tape may be required between the utility and the wastewater line.

303.08 – 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 with more than two (8-inch or larger) inverts.
b. Manholes connecting to lines between 15" and 18".
c. Manholes with a deflection angle of 75°-90°.
d. Manholes with more than a one (1) foot inside drop between the inverts.

3. Manholes with the following conditions shall have an inside diameter of 6'.
   a. Manholes connecting to lines between 21" and 36".
   b. Where approved, manholes constructed with an inside drop structure, as outlined in Paragraph E below.
4. Manholes connecting to lines greater than 36" shall have an inside diameter of 7'.
5. 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 a deflection angle greater than 90°.
   c. Other configurations as required by the JBID.
   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, flow line elevation, and type and size of pipe for all connecting lines.

B. Location.
1. Unless otherwise approved by the JBID, 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 500'.
2. Manholes shall be placed outside the wheel path and within a 5-foot offset from the street center line whenever possible.
   a. If circumstances warrant and as specifically approved by the JBID, 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 5' required between edge of pavement, concrete curb or gutter, and edge of manhole collar.
3. Manholes shall not be located in waterways, gutters or drainage swales.
4. Manholes shall not be placed within 5' 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 public sewer lines.
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 retention ponds, sidewalks, sports playing field areas or where exercise activities may occur.

C. Drop through manholes.
1. The minimum elevation difference between the flow line of the incoming and outgoing lines in manholes (minimum drop) as calculated at the inside manhole wall shall meet the more restrictive of the following criteria.
   a. Deflection angles of connecting lines:
      i. Greater than 90° - 0.3 foot drop
      ii. 75° - 90° manholes – 0.2 foot drop
      iii. 0° - 75° manholes – 0.1 foot drop
      iv. 0° - 25° manholes – Where specifically approved by the District Engineer, the grade through the manhole shall be no less than the grade of the downstream pipe.
   b. Pipe Size Transitions: To approximately maintain the flow energy gradient in manholes where pipe diameters change, the elevation of the 0.8 depth of the incoming pipe shall be placed at the same elevation of the 0.8 depth of the outgoing pipe.
   c. Where a wastewater main line intersects with a larger diameter wastewater main line, the invert of the incoming wastewater line shall match the 0.75 depth of the larger wastewater line.
2. The maximum elevation difference between the flow line of the incoming and outgoing lines in manholes (maximum drop) shall not exceed 2 feet.
3. The flow line (invert) elevations at the inside manhole wall of all connecting lines shall be shown on the construction drawings.
4. 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 JBID.

D. 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 District Engineer.
   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, meets or exceeds 24".
   3. Drop connections shall be constructed with an internal drop as shown on the Drop Manhole Standard Detail Drawing as found in Appendix "B".

E. Shallow Manholes:
   1. Shallow manholes shall be required for manhole depths less than 6.3', but not allowed for manholes with depths greater than 6.7' as measured from the top of rim to the invert.
   2. Shallow manholes shall be indicated on the construction drawings and constructed per the Shallow Manhole Standard Detail Drawing as found in Appendix "B".

F. The design of manholes to be located in areas where the groundwater level is higher in elevation than the bottom of the manhole shall consider the effects of buoyancy. An extended base footer may be necessary.

G. Manhole Interior Coatings or integrally-cast HDPE/FRP liners (see Lined Manholes – Section 404.21),shall be installed in locations where indicated on the Design Drawings as per manufacturer's recommendations.

303.09 – WASTEWATER PUMP STATIONS

A. The JBID Wastewater Pump Station policy in Section 102.04 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. These design standards apply to lift stations with a capacity up to one million gallons per day (1.00 mgd). Design standards for lift stations larger than 1.00 mgd will be developed on a case-by-case basis by the District Engineer.

D. Wastewater pump stations shall be designed as per the Lift Station Standard Detail Drawing and shall meet the following requirements.
   1. Location:
      a. Sewer lift stations must remain fully operational and accessible during a 25-year flood. Sewer lift stations shall be protected from physical damage that would be caused by a 100-year flood.
   2. Property Ownership: The property on which the pump station is located shall be deeded to the JBID or in rare cases granted to JBID via an exclusive easement, as approved by the District Engineer.
      a. Lift stations shall be located on a site at least 30 feet by 30 feet in size.
      b. Lift stations shall be located so as to be readily accessible by JBID maintenance vehicles during all weather conditions.
      c. Lift stations shall be designed with a single influent line.
   3. Accessibility:
      a. The entire site shall be paved with 3-inches of asphalt over 8-inches of compacted road base.
      b. A paved, all-weather access road shall be provided to the pump station.
      c. The access road may be granted by way of an easement.
   4. Type of Pump Station.
      a. Pumps and motors shall be sized for the ultimate peak flow.
      b. Pump stations shall generally be of the submersible pump type and include moisture and temperature detection. .
      c. A minimum of two pumps, each capable of pumping the total design flow, shall be provided.
      d. The pump station controls shall provide for automatic alternating of the lead pump.
      e. Pumps shall be specifically designed for submerged operation and shall be capable of passing spheres of at least 3 inches in diameter.
      f. Pump suction and discharge piping shall be at least 4 inches in diameter.
      g. Pumps shall be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well.
      h. Unless otherwise approved by the District Engineer, lift stations will require three phase power.
   5. Design Flows.
      a. Pump station structures, equipment and piping shall be designed to handle the ultimate tributary flow at build out.

b. Provisions for smaller interim flows shall be provided for in the design of the pump station.

6. Appurtenances.
   a. Wet well:
      i. The wet well shall be constructed of approved acid resistant materials.
      ii. The wet well size and level control shall be designed to avoid excessive pump cycling and septic conditions due to excessive detention time.
   b. Valve Vault
      i. Valves shall be located in a separate vault located near the wet well that is protected from physical damage, weather and freezing, with proper access for operation and maintenance.
      ii. Isolation and check valves shall be placed in the discharge line of each pump. Isolation valves shall be eccentric plug valves. Check valves shall be ball-check type valves, swing check, or tilted discs check with weighted levers..
      iii. The valve vault shall include piping, valves and quick-connect couplings to allow bypass pumping from the wet well to the force main using a portable pump
      iv. A floor drain and piping shall be installed between the valve vault and the wet well and the floor of the valve vault shall be poured so it slopes toward the drain.
   c. Bracket:
      i. The site shall include a permanent receiving bracket for a portable crane to be used in removing and replacing the pumps.
   d. Crane:
      i. Lift station shall include an appropriately sized davit crane.
   e. Multitrode:
      i. Lift station shall include a Multitrode level control system and two backup floats set above alarm level manufactured by Flygt.
   f. Ventilation:
      i. Passive ventilation of the wet well shall be provided. Active ventilation and odor control may be required depending on the size, location and operational characteristics of the lift station and the proximity of dwellings.

7. Control panels and Electrical systems and components.
   a. Motors, lights, cables, conduits, switchboxes, control circuits in wet wells or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present, shall comply with the National Electrical Code requirements for Class 1, Group D, Division 1 locations. In addition, equipment located in the wet well shall be suitable for use under corrosive conditions. Each flexible cable shall be provided with watertight seal and separate strain relief. A fused disconnect switch located above ground shall be provided. When such equipment is exposed to weather it shall meet the requirements for NEMA 4X with a stainless steel dead front enclosure and stainless steel inner door.
8. Security: The pump station equipment and controls shall be adequately protected with appropriate buildings and fencing to prohibit unauthorized entry by the public.
   a. A minimum 6-foot vinyl fence or approved equivalent shall be installed around the perimeter of the site, with a 12-foot double-swing locking gate.
   b. An emergency yard light shall be installed at the site.
9. 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.
10. Pump Station Building:
    a. The pump and equipment controls, electrical panels, communication equipment, odor control equipment, etc. shall be housed in a heated and vented weatherproof building.
    b. The minimum inside dimensions of the control building shall be 8 feet by 12 feet. Minimum inside height shall be 8 feet.
    c. The building shall be architecturally comparable with the existing buildings in the area or the future buildings planned for the area.
    d. At a minimum, the buildings shall be constructed of Atlas brick on concrete footings with a concrete floor. The roof shall be pitched, with a minimum slope of 4:12, with a 26 gauge standing seam steel

roof, over ¾-inch plywood sheeting and building paper. Roof fascia and soffits shall be aluminum. Gables shall be Atlas brick. The interior of the roof shall be insulated with R-38 fiberglass batt insulation. The ceiling shall be 5/8-inch painted sheetrock.

e. The building shall have at least one 3-foot by 7-foot hollow metal man door with metal frame, threshold, lock set and 12-inch square ventilation louver with insect screen.
f. The building shall have at least two fluorescent lighting fixtures with 4-40 watt lamps each, and two electrical outlets.
g. The building shall have a thermostat-operated ventilation fan with roof exhaust capable of providing 10 air changes per hour.
h. Building construction shall otherwise conform to the building code and other requirements of the local jurisdiction.
i. It shall be the responsibility of the Developer to obtain approval of the building and site improvements from the local planning and building departments.

11. Equipment Removal: Portable hoists or other equipment shall be provided to facilitate the removal of pumps and other equipment.
12. Flow Measurement: Continuous measuring and recording of wastewater flow shall be provided at each pump station.
13. 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 JBID pump station SCADA system.
14. Emergency Operations:
    a. An in-place, engine driven, emergency generator with an automatic transfer switch shall be provided at each pump station.
    b. If possible, standby generators shall be natural gas fueled. If natural gas is not available, it shall be fueled by diesel.
    c. Standby generators shall be manufactured by Caterpillar/Olympian/Cummins.
    d. A piping connection for a portable pump with appropriate valving and a vault located connection shall be provided at the pump station to allow pumping of wastewater around the pump station.
15. Spare Parts and Service.
    a. One spare pump shall be provided to the District for each lift station
    b. Equipment and spare parts for all pump station components shall be available from local manufacturers and suppliers.
    c. Local service representatives shall be available for assistance with repair of pump station components.

E. Detailed calculations for the wastewater pump station and appurtenances shall be submitted for review and approval.
F. An Operation and Maintenance Manual shall be submitted according to the requirements of Section 302.09.
G. Start-up services and training on the completed pump station shall be completed according to the requirements of Section 510.
H. Acceptance testing of the completed pump station shall be completed according to the requirements of Section 517.06.

303.10 – 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 build out 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 build out shall be considered during design.
B. Line Size:
    1. Shall be sized to provide a minimum velocity of 2.0 feet per second while minimizing head losses through the system during system operation.
    2. Shall be a minimum of 4 inches in diameter unless other approved by District Engineer.
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.
        a. System-head curves for C values of 100, 120 and 140 in the Hazen Williams equation for calculating head loss corresponding to minimum, median and maximum water levels shall be developed.
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. Force mains shall be designed on a constant reverse grade, ensuring that there are no high points in the force main.
G. Minimum Line Depth: shall be located below all other utilities with a minimum 18" vertical separation, measured edge of pipe to edge of pipe, from other utilities and shall have a minimum depth of 7' from the top of the pipe to the finished grade elevation. Certain environmental or site-specific conditions may require the line to be installed at a greater depth in order to prevent freezing, as determined by the JBID.
H. 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.
I. Connection of the force main to the gravity wastewater collection system shall occur at a manhole and shall meet the following requirements.
    1. The invert of the force main line shall enter the manhole 0.5' above the invert elevation of the gravity line. A drop greater than 0.5' will not be allowed.
    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. To minimize hydrogen sulfide attack on the manhole structure, force mains shall enter the gravity sewer system into an acid resistant manhole.
    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.
J. Marking
    1. Tape.
        a. Marking tape shall be installed vertically above the pipe, along the entire length of the force main.
        b. The marking tape shall be located at a depth of 1' to 3' above the top of the pipe.
        c. The marking tape depth shall be consistent along the entire length of the force main.
        d. Where other utilities are crossed, a second strip of marking tape may be required between the utility and the wastewater line
    2. Electronic marker.
        a. Place electronic markers at intervals as per the manufacturer's recommendations and as directed by the District Inspector but not more than twenty (20) feet, and at depths no greater than four (4) feet.

303.11 – 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. Casing pipe shall meet requirements of Section 408.
G. Minimum casing diameter shall typically be twice the diameter of the carrier pipe to allow for possible upsizing of the carrier pipe in the future. However smaller sized casings may be allowable on a case by case basis as approved by the District Engineer.
H. The District Engineer may require submittal of additional structural calculations with construction drawings.
I. The design of the boring shall allow for some variance in the installed boring line and grade.
J. 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.
    1. Where applicable, a note shall be added to the plans indicating this requirement.

303.12 – CASINGS

A. Sewer casings shall be required at locations where sewer lines cross rivers, streams, canals, aqueducts, railroads, box culverts and/or other locations as required by the District Engineer or other governing entity.
B. Wastewater lines shall be installed inside casings when additional protection of the line is necessary as determined by the Project Engineer or District Engineer.
C. The JBID may require submittal of additional structural and pipe loading calculations with construction drawings to determine the need for additional protection.
D. Casing pipe and carrier pipe material, size, length, and invert elevations shall be shown on construction drawings.
E. Minimum casing diameter shall be twice the diameter of the carrier pipe. However, smaller sized casings may be allowable on a case by case basis as approved by District Engineer.
F. The carrier pipe shall generally be the same pipe material as the connecting wastewater lines.
G. The carrier pipe shall be supported by manufactured casing spacers designed specifically for this application. Redwood skids are not acceptable.
H. Casing end seals shall be installed at either end of the casing pipe to prevent migration of water and soil along the carrier pipe.
I. Casing wall thickness shall be as shown on the standard steel casing detail.

303.13 – FLOW METERS

A. In nonresidential locations where city water meters are not installed, where the city water meter may not accurately represent the amount of flow discharged to the sewer system, or the monthly discharge is anticipated to be greater than 25.000 gallons per day or where high flow fluctuations are anticipated, a sewer flow meter shall be installed in accordance with details as shown on the Approved Construction Drawings and Flow Meter Standard Detail Drawing, unless otherwise approved by the District Engineer.
B. Flow meters and control panels shall be installed in a location accessible to the District personnel as shown on the development plans.
C. Power shall be provided by local power provider or solar panels, as necessary.
D. Flow meter site shall include:
    1. Prefabricated manhole with Integral Palmer-Bowlus Flume with an ultrasonic open channel flow meter or other type of flow meter as approved by the District Engineer.
    2. Radio communications
    3. Other equipment as required by the District

303.14 – DIVERSION STRUCTURES

A. Diversion structures shall be designed and installed in locations as directed by the District Engineer and in accordance with details as shown on the Approved Construction Drawings and Standard Detail Drawings,

303.15 – GROUNDWATER MIGRATION

A. The Project Engineer shall consider methods to prevent the continuous migration of groundwater along the trench line including the installation of trench dikes. The methods used shall be as outlined in the Standard Detail Drawings and as approved by District Engineer.
B. Trench dikes shall be installed on wastewater lines down gradient from all ditch and stream crossings, periodically along all wastewater lines installed in areas subject to ground water and at other locations as determined by the Project Engineer and approved by District Engineer.
C. In locations where groundwater is possible, filter fabric shall be installed around pipe bedding as outlined in the Standard Sewer Trench Detail Drawing.

SECTION 4 – SUBMITTAL REQUIREMENTS AND DESIGN CRITERIA FOR PRIVATE LATERAL WASTEWATER LINES

304.01 – DESCRIPTION

A. The design of Private Lateral Wastewater Lines shall include the submittals and required information described in Section 203. Section 304 covers the minimum criteria that shall be used for the design of Private Lateral Wastewater Lines.
B. Ownership, construction, maintenance and operation of Private Lateral Wastewater Lines from the building to the Public Wastewater System line, including the connection to the Public Wastewater System line, 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 or exceed the minimum requirements contained in these specifications.

304.02 – BASIS OF DESIGN

A. Where the requirements of these JBID Standards does not specify otherwise, Private Lateral Wastewater Lines shall conform to Chapters 7 and/or 10 of the International Plumbing Code.
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 102.05 are met and the Common Lateral Wastewater Line is specifically approved by the District Engineer.
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 for those lots or parcels, as determined by the District Engineer.
F. Private Lateral Wastewater Lines shall be gravity flow, meeting the requirements of Section 304.06, unless one of the following criteria is met.
    1. The lot or building being served has received prior approval from the District Engineer as an ejector lot as evidenced by a note on the subdivision plat, and a gravity flow lateral option is still not available.
    2. 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.
G. If a gravity flow Private Lateral line meeting the requirements of these Design Standard's and Construction Specification is achievable for a portion of the building being served, the Private Lateral line from the building to the connection to the Public Wastewater line shall be gravity flow, and any pumping required for lower levels of the building shall be located in areas meeting manufacturer requirements.

304.03 – LOCATION

A. If possible, 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, may cause damage to the private lateral, or may increase the possibility of the lateral freezing.
B. In areas where this cannot be avoided, additional depth, additional cleanouts, material changes, or other precautions as conditions warrant, may be necessary, as proposed by the building owner or their contractor, and acknowledged by the JBID.

304.04 – PROTECTION OF WATER SUPPLIES

A. Private laterals shall meet the requirements of Section 303.03.

304.05 – SEPARATION FROM OTHER UTILITIES

A. Private laterals shall meet the requirements of Section 303.04.

304.06 – GRAVITY FLOW PRIVATE LATERAL LINES

A. Line Size: 4" minimum diameter. 6" maximum diameter unless specifically approved by the District Engineer.
B. Minimum Depth:
    1. 48" from the top of the pipe to the finished grade elevation.
    2. Additional depth is recommended for Private Lateral lines located at elevations above 5,000 feet.
    3. Additional depth is recommended for Private Lateral lines located under driveways or other areas where the clearing of snow and vehicular traffic may force the frost level deeper.
    4. Gravity flow stubs serving ejector pump lots will require a minimum 5' bury depth at the pump to gravity connection to achieve the required 4' bury depth on the pressurized lateral.
    5. Certain environmental or site-specific conditions, including elevation, surface features over the line (pavement vs. landscaping), etc. may require the private lateral to be installed at a greater depth to prevent freezing.
C. Minimum Slope: 1/4" per foot (2 %) or where approved by the JBID 1/8" per foot (1 %).
D. Maximum Slope: 1 foot per foot (100 %).

E. Alignment.
    1. Private laterals shall maintain the following clearances:
        a. Other Private laterals: 2’
        b. Buildings or other structures: 2’
        c. Property lines: 1’
        d. On-site domestic water service line: 5’
        e. Public water main: 10’
    2. 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
    3. Vertical bends pose problems in obtaining adequate support during backfill and compaction and should therefore additional bedding material will be required, as directed by the JBID.
    4. Curved sewer laterals meeting the requirements of Section 304.07 may be allowed on a case by case basis as approved by the District Engineer.
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 12" apart, unless otherwise approved by the District Engineer.
G. If the slope of a lateral meets or exceeds 15.0%, the requirements of 303.06 E2 E5c and the standard detail drawing for steep sewers (SS-6) may apply as required by the District Engineer.

304.07 – CURVED GRAVITY FLOW - PRIVATE LATERAL LINES

A. Gravity flow private lateral lines may be designed and constructed on curved horizontal and vertical alignments on a case by case basis as approved by the JBID.
B. If the use of curved lines is approved, the following criteria shall apply.
    1. The requirements of Section 304.06 shall apply.
        a. Pipe material shall be HDPE.
        b. The minimum slope of all portions of the line shall be 3.0%.
        c. The number of horizontal and vertical curves shall be minimized,
        d. Minimum radius of horizontal and vertical curves: 50'.

304.08 – 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 at the following locations.
        a. Not more than 100' apart measured from the upstream entrance of the cleanout.
        b. Where more than two changes of direction occurs in a run of piping. Changes in direction greater than 45 degrees shall not be allowed.
        c. Any place necessary to allow for proper cleaning of a section of the Private Lateral Wastewater Lines.
    4. Where specifically approved by the District Engineer, bi-directional cleanouts may be installed at intervals not to exceed 200' as measured from the upstream or downstream entrance of the cleanout on straight runs of piping.
C. Size: same diameter as the private lateral to which it connects.

304.09 – PRESSURIZED PRIVATE PUMPS AND LATERAL LINES

A. Professional advice should be obtained prior to installing pumping equipment or pressurized sewer laterals (Private Wastewater Line).
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:
    1. 5' from the top of pipe to finished grade for elevations below 5,000.
    2. 7' from the top of pipe to finished grade for pressurized private lateral lines located under driveways or other areas where the clearing of snow and vehicular traffic may force the frost level deeper.
    3. Additional depth is recommended for Pressurized Private Lateral lines installed in conditions such as higher elevations, surface features over the line (pavement vs.

landscaping), etc., which may lead to freezing of the line at shallower depths.
4. Where the Sewer Main Line is less than the depths listed above, the Pressurized Private Lateral shall be installed to the above-mentioned depths, until tying into the Sewer Main Line, where in all cases it shall be deep enough to prevent freezing.

E. Vertical Alignment: shall minimize the number of high points, low points and significant changes in grade.
F. Connection to 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, unless otherwise approved by the District Engineer.
2. A pressure to gravity transition with cleanout per the standard detail in shall be installed at the end of the gravity line to allow access.

304.10 – 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 JBID.
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, unless otherwise approved by the JBID.
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.

304.11 – PRIVATE LATERAL BORINGS

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

304.12 – 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 10' beyond the right-of-way or property line.
B. The end of the Private Lateral stubs shall be capped with a Brandt plug or gasket type cap.
C. Gravity private lateral stubs shall include cleanouts if required by Section 304.08.

304.13 – GREASE INTERCEPTORS, SAND /OIL SEPARATORS, SAMPLING MANHOLES, AMALGAM SEPARATORS AND FLOW RESTRICTION DEVICES

A. Gravity Grease Interceptors, Sand /Oil Separators shall be designed and tested in accordance with IAPMO/ANSI Z1001.
B. A concrete 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 required by to the JBID Pretreatment Program.
C. A separate sampling manhole shall be provided with grease interceptors serving restaurants, auto repair, car wash and industrial facilities or as otherwise determined by the District Engineer.
D. Sampling manholes are not required with sand/oil interceptors connected to parking structures or garage drains.
E. All Food Service Establishments (FSE) shall have their own grease interceptor and water meter, unless otherwise approved by the JBID Pretreatment Coordinator and District Engineer.
1. A FSE may apply for a variance from this requirement by submittal of a written variance request. The variance request must include:
a. A written variance request letter, on company letterhead, indicating the nature and scope of the request.
b. Specific reasons as to why the request should be considered.
c. A complete description of the proposed pretreatment facilities, including proposed alternative grease abatement facilities, with supporting manufacturer specifications documents.
d. Fixture sizes, flow calculations, hours of operation, etc. demonstrating that the proposed facilities will be adequate to meet District pretreatment requirements.
i. The calculations must be signed and stamped by a licensed Professional Engineer.

F. Only grease or oil laden waste shall discharge to the interceptor. Sanitary waste shall be excluded from the interceptor.
G. Building sewers transporting sanitary waste shall connect to the Private Lateral Wastewater line downstream of the sampling manhole.
H. The structures should be located considering maintenance access and the potential for odors.

I. Grease Interceptors shall be vented independently through the building, to the roof, away from air intakes
    1. Venting of the structure through a vent stack shall not be allowed.

J. The capacity of the grease interceptor shall be according to the requirements of the International Plumbing Code and as approved by the JBID.
    1. The minimum capacity of grease interceptors shall be 800 gallons.
    2. The minimum capacity for sand oil interceptors shall be 450 gallons.

K. On a case by case basis and at the sole discretion of the JBID Pretreatment Coordinator and the District Engineer, an interior grease interceptor may be allowed on smaller, low grease producing FSE where an exterior grease interceptor is not reasonably feasible.
    1. To be considered, a FSE must submit for a variance and include:
        a. A written variance request letter, on company letterhead, indicating the nature and scope of the request.
        b. Specific reasons as to why the request should be considered.
        c. A complete description of the proposed pretreatment facilities, including manufacturer specifications documents.
        d. Fixture sizes, flow calculations, hours of operation, etc. demonstrating that the proposed facilities will be adequate to meet District pretreatment requirements.
            i. The calculations must be signed and stamped by a licensed Professional Mechanical Engineer.
    2. If allowed, the grease trap shall be appropriately sized for the fixtures connected and installed according to the manufacturer's recommendations.

L. Dental offices shall install an appropriately sized amalgam separator on vacuum waste lines serving all dental chairs where restorative dentistry is performed.

M. Commercial swimming pools shall install a flow restriction device to prevent a discharge from the pool of greater than 50 gallons per minute, unless otherwise approved by the District Engineer.

304.14 – RV DUMPS

A. Individual Home Owners may utilize an appropriately sized cleanout, on their property, as an RV Dump for their individual use. Home Owners are responsible to ensure that only residential domestic waste is discharged down an RV Dump.

B. A Commercial facility may utilize an appropriately sized cleanout as an RV Dump if an applicable impact fee and monthly service charges are paid. Owners and their licensees are responsible to ensure that only residential domestic waste is discharged down an RV Dump.
    1. Commercial RV dumps shall post a sign, provided by the District, prohibiting illegal dumping.

CHAPTER 4
MATERIAL REQUIREMENTS

SECTION 1 - GENERAL

401.01 – MINIMUM REQUIREMENTS

A. The material requirements contained in this Chapter include the minimum requirements necessary for construction of wastewater facilities in the JBID.
B. Contractor shall submit material cut sheets and specifications for proposed materials according to Section 501.02 to demonstrate compliance with the Design Standards and Construction Specifications.
C. Materials proposed for incorporation into the work that do not conform to these specifications shall require written approval by the District Engineer prior to delivery to the job site.
D. Any material or equipment not conforming to the Approved Construction Drawings and/or the Design Standards and Construction Specifications or has not received prior written approval by the District Engineer shall be removed from the Project site.

401.02 – 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 2 - GRAVITY PIPE

402.01 – 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 4710 high density, extra high molecular weight.
   2. SDR 17 in accordance with ASTM F 714.
   3. Marked in accordance with ASTM F 714.
   4. Pipe shall be manufactured with an integral color coded stripe of HDPE, color green, where available.
   5. Where not available, marking tape shall be installed, as per Section 507.04.
C. Fittings for Private Lateral Lines:
   1. 45 degree bends shall be fusion welded molded HDPE fittings or fusion welded 3 segment fabricated HDPE fittings.
   2. Wyes for cleanouts shall be fabricated fusion welded fitting.
D. Joints: Zero leak-rate heat-fusion joint conforming to ASTM D 3261.
E. Minimum slope requirements in accordance with Section 303.06 shall apply.

402.02 – POLYVINYL CHLORIDE (PVC) PIPE

A. Material: PVC plastic having a cell classification of 12364 or 12454 as defined in ASTM D1784
B. Pipe:
   1. 4" thru 15" diameter: ASTM D 3034, SDR-35, smooth solid wall sewer pipe, bell and spigot joint ends with gaskets.
   2. 18" thru 48": ASTM F 679 (Large diameter solid wall), SDR 35, smooth solid wall sewer pipe, bell and spigot joint ends with gaskets.
   3. Minimum pipe stiffness shall be 46 psi when tested in accordance with ASTM D 2412**.**
C. Fittings:
   1. Gasketed sewer fittings conforming to ASTM F-1336.
   2. Solvent weld PVC fittings meeting ASTM D3034 may be used on 4" and 6" private laterals as approved by the District Engineer.
   3. 90° bends are not allowed. Two 45° bends or a wye turned on its side with a 45° combo and a cleanout shall be used to make 90° turns.
D. Joints:
   1. Integral-bell gasketed joints conforming to ASTM D3212. Rubber gaskets shall be factory installed and conform to ASTM F 477.
   2. Joints on 4" and 6" diameter pipe may be solvent weld joints conforming to ASTM D 2855, between a building and sampling manhole.
E. Pipe lengths shall not be greater than 20 feet.
F. PVC pipe meeting requirements of ASTM D 1785, Schedule 40 or Schedule 80, with equivalent gasketed or solvent weld fittings, may be used for 4" and 6" Private Lateral Wastewater Lines, when approved by the District Engineer.

402.03 – CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER MORTAR PIPE (CCFRPM)

A. Material:
   1. 18 inches through 110 inches with FWC coupling, HOBAS or approved equivalent.
   2. Minimum pipe stiffness shall be 46 psi when tested in accordance with ASTM D 2412.
   3. Resin Systems: The manufacturer shall use only polyester resin systems with a proven history of performance in this particular application. The historical data shall have been acquired from a composite material of similar construction and composition as the proposed product.
   4. Glass Reinforcements: The reinforcing glass fibers used to manufacture the components shall be of highest quality commercial grade E-glass filaments with binder and sizing compatible with impregnating resins.
   5. Silica Sand: Sand shall be minimum 98% silica with a maximum moisture content of 0.2%**.**
   6. Additives: Resin additives, such as curing agents, pigments, dyes, fillers, thixotropic agents, etc., when used, shall not detrimentally effect the performance of the product.

B. Fittings:
   1. Flanges, elbows, reducers, tees, wyes, laterals and other fittings shall be capable of withstanding all operating conditions when installed. They may be contact molded or manufactured from mitered sections of pipe joined by glass-fiber-reinforced overlays. Properly protected standard ductile iron, fusion bonded epoxy- coated steel and stainless steel fittings may also be used.

C. Joints:
   1. Unless otherwise specified, the pipe shall be field connected with fiberglass sleeve couplings that utilize elastomeric sealing gaskets as the sole means to maintain joint water tightness.
   2. The joints must meet the performance requirements of ASTM D4161. Joints at tie-ins, when needed, may utilize gasket sealed closure couplings. Pipe lengths shall not be greater than 20 feet.

SECTION 3 - PRESSURE PIPE

403.01 – 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 4710 high density, extra high molecular weight.
   2. 1 1/4” 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. Marked in accordance with ASTM F 714.
   4. 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.

SECTION 4 - MANHOLES

404.01 – GENERAL

A. Manholes shall be watertight and shall be constructed with precast reinforced concrete bases, wall and cone sections, thermo-plastic riser form, and castings.

B. Cast-in-place concrete bases will generally not be allowed, and if allowed only for connection of new main lines to existing main lines where the use of a precast concrete base is not practical, as specifically approved by the District Inspector.

C. Manholes in areas with high Hydrogen Sulfide potential, as determined by the District Engineer, shall be constructed of corrosion resistant materials. ARMOROCK Polymer Concrete Manholes, Lined Manholes, as manufactured by Geneva Pipe and Precast, or approved equal.

404.02 – PRECAST CONCRETE BASES

A. Shall conform to ASTM C 478 and standard detail "Standard Precast Manhole". Shall consist of a monolithically cast precast base 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 and uniform. 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 303.08D.

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 0.75 depth 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 District Engineer.

404.03 – CAST-IN-PLACE CONCRETE BASES

A. If approved by the District Engineer, shall conform to standard detail "Manhole on Existing Pipe" in Appendix B and applicable portions of ASTM C-478, and shall include a precast wall section with a cast-in-place invert.

B. If possible, 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 level that is a minimum 18" below the bottom of the pipe extending 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 12" 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 may have “doghouse” cutouts to span the existing pipe. Existing pipes shall be wrapped with mastic at the point of connection between precast wall section and the “doghouse.”

H. The precast wall section shall not bear directly on the existing pipe.

I. Adequate separation between any part of the precast wall section and the pipe shall be provided to allow for placement of the pipe to manhole adapters and to provide a minimum 3" thickness of concrete between the pipe and the wall section.

J. Prior to placing the concrete, the outside of the existing pipe shall be cleaned.

K. Prior to placing the concrete, a circular form or “dog housed” manhole section extending from the prepared subgrade to a minimum 12" above the top of the highest pipe entering the manhole shall be installed and anchored. If used, 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.

L. The cast-in-place invert shall be a continuous pour of Class 4000 concrete and shall meet the following requirements.
   1. Concrete shall be a minimum 10" in thickness below the bottom of the existing pipe and the bottom of the precast manhole wall section and shall extend a minimum

12" radially, measured from the outside of the precast manhole wall section.
2. The concrete on the outside of the manhole shall extend a minimum 12" 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, unless otherwise specified by the District Engineer.
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. Any gaps at the interface of the precast wall section and the cast-in-place concrete due to concrete shrinkage shall be grouted or sealed with an epoxy non-shrink grout as directed by the District Inspector.
9. Minimum drop through manhole as described in Section 303.08.
10. Apron: Minimum 2% slope.

M. Connections of new pipe to Cast-in-place manholes.
1. Manhole shall be cored prior to placing the concrete.
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.

N. 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 0.75 depth of the main line.

O. Any portion of the existing line damaged shall be repaired or replaced by the contractor as approved by the District Inspector.

P. Debris and construction material shall not be allowed to enter the existing wastewater system.

Q. If debris and construction material does enter the existing wastewater system the Contractor shall be responsible for removal of the material, and any damages caused thereby, as approved by the District Engineer.

404.04 – 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. Precast base sections shall be monolithically poured.

E. Cone sections shall be of the eccentric type.

404.05 – GRADE RINGS

A. Grade rings shall only be used for adjustment of frame and cover to final grade when specifically approved by the District Inspector. Standard adjustment shall be accomplished with a Thermo-plastic Riser Form. If approved, grade rings shall meet the following requirements.
1. Precast reinforced concrete conforming to ASTM C 478 or expanded polypropylene grade rings, ”Pro-Ring™” as manufactured by Cretex Specialty Products or approved equal, installed per manufacturers specifications.
2. Designed to meet H-20 live loading.

3. Sizes: 2", 3", 4", 5" or 6" height.
4. Grade rings with cracks or visible damage shall not be accepted.
5. Pro-Ring™ polypropylene grade rings as manufactured by Cretex**.**

B. Concrete Grade Rings shall not be used with acid resistant manholes.

404.06 – 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. Allowed only on 6-foot diameter or larger manholes or on manholes meeting the requirements of standard detail "Shallow Manhole".
E. Opening for casting on "Shallow Manholes" shall be centered in lid.

404.07 – FRAME AND COVER

A. Standard Frame and Cover.
   1. Cast iron conforming to ASTM A48 Class 35B.
   2. Combined minimum weight of 400 pounds with the cover approximately 150 pounds and the frame approximately 250 pounds.
   3. Frame.
      a. Shall be of the cone construction, D&L Supply A-1180 series or approved equal.
   4. Cover.
      a. 24 3/4" in diameter
         i. Non-vented with closed-pick pick hole for removal, in landscape areas.
         ii. Vented with closed-pick pick hole for removal, in roadway areas.
      b. Low profile cross-hatch pattern, D & L Supply A1181-10, or approved equal.
      c. Marked "JORDAN BASIN IMPROVEMENT DISTRICT."
      d. Private manholes, grease traps, and sampling manholes shall be marked: "SEWER."

404.08 – MANHOLE STEPS

A. Manhole steps are not permitted.

404.09 – 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., Fernco Large Diameter Waterstop or Manhole Adapter as manufactured by Fernco, Inc., or approved equal.
B. Polypropylene standard bells with seal gaskets, funnels where bell extension is required, or fiber-reinforced polymer (FRP) bell inserts with integral gasket for Lined Manholes (as described in Section 404.21).

404.11 – JOINT SEALANT MATERIAL

A. Shall meet the following requirements.
   1. Preformed flexible joint sealant (mastic) meeting requirements of ASTM C 990. Ram-Nek as manufactured by Henry Company Sealants Division, Kent Seal as manufactured by Hamilton Kent, Polysealant as manufactured by J-K Polysource, Inc., or approved equal.
   2. In areas where joints could be located under groundwater, each joint shall be wrapped with 12" wide External Joint Wrap M-860 as manufactured by J-K Polysource.

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 CEMENTITIOUS GROUT

A. High strength, non-shrink, non-metallic, cement based grout.

B. Surfaces shall be prepared and grout shall be prepared and placed according to manufacturer's directions.

404.14 – NON-SHRINK 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 – PROHIBITED MANHOLE ADJUSTMENT MATERIALS

A. Block, rocks, wood, metal shims and all other similar material shall not be used for adjustment of frame and cover to final grade.
B. Standard adjustment shall be accomplished with a Thermo-plastic Riser Form trimmed to allow the frame to sit firmly on the form without any further adjustment.
C. Brick for Manhole Adjustment
    1. Brick shall only be used for adjustment of frame and cover to final grade when specifically approval by the District Inspector. Standard adjustment shall be accomplished with a Thermo-plastic Riser Form. If approved for use, brick shall meet the following requirements:
        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 – THERMOPLASTIC RISER FORM

A. Thermoplastic riser form: As manufactured by Whirlygig® or approved equal.
B. Riser form shall not be cut vertically to allow for adjustment to manhole frame.
C. 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.

404.17 – MANHOLE INTERIOR COATING

A. Manhole Interior Coating shall meet the requirements of one of the following coating systems.
    1. Solvent Free 100% solids, ultra-high build epoxy based coating system. Raven 405 as manufactured by Raven Lining Systems, Broken Arrow, OK; Sewer Shield® 150, as manufactured by Environmental Coatings, LLC, Mesa, AZ; or approved equal.
    2. 100% solids – VOC free polyurethane coating system. Spraywall® as manufactured by Sprayroz Protective Lining Systems, Pleham, AL, or approved equal.
    3. Multi-layer polymer resin based lining system. SpectraShield Lining System as manufactured by CCI Spectrum, or approved equal.
    4. Aggregate-filled epoxy based lining system. Sauereisen Sewergard® 210 as manufactured by Sauereisen, Pittsburg, PA, or approved equal.
B. Surfaces shall be prepared and filled and coating material shall be prepared and applied according to manufacturer's directions.
C. Manholes with interior coating applied at manufacturing plant where the coating is chipped or damaged during installation shall have the damaged area repaired with the same coating material.

404.18 – MANHOLE ODOR CONTROL UNITS

A. Thermo-plastic manhole insert with removable carbon filled canister designed to remove hydrogen sulfide and other odorous components in the exhaust air from the wastewater system.
B. "Sweet Street Odor Control Unit" as manufactured by Calgon Carbon Corporation, "Manhole Odor Control Unit" as manufactured by Bay Products, Inc., or approved equal.
C. The unit shall be supplied with high-activity, chemically treated activated carbon specifically designed for use in odor control applications.
D. The manhole frame and cover supplied for manholes with these Manhole Odor Control Units shall meet the requirements of Section 404.07A.

404.19 – EXPANDABLE WATERSTOP

A. Composite bentonite clay based or expandable rubber based water-stop designed to create water-tight joints in concrete.

B. Hydrotite as manufactured by Greenstreak, Superstop as manufactured by Tremco, Mirastop as manufactured by Carlisle Coatings and waterproofing, or approved equal.
C. Provide adequate concrete cover over water-stop per manufacturer's recommendation.
D. Surface preparation and installation per manufacturer's recommendation.

404.20 – POLYMER CONCRETE MANHOLES

A. Polymer Concrete Manholes shall meet the requirements of this Section 404. ASTM C-478 material and manufacturing is allowed compositional and dimensional differences required by a polymer product.
B. Manhole risers, transition slabs, conical tops, grade rings and manhole base sections shall be designed, by manufacturer, to requirements of ASTM C-478 and ASTM C 857 as modified to accept polymer construction in lieu or cementitious concrete as follows.
    1. Polymer Mixture – the mixture shall consist solely of thermosetting resin, sand and aggregate. No cementitious materials shall be allowed as part of the mix design matrix. All sand and aggregate shall be nonreactive in an acid environment.
    2. Required wall thickness for all members will be that stated by polymer manhole manufacturer based upon loading conditions and materials properties. The wall thickness of risers and conical tops shall be not less than that prescribed by the manufacturer's design by more than 5%. A wall thickness greater than the prescribed design shall not be cause for rejection.
    3. Thermosetting Resin – the resin shall have a minimum deflection temperature of 158º F when tested at 264 psi following Test Method D 648. The resin content shall not be less than 7% of the weight of the sample as determined by Test Method D2584.
        a. Resin selection shall be suitable for applications in the corrosive conditions to which the structures will be exposed.
    4. Each manhole component shall be free of all defects, including indentations, cracks, foreign inclusions and resin starved areas that, due to their nature and degree or extent, detrimentally affect the strength and serviceability of the component part. The internal diameter of the manhole components shall not vary more than 1%. Variations in height of two opposite sides of risers and conical tops shall not be more than 5/8 inch. The under run in height of a riser or conical top shall not be more than ¼ in/ft of height with a maximum of ½ inch in any one section.
    5. Marking and Identification – each manhole component shall be marked on the outside with the Manufacturer's name and trademark.
    6. Manhole joints shall be assembled with a bell and spigot or shiplap butyl mastic joint so that on assembly, manhole base riser and top section make a continuous and uniform manhole. Joint sealing surfaces shall be free of dents, gouges and other surface irregularities that would affect joint integrity.
    7. Minimum clear distance between two wall penetrations shall be 6 inches. Minimum clear distance between wall penetration and joint shall be 3 inches.
    8. Construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe to manhole connections. Invert slope through manhole is as indicated on drawings. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts. Polymer bench and channel are to be constructed with all resin aggregate material – no alternative fill material is allowed.
    9. Provide resilient connectors per Section 404.9.
    10. Exceptions to ASTM C-478 – components shall be designed for the intended combinations of manufacturing materials. Component designs may be as non-reinforced members as recommended by the manufacturer. Steel reinforcement is not required for circumferential reinforcement, joint reinforcement, base slab reinforcement or hoop reinforcement, but may be placed for the purpose of product handling.
C. Grouting – all material needed for grouting and patching shall be a polyester mortar compound provided by the manhole manufacturer.
D. The design of Polymer Concrete Manholes to be located in areas where the groundwater level is higher in elevation than the bottom of the manhole shall consider the effects of buoyancy. An extended base footer may be necessary.
E. Polymer Concrete Manholes shall be 'Armorock' polymer manhole, or approved equal.

404.21 – LINED MANHOLES

A. Lined Manholes shall be manufactured from a self-consolidating concrete (SCC) with a minimum compressive strength of 4,500 PSI conforming to material and performance standards of ASTM C-478, design requirements of ASTM C-857, and the applicable requirements of Section 404.02, Section 404.04, and Section 404.12.
B. Lined Manholes shall consist of a monolithic precast base, risers, transition slabs, conical tops and grade rings.
C. All precast base sections shall be provided with a fiberglass reinforced polymer (FRP) or polypropylene (PP) liner cast into concrete. The base liner shall be utilized for all pipe connections, unless otherwise shown on the Approved Drawings or approved by the District Engineer, and shall be complete with:
    1. Full-flow channels with side walls extending to the crown of the pipe, formed to provide smooth flow transition with no disruptions at pipe-manhole connections;
    2. Gasketed, flexible, watertight bell-type connections to suit the pipe type(s), size(s), and grade alignment(s) shown on the Approved Drawings. Installation of the liner to the precast base section shall be in accordance with the liner manufacturer's requirements and these Specifications.
D. Riser sections shall be lined with yellow High-Density Polyethylene (HDPE) Perfect Liner sheets with a minimum thickness of 0.079-inches (2.00mm).
E. Manhole flat lids and conical tops shall be lined with FRP or HDPE Perfect Liner.
F. FRP liners shall be factory sprayed to a coating thickness of 5.0 mm, and shall have spray-bonded embeds/anchors on the back side cast into concrete.
G. Manhole joints shall be assembled with a bell and spigot design, with SDV seal gaskets per ASTM C443. The joints and complete assembly shall pass a vacuum test per ASTM C1244. Gasket material shall be produced from EPDM or SBR rubber, and manufactured by D+S SDV Seal.
H. All segments: bases, risers, flat lids, and conical tops are to be provided with external lifting devices.
I. Marking and Identification: each manhole component shall be marked on the inside and outside with the Manufacturer's name or trademark,
J. Allowable repairs: Use manufacturer approved repair materials and methods as needed for repair of the FRP liner, HDPE liner or concrete.
K. Lined Manholes shall be "Perfect Lined Manholes" as manufactured by Geneva Pipe and Precast, or approved equals.

SECTION 5 - WASTEWATER PUMP STATIONS

405.01 – GENERAL

A. Equipment and materials proposed for wastewater pump stations shall be reviewed and approved by the District Engineer during the design review process.
B. As a minimum the pump station construction shall incorporate the following features.
    1. Wet Well Structure.
        a. Shall be constructed of an Acid Resistant Polymer manhole, or shall be lined with HDPE/FRE integrally-cast liners meeting the requirements of Section 404.21.
        b. Riser Sections: precast riser sections of appropriate size and length, extending from top of base section to bottom of top section.
        c. Sump Base: precast concrete base of appropriate size.
            i. Joints: Base section, riser sections, and top section shall have lipped male/female ends, which shall provide uniform and continuous interior wall surface.
        d. Joints shall be sealed with pre-lubricated rubber gaskets, conforming to requirements of ASTM C 443 and C 361; Forsheda No. 114 Seal, manufactured by Forsheda Pipe Seal Company, or equal and wrapped with External Joint Wrap M-860 as manufactured by J-K Polysource.
        e. Provide appropriate size flexible sleeves of synthetic rubber, with stainless steel clamps and bolts, for all gravity pipe openings in base section, Kor–N– Seal flexible type boot or equal.
        f. TOP fiberglass reinforced polyester (FRP) basin, manufactured by Flygt, shall be installed in the bottom of each wet well.
        g. One automatic flush valve, manufactured by Flygt, shall be required per lift station

h. Access to the wet well shall be provided through a locking, rectangular aluminum hatch with stainless steel bolts and accessories. The hatch shall be sized to allow easy removal and replacement of the pumps. Access hatches shall be Safe-Hatch manufactured by Flygt.
i. Multitrode level control system and a backup float set above alarm level as manufactured by Flygt.
j. Check Valves: Corrosion resistant check valves as approved by the District Engineer.
k. Ventilation: Corrosion resistant ventilation as approved by the District Engineer.

2. Valve Box
   a. Isolation Valves: Corrosion resistant eccentric plug valves
3. Vinyl Fence – As approved by the District Engineer.
4. 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 Type 316 stainless steel.
5. Pumps
   a. Pumps shall be manufactured by Flygt and shall include Neva-clog or N series impellers.
6. Stand by Generators:
   a. Natural gas or diesel fueled standby generator as manufactured by Caterpillar/Olympian/Cummins.
7. Flow Measurement:
   a. Continuous measuring and recording of wastewater flow shall be provided at each pump station.
8. Control Panels:
   a. As fabricated by Utility Management Systems, Inc. and including the following features/functions:
      i. Alarm System: As provided by Utility Management Systems, Inc.
      ii. NEMA 4X with a stainless steel dead front enclosure and aluminum inner door.
      iii. Incoming power terminals with neutral and ground terminations.
      iv. NEMA rated circuit breakers
      v. NEMA rated motor starters with overload for each pump.
      vi. NEMA rated control circuit breakers.
      vii. NEMA rated control voltage transformer if 460V or 230V three phase panel.
      viii. NEMA 4X hand off automatic selector switches.
      ix. Run lights.
      x. Elapsed time meters
      xi. High level alarm light with flasher.
      xii. Alternator
      xiii. Pump thermal and level sensor terminal strips
      xiv. 50W heater with thermostat.
      xv. Phase monitor.
      xvi. Surge arrestor.
      xvii. Single phase capacitor kits on single phase panels.UL 508 serialized.
9. Communications shall include:
   a. Radio: GE MDS Orbit 9 IP radio model # MXNXU91NNNNNNS3FESUNN with CommScope 896-960 MHz 10 db Yagi Antenna model # DB499-K and all required Connectors, cabling, and jumpers or approved equal. Cable shall be ½" Heliax Times Microwave LMR-600 or equal. Antenna connections shall be installed and outside connections waterproofed the day of installation as per industry standards.
   b. PolyPhaser IS-50NX-C2-MA Lightning Protector or approved equal. Lightning protector shall be bulkhead mounted and grounded on the antenna cable entrance into the equipment enclosure.
   c. A grounding kit Times Microwave Systems GK-5600TT or approved equal shall be installed on the antenna wire outside by the antenna and grounded appropriately.
   d. GE Programmable Logic Controller (PLC) model PACSystems RST i-EP CPE115, Network Adapter EPXPNS001 Profinet, Serial Communications Module EP-5261, 16 point Discrete Input Module EP-125F, 16 point Discrete Output module EP-225F, 8 Channel Analog Input Module EP-3468 installed as a minimum or approved equal. All required power supplies for 24 VDC application shall be included with this specification. Interposing relays with 10 ampere Form C contacts shall be supplied and

connected to the Discrete Output module.

e. All critical alarms and alarms requiring user intervention shall be connected and annunciated through the GE PLC. All level and flow measurements shall be relayed through the GE PLC including continuous (analog) and/or float (discrete) type signals. Generator Running and Failed status shall be relayed through the GE PLC.

SECTION 6 - PIPE COUPLINGS

406.01 – MAIN LINE PIPE COUPLINGS

A. Concrete Pipe, Asbestos Cement Pipe, Clay Pipe and connection of dissimilar pipe material not covered below.
   1. SS1 Stainless Steel Repair Clamp as manufactured by Romac Industries Inc.
   2. PVC or rubber pipe connector with stainless steel shear band, Strong Back - RC Series Repair Coupling as manufactured by Fernco, Inc., Flex-Seal ARC Series as manufactured by Mission Rubber Co., or approved equal.

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

C. PVC Pipe.
   1. PVC slip to slip repair coupling, ASTM D 3034, SDR 35, with gasketed joints conforming to ASTM 3212.

D. Others as approved by the District.

406.02 – PRIVATE LATERAL WASTEWATER LINE PIPE COUPLINGS

A. Shall meet the requirements of Section 406.01 for the type of pipe being used.

B. Connection of the exterior lateral pipe to the waste pipe from exiting the building.
   1. Flexible PVC or rubber pipe connector with stainless steel shear ring, Strong Back - RC Series Repair Coupling as manufactured by Fernco, Inc., Flex-Seal ARC Series as manufactured by Mission Rubber Co., or approved equal.
   2. Others as approved by the District Engineer.

SECTION 7 - BEDDING AND BACKFILL MATERIAL

407.01 – BEDDING MATERIAL

A. For pipe diameters 4" and larger: Manufactured, angular, crushed stone or rock, meeting the following gradation, free from organic matter when tested in accordance with ASTM D 2487:

	Open Graded	**Dense Graded**
US Stand. Sieve	**Percent Passing**	
1 ½”	100	100
¾”	95-100	95-100
#4	0-10	10-50
200	0-5	0-5

B. For pipe diameters less than 4": Material meeting the following gradation in accordance with ASTM D 2487:

	Open Graded	**Dense Graded**
US Stand. Sieve	**Percent Passing**	
¾”	100	100
½”	95-100	95-100
#4	0-10	10-50
200	0-5	0-5

407.02 – BACKFILL MATERIAL

A. Backfill material in Public or Private roads, streets and rights-of-way shall meet one of the following requirements, whichever is more stringent, when tested in accordance with ASTM D 2487.
   1. Material meeting the requirements of applicable City, County or State standards and permits.
   2. Native or import material graded, free of lumps and rocks larger than 3 inches, organic material and debris, with not more than 20% passing a 200 sieve.

B. Backfill material in areas of Off-Road Wastewater Lines, as defined in Section 101.06, shall be import material conforming to Type A-2

of AASHTO Classification of Soils and Soil Aggregate Mixtures, graded, free of lumps and rocks larger than 3 inches, organic material and debris, with not more than 35% passing a 200 sieve.

a.

C. Gradation and proctor tests of proposed backfill material shall be performed by a professional geotechnical engineering company and submitted for approval of the District prior to usage. Testing shall be performed not more than 30 days prior to the date of submittal. Additional testing shall be performed on the material delivered to the project site to verify that it meets applicable specifications.

407.03 – CEMENT TREATED FILL MATERIAL (FLOWABLE FILL)

A. Cement treated fill conforming to Flowable Fill, Section 03575 of the Utah Department of Transportation's Standard Specifications.
B. 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.
C. Performance Requirements: Unconfined compressive strength per ASTM D4832.
   1. 10 psi minimum in 24 hours.
   2. 150 psi maximum in 28 days.

407.04 – 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 local, City, County or Utah Department of Transportation specification for Untreated Base Course :

407.05 – TRENCH DIKE MATERIAL

A. Cement Treated Fill Material: Shall meet the requirements of Section 407.03.

SECTION 8 - CASINGS

408.01 – MAIN LINE CASINGS

A. Casings shall meet the requirements of the agency requiring the casing, City, County or State standards.
B. As a minimum, casings shall be steel pipe conforming to ASTM A53, Grade B. Alternate casing pipe material may be allowable, as approved by the District Engineer and the applicable agency.
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 twice the diameter of the carrier pipe to allow for future upsizing of carrier pipe. In situations where upsizing of the carrier pipe is not likely, a smaller diameter casing may be allowable, as approved by the District Engineer.
E. Minimum wall thickness shall be in accordance with the following:

Casing Diameter (inches)	Nominal Wall Thickness (inches)
12”	0.188
14” to 18”	0.312
20” to 22”	0.375
24” to 26”	0.438
28” to 32”	0.500
34” to 42”	0.562

F. Casing Spacers meeting requirements of Section 408.03 shall be installed on carrier pipe inside all casings.

408.03 – CASING SPACERS

A. Maximum distance between spacers shall be 6’ on center. Recommended spacing for PVC type pipe (Bell & Spigot) is 2 spacers per segment. One spacer shall be placed on the spigot end of each segment at the line marking the limit of insertion into the bell with the other placed in the center of segment.
B. Stainless steel casing insulators with 12-inch wide band and 2-inch wide glass reinforced plastic runners; Model S12G-2, manufactured by Pipeline Seal and Insulator, Inc. or approved equal.
C. Spacers shall be concentric.

408.04 – CASING END SEALS

A. Casing end seal shall be flexible S-shaped seals fabricated on synthetic rubber with stainless steel bands and clamps; Model S Pull-On End Seals, manufactured by Pipeline Seal and Insulator, Inc., or
B. Flexible seals fabricated of synthetic rubber with stainless steel bands and clamps; Model C Pull-On End Seals, manufactured by Pipeline Seal and Insulator, Inc., or approved equal.

408.05 – PRIVATE LATERAL WASTEWATER LINE CASINGS

A. Casings on private laterals 6" diameter and smaller shall be 12" steel casing meeting the specifications of 408.01.
B. Casing end seals, meeting the requirements of Section 408.04, shall be installed on the ends of casings.

SECTION 9 – MISCELLANEOUS MATERIALS

409.01 – MARKING TAPE AND ELECTRONIC MARKERS

A. Marking tape shall be a type specifically manufactured for marking underground utilities and shall meet the following requirements.
    1. Tape shall be of an 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."
B. Electronic Markers shall be Omni Marker model 162 Electronic Marker as produced by Industrial Technology.

409.02 – CAPS FOR MAIN LINE AND PRIVATE LATERAL STUBS

A. Fused or gasketed cap or expansion type (Brandt™) plugs.

409.03 – OFF-ROAD MANHOLE MARKER

A. 66" long by 3-3/4"wide green fiberglass utility marker, stating "Caution Sewer Pipeline, Before Digging contact Jordan Basin Improvement District 801-571-1166"
B. Bury Depth: 3'.

409.04 – PRIVATE LATERAL WASTEWATER LINE STUB MARKERS

A. Wood 2"x4" or larger.
B. The marker shall extend from the top of the stub end to a minimum 2' above final grade.
C. The exposed portion of the marker shall be painted green.

409.05 – MANHOLE MAIN LINE PLUGS

A. Muni-Ball Pneumatic Plug with retrain; or
B. Burke Duo Seal Pipe Plugs as supplied by Burke Rubber Company or approved equal.

409.06 – CLEANOUT CAP

A. In paved areas and un-paved traffic areas: Threaded PVC cap in threaded solvent weld PVC adapter. PVC Adapter shall be solvent welded to cleanout riser pipe to provide a water-tight connection. Cleanout Ring and Cover per Section 409.07 shall be placed over the cleanout assembly.
B. In non-traffic areas: Cast iron blind cap. Cast iron body shall be connected to riser pipe with a flexible neoprene coupling as manufactured by FERNCO or no-hub type connector or approved equal. Sprinkler irrigation box per Section 409.07 shall be placed over the cleanout assembly.

409.07 – CLEANOUT RING AND COVER

A. In paved areas and un-paved traffic areas: Cleanout Ring and Cover shall be separate from the cleanout stand pipe and cleanout cap to prevent transfer of loads to the standpipe from wheel loads or if settling of the pavement occurs.
    1. 4" and 6" cleanouts:
        a. Cast iron Frame and Cover conforming to ASTM A48 Class 35B 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. Heavy Duty Cleanout Housing with cast iron, bronze or other approved cover similar to Zurn Z1474 or Jay R. Smith 4880.

c. If a more decorative cover is required in pedestrian traffic areas, an access cover similar to Zurn Z1456 Deck Cleanout or Jay R. Smith 4890 Round Deck Plug may be used.
d. In all cases the Ring and Cover must be large enough in diameter to provide separation from the cleanout standpipe and cleanout cap and allow access for removal of the Cleanout Cap.

2. Larger than 6" cleanout: a properly supported 4' diameter manhole cone section with Standard Manhole Frame and Cover per Section 404.

B. Landscaped Areas: Sprinkler irrigation box and cover or other similar enclosure.

409.08– PRIVATE LATERAL WASTEWATER LINE INSERTA TEES

A. Connections to the sewer main line from a Private Lateral wastewater line, made after the sewer system has been installed, shall be with a tee.
B. The District will perform the physical connection to the main with an Inserta Tee's as manufactured by Inserta Tee® or approved equal.

409.09– PRIVATE EJECTOR PUMPS

A. JBID recommends E-One private ejector pumps or equivalent, where required.
B. Professional advice should be obtained prior to installing pumping equipment or pressurized sewer laterals (Private Wastewater Line).

SECTION 10 – PRETREATMENT FACILITIES

410.01 – GREASE INTERCEPTORS, AND SAND/ OIL SEPARATORS

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 as outlined in the Standard Detail drawings.
B. Non concrete interceptor –Fiberglass Reinforced Plastic (FRP) Green Turtle Interceptor as manufactured by Zurn or Polyethylene interceptor manufactured by Schier or approved equivalent.
C. Size as approved by the District Engineer.
D. 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".
E. Manhole Adjustment Materials: meeting requirements of Section 404.
F. Frame and cover: meeting requirements of Sections 404.07.
G. Piping: PVC meeting the requirements of Section 402.02.
H. Piping connection to precast vault: Flexible Pipe Connector (Boot) meeting the requirements of Section 404.09.
I. 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.

410.02 – HYDRO-MECHANICAL GREASE INTERCEPTOR

A. Where approved by variance, at the sole discretion of the District Engineer and District's Pretreatment Coordinator, a hydro-mechanical grease interceptor may be utilized.
B. The interceptor shall be appropriately sized for the fixtures connected and installed according to the manufacturer's recommendations.
C. Manufacturers: Zurn Z1173 as manufactured by Zurn, Josam 60100-SA as manufactured by Josam, or approved equal.

410.03 – SAND/OIL INTERCEPTORS FOR PARKING GARAGES AND PRIVATE RESIDENCE

A. Fabricated coated steel or pre-cast concrete structure consisting of a water-tight vault, heavy duty grate, outlet trap seal and pipe connections.
B. Interceptor shall be sized to handle maximum anticipated 30 min flow. Minimum capacity below outlet pipe shall be 60 gallons.
C. Proposed Fabricated Steel structure shall be submitted to the District for approval.
D. Precast Concrete structure.

1. Designed for AASHTO H-20 loading.
2. Outlet Trap Seal: The Snout® Oil and Debris Stop as manufactured by Best Management Products, Inc. or approved equal.

E. Pipe connections to structure shall be water tight as demonstrated by water test of structure.
F. Sand/Oil Interceptors shall pass manhole acceptance test standards.

410.04 – AMALGAM SEPARATORS

A. Amalgam Separators shall be appropriately sized for the fixtures connected and installed according to the manufacturer's recommendations.
B. Amalgam Separators shall be ISO Standard 11143 or ASNI-ADA Standard No. 108 – 95% efficient or approved equal.

SECTION 11 - FLOW METERS

411.01 – FLOW METERS

A. Flow metering sites shall be constructed as indicated and in accordance with details as shown on the Approved Construction Drawings and standard detail drawings.
B. Flow meter site shall include, either Palmer Bowlus or Flo-Dar, as outlined below or approved equivalent:
    1. Palmer Bowlus:
        a. Prefabricated Metering Manhole (48", 60" or 72" diameter as determined in Section 303.08), height as required, with Integral Palmer-Bowlus Flume (throat width determined by flow requirements), as manufactured by Virtual Polymer Compounds or approved equivalent.
        b. Manhole body and flume shall be fabricated from molded fiberglass reinforced polyester. Manhole shall include an FRP ladder, mounting brackets for ultrasonic transducer and temperature sensor, and mounting backplate for the open channel flow meter indicator transmitter. Fiberglass grating installed over the channel.
        c. The open channel flow meter shall be a Hydro Ranger 200 HMI or approved equal, wall mounted indicator transmitter, housed in a NEMA 4X enclosure complete with one weather proof power outlet, located on a pole next to the metering manhole. System includes:
        d. an XRS-5 non-contacting ultrasonic level sensor,
        e. TS-2 temperature sensor for automatic temperature compensation and
        f. A removable hand held programmer.
        g. An internal data logger, 4-20 mA signal output and
        h. Three (3) programmable dry contact alarm relays shall also be included.
    2. Flo-Dar as manufactured by Hach.
        a. The open channel flow meter shall be a Flo Dar Model Fl900
        b. The flow meter shall be connected to a Model FL1500 logger manufactured by Hach**.**
    3. Systems operates on 110 VAC single phase power.
C. Communications shall include:
    1. Radio: GE MDS Orbit 9 IP radio model # MXNXU91NNNNNNS3FESUNN with CommScope 896-960 MHz 10 db Yagi Antenna model # DB499-K and all required Connectors, cabling, and jumpers or approved equal. Cable shall be ½" Heliax Times Microwave LMR-600 or approved equal. Antenna connections shall be installed and outside connections waterproofed the day of installation as per industry standards.
    2. PolyPhaser IS-50NX-C2-MA Lightning Protector or approved equal. Lightning protector shall be bulkhead mounted and grounded on the antenna cable entrance into the equipment enclosure.
    3. A grounding kit Times Microwave Systems GK-5600TT or approved equal shall be installed on the antenna wire outside by the antenna and grounded appropriately.
    4. GE Programmable Logic Controller (PLC) model PACSystems RSTi-EP CPE115, Network Adapter EPXPNS001 Profinet, Serial Communications Module EP-5261, 16 point Discrete Input Module EP-125F, 16 point Discrete Output module EP-225F, 8 Channel Analog Input Module EP-3468 installed as a minimum or approved equal. All required power supplies for 24 VDC application shall be included with this specification. Interposing relays with 10 ampere Form C contacts shall be supplied and connected to the Discrete Output module
D. Solar Power System shall be designed to provide power during two consecutive cloudy days,

including nights, during the winter time. System shall be designed to provide continuous power assuming radio transmissions every 20 seconds for 4 second duration.

SECTION 12 - DIVERSION STRUCTURES

412.01 – DIVERSION STRUCTURES

A. Diversion Structures shall be constructed as indicated and in accordance with details as shown on the Approved Construction Drawings and standard detail drawings
B. Diversion Structures shall include:
    1. Manhole Structure, acid resistant where required.
    2. Hatch: Safe-Hatch as manufactured by Flygt. Size and load capacity as indicated on the drawings.
    3. Sluice Gates: Fresno Valves & Castings Series 8200 fabricated 316 stainless steel slide gates. Gates shall have:
        a. Poly bars,
        b. "J" seals, flush bottom seals,
        c. Geared lift
        d. Non rising stems,
            i. Stems shall not be in the water flow.
        e. A lift torque arm bracket compatible with the Waterman GMH-12 hydraulic operator.
    4. Fiberglass grating – square duragrate molded fiberglass grating or approved equivalent and required stainless steel supports and anchors.
    5. Miscellaneous components: other items shall be corrosion resistant as approved by District Engineer.

CHAPTER 5
CONSTRUCTION REQUIREMENTS

SECTION 1 - INSPECTION OF PUBLIC WASTEWATER SYSTEM EXTENSION AND MODIFICATIONS

501.01 – GENERAL

A. Inspection of Public Wastewater System extensions and modifications by the JBID for developer Projects will include the following activities. Inspection of Projects funded by the JBID will generally follow the same process, but may be modified to meet the specific needs of the Project.
   1. Review and approval of required submittals from Contractor.
   2. Preconstruction Meeting.
   3. Periodic Inspections.
   4. Preliminary Inspection.
   5. Final Inspection.
   6. Warranty Inspection.

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

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

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

E. Inspections will be conducted as appropriate and as time and scheduling permits, as determined by District Inspector.

F. The Contractor shall notify the District Inspector a minimum 48 hours prior to the following.
   1. Start of construction.
   2. Any change of schedule.
   3. Work to be conducted on weekends, or holidays, after approved by the District Engineer or General Manager.

G. The District Inspector 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 JBID.

H. Where required, non-conforming work or material shall be removed and brought into compliance with District Specifications.

501.02 – CONTRACTOR SUBMITTALS

A. Contractor shall deliver required submittals to District Engineer or their designee for review and approval a minimum 1 week prior to Preconstruction Meeting.

B. District Engineer or their designee will advise Contractor of any deficiencies.

C. Contractor shall make revisions and resubmit, if required.

D. Product data sheets shall be marked to identify applicable products, models, options, and other data.

E. Fabrication and/or purchase of any item shall not be commenced before the District Engineer or their designee have reviewed and approved the pertinent information.

F. Required Material Submittals.
   1. Pipe, fittings and appurtenances.
   2. Manholes and appurtenances.
   3. Pipe bedding and backfill sieve and proctor analysis.
   4. Flowable Fill.
   5. Casings and appurtenances.
   6. Odor control units.
   7. Manhole interior coating.
   8. Pump station equipment, materials and appurtenances.

G. Other Required Submittals.
   1. Insurance and licensing documentation.
   2. Proposed construction schedule.
   3. Proposed testing companies.
   4. By-pass pumping plan, if required.
   5. Other submittals as required by the District Engineer or District Inspector.

H. Failure to submit the required documentation may result in rejection of materials, removal of installed materials or other remedies necessary, as required by the District Inspector or District Engineer.

501.03 – 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 JBID Engineering Department and will generally be held at the JBID office.

D. The preconstruction meeting will be under the direction of the District Inspector.

E. The following individuals shall be present at the preconstruction meeting.
   1. Owner/Developer, Project Manager, or designated Project representative.
   2. Contractor performing actual wastewater system construction including the

Contractor's foreman who will be on-site during construction of the wastewater system.
3. District Inspector.
4. Other individuals requested to attend by the Developer, Contractor or the JBID.

F. Optional attendees at the preconstruction meeting include:
1. Project Engineer.
2. Project Surveyor, if different than the Project Engineer.
3. City, County or other affected agency officials
4. General Contractor for project.
5. District Engineer

501.04 – PERIODIC INSPECTIONS

A. The District 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 inspection.
   a. Locate and become familiar with existing/proposed public wastewater system tie-ins.
   b. Verify that necessary plugs are in-place prior to construction.
   c. Verify that appropriate measures are in place to protect the existing wastewater system.
   d. Approved Drawings: Verify that Approved Construction Drawings are on site and being used by the Contractor for construction of the wastewater improvements.
   e. Material verification: Verify that all materials used for construction of the wastewater system conform to the approved materials submittals, the Approved Construction Drawings and these Design Standards and Construction Specifications.
2. Periodic construction inspections.
   a. Manholes.
      i. Verify conformance to manhole details and specifications
      ii. Observe manhole base placement and stacking of sections.
      iii. Verify all joints are sealed according to specifications.
      iv. Verify proper grouting of pipe to manhole interface.
      v. Observe proper core drilling, if required.
      vi. Observe acceptable conformance to cast-in-place requirements, if required.
      vii. Verify proper final adjustment of manhole frame and cover to final elevation.
   b. Installation of Pipe.
      i. Review grades and alignments with Approved Construction Drawings.
      ii. Conduct periodic inspection of main line installation.
      iii. Visual inspection of lines prior to stacking manholes.
   c. Pipe Bedding and Backfill.
      i. Verify conformance to bedding and backfill details and specifications.
      ii. Observation of bedding and backfill materials and placement; and compaction efforts.
   d. Lateral Stubs.
      i. Verify location of wye or other connection to main line.
      ii. Observe length.
      iii. Inspect and verify bedding, pipe and end cap, initial backfill, marking tape and installation of stub marker.
      iv. Inspect cleanout construction, if required.
   e. Other System Features: Verify conformance to specifications and Approved Construction Drawings.
   f. Utility Encounters: Verify conformance with proper separation and crossing requirements.
   g. Observe required acceptance tests.
   h. Inspection reports for each visit to the site will be prepared by the District Inspector.

501.05 – 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 District Inspector conduct a preliminary inspection.

B. All low-pressure air tests, vacuum tests, and hydraulic pressure tests, of the installed system, meeting the requirements of Section 517, shall be performed prior to the preliminary inspection.

C. Testing results shall be provided to the JBID personnel for review prior to the preliminary inspection.

D. District Inspector will review the test results and perform the preliminary inspection.
E. TV inspection shall be performed by JBID personnel as part of the preliminary inspection.
F. When requested, the Contractor shall provide an individual familiar with the newly constructed wastewater system to assist the District Inspector with the preliminary inspection.
G. 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.
H. If necessary, District Inspector 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.
I. The Contractor shall correct the deficient items listed in the preliminary inspection letter and advise the District Inspector when the items are complete.
J. The District Inspector will verify completion of the deficient items.
K. After the deficient items have been corrected and verified, paving and final adjustment of manholes to grade may occur.

501.06 – FINAL INSPECTION

A. After completion of paving and adjustment of manholes to grade, and after submittal of Record Drawings as required by Section 302.08, the Contractor shall request that a final construction inspection be performed.
B. The District Inspector will perform the final inspection.
C. The Contractor shall provide an individual familiar with the newly constructed wastewater system to assist the District 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. If necessary, District Inspector 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 District Inspector when the items are complete.
G. The District Inspector will verify completion of the deficient items.
H. When all deficient items have been completed and upon approval and direction by the District Inspector, the Contractor shall remove plywood bottoms and all plugs installed on the system.

501.07 – WARRANTY INSPECTION

A. The JBID will conduct a warranty inspection according to Section 202.09.

SECTION 2 - INSPECTION OF PRIVATE LATERAL WASTEWATER LINES

502.01 – SCHEDULING INSPECTION APPOINTMENTS

A. Prior to starting construction of a Private Lateral Wastewater line, the Contractor shall contact the District Administrative Services Department to request a residential Private Lateral inspection. Commercial Private Lateral inspection shall be scheduled with the District Engineering Department.
B. It is recommended that inspections be scheduled a minimum of 1 day (excluding weekends) prior to the time it is needed. Same-day or spot inspections may 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 District Inspector at the next available time slot.
E. As determined by District Inspector, excessive call-back inspections caused by the contractor not being ready for an inspection at the scheduled time may result in additional fees

being charged to the homeowner, building owner or facility owner.

502.02 – REQUIRED INSPECTIONS

A. Inspections by the District 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 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 Wastewater Line: If an existing Private Lateral to the Public Wastewater System is abandoned, the abandonment shall be inspected prior to backfilling.
   4. Damaged Private Wastewater Line: If an existing Private Lateral is damaged, the repair shall be inspected by the District Inspector prior to backfilling.

502.03 – PRIVATE LATERAL CLEANOUT LOCATIONS

A. An operator or person installing or replacing a sewer lateral cleanout shall install or replace the sewer lateral cleanout in a manner so that the lateral can be located, including:
   1. Drawing a lateral card/house sheet;
   2. Optional electronic markers.
B. An operator or person installing a sewer lateral cleanout shall notify the District Inspector and the owner of the Private Wastewater Line, of the cleanout location for record keeping purposes.
C. To assist the Contractor in meeting these requirements, and to standardize the cleanout location information provided to District Inspector, the District Inspector will assist the Contractor in taking measurements and preparing the "lateral card/house sheet" which will document cleanout locations.
D. The Contractor shall provide personnel and, if necessary, equipment required to take measurements for the location of cleanouts.
E. In addition to providing the "lateral card/house sheet" information, the Contractor may choose to place electronic markers at the cleanout locations. However, placing electronic markers will not replace the requirement for providing the "lateral card/house sheet" information.
F. For long or complicated private lateral installations the District with the assistance of the Contractor shall prepare and provide a drawing with appropriate GPS Coordinates of all cleanout locations.

502.04 – INSPECTION PROCEDURE

A. The Contractor should have a copy of the Private Lateral Wastewater Line construction information 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. Verify that the pipe flows.
      b. Visual inspection of lines prior to backfilling.
      c. Verify that minimum cover requirements are met.
   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. Cleanouts: document locations and verify that standpipe is vertical and that fittings, cap, ring and cover, and other materials conform to specifications.
   7. Other features: verify conformance to specifications.
   8. Utility encounters: verify conformance with proper separation and crossing requirements.
C. The District Inspector will perform or witness tests on the Private Lateral Wastewater Line as required by Chapter 5 Section 18.
D. The JBID inspector will assist the Contractor in documenting the location of the Cleanouts on the

Private Lateral Wastewater Line, as required by Section 502.03, and will document 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 District Inspector with the inspection.
F. The District 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 property owner, building owner or authorized representative and the Contractor.
G. The property owner, 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 District Inspector according to Section 502.01.
H. The District Inspector will verify completion of the incomplete items and repair of deficient items or give a Substandard Lateral Agreement to the property owner for execution if the compliance is not possible. The property owner shall then return it to the District Engineering Department for recordation.

SECTION 3 - GENERAL CONSTRUCTION REQUIREMENTS

503.01 – 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 District Engineer and inspection by the District Inspector.
B. No modification of the existing Public Wastewater System or existing Private Lateral Wastewater Lines shall be made without approval of District Engineer and inspection by the District 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 their expense.
D. All repairs to the Public Wastewater System shall be observed by the District Inspector.

503.02 – EXCLUDING CONSTRUCTION DEBRIS AND MATERIAL FROM THE EXISTING PUBLIC WASTEWATER SYSTEM

A. All construction debris and material, including groundwater, 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 their 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.
D. Any costs incurred by the JBID in removing debris or construction material will be billed to and paid by the Developer.
E. All costs incurred by the JBID to video inspect the cleaned downstream lines demonstrating that the debris and construction material has been removed shall be billed to and paid by the Developer.

503.03 – 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 District Engineer for review and approval prior to the start of construction.
E. Bypass plans using pumping equipment shall include continuous (24 hr/day) monitoring of the pumping equipment.
F. Bypass plans using pumping equipment shall include backup or redundant pumping and piping systems, as approved by the District Engineer, in the event the primary system fails.

503.04 – 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 coordinated with the District Inspector.
C. The plug shall be anchored in a manner as approved by the District Inspector.
D. The plug shall remain in-place until approval to remove the plug is given by District Inspector.
E. Removal of the plug shall be the responsibility of the Contractor.
F. Removal of the plug shall be verified by the District Inspector.
G. Failure to install and maintain a plug will subject the Developer and/or Contractor to additional final "punch-list" items such as cleaning all existing downstream collection lines as determined by District Inspector and repair of damage to the existing wastewater system.

503.05 – 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.
        e. 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 302.08.
D. A set of the record information shall be maintained at the construction site.
E. The District Inspector may periodically and independently measure and record installed lateral information for the purpose of verifying submitted Record Drawing information.

503.06 – SAFETY

A. In all cases, the contractor is responsible for the safety on the job site.
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.

503.07 – 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.

503.08 – INSTALLATION OF PRECAST CONCRETE PRODUCTS

A. Precast concrete products shall be inspected by the District Inspector prior to installation.
B. Any concrete products not in conformance with District Specifications shall be removed and replaced.

SECTION 4 - TRENCH EXCAVATION

504.01 – 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, as required by OSHA standards.
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.
F. No more than 100’ of sewer trench shall be excavated at any given time, without the District Inspector’s approval.

504.02 – PAVEMENT REMOVAL

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

504.03 – 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 (8" minimum) below the bottom of the pipe.
D. Cut out soft areas of subgrade not capable of compaction in place. Backfill with bedding material.
E. Fill Areas.
    1. The area between the native, undisturbed soil and the normal bottom of trench shall be backfilled with material, compliant with Section 407.02, in maximum 8" lifts and compacted to 96% 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.
    2. Evidence that fill areas were placed with appropriate lifts and compactive effort, shall be provided to District Inspector prior to installation of the Public Wastewater System.
F. 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.

504.04 – 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.

504.05 – 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. The Contractor shall be responsible to secure blasting permits from all necessary governmental entities.

504.06 – BORINGS AND CASINGS

A. Borings and casings shall meet the requirements of Section 303 and Section 408.
B. The proposed boring method, qualifications and experience of the boring contractor, and other

boring related information, as required by District Engineer, shall be submitted for approval by the District Engineer, prior to mobilizing the boring operation.

SECTION 5 - PIPE EMBEDMENT

505.01 – GENERAL

A. Bedding material meeting the requirements of Section 407.01 shall be placed from the bottom of the excavated trench to the bottom of the pipe and compacted to 96% 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 (8" 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 ensure uniform and continuous bearing along the pipe.
E. Initial bedding meeting the requirements of Section 407.01 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 bedding shall be placed to a minimum depth of 12" above the top of the pipe.
G. The initial backfill shall be compacted to 96% 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 6 - PIPE INSTALLATION

506.01 – 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 303.06, the variation in grade listed above shall not be applicable.
   4. Obvious bellies or low spots in pipe segments shall be corrected.
   5. Flat or reverse grade lines or segments of lines are not acceptable.
   6. The JBID reserves the right to require whatever action is necessary to correct (including replacement of all affected sections of line including manholes) any unacceptable items generated as a result of pipe installation at less than minimum allowable slopes or with other deficiencies in alignment or grade.
B. Except where a curved alignment has been specifically approved by District Engineer, pipe shall be laid in a straight line at a constant and uniform slope 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. A pipe laser shall be used to install all non-curved pipe
D. Pipe laying shall begin at the lowest elevation and proceed upstream with the bell end of bell-and-spigot pipe positioned upstream.
E. 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.
F. Pipe shall not be laid in water or under unsuitable weather or trench conditions.
G. 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 District Inspector. Cold weather construction shall be in accordance the pipe manufacturer's recommendations.
H. All field cuts shall be made at right angles to the axis of the pipe. All pipes shall be filed and beveled to remove roughness.
I. Pipe material shall be consistent between manholes.
J. All change of pipe materials shall occur in a manhole.
K. 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.
L. If adjustment of the position of a pipe length is required after being laid, it shall be removed, re-laid and rejointed.
M. Any pipe that has floated due to water entering the trench shall be removed from the trench and the pipe shall be re-laid as directed by the JBID.

506.02 – 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. PVC Pipe: ASTM D 2321 "Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe."
   2. High Density Polyethylene (HDPE) Pipe: ASTM D 2321 "Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe." HDPE shall have internal beads removed prior to placing in service.
   3. CCFRPM: As per manufacturer's recommendations.

506.03 – 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 District Inspector.
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 Wastewater Line 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, or a change in pipe size is required at the end of a stub then a manhole shall be installed at the end of the stub.

506.04 – 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 or at the middle of each lot, at a minimum 2% grade (unless otherwise approved by the District Engineer) and 10' beyond the PUE.
   1. If a building is located within fifteen feet of the curb, the Private Lateral Wastewater stub shall be extended into the location of the future building with a pipe and fitting compliant with City plumbing standards.
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.
   3. Caps: All stubs shall be plugged at the end of the pipe with a gasketed cap.
D. Private Lateral Stub Marker
   1. Immediately following installation of the Private Lateral Wastewater Line stub, a Private Lateral Wastewater Line 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 capped 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 503.05 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.
E. Sewer lateral location shall be marked by a stamped 'S' or a brass pin placed in the curb directly above the lateral location.

SECTION 7 - TRENCH BACKFILL AND PAVING

507.01 – GENERAL

A. The Developer and/or Contractor shall employ and pay for services of an independent testing agency. The District may, at its sole discretion,

provide independent quality control testing to ensure requirements are met.

B. All required compaction testing shall be performed by qualified Geotechnical testing agency, including:
   1. Testing agency: Comply with requirements of ASTM E 329, ASTM E 548, ASTM E 543, and ASTM C 1077.
   2. Inspection agency: Comply with requirements of ASTM D290.
   3. Laboratory: Authorized to operate in State of Utah.
   4. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
   5. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

507.02 – TRENCH BACKFILL IN ROADS

A. Trench backfill shall be in accordance with the most stringent of the applicable city, county, or State DOT standards, permits, or the following:
   1. Backfill material shall meet the requirements of Section 407.02.
   2. Suitable backfill material shall be placed in maximum 8" lifts and compacted to 96% 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 does not meet the specifications of Section 407.02 or cannot meet compaction requirements, acceptable import material will be required.

507.03 – TRENCH BACKFILL FOR OFF-ROAD LINES

A. Trench Backfill for Off-Road Lines, as defined in Section 101.06, shall meet the following requirements.
   1. Backfill material shall meet the requirements of Section 407.02.
   2. Suitable backfill material shall be placed in maximum 8" lifts and compacted to 91% 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 does not meet the specifications of Section 407.02 or cannot meet compaction requirements, acceptable import material will be required.

507.04 –MARKING TAPE INSTALLATION

A. Where required, 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.

507.05 –PAVEMENT REPLACEMENT

A. All pavement replacement shall be in accordance with the applicable city, county, or State DOT standards, permits, and/or as designated on Approved Construction Drawings, whichever is more stringent.

SECTION 8 - TRENCH DIKES

508.01 – GENERAL

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. Additional trench dikes may be required at other locations to prevent migration of ground water along the sewer trench as determined and directed by the District Inspector or District Engineer.

508.02 – CONSTRUCTION METHOD

A. Trench dikes shall be constructed of cement treated fill material.
B. Placement of the cement treated fill material shall occur after pipe installation and placement of bedding and initial backfill material.
C. The bedding, initial backfill and native soil shall be removed for the width and length of the trench dike.
D. 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.

E. The trench dike shall extend a minimum 12" above the top of the pipe embedment (24" above the top of pipe).
F. Pipe to manhole adapters (2 per trench dike) shall be placed on the 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 9 - MANHOLES

509.01 – 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.

509.02 – SUBGRADE

A. Manholes shall be constructed on a stable foundation capable of supporting the imposed loads.
B. A minimum 12" depth of bedding material shall be placed, leveled and compacted to 96% 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.

509.03 – MANHOLE BASES

A. Precast Concrete Bases:
   1. Shall meet the requirements of Section 404.02.
   2. Shall be placed so as to be fully and
   3. 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 404.03.
   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 District Inspector, 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, Contractor shall place grout around the pipe(s) and ensure a watertight manhole to pipe connection.

509.04 – WALL AND CONE SECTIONS

A. Precast wall and cone sections shall be placed and aligned to provide vertical sides.
B. Joints:
   1. 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.
   3. In areas of high groundwater, joints shall be wrapped per Manufacturer's Instructions with J-K Polysource External Joint Wrap M-860
   4. No more than a single one-foot section may be used in a manhole stack.

509.05 – BACKFILLING MANHOLES

A. All backfilling shall be completed in accordance with Section 507.
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.

509.06 – INSTALLATION OF TEMPORARY PLYWOOD BOTTOMS

A. Where required by the District Inspector, plywood bottoms shall be placed in the manholes after the TV Inspection in order to protect the system from debris resulting from the paving and manhole adjustment process.

B. The plywood bottoms shall remain in place until after the final inspection and removal is authorized by District Inspector.
C. Teary during the preliminary inspection and during correction of deficient items on the preliminary “punch list”, but shall be immediately replaced to protect the system.
D. Plywood bottoms shall be constructed of minimum 3/4" CDX plywood with adequate bracing to prevent sagging.
E. The plywood bottom shall be constructed in two or three pieces with a 1/8" maximum clearance at the joints.
F. The plywood shall be placed in the manhole bottom such that the joint is perpendicular to the flow channel.
G. 2x4's shall be placed across the plywood sections and screws attached to hold the plywood in place.
H. The plywood bottom shall be placed above the crown of all pipes entering the manhole.
I. Removal of the plywood bottoms shall be the responsibility of the Contractor.
J. All debris collected on the plywood bottoms shall be removed from the manhole prior to removal of the plywood bottoms.

509.07 – 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 Manhole detail in Appendix B.
    3. The top of the manhole frame shall be 1/8” 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 District Engineer. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
    5. A maximum of two grade rings may be utilized to adjust the ring and cover.
    6. The distance from the top of the cone to the lowest point on the bottom of the frame shall not be less than 4".
    7. 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.
    8. After the final lift of asphalt is placed, the asphalt and base course material shall be removed to a diameter to accommodate a 1-foot concrete collar around the frame and cover 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.
    9. Manhole Adjustment with Whirlygig®, precast grade rings or approved equal.
        a. Install per manufacturer’s recommendations and standard details.
        b. Set precast grade rings or thermoplastic riser form in a bead of sealant meeting requirements of Section 404.16 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 and consolidated in the excavated area around the cone, riser form and frame.
        e. The concrete shall be allowed to cure for a minimum of three days prior to allowing traffic over the manhole.
        f. Metal adapter rings (risers) shall not be used for final adjustment of the frame on new development projects.
B. Manholes in Concrete Paved Areas
    1. Manholes located in concrete paved areas shall be raised to final grade after placement of concrete paving.
    2. Shall conform to standard manhole detail in Appendix B.
    3. When installation is complete, the top of the manhole frame shall be 3/8” 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 JBID. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
    5. The distance from the top of the cone to the lowest point on the bottom of the frame shall not be less than 4".
    6. 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.

7. Block out area around the manhole adequate for manhole adjustment.
8. After concrete pavement is placed, the 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.\
9. Manhole Adjustment with Whirlygig®, precast grade rings or approved equal.
    a. Install per manufacturer's recommendations and standard details.
    b. Set precast grade rings or thermoplastic riser form in a bead of sealant meeting requirements of Section 404.16 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 and consolidated in the excavated area around the cone, riser form and frame.
    e. The concrete shall be allowed to cure for a minimum of three days prior to allowing traffic over the manhole.
    f. Metal adapter rings (risers) shall not be used for final adjustment of the frame on new development projects.

C. Manholes in Roadway Shoulders.
    1. Shall conform to standard manhole detail in Appendix B.
    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 509.07.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 JBID. In no case shall the distance exceed 24". Distances greater than approved will require the addition of a manhole wall section and retesting.
        c. The distance from the top of the cone to the lowest point on the bottom of the frame shall not be less than 4".
        d. 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.
        e. 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.
        f. 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 B.
    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.

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 509.07, A or B.

509.08 – 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 303.08 and the Standard Detail Drawings.

509.09 – CONNECTION TO EXISTING MANHOLE

A. Prior to the start of construction, the condition of the existing manhole shall be assessed by the District Inspector.
B. If the existing manhole is determined by the District Inspector 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 to manhole connector (boot) in the manhole at the design elevation and provide a channel in the apron for the new line.
    2. The District 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 District Inspector to provide a full depth channel from the new pipe to the existing channel as directed by the District 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 District Inspector 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 10 - WASTEWATER PUMP STATIONS

510.01 – GENERAL

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

510.02 – 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 Completion by the District Engineer.

510.03 – TRAINING

A. A minimum of 4 hours of training shall be provided by the manufacturer of all major equipment for the JBID operation and maintenance personnel.
B. A proposed training outline and schedule shall be submitted by the Project Engineer for approval by the District Engineer.

SECTION 11 - REPAIR OF EXISTING WASTEWATER SYSTEM

511.01 – 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 District Inspector 24 hours prior to making repairs. The District Inspector must be present during the repair.

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

511.02 – 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 407.01 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 District Inspector 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 406.
J. Additional bedding material shall be placed in maximum 6" lifts to 12” above the pipe.
K. The bedding material shall be shovel sliced and compacted in the pipe haunch areas to insure uniform and continuous bearing along the pipe.
L. Prior to placing initial backfill above the bedding material, 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.
M. Initial Backfill meeting the requirements of Section 407.02 shall be placed and compacted in the trench simultaneously on each side of the pipe in 8" lifts for the full width of the trench in such a manner as not to damage or disturb the pipe.
N. Final backfill above the pipe zone, including replacement or installation of pavement replacement, shall meet the requirements of Section 507.

511.03 – 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 District Inspector shall review and approve the proposed method of connecting the new manhole material to the existing manhole.

SECTION 12 - COLD WEATHER CONSTRUCTION

512.01 – GENERAL

A. During cold weather conditions, special precautions shall be used to ensure that proper construction is maintained.
B. A cold weather condition is defined as periods where sustained temperatures are 40 degrees and lower.

512.02 – 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. Trench shall be kept free from frost. When frost is encountered, it shall be removed and 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.

512.03 – 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.

512.04 – MANHOLE CONSTRUCTION

A. Concrete bases, sections and grade rings shall be adequately cured prior to transporting to the site to ensure 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.

512.05 – MANHOLE COLLAR CONSTRUCTION

A. Concrete collars shall be blanketed when over-night temperatures are 40 degrees and lower.
B. Collars installed under cold weather conditions will be noted by the District Inspector and may be required to be replaced when weather and site conditions permit.
C. Concrete placed during cold weather conditions shall be in accordance with the American Concrete Institutes requirements for cold weather concreting.

SECTION 13 - PRIVATE LATERAL WASTEWATER LINES

513.01 – GENERAL

A. Private Lateral Wastewater Lines shall meet or exceed the minimum submittal and design requirements contained in Section 304.
B. It shall be the responsibility of the Property Owner and their Contractor to verify and/or determine the bury depths of the existing private lateral stubs and new private lateral extension. Bury depths greater than the JBID minimum standards may be necessary to protect the private lateral from freezing. Factors such as elevation and surface features over the lateral (driveways vs. landscaping) should be considered.
C. The District Inspector shall witness all Private Lateral Wastewater Line installations before backfilling.
D. Buried Private Laterals not inspected, witnessed or verified shall be re-excavated at the Contractor's expense. At the discretion of the District Inspector, a video inspection of the installed private lateral meeting the requirements of Section 517.06 may be allowed in place of re-excavation of the buried pipe.
E. Existing Public Wastewater System lines shall remain in service while connecting Private Laterals.
F. Any damage to Public Wastewater System lines resulting from the connection of Private Lateral Wastewater Line shall be corrected by the Contractor as directed by District Inspector at the Contractor’s expense.
G. 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.

513.02 – CONNECTION TO EXISTING PRIVATE LATERAL STUBS

A. Prior to connecting to or extending existing Private Lateral stubs, it shall be the responsibility of the Contractor to verify acceptability of the existing stubs (condition, alignment, grade, elevations, depths, leakage, etc.). Non-functional stubs shall not be used. The District Inspector 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 District Inspector.
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 406.

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.

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. Brandt™ type expansion plugs shall not be used. A push in type plug shall be installed after the testing is complete.
4. Where approved by the District Inspector, the Lateral Wastewater Line may be video inspected and the test tee eliminated.

513.03 – 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 a nose on connection meeting the requirements of Section 409.07.
B. All nose on connections shall be performed by the JBID personnel.
C. Prior to excavation a copy of the city's road cut permit shall be submitted to JBID for review.
D. Contractor shall expose the sewer main line and ensure the trench is safe for the JBID personnel.
E. Once exposed and safe, the JBID personnel will drill the hole and provide the Inserta Tee fitting.
F. The Contractor will furnish and install other pipes and fittings necessary to complete the Private Lateral Wastewater Line.
G. Test Tee.
1. A test tee shall be installed on the Private Lateral Wastewater Line, near the 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. Brandt™ type expansion plugs shall not be used. A push in type plug shall be installed after the testing is complete.

513.04 – CONNECTION TO EXISTING MANHOLE

A. Connection to existing manholes shall be made in accordance with Section 509.09.

513.05 – CLEANOUT REQUIREMENTS

A. Cleanouts shall meet the requirements of Section 304.08.
B. Cleanout risers shall be the same size and material as the lateral, unless otherwise approved by the District Engineer.
C. 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.
D. Cleanout risers shall be capped with a cleanout cap.
E. The top of the cleanout cap shall be located 4" to 6" below the finished paved or landscaped surface
F. Cleanouts within paved surfaces and unpaved traffic areas shall be provided with a traffic rated cleanout frame and cover. In paved and unpaved traffic areas, a concrete collar shall be installed around the frame and cover to provide additional protection for the cleanout riser.
G. Cleanouts in non-traffic (landscaped) areas should be provided with a sprinkler irrigation box or other similar structure.

513.06 – 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 406.
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 14 - GREASE INTERCEPTORS AND SAMPLING MANHOLES

514.01 – GENERAL

A. Grease interceptors, oil separators, sand interceptors and sampling manholes shall be

constructed in accordance with the Standard Details in Appendix B.

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. Pipe joints between the building and sampling manhole may be solvent welded joints conforming to ASTM D 2855.
C. The frame and cover shall be adjusted according to the requirements of Section 509.07.
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 3" above the channel and protrude 3" from the manhole wall to allow for sampling of the wastewater.
F. Where required, the interior of the sampling manhole shall have Manhole Interior Coating meeting the requirements of Section 404.17 applied to all interior concrete surfaces, or shall be a Perfectly Lined Manhole meeting the requirements of Section 404.21 to minimize hydrogen sulfide attack.

SECTION 15 – ABANDONING OF PUBLIC WASTEWATER SYSTEM

515.01 - GENERAL

A. Prior to abandoning any portion of the Public Wastewater System, that portion of the Public Wastewater System to be abandoned shall be video inspected to locate all potential connections.
B. In locations where a portion of the Public Wastewater System is to be abandoned, the portion of the Pubic Wastewater System shall be abandoned to District Inspector's satisfaction.

515.02 - PIPE

A. Any pipe to be abandoned, main line or service lateral, is to be separated to create a minimum of **T**hree feet separation from the nearest active main line segment.
B. Abandon in-place any un-used existing sanitary sewer lateral pipe from back of the curb to the Sewer main.
C. Seal un-used Sewer Lateral Pipe(s) at the property lines.
D. Any existing pipe occupying the same trench that will be used by a new line must be removed and cannot be abandoned in place.

515.03 - MANHOLES

A. Manholes designated to be abandoned shall be removed to a minimum of three (3) feet below the finished surface.
B. The pipe shall be plugged and the trough shall be filled with flowable fill to a depth twelve (12) inches above the top of the highest pipe.
C. The remaining cavities shall be backfilled and compacted.
D. Backfill material shall meet the requirements of Section 407.02 and shall be placed in maximum 8" lifts and compacted to 96% 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.

SECTION 16 – SEWER FLOW METERS

516.01 – GENERAL

A. Sewer Flow Meters shall be constructed in locations and accordance with the Construction Drawings and Standard Detail Drawings, as acceptable to the District Inspector.
    1. Antenna shall be mounted 12' above finished grade on a 2" minimum diameter mast with weatherhead unless shown otherwise.
    2. Equipment enclosure shall be rail mounted 4' above finished grade unless shown otherwise.
    3. Solar Panel (where applicable) shall be mounted 9' above finished grade unless shown otherwise.
    4. Rails shall be adequately supported with concrete bases to provide a sturdy installation.
B. Install equipment as per manufacturer's recommendations and as acceptable to the District Inspector. Provide 1 day of startup by manufacturers' representatives to calibrate and startup equipment.

SECTION 17 – SEWER DIVERSION STRUCTURES

517.01 – GENERAL

A. Sewer Diversion Structures shall be constructed in locations and accordance with the Construction Drawings and Standard Detail Drawings, as acceptable to the District Inspector.
B. Install sluice gates as per manufacturer's recommendations and as acceptable to the District Inspector.
C. Boxes shall be constructed to ensure that District can open and close gates easily with the District's hydraulic operator.

SECTION 18 - ACCEPTANCE TESTING FOR PUBLIC WASTEWATER SYSTEM EXTENSIONS AND MODIFICATIONS

518.01 – GENERAL

A. When applicable, 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 District 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. TV Inspections shall be performed by the JBID personnel.
D. The contractor shall give the District Inspector 24 hours' notice of any test or inspection to be performed.
E. All tests shall be performed during regular District business hours, and may be witnessed by the District Inspector. The test results shall be submitted to the District Inspector, within 48 hours of completion of said test.
F. Testing firms shall be approved by the District Inspector or District Engineer prior to the testing or inspection. The Contractor shall confirm the status of the testing firms with District Inspector prior to the Contractor authorizing testing or inspection.
G. Contractor or testing firm shall provide all plugs, compressors, pumps, gauges, water, etc., required to perform tests.
H. All testing, with the exception of compaction testing, shall occur after backfilling of all pipe and manholes is completed but prior to paving, unless otherwise directed by the District Inspector.
I. All testing results shall be submitted in a form acceptable to the District.
J. A passing test is required on each item tested.
K. Items failing any test shall be repaired or replaced according to the requirements of Section 517.08 and the test or inspection repeated until successful performance of all tests and inspections is achieved.
L. Any testing nullified by repairs or replacements of any component shall be re-done and passing tests achieved.

518.02 – VISUAL INSPECTION

A. A random visual inspection by the District Inspector of 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 the District Design Standards and Construction Specifications.

518.03 – 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: In accordance with the applicable requirements for ASTM F1417-98 and UBPPA UNI-B-6,.
    2. Other Pipe Material: As recommended by the pipe manufacturer and approved by the District Engineer.

518.04 – HYDROSTATIC TEST

A. A hydrostatic test shall be performed on all pressure pipes including, Force Mains and Private Pressurized Laterals and stubs.
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 District 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:

$$Q = LD\sqrt{P}/133200$$

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.

518.05 – MANHOLE VACUUM TEST

A. A vacuum test shall be performed on each manhole, diversion structure and flow meter station installed.
B. Each manhole shall be tested to the top of the cone/flat slab section. Final manhole adjustment to grade does 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.

518.06 – 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. If a failure occurs, the 72 hour test period shall be restarted.
    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.
B. Electrical and Control System Testing.
    1. According to International Electrical Testing Association Incorporated (NETA).
    2. As recommended by equipment manufacturers.

518.07 – COMPACTION TESTING

A. Compaction testing shall be performed on the following installed material.
    1. Trench backfill material for all sewer lines.
    2. If directed by the District Inspector, bedding and initial backfill.
B. Frequency of testing.
    1. 1 test per lift for every 100' of sewer installed or every 200 c.y. Of material, whichever requires more testing. Location of compaction tests shall be indicated on a copy of the overall utility page.
    2. Frequency of testing may be increased if consistent compaction effort and testing results are not achieved.

518.08 – FAILED TEST CORRECTION

A. Procedure.
    1. Notify District Inspector of test failure.
    2. Locate leak or defect location, expose, and identify defect.
    3. Contact the District Inspector 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. Remove and replace the defective area or section. Make pipe coupling repair in accordance with Section 511.02.

2. Damaged Private Lateral stubs - remove and replace the defective area or section. Make pipe coupling repair in accordance with Section 511.02.
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.
4. Failed Backfill Compaction.
    a. Remove, replace and recompact backfill from point of failing test to point of last passing test.

SECTION 19 - ACCEPTANCE TESTING FOR PRIVATE LATERAL WASTEWATER LINES

519.01 – GENERAL

A. As required by the District Inspector, one or more of the following acceptance test are required for Private Lateral Wastewater Lines depending on the component being tested.
    1. Visual or television inspection by the District Inspector.
    2. Exfiltration test of all gravity flow private laterals.
    3. Hydrostatic test of all Private pressurized sewer laterals from ejector pump.
    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 District 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 District Inspector.
E. Defects identified by acceptance testing shall be repaired prior to backfilling, prior to the wastewater lines being approved, or prior to issuance of a Certificate of Occupancy by District Inspector.

519.02 – 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.

519.03 – 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 connection to 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 15 minutes.
        e. No leakage shall be allowed.
        f. Pipe shall be dewatered upon completion of testing
    2. Low Pressure Air Test: According to the requirements of Section 517.03.
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.

519.04 – HYDROSTATIC TEST

A. A Hydrostatic test shall be performed on the following installed pipes.
    1. Private Pressurized Sewer Laterals
    2. Ejector pump pressurized lines.

B. The full length of each Private Pressurized Sewer Laterals or ejector pump pressurized 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 sewer or pump station shall be tested.
C. Method of Testing: According to the requirements of Section 517.04.

519.05 – EXFILTRATION TEST OR VACUUM TEST OF GREASE INTERCEPTORS AND SAMPLING MANHOLES

A. Where required by the District Inspector, 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 517.05.

519.06 – DYE TEST

A. A dye test shall be performed on the following installed pipes:
   1. Ejector pump pressurized line connected to a gravity flow Public Wastewater line.
B. Method of testing for gravity flow lines.
   1. The District Inspector will add dye to the water placed in the private lateral for the exfiltration test through the cleanout standpipe or other approved location.
   2. At the direction of the District Inspector, the plug in the test tee will be removed to release the dyed test water.
   3. The District 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 District Inspector will require a second dye test.
      a. 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 District Inspector, and another dye test shall be performed.
      b. 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 pressurized 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.

519.07 – FAILED TEST CORRECTION

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

SECTION 20 – CLEANUP

520.01 – 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 District Inspector.

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.

APPENDIX "A"

STANDARD FORMS AND AGREEMENTS

A. Standard Easement Form
B. Standard Access Easement Form
C. Sample Sewer Extension Agreements
    a. Cash
    b. Escrow
    c. Letter of Credit
    d. Fill Area
    e. Warranty Cash
D. Substandard Lateral Agreement
E. Bill of Sale
F. Certified Survey Form
G. Commercial Sewer Connection Agreement
H. Commercial Sewer Connection Agreement – Existing

STANDARD EASEMENT FORM

When Recorded Return to:
Joel Thompson
Jordan Basin Improvement District
P.O. Box 629
Riverton, UT 84065

PARCEL I.D.# _____
GRANTOR: _____
(Subdivision Name)

EASEMENT

A twenty (20) foot wide sanitary sewer easement located in the ___ Quarter of Section _, Township ____, Range ____, Salt Lake Base and Meridian, U.S. Survey.

For the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned as GRANTORS hereby grant, convey, sell, and set over unto Jordan Basin Improvement District, a body politic of the State of Utah, hereinafter referred to as GRANTEE, its successors and assigns, a perpetual right-of-way and easement to construct, maintain, operate, repair, inspect, protect, install, remove and replace sewer pipelines, valves, valve boxes, and other sewer transmission and distribution structures and facilities, hereinafter called the FACILITIES, said right-of-way and easement, being situated in Salt Lake County, State of Utah, over and through a parcel(s) of the GRANTORS' land lying within a strip twenty (20) feet wide, said strip extending ten (10) feet on each side of and lying parallel and adjacent to a line of reference and projection thereof, more particularly described as follows:

See Exhibit "A" attached hereto and by this reference made a part hereof.

Contains: ____ square feet or ____ acres

TO HAVE AND HOLD the same unto the GRANTEE, its successors, and assigns, with the right of ingress and egress in the GRANTEE, its officers, employees, agents, and assigns to enter upon the above-described property with such equipment and vehicles as is necessary to construct, install, maintain, operate, repair, inspect, protect, remove and replace the FACILITIES. During construction periods, GRANTEE and its contractors may use such portion of GRANTORS' property along and adjacent to the right-of-way and easement as may be reasonably necessary in connection with the construction or repair of the FACILITIES. The contractor performing the work shall restore all property, through which the work traverses, to as near its original condition as is reasonably possible. GRANTORS shall have the right to use the above-described property except for the purposes for which this right-of-way and easement is granted to the GRANTEE, provided such use shall not interfere with the FACILITIES or with the discharge and conveyance of sewage through the FACILITIES, or any other rights granted to the GRANTEE hereunder.

GRANTORS shall not build or construct, or permit to be built or constructed, any building or other improvement over or across this right-of-way and easement nor change the contour thereof without the written consent of GRANTEE. This right-of-way and easement grant shall be binding upon, and inure to the benefit of, the successors and assigns of the GRANTORS and the successors and assigns of the GRANTEE, and may be assigned in whole or in part by GRANTEE.

IN WITNESS WHEREOF, the GRANTORS have executed this right-of-way and Easement this _____ day of _____, 20___.

GRANTOR(S)

By: _____

Its: _____
Title

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being by me duly sworn did say that (s)he is the _____ of _____ a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

My Commission Expires: _____

Residing in: _____

Exhibit ‘A’

STANDARD ACCESS EASEMENT FORM

WHEN RECORDED, RETURN TO:
Joel Thompson, General Manager
Jordan Basin Improvement District
P.O. Box 629
Riverton, UT 84065

GRANTOR:
PARCEL ID #
(Subdivision Name)

ACCESS EASEMENT

A _____ (__) foot wide access easement located in the _____ Quarter of Section ___, Township _____, Range _____, Salt Lake Base and Meridian, U.S. Survey.

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned **GRANTOR** hereby grants, conveys and sets over to **JORDAN BASIN IMPROVEMENT DISTRICT** a body politic of the State of Utah, **GRANTEE**, its invitees, contractors, agents, successors and assigns, a perpetual access easement for the purpose of providing GRANTEE and all required equipment ingress and egress across GRANTOR'S property to and from GRANTEE'S sewer lines and facilities. This access easement is located over and through that portion of the GRANTOR'S property which is situated in Salt Lake County, State of Utah, and is more particularly described as follows:

See Exhibit "A" attached hereto and by this reference made a part herof.

Contains: _____ acres (_____ s.f.)

TO HAVE AND HOLD the same unto said GRANTEE for use by the GRANTEE and its invitees, agents, contractors and assigns for the purposes set forth herein. This access easement shall be binding upon the successors and assigns of the GRANTOR and the GRANTEE and may be assigned in whole or in part by the GRANTEE.

IN WITNESS WHEREOF, the GRANTOR has executed this Access Easement this ____ day of _____, 20___.

Grantor(s)

By: _____

Its: _____
Title

(Complete if Owner is an Individual)

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____, who being duly sworn, did say that they are the signer of the foregoing instrument, who duly acknowledged to me that they executed the same.

_____
Notary Public

(Complete if Owner is a Corporation)

STATE OF UTAH)
:ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that they are the _____ _____ of _____, a corporation, and that the
foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

(Complete if Owner is a Partnership)

STATE OF UTAH)

:ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that they are the _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

(Complete if Owner is a Limited Liability Company)

STATE OF UTAH)
:ss.
COUNTY OF SALT LAKE)
On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that they are a _____of _____, a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Exhibit 'A'

SAMPLE SEWER EXTENSION AGREEMENT
CASH FORM

SEWER EXTENSION AGREEMENT
(Cash Form)

THIS AGREEMENT is made and entered as of the ____ day of _____, 20___, by and between _____ whose address is _____ _____, hereinafter referred to as the "Developer;" and **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 West Jordan Basin Lane, Bluffdale UT 84065, hereinafter referred to as the "District."

RECITALS:

A. The Developer proposes to install sewer lines, manholes and related structures and facilities (hereinafter, the "Sewer Improvements"), on land in an area to be served by the District, and desires to connect the Sewer Improvements to the District's sewer system;

B. The proposed Sewer Improvements are to be installed in the _____ subdivision located at approximately _____, in _____ City, Utah (the "Development");

C. To ensure compliance with its Rules and Regulations, and to ensure public health, safety and welfare, the District will not allow connection of the Sewer Improvements to its system or otherwise approve or accept any work by the Developer until this Agreement is executed by the parties and the Performance Security[1] is provided as described in this Agreement; and

D. The District requires this Agreement to ensure timely and workmanlike completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications, the plan and profile drawings approved by the District, and with the District's Rules and Regulations.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Design and Installation of Improvements.**

    a. **The Design.** The Developer has provided to the District a design consisting of plan and profile drawings of the Sewer Improvements (the "Design") for review by the District. If directed by the District, the Design provides for the extension and, if necessary, upsizing of Developer's sewer main line(s) to adjacent property boundaries. The Developer has incorporated the District

[1] See Section 2, below.

Engineer's recommendations into the Design, if any, and the District Engineer has given its approval of the Design.[2]

b. **Rights of Way and Easements.** Prior to any construction or Development, Developer shall have acquired, at no expense to the District, all easements and other rights or interests required by the District for installing and maintaining that portion of the Sewer Improvements to be owned by the District, and shall have conveyed those easement rights or interests to the District in substance and form acceptable to the District.

c. **Preconstruction Meeting.** A preconstruction meeting may be requested by the Developer only after the following have been completed:
   1) District Engineer's approval of the Design;
   2) Execution and delivery to the District of all required easements;
   3) Payment of all required fees, including but not limited to nose-on, design review and inspection fees[3];
   4) Execution of this Agreement including the provision of Performance Security as described herein; and
   5) Execution, delivery and completion of any other documents or performances required by the District's Rules and Regulations or otherwise reasonably required to meet the purposes thereof.

d. **Installation.** Upon compliance with all the foregoing requirements, the Developer shall install at Developer's sole cost and expense the Sewer Improvements as shown on the approved Design. All construction shall be performed in a timely and workman-like manner and in accordance with the District's Design Standards and Construction Specifications. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines owned by the District. If any work is covered or interconnected before such testing, inspection and approval, the District may require the work to be uncovered (at a date and time convenient to the District, and at Developer's sole expense) for testing and inspection and may disconnect the Developer's Sewer Improvements from the District's sewer system. Consistent with the District's Design Standards and Construction Specifications, at the time of the installation the Developer shall install appropriate wyes in the sewer main line for each connection to be serviced, and extend lateral sewer lines to a point not less than 10 feet inside the boundary of property to be served by the Sewer Improvements; and all Sewer Improvements shall be located at a distance not less than five (5) feet from any other utilities, and not less than five (5) feet from the nearest curb, gutter or sidewalk.

[2] The District Engineer's approval of the Design does not constitute Final Project Approval.
[3] After execution of this Agreement, additional fees shall be required, including without limitation, impact fees, inspection fees, plat signing fees, and other fees as required by the District's Rules and Regulations.

e. **Completion Deadline.** All Sewer Improvements shall be completed and the system conveyed to the District by Bill of Sale as set forth in subsection h, below, on or before two (2) years from date of this Agreement.

f. **Physical Connection to System – Debris Protection**. Upon completion of the connection of the Developer's Sewer Improvements to the District's main outfall line(s), the Developer shall install a plug, acceptable to the District, in the manhole(s) where the sewer connection occurs.

g. **Inspections, Work Hours.** The District's work hours are 7:00 am to 4:30 pm, Monday through Thursday, and 8:00 am to 12:00 pm on Friday, except holidays. Inspections to be performed at any other time shall require the prior written consent of the District, and shall require the Developer to pay additional inspection fees.

h. **Transfer by Developer to District.** Prior to Final Completion and before the Completion Deadline in subsection e, above, Developer shall execute and deliver to the District the approved Bill of Sale conveying the Sewer Improvements to the District free and clear of all liens and encumbrances. The District shall thereafter be the sole owner and shall operate and maintain such Sewer Improvements; provided, however, the Developer shall continue to be subject to the warranty obligations described herein; and further, the District shall not own nor have any duty to maintain service laterals extending from the District's sewer main(s) to any individual lots or connections.

i. **Final Connection and Use Requirements**. The Sewer Improvements shall not be connected to the District's system or otherwise utilized for the collection and conveyance of sewage until the Developer has met all District Requirements including without limitation, completed all Sewer Improvements, passed all inspections, and paid all fees required by this Agreement, by the District's Construction Standards and Design Specifications and by the District's Rules and Regulations.

2. **Performance Security.** Concurrent with the execution of this Agreement, the Developer delivers to the District cash or equivalent in the amount of $_____ (the "Performance Security"). The purpose of the Performance Security is to secure performance of Developer's duties as defined in this Agreement, in the District's Design Standards and Construction Specifications and in the District's Rules and Regulations.[4] The parties acknowledge that Performance Security held by the District is deposited and held with the Utah Public Treasurers Investment Fund ("PTIF"), managed by the office of the Utah State Treasurer, and that interest will accrue on the funds at the rate determined by the Utah State Treasurer. Administrative fees and interest accrual on funds held with the PTIF are determined

[4] Hereinafter, the collective and combined requirements of this Agreement, the District's Design Standards and Construction Specifications and the District's Rules and Regulations are referred to as the "District Requirements."

solely by the Utah State Treasurer. The amount of the Performance Security represents the following:

a. **Completion Security.** $ _____, which is the District Engineer's estimate of the cost of the Sewer Improvements (the "Completion Security"). The Completion Security shall be held by the District as security for the Developer's timely and workmanlike completion of the Sewer Improvements described herein; and

b. **Warranty Security.** $ _____ which represents ten percent 10% of the District Engineer's estimate of the cost of the Sewer Improvements (the "Warranty Security"). The Warranty Security shall be held as security for the Developer's obligations during the warranty periods described herein.

3. **Progress Releases of Completion Security**. The Developer may make written requests that the District authorize periodic partial releases of the Completion Security. The District's approval of partial releases of the Completion Security is conditioned upon Developer's strict compliance with the following:

a. **First Partial Release.** For developments where at least 1,000 lineal feet of sewer main line are to be installed, when at least 50% of the Sewer Improvements are Substantially Complete (as defined in the District Design Standards and Construction Specifications) and have been properly installed, the Developer may request a release of 40% of the Completion Security. As used in this paragraph 3, "properly installed" means: 1) satisfactory connection of Sewer Improvements to the District's existing sewer main line; 2) District's television inspection of the Sewer Improvements, and confirmation that the Sewer Improvements are straight, clean and free from debris, and appear to be free of defect; 3) submission by Developer of satisfactory compaction test results; 4) submission by Developer of satisfactory air and vacuum test results; 5) submission by Developer of drawings identifying the location of all lateral lines; and 6) certification by Developer's registered surveyor that the Sewer Improvements lie within the public right of way or a recorded public sewer easement[5]. If one or more subsequent television or other inspections for a partial release is required, Developer shall pay a fee for each subsequent television inspection, in the amount outlined in the District's Consolidated Fee Schedule.

b. **Second Partial Release.** On any Project, irrespective of the length of Sewer Improvements being installed, the Developer may request a release of an amount not to exceed 80% of the Completion Security when all Sewer

[5] This shall be a Certified Survey, on the JBID's form, signed by a licensed Surveyor including manhole coordinates, rim and invert elevations, in Utah Central NAD83 foot coordinate system.

Improvements are Substantially Complete and have been properly installed as defined in subparagraph a., above.

c. **Final Release of Completion Security.** The Developer may request the release of the remaining balance of the Completion Security[6] upon Final Completion as defined in the District Design Standards and Construction Specifications, and demonstration that all construction and final District inspections of the Sewer Improvements are complete, including the following:
    1) all items required for the First and Second Partial Releases outlined above;
    2) all manholes are collared and level with adjacent pavement;
    3) existing pipes in the tie-in manholes are cut out and/or plug(s) are removed;
    4) all manholes are cleaned;
    5) accurate and complete "as-constructed drawings" have been submitted to the District;[7]
    6) a fully executed bill of sale, in the approved format, has been delivered to the District;
    7) all plugs and false bottoms have been removed; and
    8) all lateral location markers are installed.

4. **Release of Warranty Security.** The Warranty Security shall be retained by the District throughout the entire term of the Improvement Warranty[8], and its release shall be conditioned upon Developer's timely, workmanlike and satisfactory completion of all obligations required under the Improvement Warranty.

5. **District Withdrawals from Performance Security**.

    a. The purpose of the Performance Security is to ensure that the Developer completes the construction of the Sewer Improvements in a timely and workmanlike manner, abides by the Improvement Warranty provisions of this Agreement and otherwise fully and strictly complies with the District Requirements.

    b. In the event of a default, the District is authorized to withdraw from and utilize the Performance Security (in whole or in part) to pay for and complete the Sewer Improvements and to make any replacements, repairs or other work as may be required under the Improvement Warranty.

    c. Before making any withdrawals from the Performance Security, the District shall provide the Developer at least ten (10) days written notice of default. If the Developer fails to remedy the default within ten (10) days of the notice, or

[7]Developer shall furnish accurate, surveyed, "as-constructed drawings" to the District showing the physical location of all sewer mains, laterals, inspection tees, wye branches, manholes and other facilities as they are actually installed, in an electronic format acceptable to the District.
[8] See paragraph 10, below.

fails to obtain from the District a written extension of Developer's time to comply, the District is authorized to withdraw funds from the Performance Security and proceed as deemed necessary in the discretion of the District to remedy Developer's default.

d. The District may make multiple withdrawals from the Performance Security, provided however, that the District is required to provide only a single written notice of a default in Developer's obligations.

e. Funds withdrawn from the Performance Security may be used by the District to pay for all expenses, costs and fees incurred to remedy the Developer's default. Said expenses, costs and fees shall include without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

6. **Release of Performance Security**. Upon full and satisfactory performance of the Developer's obligations under this Agreement and strict compliance with the District Requirements, including completion of any work required during the Improvement Warranty periods, the District shall notify the Developer in writing of the satisfactory construction of the Sewer Improvements and expiration of the warranty period. Upon giving such written notice, the District shall relinquish all claims and rights in the Performance Security and release the balance of the Performance Security, plus any accrued interest to the Developer.

7. **Developer's Continuing Obligations.** The withdrawal by the District of any funds from the Performance Security does not relieve the Developer from any duties or responsibilities under this Agreement; nor shall any such withdrawal constitute a waiver or estoppel, or an accord and satisfaction, against the District. To that end, the Developer expressly agrees that if the District performs or causes to be performed all or any portion of the Sewer Improvements or work required under the Improvement Warranty, any and all costs and expenses incurred by the District (plus administrative costs as described herein) may be offset by the Performance Security. In the event the cost of any work performed by the District exceeds the amount then available from the Performance Security, the balance shall be paid by the Developer, including without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

8. **Developer's Representations.** Developer hereby represents and warrants that:

a. Developer is the owner of the real property for which this Agreement is made;

b. Any streets and/or easements in which the District will be required to maintain its facilities have been or will be dedicated as public streets or recorded as sanitary sewer easements in the office of the appropriate county recorder;

c. The District has been granted, or is hereby granted, the full right to enter at any time upon all property within the Development to operate, inspect, maintain, replace and/or remove the District's sewer lines and facilities.

9. **Costs and Fees.**

a. The Developer shall bear the entire cost of constructing all Sewer Improvements in accordance with the Design, including extensions from existing District sewer mains to the Development, the sewer collection system within the Development, laterals to each lot or connection within the Development, and the extension of sewer lines to the boundary line of adjacent property.

b. The Developer shall bear the entire cost of performing any work required under the Improvement Warranty.

c. No structure, lot or parcel of real property shall be connected to any portion of the District's existing sewer system until all District fees, including impact fees for that lot or parcel have been paid to the District. The fees paid by Developer shall be those established by the District's Board of Trustees in effect on the date the fees are paid to the District.

d. The Developer agrees to bear all costs and expenses incurred by the District due to Developer's failure to comply with the terms of this Agreement. These expenses shall include, and shall not be limited to, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, and other expenses incurred by the District, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default. All such costs and expenses shall be paid by the Developer within fifteen days of billing by the District, and any unpaid balance shall bear interest at the rate of eighteen percent (18%) per anum, compounded monthly.

10. **Improvement Warranty.** The Developer's warranty obligations under this agreement are as follows (the "Improvement Warranty"):

a. **Developer's Warranty**. The Developer unconditionally warrants and guarantees that the Sewer Improvements, and every part thereof, shall comply with the District Requirements, will not fail in any respect as a result of poor workmanship or materials, shall not be defective in any respect, and shall not deteriorate during the warranty periods described herein.

b. **Obligation to Repair and Replace.** In the event of any violation of the warranty obligations described herein, the Developer shall, at its sole cost and

expense, promptly make all repairs, corrections, and/or replacements, and perform any other required work, in a manner that will make the Sewer Improvements compliant in all respects with this Agreement and with the District Requirements.

c. **Standard One-Year Warranty Period.** Except as defined in subparagraphs d. and e., below, the term of the Developer's warranty shall be one (1) year, commencing on the date of Final Completion.

d.

e. **Extended Warranty – Prior Poor Performance**. In the event the District determines that the Developer or its contractor(s) have a record of prior poor performance, and that a one-year warranty is inadequate to protect the public health, safety and welfare, the District may require an extended warranty from the Developer, including additional Warranty Security in an amount acceptable to the District. The requirements of such an extended warranty and additional security will be memorialized in a signed addendum to this Agreement.

f. **Continuation of Warranty – Repairs.** In the event any repair, replacement or other work is required under the warranty provisions herein, the term thereof shall immediately be extended for a period of one (1) year, commencing the date the repair, replacement or work is completed; and in such event, the District shall be entitled to withhold release of the Warranty Security until completion of the extended warranty period.

11. **Capacity**. The District's obligation to provide sewer service hereunder is expressly subject to and conditioned upon the availability of adequate conveyance and treatment capacity; and shall be subject to any limitations, requirements and regulations established from time to time by the District's Board of Trustees, by the governing body of the sewer treatment facility, or by any other governmental entity having jurisdiction over the parties.

12. **Other Bonds**. This Agreement and the Performance Security do not alter the obligation of Developer to provide other bonds required by any city, county or agency having jurisdiction over Developer's development. The furnishing of security in compliance with the requirements of other jurisdictions shall not adversely affect the ability of the District to withdraw from the Performance Security as provided herein.

13. **Miscellaneous**

a. **Counterparts**. The fact that the parties execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution; such counterparts, taken together, shall constitute one and the same instrument; and each such counterpart shall be deemed an original.

b. **Severability.** Should any portion of this Agreement for any reason be

declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement, which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

c. **Waiver.** No waiver of any provision of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

d. **Binding Effect.** This Agreement shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, representatives, agents, officers, employees, successors and assigns.

e. **Default.** In the event either party violates any of the covenants, warranties, responsibilities or duties of this Agreement, or violates any provision of the District's Design Standards and Construction Specifications or the Rules and Regulations of the District, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

f. **Captions.** The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

g. **Governing Law**. This Agreement and the parties' performance hereunder shall be governed by the laws of the State of Utah. The State or Federal Courts located in Salt Lake County, Utah shall be the exclusive forum for any action to enforce this Agreement.

h. **Entire Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof; and prior or contemporaneous promises, representations, warranties or understandings shall have no force or effect. Any amendment to this Agreement shall be made in writing and signed by the parties.

i. **Time of Essence.** Time is of the essence of this Agreement and in the performance of the District Requirements.

j. **Definitions.** As used herein, words that are capitalized shall be construed using the definitions set forth in this Agreement; or if not defined herein, shall be construed using the definitions set forth in the District's Design Standards and Construction Specifications or in the District's Rules and Regulations.

k. **Conflicts with Rules and Standards.** In the event a provision of this Agreement conflicts with the District's Design Standards and Construction

Specifications or with the District's Rules and Regulations, the provision, standard, specification, rule or regulation that will most effectively ensure the integrity and efficiency of the District's system shall govern.

l. **Notices.** Notices shall be deemed effective on the date of delivery (if hand delivered) or three (3) days after mailing, certified U.S. Mail, return receipt requested. Notice shall be given to the parties at the following addresses:

To the District: (if by hand delivery)
Attn: District General Manager
1253 West Jordan Basin Lane
Bluffdale, Utah, 84065

(if by mail)
Attn: District General Manager
P.O. Box 629
Riverton, UT 84065

To the Developer: _____
_____
_____

m. **Exhibits**. Any exhibit(s) to this Agreement are incorporated herein by this reference, and failure to attach any such exhibit shall not affect the validity of this Agreement or of such exhibit. An unattached exhibit is available from the records of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"
JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me Joel Thompson, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

Seal:

"DEVELOPER"

_____

By:_____
Its: _____

DEVELOPER ACKNOWLEDGMENT

(Complete if Developer is an Individual)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being duly sworn, did say that (s)he is the signer of the foregoing instrument, who duly acknowledged to me that (s)he executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Corporation)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is the _____ _____ of _____, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Partnership)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that (s)he is the _____ _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

Seal:

(Complete if Developer is a Limited Liability Company)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is a _____ of _____, a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Seal:

SAMPLE SEWER EXTENSION AGREEMENT
ESCROW FORM

SEWER EXTENSION AGREEMENT
(Escrow Deposit Form)

THIS AGREEMENT is made and entered as of the ____ day of _____, 20___, by and between _____ whose address is _____ _____, hereinafter referred to as the "Developer;" and **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 West Jordan Basin Lane, Bluffdale UT 84065, hereinafter referred to as the "District," and _____, a federally insured bank authorized to do business in the State of Utah, whose local branch address is _____, hereinafter referred to as the "Bank."

RECITALS:

A. The Developer proposes to install sewer lines, manholes and related structures and facilities (hereinafter, the "Sewer Improvements"), on land in an area to be served by the District, and desires to connect the Sewer Improvements to the District's sewer system;

B. The proposed Sewer Improvements are to be installed in the _____ subdivision located at approximately _____, in _____ City, Utah (the "Development");

C. To ensure compliance with its Rules and Regulations, and to ensure public health, safety and welfare, the District will not allow connection of the Sewer Improvements to its system or otherwise approve or accept any work by the Developer until this Agreement is executed by the parties and the Performance Security[1] is provided as described in this Agreement; and

D. The District requires this Agreement to ensure timely and workmanlike completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications, the plan and profile drawings approved by the District, and with the District's Rules and Regulations.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Design and Installation of Improvements.**

    a. **The Design.** The Developer has provided to the District a design consisting of plan and profile drawings of the Sewer Improvements (the "Design") for review by the District. If directed by the District, the Design provides for the extension and, if necessary, upsizing of Developer's sewer main line(s) to

[1] See Section 2, below.

adjacent property boundaries. The Developer has incorporated the District Engineer's recommendations, if any, into the Design and the District Engineer has given its approval of the Design.[2]

b. **Rights of Way and Easements.** Prior to any construction or Development, Developer shall have acquired, at no expense to the District, all easements and other rights or interests required by the District for installing and maintaining that portion of the Sewer Improvements to be owned by the District, and shall have conveyed those easement rights or interests to the District in substance and form acceptable to the District.

c. **Preconstruction Meeting.** A preconstruction meeting may be requested by the Developer only after the following have been completed:
   1) District Engineer's approval of the Design;
   2) Execution and delivery to the District of all required easements;
   3) Payment of all required fees, including but not limited to nose-on, design review and inspection fees[3];
   4) Execution of this Agreement including the provision of Performance Security as described herein; and
   5) Execution, delivery and completion of any other documents or performances required by the District's Rules and Regulations or otherwise reasonably required to meet the purposes thereof.

d. **Installation.** Upon compliance with all the foregoing requirements, the Developer shall install at Developer's sole cost and expense the Sewer Improvements as shown on the approved Design. All construction shall be performed in a timely and workman-like manner and in accordance with the District's Design Standards and Construction Specifications. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines owned by the District. If any work is covered or interconnected before such testing, inspection and approval, the District may require the work to be uncovered (at a date and time convenient to the District, and at Developer's sole expense) for testing and inspection and may disconnect the Developer's Sewer Improvements from the District's sewer system. Consistent with the District's Design Standards and Construction Specifications, at the time of the installation the Developer shall install appropriate wyes in the sewer main line for each connection to be serviced, and extend lateral sewer lines to a point not less than 10 feet inside the boundary of property to be served by the Sewer Improvements; and all Sewer Improvements shall be located at a distance not less than five (5) feet from any other utilities, and not less than five (5) feet from the nearest curb, gutter and sidewalk.

[2] The District Engineer's approval of the Design does not constitute Final Project Approval.
[3] After execution of this Agreement, additional fees shall be required, including without limitation, impact fees, inspection fees, plat signing fees, and other fees as required by the District's Rules and Regulations.

e. **Completion Deadline.** All Sewer Improvements shall be completed and the system conveyed to the District by Bill of Sale as set forth in subsection h, below, on or before two (2) years from date of this Agreement.

f. **Physical Connection to System – Debris Protection**. Upon completion of the connection of the Developer's Sewer Improvements to the District's main outfall line(s), the Developer shall install a plug, acceptable to the District, in the manhole(s) where the sewer connection occurs.

g. **Inspections, Work Hours.** The District's work hours are 8:00 am to 4:30 pm, Monday through Friday, except holidays. Inspections to be performed at any other time shall require the prior written consent of the District, and shall require the Developer to pay additional inspection fees.

h. **Transfer by Developer to District.** Prior to Final Completion and before the Completion Deadline in subsection e, above, Developer shall execute and deliver to the District the approved Bill of Sale conveying the Sewer Improvements to the District free and clear of all liens and encumbrances. The District shall thereafter be the sole owner and shall operate and maintain such Sewer Improvements; provided, however, the Developer shall continue to be subject to the warranty obligations described herein; and further, the District shall not own nor have any duty to maintain service laterals extending from the District's sewer main(s) to any individual lots or connections.

i. **Final Connection and Use Requirements**. The Sewer Improvements shall not be connected to the District's system or otherwise utilized for the collection and conveyance of sewage until the Developer has met all District Requirements including without limitation, completed all Sewer Improvements, passed all inspections, and paid all fees required by this Agreement, by the District's Construction Standards and Design Specifications and by the District's Rules and Regulations.

2. **Performance Security.** Concurrent with or prior to the execution of this Agreement, the Developer and the Bank have established and fully funded an account at the Bank in the amount of $_____ identified as account number: _____ (the "Performance Security"). The Developer and the Bank affirm that the Bank is a federally insured bank with a local branch in Salt Lake or Utah County, Utah, has authority to receive and honor sight drafts submitted by the District on the account, and that the account in which the Performance Security is held will not be closed nor any amount drawn thereon except as provided herein. The purpose of the Performance Security is to secure performance of Developer's duties as defined in this Agreement, in the District's Design Standards and Construction Specifications and in the District's Rules and Regulations.[4] The parties acknowledge that the Performance Security is deposited and held with the Bank, managed by the Bank, that interest may accrue on the funds at the rate determined by the Bank, and that

[4] Hereinafter, the collective and combined requirements of this Agreement, the District's Design Standards and Construction Specifications and the District's Rules and Regulations are referred to as the "District Requirements."

administrative fees, if any, are determined solely by the Bank. The amount of the Performance Security represents the following:

a. **Completion Security.** $ _____, which is the District Engineer's estimate of the cost of the Sewer Improvements (the "Completion Security"). The Completion Security shall be held by the District as security for the Developer's timely and workmanlike completion of the Sewer Improvements described herein; and

b. **Warranty Security.** $ _____ which represents ten percent 10% of the District Engineer's estimate of the cost of the Sewer Improvements (the "Warranty Security"). The Warranty Security shall be held as security for the Developer's obligations during the warranty periods described herein.

3. **Progress Releases of Completion Security.** The Developer may make written requests that the District authorize periodic partial releases of the Completion Security. The District's approval of partial releases of the Completion Security is conditioned upon Developer's strict compliance with the following:

   a. **First Partial Release.** For developments where at least 1,000 lineal feet of sewer main line are to be installed, when at least 50% of the Sewer Improvements are Substantially Complete (as defined in the District Design Standards and Construction Specifications) and have been properly installed, the Developer may request a release of 40% of the Completion Security. As used in this paragraph 3, "properly installed" means:
      1) satisfactory connection of Sewer Improvements to the District's existing sewer main line;
      2) District's television inspection of the Sewer Improvements, and confirmation that the Sewer Improvements are straight, clean and free from debris, and appear to be free of defect;
      3) submission by Developer of satisfactory compaction test results;
      4) submission by Developer of satisfactory air and vacuum test results;
      5) submission by Developer of drawings identifying the location of all lateral lines; and
      6) certification by Developer's registered surveyor that the Sewer Improvements lie within the public right of way or a recorded public sewer easement[5]. If one or more subsequent television or other inspections for a partial release is required, Developer shall pay a fee for each subsequent television inspection, in the amount outlined in the District's Consolidated Fee Schedule.
   b. **Second Partial Release.** On any Project, irrespective of the length of Sewer Improvements being installed, the Developer may request a release of an amount not to exceed 80% of the Completion Security when all Sewer

[5] This shall be a Certified Survey, on the JBID's form, signed by a licensed Surveyor including manhole coordinates, rim and invert elevations, in Utah Central NAD83 foot coordinate system.

Improvements are Substantially Complete and have been properly installed as defined in subparagraph a., above.

c. **Final Release of Completion Security.** The Developer may request the release of the remaining balance of the Completion Security[6] upon Final Completion as defined in the District Design Standards and Construction Specifications, and demonstration that all construction and final District inspections of the Sewer Improvements are complete, including the following:
    1) all items required for the First and Second Partial Releases outlined above;
    2) all manholes are collared and level with adjacent pavement;
    3) existing pipes in the tie-in manholes are cut out, false bottoms removed and plug(s) are removed;
    4) all manholes are cleaned;
    5) accurate and complete "as-constructed drawings" have been submitted to the District;[7]
    6) a fully executed bill of sale, in the approved format, has been delivered to the District; and
    7) all lateral location markers are installed.

4. **Release of Warranty Security.** The Warranty Security shall be retained by the District throughout the entire term of the Improvement Warranty[8], and its release shall be conditioned upon Developer's timely, workmanlike and satisfactory completion of all obligations required under the Improvement Warranty.

5. **District Withdrawals from Performance Security**.

    a. The purpose of the Performance Security is to ensure that the Developer completes the construction of the Sewer Improvements in a timely and workmanlike manner, abides by the Improvement Warranty provisions of this Agreement and otherwise fully and strictly complies with the District Requirements.

    b. In the event of a default, the District is authorized to withdraw from and utilize the Performance Security (in whole or in part) to pay for and complete the Sewer Improvements and to make any replacements, repairs or other work as may be required under the Improvement Warranty.

    c. Before making any withdrawals from the Performance Security, the District shall provide the Developer at least ten (10) days written notice of default. If the Developer fails to remedy the default within ten (10) days of the notice, or fails to obtain from the District a written extension of Developer's time to

[7]Developer shall furnish accurate, surveyed, "as-constructed drawings" to the District showing the physical location of all sewer mains, laterals, inspection tees, wye branches, manholes and other facilities as they are actually installed, in an electronic format acceptable to the District.
[8] See paragraph 10, below.

comply, the District is authorized to withdraw funds from the Performance Security and proceed as deemed necessary in the discretion of the District to remedy Developer's default.

d. The District may make multiple withdrawals from the Performance Security, provided however, that the District is required to provide only a single written notice of a default in Developer's obligations.

e. Funds withdrawn from the Performance Security may be used by the District to pay for all expenses, costs and fees incurred to remedy the Developer's default. Said expenses, costs and fees shall include without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

f. Withdrawals from the Performance Security by the District may be made by one or more sight drafts signed by the District's General Manager, an example of which is attached hereto as Exhibit "A," or by other instrument appropriate to this purpose. The parties hereby agree that the form of the sight draft appended as Exhibit "A" is in all respects sufficient for the District to make withdrawals from the Performance Security for the purposes described herein. The District at its sole discretion is authorized to make multiple withdrawals from the Performance Security. As provided herein, any funds not withdrawn by the District in connection with the completion, repair or warranty work on the Sewer Improvements shall be refunded to the Developer upon Developer's full compliance with the terms and conditions of this Agreement.

g. The Bank may honor all drafts presented by the District without informing the Developer or inquiring as to the reason for the presentation of the draft. Upon partial or full disbursement of amounts in the Performance Security to the District or to the Developer pursuant to and in accordance with the terms of this Agreement, the Bank shall be relieved from any further liability for the amounts disbursed, and when authorized in writing by the District to make final disbursement of the Performance Security, the Bank shall be relieved from all further responsibilities under this Agreement.

6. **Release of Performance Security**. Upon full and satisfactory performance of the Developer's obligations under this Agreement and strict compliance with the District Requirements, including completion of any work required during the Improvement Warranty periods, the District shall notify the Developer and the Bank in writing of the satisfactory construction of the Sewer Improvements and expiration of the warranty periods. Upon giving such written notice, the District shall relinquish all claims and rights in the Performance Security and the balance of the Performance Security may be released to the Developer.

7. **Developer's Continuing Obligations.** The withdrawal by the District of any funds from the Performance Security does not relieve the Developer from any duties or responsibilities under this Agreement; nor shall any such withdrawal constitute a waiver or estoppel, or an accord and satisfaction, against the District. To that end, the Developer and the Bank expressly agree that if the District performs or causes to be performed all or any portion of the Sewer Improvements or work required under the Improvement Warranty, any and all costs and expenses incurred by the District (plus administrative costs as described herein) may be offset by the Performance Security. In the event the cost of any work performed by the District exceeds the amount then available from the Performance Security, the balance shall be paid by the Developer, including without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

8. **Developer's Representations.** Developer hereby represents and warrants that:

    a. Developer is the owner of the real property for which this Agreement is made;

    b. Any streets and/or easements in which the District will be required to maintain its facilities have been or will be dedicated as public streets or recorded as sanitary sewer easements in the office of the appropriate county recorder;

    c. The District has been granted, or is hereby granted, the full right to enter at any time upon all property within the Development to operate, inspect, maintain, replace and/or remove the District's sewer lines and facilities.

9. **Costs and Fees.**

    a. The Developer shall bear the entire cost of constructing all Sewer Improvements in accordance with the Design, including extensions from existing District sewer mains to the Development, the sewer collection system within the Development, laterals to each lot or connection within the Development, and the extension of sewer lines to the boundary line of adjacent property.

    b. The Developer shall bear the entire cost of performing any work required under the Improvement Warranty.

    c. No structure, lot or parcel of real property shall be connected to any portion of the District's existing sewer system until all District fees, including impact fees for that lot or parcel, have been paid to the District. The fees paid by Developer shall be those established by the District's Board of Trustees in effect on the date the fees are paid to the District.

    d. The Developer agrees to bear all costs and expenses incurred by the District due to Developer's failure to comply with the terms of this Agreement. These

expenses shall include, and shall not be limited to, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, and other expenses incurred by the District, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default. All such costs and expenses shall be paid by the Developer within fifteen days of billing by the District, and any unpaid balance shall bear interest at the rate of eighteen percent (18%) per anum, compounded monthly.

10. **Improvement Warranty.** The Developer's warranty obligations under this agreement are as follows (the "Improvement Warranty"):

    a. **Developer's Warranty**. The Developer unconditionally warrants and guarantees that the Sewer Improvements, and every part thereof, shall comply with the District Requirements, will not fail in any respect as a result of poor workmanship or materials, shall not be defective in any respect, and shall not deteriorate during the warranty periods described herein.

    b. **Obligation to Repair and Replace.** In the event of any violation of the warranty obligations described herein, the Developer shall, at its sole cost and expense, promptly make all repairs, corrections, and/or replacements, and perform any other required work, in a manner that will make the Sewer Improvements compliant in all respects with this Agreement and with the District Requirements.

    c. **Standard One-Year Warranty Period.** Except as defined in subparagraphs d. and e., below, the term of the Developer's warranty shall be one (1) year, commencing on the date of Final Completion.

    d.

    e. **Extended Warranty – Prior Poor Performance**. In the event the District determines that the Developer or its contractor(s) have a record of prior poor performance, and that a one-year warranty is inadequate to protect the public health, safety and welfare, the District may require an extended warranty from the Developer, including additional Warranty Security in an amount acceptable to the District. The requirements of such an extended warranty and additional security will be memorialized in a signed addendum to this Agreement.

    f. **Continuation of Warranty – Repairs.** In the event any repair, replacement or other work is required under the warranty provisions herein, the term thereof shall immediately be extended for a period of one (1) year, commencing the date the repair, replacement or work is completed; and in such event, the District shall be entitled to withhold release of the Warranty Security until completion of the extended warranty period.

11. **Capacity**. The District's obligation to provide sewer service hereunder is expressly subject to and conditioned upon the availability of adequate conveyance and treatment capacity; and shall be subject to any limitations, requirements and regulations established from time to time by the District's Board of Trustees, by the governing body of the sewer treatment facility, or by any other governmental entity having jurisdiction over the parties.

12. **Other Bonds**. This Agreement and the Performance Security do not alter the obligation of Developer to provide other bonds required by any city, county or agency having jurisdiction over Developer's development. The furnishing of security in compliance with the requirements of other jurisdictions shall not adversely affect the ability of the District to withdraw from the Performance Security as provided herein.

13. **Miscellaneous**

    a. **Counterparts**. The fact that the parties execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution; such counterparts, taken together, shall constitute one and the same instrument; and each such counterpart shall be deemed an original.

    b. **Severability.** Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement, which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

    c. **Waiver.** No waiver of any provision of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

    d. **Binding Effect.** This Agreement shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, representatives, agents, officers, employees, successors and assigns.

    e. **Default.** In the event either party violates any of the covenants, warranties, responsibilities or duties of this Agreement, or violates any provision of the District's Design Standards and Construction Specifications or the Rules and Regulations of the District, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

    f. **Captions.** The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

g. **Governing Law**. This Agreement and the parties' performance hereunder shall be governed by the laws of the State of Utah. The State or Federal Courts located in Salt Lake County, Utah shall be the exclusive forum for any action to enforce this Agreement.

h. **Entire Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof; and prior or contemporaneous promises, representations, warranties or understandings shall have no force or effect. Any amendment to this Agreement shall be made in writing and signed by the parties.

i. **Time of Essence.** Time is of the essence of this Agreement and in the performance of the District Requirements.

j. **Definitions.** As used herein, words that are capitalized shall be construed using the definitions set forth in this Agreement; or if not defined herein, shall be construed using the definitions set forth in the District's Design Standards and Construction Specifications or in the District's Rules and Regulations.

k. **Conflicts with Rules and Standards.** In the event a provision of this Agreement conflicts with the District's Design Standards and Construction Specifications or with the District's Rules and Regulations, the provision, standard, specification, rule or regulation that will most effectively ensure the integrity and efficiency of the District's system shall govern.

l. **Notices.** Notices shall be deemed effective on the date of delivery (if hand delivered) or three (3) days after mailing, certified U.S. Mail, return receipt requested. Notice shall be given to the parties at the following addresses:

To the District: (if by hand delivery)
Attn: District General Manager
1253 West Jordan Basin Lane
Bluffdale, Utah, 84065

(if by mail)
Attn: District General Manager
P.O. Box 629
Riverton, UT 84065

To the Developer: _____
_____
_____

m. **Exhibits**. Any exhibit(s) to this Agreement are incorporated herein by this reference, and failure to attach any such exhibit shall not affect the validity of this Agreement or of such exhibit. An unattached exhibit is available from the records of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"
JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me Joel Thompson, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

Seal:

"BANK"

_____

By:_____

Its: _____

BANK ACKNOWLEDGMENT

STATE OF UTAH)
:ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____, who being by me duly sworn, did say that (s)he is the _____ of _____, a corporation, and that said instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

"DEVELOPER"

_____

By:_____
Its: _____

DEVELOPER ACKNOWLEDGMENT

(Complete if Developer is an Individual)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being duly sworn, did say that (s)he is the signer of the foregoing instrument, who duly acknowledged to me that (s)he executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Corporation)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is the _____ _____ of _____, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Partnership)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that (s)he is the _____ _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

Seal:

(Complete if Developer is a Limited Liability Company)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is a _____ of _____, a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Seal:

EXHIBIT "A"

[OR AS SUPPLIED BY BANK AND APPROVED BY JBID]

SIGHT DRAFT

To Drawee _____

_____, Utah

_____

PAY TO THE ORDER OF Jordan Basin Improvement District on sight the sum of _____ _____ dollars ($_____) drawn against Account No. _____.

JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
General Manager

SAMPLE SEWER EXTENSION AGREEMENT
LETTER OF CREDIT FORM

SEWER EXTENSION AGREEMENT
(Letter of Credit Form)

THIS AGREEMENT is made and entered as of the ____ day of _____, 20___, by and between _____ whose address is _____ _____, hereinafter referred to as the "Developer;" and **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 West Jordan Basin Lane, Bluffdale UT 84065, hereinafter referred to as the "District."

RECITALS:

A. The Developer proposes to install sewer lines, manholes and related structures and facilities (hereinafter, the "Sewer Improvements"), on land in an area to be served by the District, and desires to connect the Sewer Improvements to the District's sewer system;

B. The proposed Sewer Improvements are to be installed in the _____ subdivision located at approximately _____, in _____ City, Utah (the "Development");

C. To ensure compliance with its Rules and Regulations, and to ensure public health, safety and welfare, the District will not allow connection of the Sewer Improvements to its system or otherwise approve or accept any work by the Developer until this Agreement is executed by the parties and the Performance Security[1] is provided as described in this Agreement; and

D. The District requires this Agreement to ensure timely and workmanlike completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications, the plan and profile drawings approved by the District, and with the District's Rules and Regulations.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Design and Installation of Improvements.**

    a. **The Design.** The Developer has provided to the District a design consisting of plan and profile drawings of the Sewer Improvements (the "Design") for review by the District. If directed by the District, the Design provides for the extension and, if necessary, upsizing of Developer's sewer main line(s) to adjacent property boundaries. The Developer has incorporated the District

[1] See Section 2, below.

Engineer's recommendations into the Design, if any, and the District Engineer has given its approval of the Design.[2]

b. **Rights of Way and Easements.** Prior to any construction or Development, Developer shall have acquired, at no expense to the District, all easements and other rights or interests required by the District for installing and maintaining that portion of the Sewer Improvements to be owned by the District, and shall have conveyed those easement rights or interests to the District in substance and form acceptable to the District.

c. **Preconstruction Meeting.** A preconstruction meeting may be requested by the Developer only after the following have been completed:
   1) District Engineer's approval of the Design;
   2) Execution and delivery to the District of all required easements;
   3) Payment of all required fees, including but not limited to nose-on, design review and inspection fees[3];
   4) Execution of this Agreement including the provision of Performance Security as described herein; and
   5) Execution, delivery and completion of any other documents or performances required by the District's Rules and Regulations or otherwise reasonably required to meet the purposes thereof.

d. **Installation.** Upon compliance with all the foregoing requirements, the Developer shall install at Developer's sole cost and expense the Sewer Improvements as shown on the approved Design. All construction shall be performed in a timely and workman-like manner and in accordance with the District's Design Standards and Construction Specifications. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines owned by the District. If any work is covered or interconnected before such testing, inspection and approval, the District may require the work to be uncovered (at a date and time convenient to the District, and at Developer's sole expense) for testing and inspection and may disconnect the Developer's Sewer Improvements from the District's sewer system. Consistent with the District's Design Standards and Construction Specifications, at the time of the installation the Developer shall install appropriate wyes in the sewer main line for each connection to be serviced, and extend lateral sewer lines to a point not less than 10 feet inside the boundary of property to be served by the Sewer Improvements; and all Sewer Improvements shall be located at a distance not less than five (5) feet from any other utilities, and not less than five (5) feet from the nearest curb, gutter or sidewalk.

[2] The District Engineer's approval of the Design does not constitute Final Project Approval.
[3] After execution of this Agreement, additional fees shall be required, including without limitation, impact fees, inspection fees, plat signing fees, and other fees as required by the District's Rules and Regulations.

e. **Completion Deadline.** All Sewer Improvements shall be completed and the system conveyed to the District by Bill of Sale as set forth in subsection h, below, on or before two (2) years from date of this Agreement.

f. **Physical Connection to System – Debris Protection**. Upon completion of the connection of the Developer's Sewer Improvements to the District's main outfall line(s), the Developer shall install a plug, acceptable to the District, in the manhole(s) where the sewer connection occurs.

g. **Inspections, Work Hours.** The District's work hours are 8:00 am to 4:30 pm, Monday through Friday, except holidays. Inspections to be performed at any other time shall require the prior written consent of the District; and shall require the Developer to pay additional inspection fees.

h. **Transfer by Developer to District.** Prior to Final Completion and before the Completion Deadline in subsection e, above, Developer shall execute and deliver to the District the approved Bill of Sale conveying the Sewer Improvements to the District free and clear of all liens and encumbrances. The District shall thereafter be the sole owner and shall operate and maintain such Sewer Improvements; provided, however, the Developer shall continue to be subject to the warranty obligations described herein; and further, the District shall not own nor have any duty to maintain service laterals extending from the District's sewer main(s) to any individual lots or connections.

i. **Final Connection and Use Requirements**. The Sewer Improvements shall not be connected to the District's system or otherwise utilized for the collection and conveyance of sewage until the Developer has met all District Requirements including without limitation, completed all Sewer Improvements, passed all inspections, and paid all fees required by this Agreement, by the District's Construction Standards and Design Specifications and by the District's Rules and Regulations.

2. **Performance Security.** Concurrent with the execution of this Agreement, the Developer delivers to the District an irrevocable standby letter of credit which shall meet the following requirements: (a) be issued by a federally insured bank having a local branch in Salt Lake or Utah County, Utah, having authority to receive and make payment on sight drafts submitted by the District on the letter of credit; (b) be in a form satisfactory to the District; (c) be issued for a term not less than three (3) years (plus additional time under subparagraph 10.f.);[4] and (d) be in the amount of not less than $_____ (the "Performance Security"). The Performance Security is attached hereto as Exhibit "A." The purpose of the Performance Security is to secure performance of Developer's duties as defined in this Agreement, in the District's

[4] See paragraph 2.b., below, dealing with an extended term for Warranty Security.

Design Standards and Construction Specifications and in the District's Rules and Regulations.[5] The amount of the Performance Security represents the following:

a. **Completion Security.** $ _____, which is the District Engineer's estimate of the cost of the Sewer Improvements (the "Completion Security"). The Completion Security shall be held by the District as security for the Developer's timely and workmanlike completion of the Sewer Improvements described herein; and

b. **Warranty Security.** $ _____ which represents ten percent 10% of the District Engineer's estimate of the cost of the Sewer Improvements (the "Warranty Security"). The Warranty Security shall be held as security for the Developer's obligations during the warranty periods described herein.
Progress Releases of Completion Security. The Developer may make written requests that the District authorize periodic partial releases of the Completion Security. The District's approval of partial releases of the Completion Security is conditioned upon Developer's strict compliance with the following:

a. **First Partial Release.** For developments where at least 1,000 lineal feet of sewer main line are to be installed, when at least 50% of the Sewer Improvements are Substantially Complete (as defined in the District Design Standards and Construction Specifications) and have been properly installed, the Developer may request a release of 40% of the Completion Security. As used in this paragraph 3, "properly installed" means:
    1) satisfactory connection of Sewer Improvements to the District's existing sewer main line;
    2) District's television inspection of the Sewer Improvements, and confirmation that the Sewer Improvements are straight, clean and free from debris, and appear to be free of defect;
    3) submission by Developer of satisfactory compaction test results;
    4) submission by Developer of satisfactory air and vacuum test results;
    5) submission by Developer of drawings identifying the location of all lateral lines; and
    6) certification by Developer's registered surveyor that the Sewer Improvements lie within the public right of way or a recorded public sewer easement[6]. If one or more subsequent television or other inspections for a partial release is required, Developer shall pay a fee for each subsequent television inspection, in the amount outlined in the District's Consolidated Fee Schedule.

[5] Hereinafter, the collective and combined requirements of this Agreement, the District's Design Standards and Construction Specifications and the District's Rules and Regulations are referred to as the "District Requirements."
[6] This shall be a Certified Survey, on the JBID's form, signed by a licensed Surveyor including manhole coordinates, rim and invert elevations, in Utah Central NAD83 foot coordinate system.

b. **Second Partial Release.** On any Project, irrespective of the length of Sewer Improvements being installed, the Developer may request a release of an amount not to exceed 80% of the Completion Security when all Sewer Improvements are Substantially Complete and have been properly installed as defined in subparagraph a., above.

c. **Final Release of Completion Security.** The Developer may request the release of the remaining balance of the Completion Security[7] upon Final Completion as defined in the District Design Standards and Construction Specifications, and demonstration that all construction and final District inspections of the Sewer Improvements are complete, including the following:
   1) all items required for the First and Second Partial Releases outlined above;
   2) all manholes are collared and level with adjacent pavement;
   3) existing pipes in the tie-in manholes are cut out and/or plug(s) are removed;
   4) all manholes are cleaned;
   5) accurate and complete "as-constructed drawings" have been submitted to the District;[8]
   6) a fully executed bill of sale, in the approved format, has been delivered to the District;
   7) all plugs and false bottoms have been removed; and
   8) all lateral location markers are installed.

3. **Release of Warranty Security.** The Warranty Security shall be retained by the District throughout the entire term of the Improvement Warranty[9], and its release shall be conditioned upon Developer's timely, workmanlike and satisfactory completion of all obligations required under the Improvement Warranty.

4. **District Withdrawals from Performance Security**.

   a. The purpose of the Performance Security is to ensure that the Developer completes the construction of the Sewer Improvements in a timely and workmanlike manner, abides by the Improvement Warranty provisions of this Agreement and otherwise fully and strictly complies with the District Requirements.

   b. In the event of a default, the District is authorized to draw on and utilize the Performance Security (in whole or in part) to pay for and complete the Sewer Improvements and to make any replacements, repairs or other work as may be required under the Improvement Warranty.

[8]Developer shall furnish accurate, surveyed, "as-constructed drawings" to the District showing the physical location of all sewer mains, laterals, inspection tees, wye branches, manholes and other facilities as they are actually installed, in an electronic format acceptable to the District.
[9] See paragraph 10, below.

c. Before making any withdrawals from the Performance Security, the District shall provide the Developer at least ten (10) days written notice of default. If the Developer fails to remedy the default within ten (10) days of the notice, or fails to obtain from the District a written extension of Developer's time to comply, the District is authorized to withdraw funds from the Performance Security and proceed as deemed necessary in the discretion of the District to remedy Developer's default.

d. The District may make multiple withdrawals from the Performance Security, provided however, that the District is required to provide only a single written notice of a default in Developer's obligations.

e. Funds withdrawn from the Performance Security may be used by the District to pay for all expenses, costs and fees incurred to remedy the Developer's default. Said expenses, costs and fees shall include without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

f. Withdrawals from the Performance Security by the District may be made by one or more sight drafts signed by the District's General Manager, an example of which is attached hereto as Exhibit "B," or by other instrument appropriate to this purpose. The parties hereby agree that the form of the sight draft appended as Exhibit "B" is in all respects sufficient for the District to make withdrawals from the Performance Security for the purposes described herein. The District at its sole discretion is authorized to make multiple withdrawals from the Performance Security.

g. <u>The Bank may honor all drafts presented by the District without informing the Developer or inquiring as to the reason for the presentation of the draft.</u>

5. **<u>Release of Performance Security</u>**. Upon full and satisfactory performance of the Developer's obligations under this Agreement and strict compliance with the District Requirements, including completion of any work required during the Improvement Warranty periods, the District shall notify the Developer in writing of the satisfactory construction of the Sewer Improvements and expiration of the warranty period. Upon giving such written notice, the District shall relinquish all claims and rights in the Performance Security and release the Performance Security.

6. **<u>Developer's Continuing Obligations.</u>** The withdrawal by the District of any funds from the Performance Security does not relieve the Developer from any duties or responsibilities under this Agreement; nor shall any such withdrawal constitute a waiver or estoppel, or an accord and satisfaction, against the District. To that end, the Developer expressly agrees that if the District performs or causes to be performed all or any portion of the Sewer Improvements or work required under the Improvement Warranty, any and all costs and expenses incurred by the District (plus administrative

costs as described herein) may be offset by the Performance Security. In the event the cost of any work performed by the District exceeds the amount then available from the Performance Security, the balance shall be paid by the Developer, including without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

7. **Developer's Representations.** Developer hereby represents and warrants that:

    a. Developer is the owner of the real property for which this Agreement is made;

    b. Any streets and/or easements in which the District will be required to maintain its facilities have been or will be dedicated as public streets or recorded as sanitary sewer easements in the office of the appropriate county recorder;

    c. The District has been granted, or is hereby granted, the full right to enter at any time upon all property within the Development to operate, inspect, maintain, replace and/or remove the District's sewer lines and facilities.

8. **Costs and Fees.**

    a. The Developer shall bear the entire cost of constructing all Sewer Improvements in accordance with the Design, including extensions from existing District sewer mains to the Development, the sewer collection system within the Development, laterals to each lot or connection within the Development, and the extension of sewer lines to the boundary line of adjacent property.

    b. The Developer shall bear the entire cost of performing any work required under the Improvement Warranty.

    c. No structure, lot or parcel of real property shall be connected to any portion of the District's existing sewer system until all District fees, including impact fees for that lot or parcel have been paid to the District. The fees paid by Developer shall be those established by the District's Board of Trustees in effect on the date the fees are paid to the District.

    d. The Developer agrees to bear all costs and expenses incurred by the District due to Developer's failure to comply with the terms of this Agreement. These expenses shall include, and shall not be limited to, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, and other expenses incurred by the District, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default. All such costs and expenses shall be paid by the Developer within fifteen days of billing by the District, and any unpaid

balance shall bear interest at the rate of eighteen percent (18%) per anum, compounded monthly.

9. **Improvement Warranty.** The Developer's warranty obligations under this agreement are as follows (the "Improvement Warranty"):

    a. **Developer's Warranty**. The Developer unconditionally warrants and guarantees that the Sewer Improvements, and every part thereof, shall comply with the District Requirements, will not fail in any respect as a result of poor workmanship or materials, shall not be defective in any respect, and shall not deteriorate during the warranty periods described herein.

    b. **Obligation to Repair and Replace.** In the event of any violation of the warranty obligations described herein, the Developer shall, at its sole cost and expense, promptly make all repairs, corrections, and/or replacements, and perform any other required work, in a manner that will make the Sewer Improvements compliant in all respects with this Agreement and with the District Requirements.

    c. **Standard One-Year Warranty Period.** Except as defined in subparagraphs d. and e., below, the term of the Developer's warranty shall be one (1) year, commencing on the date of Final Completion.

    d. **Extended Warranty – Prior Poor Performance**. In the event the District determines that the Developer or its contractor(s) have a record of prior poor performance, and that a one-year warranty is inadequate to protect the public health, safety and welfare, the District may require an extended warranty from the Developer, including additional Warranty Security in an amount acceptable to the District. The requirements of such an extended warranty and additional security will be memorialized in a signed addendum to this Agreement.

    e. **Continuation of Warranty – Repairs.** In the event any repair, replacement or other work is required under the warranty provisions herein, the term thereof shall immediately be extended for a period of one (1) year, commencing the date the repair, replacement or work is completed; and in such event, the District shall be entitled to withhold release of the Warranty Security until completion of the extended warranty period.

10. **Capacity**. The District's obligation to provide sewer service hereunder is expressly subject to and conditioned upon the availability of adequate conveyance and treatment capacity; and shall be subject to any limitations, requirements and regulations established from time to time by the District's Board of Trustees, by the governing body of the sewer treatment facility, or by any other governmental entity having jurisdiction over the parties.

11. **Other Bonds**. This Agreement and the Performance Security do not alter the obligation of Developer to provide other bonds required by any city, county or agency

having jurisdiction over Developer's development. The furnishing of security in compliance with the requirements of other jurisdictions shall not adversely affect the ability of the District to withdraw from the Performance Security as provided herein.

12. **Miscellaneous**

a. **Counterparts**. The fact that the parties execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution; such counterparts, taken together, shall constitute one and the same instrument; and each such counterpart shall be deemed an original.

b. **Severability.** Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement, which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

c. **Waiver.** No waiver of any provision of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

d. **Binding Effect.** This Agreement shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, representatives, agents, officers, employees, successors and assigns.

e. **Default.** In the event either party violates any of the covenants, warranties, responsibilities or duties of this Agreement, or violates any provision of the District's Design Standards and Construction Specifications or the Rules and Regulations of the District, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

f. **Captions.** The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

g. **Governing Law**. This Agreement and the parties' performance hereunder shall be governed by the laws of the State of Utah. The State or Federal Courts located in Salt Lake County, Utah shall be the exclusive forum for any action to enforce this Agreement.

h. **Entire Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof; and prior or contemporaneous promises, representations, warranties or understandings shall have no force or effect. Any amendment to this Agreement shall be made

in writing and signed by the parties.

i. **Time of Essence.** Time is of the essence of this Agreement and in the performance of the District Requirements.

j. **Definitions.** As used herein, words that are capitalized shall be construed using the definitions set forth in this Agreement; or if not defined herein, shall be construed using the definitions set forth in the District's Design Standards and Construction Specifications or in the District's Rules and Regulations.

k. **Conflicts with Rules and Standards.** In the event a provision of this Agreement conflicts with the District's Design Standards and Construction Specifications or with the District's Rules and Regulations, the provision, standard, specification, rule or regulation that will most effectively ensure the integrity and efficiency of the District's system shall govern.

l. **Notices.** Notices shall be deemed effective on the date of delivery (if hand delivered) or three (3) days after mailing, certified U.S. Mail, return receipt requested. Notice shall be given to the parties at the following addresses:

To the District: (if by hand delivery)
Attn: District General Manager
1253 West Jordan Basin Lane
Bluffdale, Utah, 84065

(if by mail)
Attn: District General Manager
P.O. Box 629
Riverton, UT 84065

To the Developer: _____
_____
_____

m. **Exhibits**. Any exhibit(s) to this Agreement are incorporated herein by this reference, and failure to attach any such exhibit shall not affect the validity of this Agreement or of such exhibit. An unattached exhibit is available from the records of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"
JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me Joel Thompson, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

Seal:

"DEVELOPER"

_____

By:_____
Its: _____

DEVELOPER ACKNOWLEDGMENT

(Complete if Developer is an Individual)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being duly sworn, did say that (s)he is the signer of the foregoing instrument, who duly acknowledged to me that (s)he executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Corporation)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is the _____ _____ of _____, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Partnership)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that (s)he is the _____ _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

Seal:

(Complete if Developer is a Limited Liability Company)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is a _____ of _____, a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Seal:

EXHIBIT "A"

[OR AS SUPPLIED BY BANK AND APPROVED BY JBID]

IRREVOCABLE STANDBY LETTER OF CREDIT

[insert date]

Beneficiary:
Jordan Basin Improvement District
1253 West Jordan Basin Lane
Bluffdale, Utah 84065

Applicant: (Developer)
_____
_____
_____

LOC Number: _____

Project Name: _____
_____
_____

Amount (USD): $_____

Expiration Date: Date three years after issuance

JORDAN BASIN IMPROVEMENT DISTRICT:

We hereby establish this Irrevocable Standby Letter of Credit No. _____ (The "LOC"), in favor of Jordan Basin Improvement District (the "District"), for the Account of _____ _____ (Developer) up to an aggregate amount of _____ U.S. Dollars ($_____) available by your draft at sight drawn on us. This LOC is issued to secure the completion and installation of improvements (the "Improvements") required under that certain Sewer Extension Agreement made between _____ _____(Developer) and the Jordan Basin Improvement District dated _____,_____.

Each draft must be accompanied by a certification from the District Engineer that _____ _____ (Developer) is in default under the terms and conditions set forth in the Sewer Extension Agreement and by a sight draft signed by the District Engineer.

Each sight draft drawn under this LOC must state "Drawn Under _____ (Financial Institution) Irrevocable Standby Letter of Credit No. _____, dated _____,_____, to satisfactorily complete such improvements as are required by the certain Sewer Extension Agreement between _____(Developer) and the Jordan Basin Improvement District, dated _____." _____ _____ (Financial Institution) is entitled to rely upon the certification from the District Engineer and will have no obligation to independently verify the accuracy thereof.

This LOC shall expire thirty-six (36) months from the date hereon unless the District shall have released _____(Developer) from all further liability hereunder upon the timely and satisfactory completion of the Improvements.

The proceeds of said drafts will be retained and used by the District to meet any expenses arising out of the satisfactory completion of the Improvements identified in the Sewer Extension Agreement. Upon the final completion and acceptance of the performance required under the Sewer Extension Agreement, there will be refunded to us by the District any balance remaining after application by the District of the sums necessary from the proceeds of the drafts(s) to pay costs incurred in satisfactorily completing the Improvements.

This LOC is issued and shall be subject Utah Code Annotated Sections 70A-5-101 et seq. (1953 as amended). Jurisdiction for resolution of disputes arising under this LOC lies in the courts of Salt Lake County, Utah.

We hereby agree with drawers, endorsers and bona fide holders of drafts that all drafts drawn under and in compliance with the terms of this LOC shall be honored by us and payment made no later than three (3) business days after delivery of documents as specified on or before the expiration date of this LOC.

In the event _____ (Financial Declaration) is placed into receivership, becomes insolvent, or files for bankruptcy, the District shall be immediately notified. The District may consider this a default event and require the issuance of a new irrevocable standby letter of credit.

_____
(Authorized Signer for Financial Institution)

DATE:_____

RE: AUTHORIZED SIGNERS FOR _____(Financial Institution)

Attn: Denette Burge, Jordan Basin Improvement District

Please be advised that the following individuals are authorized to sign Letters of Credit for the above-mentioned Bank:

_____

_____

_____

_____

_____

_____

_____

_____

Sincerely,

_____ (Financial Institution)

By: _____
Its: _____

EXHIBIT "B"

[OR AS SUPPLIED BY BANK AND APPROVED BY JBID]

SIGHT DRAFT

To Drawee _____

_____, Utah _____

PAY TO THE ORDER OF Jordan Basin Improvement District on sight the sum of _____ _____ dollars ($_____) drawn against Account No. _____.

JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
General Manager

SAMPLE SEWER EXTENSION AGREEMENT
FILL AREA (CASH FORM)

SEWER EXTENSION AGREEMENT
FILL AREA
(Cash Form)

THIS AGREEMENT is made and entered as of the ____ day of _____, 20___, by and between _____ whose address is _____ _____, hereinafter referred to as the "Developer;" and **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 West Jordan Basin Lane, Bluffdale UT 84065, hereinafter referred to as the "District."

RECITALS:

A. The Developer proposes to install sewer lines, manholes and related structures and facilities (hereinafter, the "Sewer Improvements"), on land in an area to be served by the District, and desires to connect the Sewer Improvements to the District's sewer system;

B. The proposed Sewer Improvements are to be installed in the _____ subdivision located at approximately _____, in _____ City, Utah (the "Development");

C. A portion of the proposed Sewer Improvements to be installed will be installed in a Fill Area. Fill Area is defined as a length of Sewer Main Line where the invert elevation of the Sewer Main Line is located above the natural ground surface which existed prior to any grading for the development.

D. To ensure compliance with its Rules and Regulations, and to ensure public health, safety and welfare, the District will not allow connection of the Sewer Improvements to its system or otherwise approve or accept any work by the Developer until this Agreement is executed by the parties and the Performance Security[1] is provided as described in this Agreement; and

E. The District requires this Agreement to ensure timely and workmanlike completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications, the plan and profile drawings approved by the District, and with the District's Rules and Regulations.

AGREEMENT

[1] See Section 2, below.

NOW, THEREFORE, in consideration of the mutual covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Design and Installation of Improvements.**

   a. **The Design.** The Developer has provided to the District a design consisting of plan and profile drawings of the Sewer Improvements (the "Design") for review by the District. If directed by the District, the Design provides for the extension and, if necessary, upsizing of Developer's sewer main line(s) to adjacent property boundaries. The Developer has incorporated the District Engineer's recommendations into the Design, if any, and the District Engineer has given its approval of the Design.[2]

   b. **Rights of Way and Easements.** Prior to any construction or Development, Developer shall have acquired, at no expense to the District, all easements and other rights or interests required by the District for installing and maintaining that portion of the Sewer Improvements to be owned by the District, and shall have conveyed those easement rights or interests to the District in substance and form acceptable to the District.

   c. **Preconstruction Meeting.** A preconstruction meeting may be requested by the Developer only after the following have been completed: 1) District Engineer's approval of the Design; 2) Execution and delivery to the District of all required easements; 3) Payment of all required fees, including but not limited to nose-on, design review and inspection fees[3]; 4) Execution of this Agreement including the provision of Performance Security as described herein; and 5) execution, delivery and completion of any other documents or performances required by the District's Rules and Regulations or otherwise reasonably required to meet the purposes thereof.

   d. **Installation.** Upon compliance with all the foregoing requirements, the Developer shall install at Developer's sole cost and expense the Sewer Improvements as shown on the approved Design. All construction shall be performed in a timely and workman-like manner and in accordance with the District's Design Standards and Construction Specifications. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines owned by the District. If any work is covered or interconnected before such testing, inspection and approval, the District may require the work to be uncovered (at a date and time convenient to the District, and at Developer's sole expense) for testing and inspection and may disconnect the Developer's Sewer Improvements from the District's sewer system. Consistent with the District's Design Standards and Construction Specifications, at the time of the installation the

[2] The District Engineer's approval of the Design does not constitute Final Project Approval.
[3] After execution of this Agreement, additional fees shall be required, including without limitation, impact fees, inspection fees, plat signing fees, and other fees as required by the District's Rules and Regulations.

Developer shall install appropriate wyes in the sewer main line for each connection to be serviced, and extend lateral sewer lines to a point not less than 10 feet inside the boundary of property to be served by the Sewer Improvements; and all Sewer Improvements shall be located at a distance not less than five (5) feet from any other utilities, and not less than five (5) feet from the nearest curb, gutter or sidewalk.

e. **Completion Deadline.** All Sewer Improvements shall be completed and the system conveyed to the District by Bill of Sale as set forth in subsection h, below, on or before two (2) years from date of this Agreement.

f. **Physical Connection to System – Debris Protection**. Upon completion of the connection of the Developer's Sewer Improvements to the District's main outfall line(s), the Developer shall install a plug, acceptable to the District, in the manhole(s) where the sewer connection occurs.

g. **Inspections, Work Hours.** The District's work hours are 7:00 am to 4:30 pm, Monday through Thursday, and 8:00 am to 12:00 pm on Friday, except holidays. Inspections to be performed at any other time shall require the prior written consent of the District, and shall require the Developer to pay additional inspection fees.

h. **Transfer by Developer to District.** Prior to Final Completion and before the Completion Deadline in subsection e, above, Developer shall execute and deliver to the District the approved Bill of Sale conveying the Sewer Improvements to the District free and clear of all liens and encumbrances. The District shall thereafter be the sole owner and shall operate and maintain such Sewer Improvements; provided, however, the Developer shall continue to be subject to the warranty obligations described herein; and further, the District shall not own nor have any duty to maintain service laterals extending from the District's sewer main(s) to any individual lots or connections.

i. **Final Connection and Use Requirements**. The Sewer Improvements shall not be connected to the District's system or otherwise utilized for the collection and conveyance of sewage until the Developer has met all District Requirements including without limitation, completed all Sewer Improvements, passed all inspections, and paid all fees required by this Agreement, by the District's Construction Standards and Design Specifications and by the District's Rules and Regulations.

2. **Performance Security.** Concurrent with the execution of this Agreement, the Developer delivers to the District cash or equivalent in the amount of $_____ (the "Performance Security"). The purpose of the Performance Security is to secure performance of Developer's duties as defined in this Agreement, in the District's Design Standards and Construction Specifications and in the District's Rules and

Regulations.[4] The parties acknowledge that Performance Security held by the District is deposited and held with the Utah Public Treasurers Investment Fund ("PTIF"), managed by the office of the Utah State Treasurer, and that interest will accrue on the funds at the rate determined by the Utah State Treasurer. Administrative fees and interest accrual on funds held with the PTIF are determined solely by the Utah State Treasurer. The amount of the Performance Security represents the following:

a. **Completion Security.** $ _____, which is the District Engineer's estimate of the cost of the Sewer Improvements (the "Completion Security"). The Completion Security shall be held by the District as security for the Developer's timely and workmanlike completion of the Sewer Improvements described herein; and

b. **Warranty Security.** $ _____ which represents ten percent 10% of the District Engineer's estimate of the cost of the Sewer Improvements (the "Warranty Security"). The Warranty Security shall be held as security for the Developer's obligations during the warranty periods described herein. The parties acknowledge and agree that the Warranty Security may, if deemed necessary by the District, be set in an amount that exceeds 10% of the District Engineer's estimated cost of the Sewer Improvements; in which event the amount thereof shall be equal to the District Engineer's estimate of the repair and replacement costs in any Fill Areas, and the term thereof shall be extended to meet the District's requirements for warranties.

3. **Release of Warranty Security**. The Warranty Security shall be retained by the District throughout the entire term of the Improvement Warranty[5], and its release shall be conditioned upon Developer's timely, workmanlike and satisfactory completion of all obligations required under the Improvement Warranty.

4. **District Withdrawals from Performance Security**.

a. The purpose of the Performance Security is to ensure that the Developer completes the construction of the Sewer Improvements in a timely and workmanlike manner, abides by the Improvement Warranty provisions of this Agreement and otherwise fully and strictly complies with the District Requirements.

b. In the event of a default, the District is authorized to withdraw from and utilize the Performance Security (in whole or in part) to pay for and complete the Sewer Improvements and to make any replacements, repairs or other work as may be required under the Improvement Warranty.

[4] Hereinafter, the collective and combined requirements of this Agreement, the District's Design Standards and Construction Specifications and the District's Rules and Regulations are referred to as the "District Requirements."
[5] See paragraph 10, below.

c. Before making any withdrawals from the Performance Security, the District shall provide the Developer at least ten (10) days written notice of default. If the Developer fails to remedy the default within ten (10) days of the notice, or fails to obtain from the District a written extension of Developer's time to comply, the District is authorized to withdraw funds from the Performance Security and proceed as deemed necessary in the discretion of the District to remedy Developer's default.

d. The District may make multiple withdrawals from the Performance Security, provided however, that the District is required to provide only a single written notice of a default in Developer's obligations.

e. Funds withdrawn from the Performance Security may be used by the District to pay for all expenses, costs and fees incurred to remedy the Developer's default. Said expenses, costs and fees shall include without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

5. **Release of Performance Security**. Upon full and satisfactory performance of the Developer's obligations under this Agreement and strict compliance with the District Requirements, including completion of any work required during the Improvement Warranty periods, the District shall notify the Developer in writing of the satisfactory construction of the Sewer Improvements and expiration of the warranty period. Upon giving such written notice, the District shall relinquish all claims and rights in the Performance Security and release the balance of the Performance Security, plus any accrued interest to the Developer.

6. **Developer's Continuing Obligations.** The withdrawal by the District of any funds from the Performance Security does not relieve the Developer from any duties or responsibilities under this Agreement; nor shall any such withdrawal constitute a waiver or estoppel, or an accord and satisfaction, against the District. To that end, the Developer expressly agrees that if the District performs or causes to be performed all or any portion of the Sewer Improvements or work required under the Improvement Warranty, any and all costs and expenses incurred by the District (plus administrative costs as described herein) may be offset by the Performance Security. In the event the cost of any work performed by the District exceeds the amount then available from the Performance Security, the balance shall be paid by the Developer, including without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default.

7. **Developer's Representations.** Developer hereby represents and warrants that:

a. Developer is the owner of the real property for which this Agreement is made;

b. Any streets and/or easements in which the District will be required to maintain its facilities have been or will be dedicated as public streets or recorded as sanitary sewer easements in the office of the appropriate county recorder;

c. The District has been granted, or is hereby granted, the full right to enter at any time upon all property within the Development to operate, inspect, maintain, replace and/or remove the District's sewer lines and facilities.

8. **Costs and Fees.**

a. The Developer shall bear the entire cost of constructing all Sewer Improvements in accordance with the Design, including extensions from existing District sewer mains to the Development, the sewer collection system within the Development, laterals to each lot or connection within the Development, and the extension of sewer lines to the boundary line of adjacent property.

b. The Developer shall bear the entire cost of performing any work required under the Improvement Warranty.

c. No structure, lot or parcel of real property shall be connected to any portion of the District's existing sewer system until all District fees, including impact fees for that lot or parcel have been paid to the District. The fees paid by Developer shall be those established by the District's Board of Trustees in effect on the date the fees are paid to the District.

d. The Developer agrees to bear all costs and expenses incurred by the District due to Developer's failure to comply with the terms of this Agreement. These expenses shall include, and shall not be limited to, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, and other expenses incurred by the District, and administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default. All such costs and expenses shall be paid by the Developer within fifteen days of billing by the District, and any unpaid balance shall bear interest at the rate of eighteen percent (18%) per anum, compounded monthly.

9. **Improvement Warranty.** The Developer's warranty obligations under this agreement are as follows (the "Improvement Warranty"):

a. **Developer's Warranty**. The Developer unconditionally warrants and guarantees that the Sewer Improvements, and every part thereof, shall comply with the District Requirements, will not fail in any respect as a result of poor workmanship or materials, shall not be defective in any respect, and shall not deteriorate during the warranty periods described herein.

b. **Obligation to Repair and Replace.** In the event of any violation of the warranty obligations described herein, the Developer shall, at its sole cost and expense, promptly make all repairs, corrections, and/or replacements, and perform any other required work, in a manner that will make the Sewer Improvements compliant in all respects with this Agreement and with the District Requirements.

c. **Two-Year Warranty Period.** The parties acknowledge and agree that non-native soils are more likely to settle than native and undisturbed soil, and that areas where sewer improvements are installed in non-native soils (due to depressions in topography or otherwise) are subject to significant concerns and risks to public health, safety and welfare that may not be present with other sewer installations. Accordingly, the parties acknowledge and agree that for the protection and integrity of the District's system, where a project requires the installation of Sewer Improvements in non-native or disturbed soil, the term of the Developer's warranty shall be two (2) years, commencing on the date of Final Completion.

d. **Extended Warranty – Prior Poor Performance**. In the event the District determines that the Developer or its contractor(s) have a record of prior poor performance, and that a one-year warranty is inadequate to protect the public health, safety and welfare, the District may require an extended warranty from the Developer, including additional Warranty Security in an amount acceptable to the District. The requirements of such an extended warranty and additional security will be memorialized in a signed addendum to this Agreement.

e. **Continuation of Warranty – Repairs.** In the event any repair, replacement or other work is required under the warranty provisions herein, the term thereof shall immediately be extended for a period of two (2) years), commencing the date the repair, replacement or work is completed; and in such event, the District shall be entitled to withhold release of the Warranty Security until completion of the extended warranty period.

10. **Capacity**. The District's obligation to provide sewer service hereunder is expressly subject to and conditioned upon the availability of adequate conveyance and treatment capacity; and shall be subject to any limitations, requirements and regulations established from time to time by the District's Board of Trustees, by the governing body of the sewer treatment facility, or by any other governmental entity having jurisdiction over the parties.

11. **Other Bonds**. This Agreement and the Performance Security do not alter the obligation of Developer to provide other bonds required by any city, county or agency having jurisdiction over Developer's development. The furnishing of security in compliance with the requirements of other jurisdictions shall not adversely affect the ability of the District to withdraw from the Performance Security as provided herein.

12. **Miscellaneous**

a. **Counterparts**. The fact that the parties execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution; such counterparts, taken together, shall constitute one and the same instrument; and each such counterpart shall be deemed an original.

b. **Severability.** Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement, which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

c. **Waiver.** No waiver of any provision of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

d. **Binding Effect.** This Agreement shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, representatives, agents, officers, employees, successors and assigns.

e. **Default.** In the event either party violates any of the covenants, warranties, responsibilities or duties of this Agreement, or violates any provision of the District's Design Standards and Construction Specifications or the Rules and Regulations of the District, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

f. **Captions.** The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

g. **Governing Law**. This Agreement and the parties' performance hereunder shall be governed by the laws of the State of Utah. The State or Federal Courts located in Salt Lake County, Utah shall be the exclusive forum for any action to enforce this Agreement.

h. **Entire Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof; and prior or contemporaneous promises, representations, warranties or understandings shall have no force or effect. Any amendment to this Agreement shall be made in writing and signed by the parties.

i. **Time of Essence.** Time is of the essence of this Agreement and in the performance of the District Requirements.

j. **Definitions.** As used herein, words that are capitalized shall be construed

using the definitions set forth in this Agreement; or if not defined herein, shall be construed using the definitions set forth in the District's Design Standards and Construction Specifications or in the District's Rules and Regulations.

k. **Conflicts with Rules and Standards.** In the event a provision of this Agreement conflicts with the District's Design Standards and Construction Specifications or with the District's Rules and Regulations, the provision, standard, specification, rule or regulation that will most effectively ensure the integrity and efficiency of the District's system shall govern.

l. **Notices.** Notices shall be deemed effective on the date of delivery (if hand delivered) or three (3) days after mailing, certified U.S. Mail, return receipt requested. Notice shall be given to the parties at the following addresses:

To the District: (if by hand delivery)
Attn: District General Manager
1253 West Jordan Basin Lane
Bluffdale, Utah, 84065

(if by mail)
Attn: District General Manager
P.O. Box 629
Riverton, UT 84065

To the Developer: _____
_____
_____

m. **Exhibits**. Any exhibit(s) to this Agreement are incorporated herein by this reference, and failure to attach any such exhibit shall not affect the validity of this Agreement or of such exhibit. An unattached exhibit is available from the records of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"
JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me Joel Thompson, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

Seal:

"DEVELOPER"

_____

By:_____
Its: _____

DEVELOPER ACKNOWLEDGMENT

(Complete if Developer is an Individual)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being duly sworn, did say that (s)he is the signer of the foregoing instrument, who duly acknowledged to me that (s)he executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Corporation)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is the _____ _____ of _____, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Partnership)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that (s)he is the _____ _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

Seal:

(Complete if Developer is a Limited Liability Company)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____ who being by me duly sworn did say that (s)he is a _____ of _____, a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Seal:

SAMPLE SEWER EXTENSION AGREEMENT
WARRANTY CASH FORM

SEWER EXTENSION AGREEMENT
(Warranty Cash Form)

THIS AGREEMENT is made and entered as of the ____ day of _____, 20___, by and between _____ whose address is _____ _____, hereinafter referred to as the "Developer;" and **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 West Jordan Basin Lane, Bluffdale UT 84065, hereinafter referred to as the "District."

RECITALS:

A. The Developer proposes to install sewer lines, manholes and related structures and facilities (hereinafter, the "Sewer Improvements"), on land in an area to be served by the District, and desires to connect the Sewer Improvements to the District's sewer system;

B. The proposed Sewer Improvements are to be installed in the _____ subdivision located at approximately _____, in _____ City, Utah (the "Development");

C. To ensure compliance with its Rules and Regulations, and to ensure public health, safety and welfare, the District will not allow connection of the Sewer Improvements to its system or otherwise approve or accept any work by the Developer until this Agreement is executed by the parties, the Performance Security[1] is provided as described in this Agreement, a plat has been signed by the District, and a Certificate of Final Completion has been issued by the District; and

D. The District requires this Agreement to ensure timely and workmanlike completion of the Sewer Improvements in compliance with the District's Design Standards and Construction Specifications, the plan and profile drawings approved by the District, and with the District's Rules and Regulations.

E. The Developer desires to construct the Sewer Improvements before the District signs or otherwise approves the plat for the Development, and is willing to provide the warranty and the performance security required by the District.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Design and Installation of Improvements.**

[1] See Section 2, below.

a. **The Design.** The Developer has provided to the District a design consisting of plan and profile drawings of the Sewer Improvements (the "Design") for review by the District. If directed by the District, the Design provides for the extension and, if necessary, upsizing of Developer's sewer main line(s) to adjacent property boundaries. The Developer has incorporated the District Engineer's recommendations, if any, into the Design, and the District Engineer has given its approval of the Design.[2]

b. **Preconstruction Meeting.** A preconstruction meeting may be requested by the Developer only after the following have been completed:
   1) District Engineer's approval of the Design;
   2) Payment of all required fees, including but not limited to nose-on, design review and inspection fees[3];
   3) Execution of this Agreement including the provision of Performance Security as described herein; and
   4) execution, delivery and completion of any other documents or performances required by the District Requirements[4] or otherwise reasonably required to meet the purposes thereof.

c. **Installation.** Upon compliance with the foregoing (subparagraphs 1.a and b.), the Developer shall install at Developer's sole cost and expense the Sewer Improvements as shown on the approved Design, and in strict compliance with all District Requirements. All construction shall be performed in a timely and workman-like manner. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines owned by the District. If any work is covered or interconnected before such testing, inspection and approval, the District may require the work to be uncovered (at a date and time convenient to the District, and at Developer's sole expense) for testing and inspection and may disconnect the Developer's Sewer Improvements from the District's sewer system. Consistent with the District's Design Standards and Construction Specifications, at the time of the installation the Developer shall install appropriate wyes in the sewer main line for each connection to be serviced, and extend lateral sewer lines to a point not less than 10 feet inside the boundary of property to be served by the Sewer Improvements; and all Sewer Improvements shall be located at a distance not less than five (5) feet from any other utilities, and not less than five (5) feet from the nearest curb, gutter or sidewalk.

[2] The District Engineer's approval of the Design does not constitute Substantial or Final Project Approval.
[3] After execution of this Agreement, additional fees shall be required, including without limitation, impact fees, inspection fees, plat signing fees, and other fees as required by the District's Rules and Regulations.
[4] As used herein, the term "District Requirements" means the collective and combined requirements of the Design, this Agreement, the District's Design Standards and Construction Specifications and the District's Rules and Regulations.

d. **Completion Deadline.** All Sewer Improvements shall be completed and the system conveyed to the District by Bill of Sale as set forth in subsection g, below, on or before two (2) years from date of this Agreement.

e. **Physical Connection to System – Debris Protection**. At the manhole location where the Developer's Sewer Improvements connect to the District's main outfall line(s), the Developer shall install a plug, acceptable to the District.

f. **Inspections, Work Hours.** The District's work hours are 8:00 am to 4:30 pm, Monday through Friday, except holidays. Inspections to be performed at any other time shall require the prior written consent of the District, and shall require the Developer to pay additional inspection fees.

g. **Transfer by Developer to District – Easements, Rights-of-Way, Improvements.** As conditions precedent to the District's execution of the plat for the Development and issuance of its Certificate of Final Completion, Developer shall, at no expense to the District:
   1) acquire and convey[5] to the District all easements and other rights or interests required by the District for installation and maintenance of that portion of the Sewer Improvements to be owned by the District; and
   2) execute and deliver to the District a Bill of Sale conveying the Sewer Improvements to the District free and clear of all liens and encumbrances. The District shall thereafter be the sole owner and shall operate and maintain such Sewer Improvements; provided, however, the Developer shall continue to be subject to the warranty obligations described herein; and further, the District shall not own nor have any duty to maintain service laterals extending from the District's sewer main(s) to any individual lots or connections.

h. **Final Connection and Use Requirements**. The Sewer Improvements shall not be connected to the District's system or otherwise utilized for the collection and conveyance of sewage until the Developer has met all District Requirements including without limitation, completed all Sewer Improvements, passed all inspections, paid all fees required by this Agreement, by the District's Construction Standards and Design Specifications and by the District's Rules and Regulations, and received the District's Certificate of Final Completion.

2. **Performance Security.** Concurrent with the execution of this Agreement, the Developer delivers to the District cash or equivalent in the amount of $_____ (the "Performance Security"). The purpose of the Performance Security is to secure performance of Developer's duties under the District Requirements, including the Warranty Improvement provisions of this Agreement. The amount of the

[5] The conveyance of such easements, rights and interests shall be on forms and in substance acceptable to the District.

Performance Security represents ten percent 10% of the District Engineer's estimate of the total cost of the Sewer Improvements.

a. The parties acknowledge and agree that the Performance Security held by the District is or will be deposited and held with the Utah Public Treasurers Investment Fund ("PTIF"), managed by the office of the Utah State Treasurer, and that interest will accrue on the funds at the rate determined by the Utah State Treasurer. Administrative fees and interest accrual on funds held with the PTIF are determined solely by the Utah State Treasurer.

3. **District Withdrawals from Performance Security**.

   a. In the event of a default, the District is authorized to withdraw from and utilize the Performance Security (in whole or in part) to pay for and complete the Sewer Improvements and to make any replacements, repairs or other work as may be required under the Improvement Warranty.

   b. Before making any withdrawals from the Performance Security, the District shall provide the Developer at least ten (10) days written notice of default. If the Developer fails to remedy the default within ten (10) days of the notice, or fails to obtain from the District a written extension of Developer's time to comply, the District is authorized to withdraw funds from the Performance Security and proceed as deemed necessary in the discretion of the District to remedy Developer's default.

   c. The District may make multiple withdrawals from the Performance Security, provided however, that the District is required to provide only a single written notice of a default in Developer's obligations.

   d. Funds withdrawn from the Performance Security may be used by the District to pay for all expenses, costs and fees incurred by the District to remedy the Developer's default. Said expenses, costs and fees shall include without limitation, damages to third parties, sewer line cleaning costs, televising costs, inspection costs, property damage, construction costs, engineering costs, costs of supplies, parts or equipment, delivery expenses, legal fees, and other expenses incurred by the District, plus administrative costs equal to fifteen percent (15%) of the expenditures made by the District to remedy the Developer's default (the "Remedy Expenses" of the District).

4. **Release of Performance Security**. The Performance Security shall be retained by the District throughout the entire term of the Improvement Warranty periods. Upon full and satisfactory performance of the Developer's obligations under this Agreement and strict compliance with the District Requirements, including completion of any work required during the Improvement Warranty periods, the District shall notify the Developer in writing of the satisfactory construction of the Sewer Improvements and expiration of the warranty period. Upon giving such written notice, the District shall relinquish all claims and rights in the Performance Security

and release the balance of the Performance Security, plus any accrued interest to the Developer.

5. **Developer's Continuing Obligations.** The withdrawal by the District of any funds from the Performance Security does not relieve the Developer from any duties or responsibilities under this Agreement; nor shall any such withdrawal constitute a waiver or estoppel, or an accord and satisfaction, against the District. To that end, the Developer expressly agrees that if the District performs or causes to be performed all or any portion of the Sewer Improvements or work required under the Improvement Warranty, any Remedy Expenses incurred by the District may be offset by the Performance Security. In the event the cost of any Remedy Expenses of the District exceeds the amount then available from the Performance Security, the balance shall be paid by the Developer.

6. **Developer's Representations.** Developer hereby represents and warrants that:

    a. Developer is the owner of the real property for which this Agreement is made;

    b. Any streets and/or easements in which the District will be required to maintain its facilities have been or will be dedicated as public streets or recorded as sanitary sewer easements in the office of the appropriate county recorder;

    c. The District has been granted, or is hereby granted, the full right to enter at any time upon all property within the Development to operate, inspect, maintain, replace and/or remove the District's sewer lines and facilities.

7. **Costs and Fees.**

    a. The Developer shall bear the entire cost of constructing all Sewer Improvements in accordance with the District Requirements, including extensions from existing District sewer mains to the Development, the sewer collection system within the Development, laterals to each lot or connection within the Development, and the extension of sewer lines to the boundary line of adjacent property.

    b. The Developer shall bear the entire cost of performing any work required under the Improvement Warranty.

    c. No structure, lot or parcel of real property shall be connected to any portion of the District's existing sewer system until all District fees, including impact fees for that lot or parcel have been paid to the District. The fees paid by Developer shall be those established by the District's Board of Trustees in effect on the date the fees are paid to the District.

    d. The Developer agrees to pay and bear all Remedy Expenses of the District. All such costs and expenses shall be paid by the Developer within fifteen days of billing by the District, and any unpaid balance shall bear interest at the rate of eighteen percent (18%) per annum, compounded monthly.

8. **Improvement Warranty.** The Developer's warranty obligations under this agreement are as follows (the "Improvement Warranty"):

    a. **Developer's Warranty**. The Developer unconditionally warrants and guarantees that the Sewer Improvements, and every part thereof, shall comply with the District Requirements, will not fail in any respect as a result of poor workmanship or materials, shall not be defective in any respect, and shall not deteriorate during the warranty periods described herein.

    b. **Obligation to Repair and Replace.** In the event of any violation of the warranty obligations described herein, the Developer shall, at its sole cost and expense, promptly make all repairs, corrections, and/or replacements, and perform any other required work, in a workmanlike manner, and otherwise in a manner that will make the Sewer Improvements compliant in all respects with this Agreement and with the District Requirements.

    c. **Standard One-Year Warranty Period.** Except as defined in subparagraphs d. and e., below, the term of the Developer's warranty shall be one (1) year, commencing on the date of Final Completion.

    d. **Extended Warranty – Prior Poor Performance**. In the event the District determines that the Developer or its contractor(s) have a record of prior poor performance, and that a one-year warranty is inadequate to protect the public health, safety and welfare, the District may at its discretion require an extended warranty from the Developer, including additional Warranty Security in an amount acceptable to the District. The requirements of such an extended warranty and additional security will be memorialized in a signed addendum to this Agreement.

    e. **Repairs – Extended Warranty Period.** In the event any repair, replacement or other work is required under these warranty provisions, the term thereof shall immediately be extended for a period of one (1) year, commencing the date the repair, replacement or work is completed and approved in writing by the District; and in such event, the District shall be entitled to withhold release of the Warranty Security until completion of the extended warranty period.

9. **Capacity**. The District's obligation to provide sewer service hereunder is expressly subject to and conditioned upon the availability of adequate conveyance and treatment capacity; and shall be subject to any limitations, requirements and regulations established from time to time by the District's Board of Trustees, by the governing body of the sewer treatment facility, or by any other governmental entity having jurisdiction over the parties.

10. **Other Bonds**. This Agreement and the Performance Security do not alter the obligation of Developer to provide other bonds required by any municipality, county or other agency having jurisdiction over Developer's development. The furnishing of security in compliance with the requirements of other jurisdictions shall not adversely

affect the ability of the District to withdraw from the Performance Security as provided herein.

11. **Miscellaneous**

a. **Counterparts**. The fact that the parties execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution; such counterparts, taken together, shall constitute one and the same instrument; and each such counterpart shall be deemed an original.

b. **Severability.** Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement, which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

c. **Waiver.** No waiver of any provision of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

d. **Binding Effect.** This Agreement shall inure to the benefit of, and be binding upon, the parties and their respective heirs, representatives, agents, officers, employees, successors and assigns.

e. **Default.** In the event either party violates any of the covenants, warranties, responsibilities or duties of this Agreement, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

f. **Captions.** The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

g. **Governing Law**. This Agreement and the parties' performance hereunder shall be governed by the laws of the State of Utah. The State or Federal Courts located in Salt Lake County, Utah shall be the exclusive forum for any action to enforce this Agreement.

h. **Entire Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof; and prior or contemporaneous promises, representations, warranties or understandings shall have no force or effect. Any amendment to this Agreement shall be made in writing and signed by the parties.

i. **Time of Essence.** Time is of the essence of this Agreement and in the

performance of all obligations under the District Requirements.

j. **Definitions.** As used herein, words that are capitalized shall be construed using the definitions set forth in this Agreement; or if not defined herein, shall be construed using the definitions set forth in the District's Design Standards and Construction Specifications or in the District's Rules and Regulations.

k. **Conflicts with Rules and Standards.** In the event a provision of this Agreement conflicts with the District's Design Standards and Construction Specifications or with the District's Rules and Regulations, the provision, standard, specification, rule or regulation that will most effectively ensure the integrity and efficiency of the District's system shall govern.

l. **Notices.** Notices shall be deemed effective on the date of delivery (if hand delivered) or three (3) days after mailing, certified U.S. Mail, return receipt requested. Notice shall be given to the parties at the following addresses:

To the District: (if by hand delivery)
Attn: District General Manager
1253 West Jordan Basin Lane
Bluffdale, Utah, 84065

(if by mail)
Attn: District General Manager
P.O. Box 629
Riverton, UT 84065

To the Developer: _____
_____
_____

m. **Exhibits**. Any exhibit(s) to this Agreement are incorporated herein by this reference, and failure to attach any such exhibit shall not affect the validity of this Agreement or of such exhibit. An unattached exhibit is available from the records of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"
JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me Joel Thompson, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

Seal:

"DEVELOPER"

_____

By:_____
Its: _____

DEVELOPER ACKNOWLEDGMENT

(Complete if Developer is an Individual)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being duly sworn, did say that (s)he is the signer of the foregoing instrument, who duly acknowledged to me that (s)he executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Corporation)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being by me duly sworn did say that (s)he is the _____ _____ of _____, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its bylaws or by a resolution of its Board of Directors; and acknowledged to me that said corporation executed the same.

_____
Notary Public

Seal:

(Complete if Developer is a Partnership)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ _____, who being by me duly sworn did say that (s)he is the _____ of _____, a partnership, and that the foregoing instrument was duly authorized at a lawful meeting held by authority of its bylaws and signed in behalf of said partnership.

_____
Notary Public

Seal:

(Complete if Developer is a Limited Liability Company)

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being by me duly sworn did say that (s)he is a _____ of _____ , a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

Seal:

SUBSTANDARD LATERAL AGREEMENT

When Recorded Return to:
Joel Thompson
Jordan Basin Improvement District
P.O. Box 629
Riverton, Utah 84065

AFFECTS PARCEL I.D. #_____
OWNER(S): _____

ASSUMPTION OF RISK AGREEMENT FOR SUBSTANDARD LATERAL CONNECTION

KNOW ALL MEN BY THESE PRESENTS:

RECITALS:

A. The undersigned, hereinafter referred to as "OWNER(S)" owns real property located at approximately _____,_____, UT _____, which property is more particularly described as follows:

See Exhibit "A" attached hereto and by this reference made a part hereof.

B. OWNER(S) understands and acknowledges that the sewer lateral does not meet the minimum standards required by the Jordan Basin Improvement District and/ or applicable Plumbing Code provisions as the private sewer lateral_____
_____.

C. For reasons sufficient to and for the convenience of the OWNER(S), and with a full understanding that the sewer lateral has not met the standard requirements of the Jordan Basin Improvement District, the OWNER(S) hereby request(s) permission to have the above-described property connected to the District's sewer main and system.

AGREEMENT:

NOW, THEREFORE, in consideration of the sewer service to OWNER(S) by the District as well as other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the OWNER(S) hereby agrees as follows:

1. OWNER(S) hereby accepts and assumes all risk of using and operating OWNER(S)'s sewer lateral located on OWNER(S)'s property. OWNER(S) assumes the risk of any damages and consequences, both expected and unexpected, that may result from the

substandard sewer lateral and proceeding to use that sewer lateral without replacing or modifying the same to meet District standards.

2. OWNER(S) hereby waives any and all claims, causes of action or demands for damages or other relief of whatsoever kind or nature which the OWNER(S) may hereafter have or claim arising out of use of OWNER(S)'s lateral.

3. OWNER(S) hereby acknowledges that no representation, fact or opinion has been made by the Sewer District or on its behalf to induce this assumption of risk and waiver with respect to the extent, nature and likelihood of damages or injuries or consequences that may be sustained by the OWNER(S) from utilizing the substandard sewer lateral on OWNER(S)'s property. OWNER(S) has determined that it is in OWNER(S)'s best interest not to replace or modify the sewer lateral.

4. OWNER(S) hereby agrees hereafter to abide by and obey all of the rules and regulations of the Jordan Basin Improvement District pertaining to the construction, maintenance and use of OWNER(S)'s lateral and the District's sewer system.

5. OWNER(S) hereby agrees to indemnify and hold the District and its officers, employees, agents, representatives, successors and assigns harmless from any and all claims, suits, damages, expenses and costs, including attorneys' fees, which may be incurred by the District or which may be asserted against the District by the OWNER(S) or any third parties as a result of or arising out of OWNER(S)'s substandard sewer lateral and any use or operation thereof.

6. OWNER(S) agrees to the recording of this document in the office of the Salt Lake County Recorder, State of Utah.

7. This Agreement shall be binding upon the parties hereto and their respective heirs, representatives, officers, employees, agents, successors and assigns.

IN WITNESS WHEREOF, OWNER(S) has executed this instrument as of the ____ day of_____, 20_____.

"OWNER(S)"

By: _____

STATE OF UTAH)
:ss.
COUNTY OF _____)

On the _____ day of _____, 20___, personal appeared before me _____ who being duly sworn, did say that they are the signer(s) of the foregoing instrument, who duly acknowledged to me that they executed the same.

_____
Notary Public

My Commission Expires: _____

Residing in: _____

Exhibit “A”
Legal Description of Property

BILL OF SALE

BILL OF SALE

FOR AND IN CONSIDERATION of the sum of Ten Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, _____ as Seller, hereby bargains, sells, assigns, conveys and transfers to JORDAN BASIN IMPROVEMENT DISTRICT, A Body Politic, as Buyer, that certain personal property in the _____ subdivision located at:_____, _____ County , State of Utah and more particularly described as follows:

> That certain sewage collection system owned by Seller in and/or adjacent to the aforementioned subdivision as installed in the dedicated public areas and/or sewer easement areas located within the above named subdivision as shown on the official plat or records thereof on file in the office of the _____ County Recorder, State of Utah, including all sewer mains, wyes, manholes, designs, plans, easements and rights-of-way, and excepting lateral lines which are solely owned by, and the responsibility of, the owner of the property they serve.

Seller hereby expressly represents that full payment and satisfaction has been made to any and all persons and firms supplying labor and/or materials, and/or services or use of equipment on the above premises, or in connection therewith at the instance of or by contract with Seller. In the event any lien shall be filed by any person, entity or firm furnishing any labor and/or materials and/or equipment for said sewage collection system, Buyer is hereby authorized and empowered to discontinue service and to disconnect the entire above-described subdivision sewer collection system from the Buyer's sewer system until such time as the lien or liens have been satisfied by Seller and released.

Seller hereby warrants and represents to Buyer that Seller holds exclusive ownership and good title to the above described sewage collection system, that Seller has the absolute right to sell the same, and that there are no liens, encumbrances or charges thereon or against the same, and to defend the title and possession transferred to the Buyer against all lawful claims and to indemnify and hold Buyer and its officers and representatives harmless for any losses sustained by the Buyer resulting from defects in good and legal title to the above described sewage collection system and/or liens of encumbrance against the same.

It is expressly agreed that this Bill of Sale shall in no way relieve the Seller from its responsibility under that certain Sewer Extension Agreement executed with the Buyer or from any other obligations arising on account of said Agreement, including but not limited to any indemnity provisions therein, or any future claims arising from performance of said Agreement.

The person who signs this Bill of Sale, hereby certifies that he or she has been duly authorized to execute this instrument by the appropriate governing body of the Seller.

IN WITNESS WHEREOF, the Seller has executed this Bill of Sale individually or by and through Seller's duly authorized representative as of the _____ day of _____, 20___.

SELLER

_____ By:_____
(Seller / Entity Name) (Signature)

Printed Name: _____

Its:_____

CERTIFIED SURVEY FORM

CERTIFIED SURVEY SUBMITTAL

A. This instrument confirms that the undersigned is a registered surveyor, employed by the Company named below, holding a current license under the laws of the State of Utah.

B. The opinions made in this instrument are based, in part, on a review of the approved design plans and any recorded easements for the _____ subdivision (the "Subdivision"), located within the boundaries of the JORDAN BASIN IMPROVEMENT DISTRICT.

C. The undersigned has performed a complete and accurate survey of the sewer lines and manholes (the "Sewer Improvements") installed in the Subdivision.

D. The undersigned certifies the following to be true and accurate statements as to the location of the Sewer Improvements within the Subdivision:

1. The Sewer Improvements are constructed and located within the public rights of way and/or recorded sanitary sewer easements;
2. The Sewer Improvements are located no closer than five (5) feet from the edge of any curb (measured from the edge of the pavement to the edge of the manhole collar/pipe);
3. The manhole rims are set at an elevation that will ensure that, upon completion of the roadway surface, no more than twelve (12) inches of grade rings will be required to bring the manhole collar to the level of the pavement.

Concurrent with this Certification, the undersigned submits, in electronic format, an excel spreadsheet showing the manhole coordinates, rim and invert elevations, and the Benchmark coordinate and elevation in Utah Central NAD83 foot coordinate system.

Company Name:_____

Signature of Certified Land Surveyor:_____ Date: _____

Print Name of Surveyor:

License No.:_____

Seal:

COMMERCIAL SEWER CONNECTION AGREEMENT

When Recorded Return to:
Joel Thompson
Jordan Basin Improvement District
P.O. Box 629
Riverton, UT 84065

Affects Parcel No.: _____

OWNER: _____

PROJECT: _____

COMMERCIAL SEWER CONNECTION AGREEMENT

THIS AGREEMENT is made and entered as of the ____ day of _____, 20_____ and between _____, whose address is_____,_____ hereinafter referred to as the "Owner," and the **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 W Jordan Basin Ln, Bluffdale, UT 84065, hereinafter referred to as the "District."

WITNESSETH:

WHEREAS, the Owner proposes to install a sewer line or sewer lines, laterals, manholes and related structures and facilities (hereinafter, "Sewer Improvements"), as a part of the _____ development, which Sewer Improvements will be connected to the District's sewer system in order to provide for collection, transmission, treatment, and disposal of sewage from Owner's land; and

WHEREAS, the proposed Sewer Improvements are to be located on Owner's land at approximately _____, in _____, Utah; and

WHEREAS, the District, in accordance with its rules and regulations, will not allow connection of the Sewer Improvements to the District's sewer system or otherwise approve or accept any work by the Owner unless an agreement is made to assure completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications and the plans and profile drawings approved by the District; and

WHEREAS, Owner desires to connect all units in single building to the sewer main owned by the District with a common sewer lateral; and

WHEREAS, the parties desire to reduce their respective understandings and agreement to writing.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. **Installation of Improvements.**

a. **Plans and Specifications**. The Owner shall provide a set of plans and profile drawings of the Sewer Improvements and sewer system design for review and acceptance by the District. This design shall also provide for additional capacity for tributary areas if the District so directs. The District engineer will thereafter approve or reject the Owner's plans and drawings.

b. **Installation**. After compliance with all District requirements, including payment of all applicable fees and costs, a preconstruction conference may be held with the Owner and the District's engineer and/or inspectors. Upon satisfactory compliance with all of the foregoing requirements, the Owner shall proceed to install in a workman-like manner at Owner's sole cost and expense, the Sewer Improvements as shown on the plans and profile drawings approved by the District and in accordance with the District's Design Standards and Construction Specifications. If the Sewer Improvements are not commenced within one (1) year from date of this Agreement, Owner shall resubmit plans for review and approval by the District engineer. All work shall be subject to District testing, inspection and approval before the same is covered or interconnected with the main outfall lines constructed by the District. If the work is covered before such testing, inspection and acceptance, the District may require the line to be uncovered for testing and inspection and may disconnect the Owner's system from the District's sewer system. The actual interconnection of Owner's sewer system with the District's main outfall line or lines shall be done at a time and in a manner approved by the District at the Owner's expense.

c. **Connection to District Lines**. Owner's Sewer Improvements shall not be connected to the District lines until Owner has fully performed Owner's obligations set forth in this Agreement.

2. **Rules and Regulations**. The Owner hereby agrees at all times to abide by the established rules and regulations of the District, including but not limited to, the payment of fees and charges as the same shall become due, construction of the Sewer Improvements in accordance with the District's Design Standards and Construction Specifications and complying with all pretreatment requirements of the District.

3. **Owner's Representations and Agreement**. Owner hereby represents and agrees that:

a. Owner is the owner of the real property for which this Agreement is made;

b. Owner hereby grants the District and its designees the full right to enter upon all property within Owner's development to inspect the Sewer Improvements at any time.

c. Owner understands that Owner's facility or facilities will be served by the Sewer Improvements and that the impact fees calculated and charged by the District will be based on _____ square feet of _____ category. a clubhouse with a pool (equivalent to one residential unit, or 300 gallons per day)

1. **Lateral Ownership and Responsibility**. Laterals are not owned or maintained by the District. Laterals are the property of Owner, who shall be solely responsible for operating and maintaining the sewer laterals which serves Owner's Property.

2. **Lateral Responsibility.** Owner hereby assumes all liability and responsibility for any sewer backups, together with any and all resulting damages to any persons or property or the units located on Owner's Property, caused or in any manner arising out of the sewer lateral serving Owner's Property.

3. **Future Development**. In the event Owner's Property is hereafter subdivided or otherwise further developed, in any manner, each unit thereon, including all existing units, will be immediately and separately connected to the sewer main owned by the District. All expenses associated with such development shall be borne by the Owner.

d. Where pretreatment facilities are required, Owner shall design and install a separate interceptor pipe, interceptor, sampling manhole, or amalgam separator hereinafter collectively referred to as the "Pretreatment Facilities." The Pretreatment Facilities shall be sized and designed to meet the pretreatment requirements of the District and shall comply with any required Discharge Permit(s). Owner shall maintain and repair such Pretreatment Facilities at owner's sole expense. Owner shall indemnify and hold harmless the District, its officers, employees, engineers, agents and representatives from any liability, expense, claims or damages of any nature which may arise from the operation and maintenance of the Interceptor herein.

e. As a swimming pool, hot tub and/or other similar facility will be connected to the sewer, Owner shall:

1. Provide the District at least 24 hours advance notice before draining the pool.
2. Obtain prior written approval from the District before draining the pool.

3. Limit, by the use of a flow restricting device, any discharge from the pool(s) to not more than 50 gallons per minute.

4. Allow discharge from the pool(s) only during non-peak hours (i.e. 10 p.m. to 6 a.m.).

5. Pay all applicable fees associated with the discharge from the pool.

4. **Costs of Development and Fees**. The Owner shall bear the total costs of constructing all Sewer Improvements required for the servicing of Owner's development (including extensions from existing District sewer mains to the development, the sewer collection system within the development, and laterals to each lot, parcel, building or connection within the development). No lot or parcel of real property or building shall be connected to any portion of the District's sewer system until all applicable fees, including impact fees, have been paid to the District. The applicable fees shall be those in effect at the time of connection to the District's sewer system. Owner's initial impact fee shall be paid to the District by Owner based upon the District's fee schedule established for Owner's initial designated facility or facilities. The District may charge and Owner shall pay additional impact fees if a change of use occurs, or amount of flow increases in Owner's facilities at those rates in effect on the date when the additional impact fees are actually paid to the District.

5. **Binding Effect**. This Agreement shall inure to the benefit of, and be binding upon, the parties and their respective heirs, representatives, agents, officers, employees, members, successors and assigns. The covenants contained herein shall be deemed to run with the land described in Exhibit "A" attached hereto and by this reference made a part hereof. The parties acknowledge and agree that a copy of this Agreement may be recorded in the office of the appropriate County Recorder.

6. **Default**. In the event either party hereto defaults on any of the covenants and agreements contained herein, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

7. **Conveyance and Treatment Capacity**. The District's obligation to provide sewer service is subject to and conditioned upon the availability of adequate conveyance and treatment capacity at the sewer treatment facilities serving the District and shall be subject to any limitations, requirements and regulations which may be established and enacted from time to time by the District's Board of Trustees or the governing body of the sewer treatment facility serving Owner's land and/or development, or by any other governmental entity having jurisdiction over the parties hereto.

8. **Counterparts**. The fact that the parties hereto execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution, and such counterparts, taken together, shall constitute one and the same instrument, and each such counterpart shall be deemed an original.

9. **Severability**. Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the

remaining portions of the Agreement which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

10. **Waiver**. No waiver of any of the provisions of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

11. **Bonds**. This Agreement does not alter any obligation of Owner to provide bonds under applicable ordinances of any city or county having jurisdiction over Owner's development.

12. **Time of Essence**. The parties agree that time is of the essence in the performance of all duties herein.

13. **Captions**. The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

14. **Governing Law**. This Agreement and the performance hereunder shall be governed by the laws of the State of Utah.

15. **Entire Agreement**. This Agreement contains the entire agreement of the parties with respect to the subject matter hereof, and no prior or contemporaneous promises, representations, warranties or understandings between the parties regarding the subject matter hereof which are not contained herein shall be of any force or effect.

16. **Amendments**. Any amendment to this Agreement shall be made in writing and signed by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"

JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___ personally appeared before me **Joel Thompson**, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

"OWNER"

_____

By: _____

Its: _____
Title

OWNER ACKNOWLEDGMENT

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being by me duly sworn did say that (s)he is the _____ of _____ a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

My Commission Expires: _____

Residing in: _____

EXHIBIT “A”
LEGAL DESCRIPTION OF PROPERTY BEING SERVED

PLEASE NOTE THAT A LEGAL DESCRIPTION SHALL BE ATTACHED WITH THIS DOCUMENT.

COMMERCIAL SEWER CONNECTION AGREEMENT - EXISTING

When Recorded Return to:
Joel Thompson
Jordan Basin Improvement District
P.O. Box 629
Riverton, UT 84065

Affects Parcel No.: _____
OWNER: _____
PROJECT: _____

COMMERCIAL SEWER CONNECTION AGREEMENT - EXISTING

THIS AGREEMENT is made and entered into as of the ____ day of _____, 20_____ and between _____, whose address is _____,_____, hereinafter referred to as the "Owner," and the **JORDAN BASIN IMPROVEMENT DISTRICT**, a political subdivision of the State of Utah, whose address is 1253 W Jordan Basin Ln, Bluffdale, UT 84065, hereinafter referred to as the "District."

WITNESSETH:

WHEREAS, the Owner has installed sewer line or sewer lines, laterals, manholes and related structures and facilities (hereinafter, "Sewer Improvements"), as a part of the _____ development, which Sewer Improvements have been connected to the District's sewer system in order to provide for collection, transmission, treatment, and disposal of sewage from Owner's land, located at _____ in _____, Utah; and

WHEREAS, with respect to the Development, the Owner has previously paid impact fees to the District based on _____ square feet of _____ category; and

WHEREAS, the Sewer Improvements were installed before the District required owners of commercial property to sign a Commercial Sewer Connection Agreement ("CSCA"); and

WHEREAS, the District, in accordance with its rules and regulations, will not allow additional connection(s) of the Sewer Improvements to the District's sewer system or otherwise approve or accept any additional work by the Owner unless an agreement is made to assure completion of the Sewer Improvements according to the District's Design Standards and Construction Specifications, and the plans and profile drawings approved by the District; and

WHEREAS, the parties hereto desire to reduce their respective understandings and agreement to writing.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. **Owner's Representations and Agreement**. Owner hereby represents and agrees that:

a. Owner is the owner of the real property for which this Agreement is made;

b. Owner hereby grants the District and its designees the full right to enter upon all property within Owner's development to inspect the Sewer Improvements at any time.

c. In the event of additional changes of use, the Owner shall submit all documentation reasonably required by the District to ensure the calculation and payment of the required additional impact fees. Impact fees will be calculated at the then current rate established by the District's Board of Trustees. Any previously paid impact fees shall be a credit against the new impact fees to be paid, based upon what the current impact fees would be for the prior use.

d. Where required, Owner will design and install a separate interceptor pipe, interceptor and sampling manhole, hereinafter collectively referred to as the "Interceptor." The Interceptor shall be sized and designed to meet the pretreatment requirements of the District and comply with any required Discharge Permit(s). Owner further agrees to maintain and repair such interceptor line at owner's sole expense. Owner hereby agrees to indemnify and hold the District harmless, its officers, employees, engineers, agents and representatives from any liability, expense, claims or damages of any nature which may arise from the operation and maintenance of the Interceptor herein.

e. Laterals are not owned or maintained by the District. Laterals are the property of Owner, who shall be solely responsible for operating and maintaining the sewer laterals which serves Owner's Property. Owner hereby assumes all liability and responsibility for any sewer backups, together with any and all resulting damages to any persons or property or the units located on Owner's Property, caused or in any manner arising out of the sewer lateral serving Owner's Property.

2. **Binding Effect**. This Agreement shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, representatives, agents, officers, employees, members, successors and assigns. The covenants contained herein shall be deemed to run with Owner's land which is located in Salt Lake County, Utah and is more particularly described in Exhibit "A" attached hereto and by this reference made a part hereof. The parties hereto agree that a copy of this Agreement may be recorded in the office of the Salt Lake County Recorder, State of Utah.

3. **Default**. In the event either party hereto defaults on any of the covenants and agreements contained herein, the defaulting party shall pay all costs and expenses, including a

reasonable attorney's fee, incurred by the other party in enforcing its rights hereunder whether incurred through litigation or otherwise.

4. **Counterparts**. The fact that the parties hereto execute multiple but identical counterparts of this Agreement shall not affect the validity or efficacy of their execution, and such counter parts, taken together, shall constitute one and the same instrument, and each such counterpart shall be deemed an original.

5. **Severability**. Should any portion of this Agreement for any reason be declared invalid or unenforceable, the invalidity or unenforceability of such portion shall not affect the remaining portions of the Agreement which shall be deemed in full force and effect as if this Agreement had been executed with the invalid portions eliminated.

6. **Waiver**. No waiver of any of the provisions of this Agreement shall operate as a waiver of any other provision, regardless of any similarity that may exist between such provisions, nor shall a waiver in one instance operate as a waiver in any future event. No waiver shall be binding unless executed in writing by the waiving party.

7. **Time of Essence**. The parties agree that time is of the essence in the performance of all duties herein.

8. **Captions**. The captions preceding the paragraphs of this Agreement are for convenience only and shall not affect the interpretation of any provision herein.

9. **Governing Law**. This Agreement and the performance hereunder shall be governed by the laws of the State of Utah.

10. **Entire Agreement**. This Agreement contains the entire agreement of the parties with respect to the subject matter hereof, and no prior or contemporaneous promises, representations, warranties or understandings between the parties regarding the subject matter hereof which are not contained herein shall be of any force or effect.

11. **Amendments**. Any amendment to this Agreement shall be made in writing and signed by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first above written.

"DISTRICT"

JORDAN BASIN IMPROVEMENT DISTRICT

By:_____
Joel Thompson, General Manager

DISTRICT ACKNOWLEDGMENT

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___ personally appeared before me **Joel Thompson**, who being by me duly sworn, did say that he is the General Manager of **JORDAN BASIN IMPROVEMENT DISTRICT,** a political subdivision of the State of Utah, and that said instrument was signed in behalf of the District by authority of its Board of Trustees and acknowledged to me that the District executed the same.

_____
Notary Public

"OWNER"

Company Name

By:_____
Its: _____

OWNER ACKNOWLEDGMENT

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

On the _____ day of _____, 20___, personally appeared before me _____ who being by me duly sworn did say that (s)he is the _____ of _____ a limited liability company, and that the within and foregoing instrument was duly authorized by the limited liability company at a lawful meeting held by authority of its operating agreement; and duly acknowledged to me that said limited liability company executed the same.

_____
Notary Public

My Commission Expires: _____

Residing in: _____

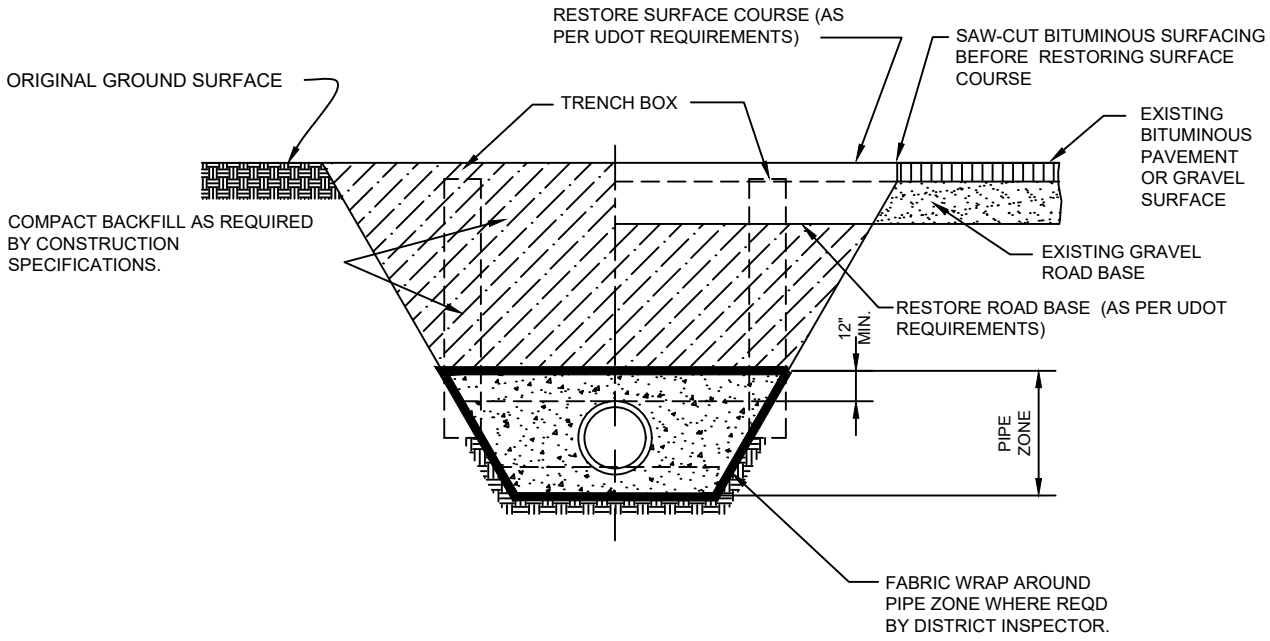
EXHIBIT “A”
LEGAL DESCRIPTION OF PROPERTY BEING SERVED

PLEASE NOTE THAT A LEGAL DESCRIPTION SHALL BE ATTACHED WITH THIS DOCUMENT.

APPENDIX "B"

STANDARD DETAIL DRAWINGS

SS-1A	Standard Sewer Trench Detail
SS-2A	Standard Manhole
SS-2B	Pour in Place Manhole
SS-2C	Acid Resistant Manhole
SS-2D	Shallow Manhole
SS-2E	Drop Manhole
SS-3A	Lateral Connection
SS-4	Casing Detail
SS-5	Pressurized Lateral
SS-6	Pipe Anchors
SS-7	Trench Dikes
SS-8A	Palmer Bowlus Flume Flow Meter
SS-8B	Palmer-Bowlus Flume Flow Meter
SS-9A	Lift Station Site Plan
SS-9B	Lift Station Elevation View
SS-9C	Lift Station Meter Vault & Wet Well
SS-10A	Diversion Structure
SS-10B	Diversion Structure Details
PT-1	Grease Interceptor
PT-2	Sand / Oil Separator
PT-3	Sand / Oil Separator (Parking Garage)
PT-4	Sampling Manhole



CROSS-SECTION: TYPICAL TRENCH

NOTES:

1. ALL SEWER LINES TO BE INSTALLED IN PUBLIC RIGHT-OF-WAY OR RECORDED SEWER EASEMENT UNLESS OTHERWISE APPROVED BY SOUTH VALLEY SEWER DISTRICT.

2. THE DISTRICT RECOMMENDS CONTRACTOR MEET ALL OF THE REQUIREMENTS ESTABLISHED FOR SAFE TRENCHING. (SEE OSHA AND UOSH REQUIREMENTS, LATEST EDITIONS).

3. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES BEFORE LAYING PIPE WITHIN 50' OF SAID UTILITIES WHICH MAY BE EXPOSED, DAMAGED OR CROSSED AS SHOWN ON THE DRAWINGS OR AS "BLUE STAKED". THE CONTRACTOR WILL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO MOVE THE UTILITY IF NECESSARY OR OBTAIN PERMISSION FROM THE DISTRICT ENGINEER TO MODIFY GRADE OF PIPELINE IN ORDER TO GO AROUND UTILITIES.

4. TESTING: ALL NEW SANITARY SEWERS TO BE "TELEVISED" AND NECESSARY REPAIRS MADE BEFORE ACCEPTANCE. ALL LINES SHALL BE PRESSURE TESTED TO 4.0 psi MIN. FOR 5 MINUTES. A MANDRAL OR BALL CAN BE USED TO VERIFY DEFORMATION OF A PIPE AS DETERMINED FROM THE VIDEO UNLESS SPECIFIED OTHERWISE. ALL SEWER LINES SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS FOR ASTM F1417-98 AND UBPPA UNI-B-6.

5. ASPHALT RESTORATION SHALL MATCH EXISTING TO A MAXIMUM OF 6" AND SHALL INCLUDE A 6" UNTREATED BASE COURSE AND 12" GRANULAR BORROW COURSE AS PER UDOT STANDARDS.

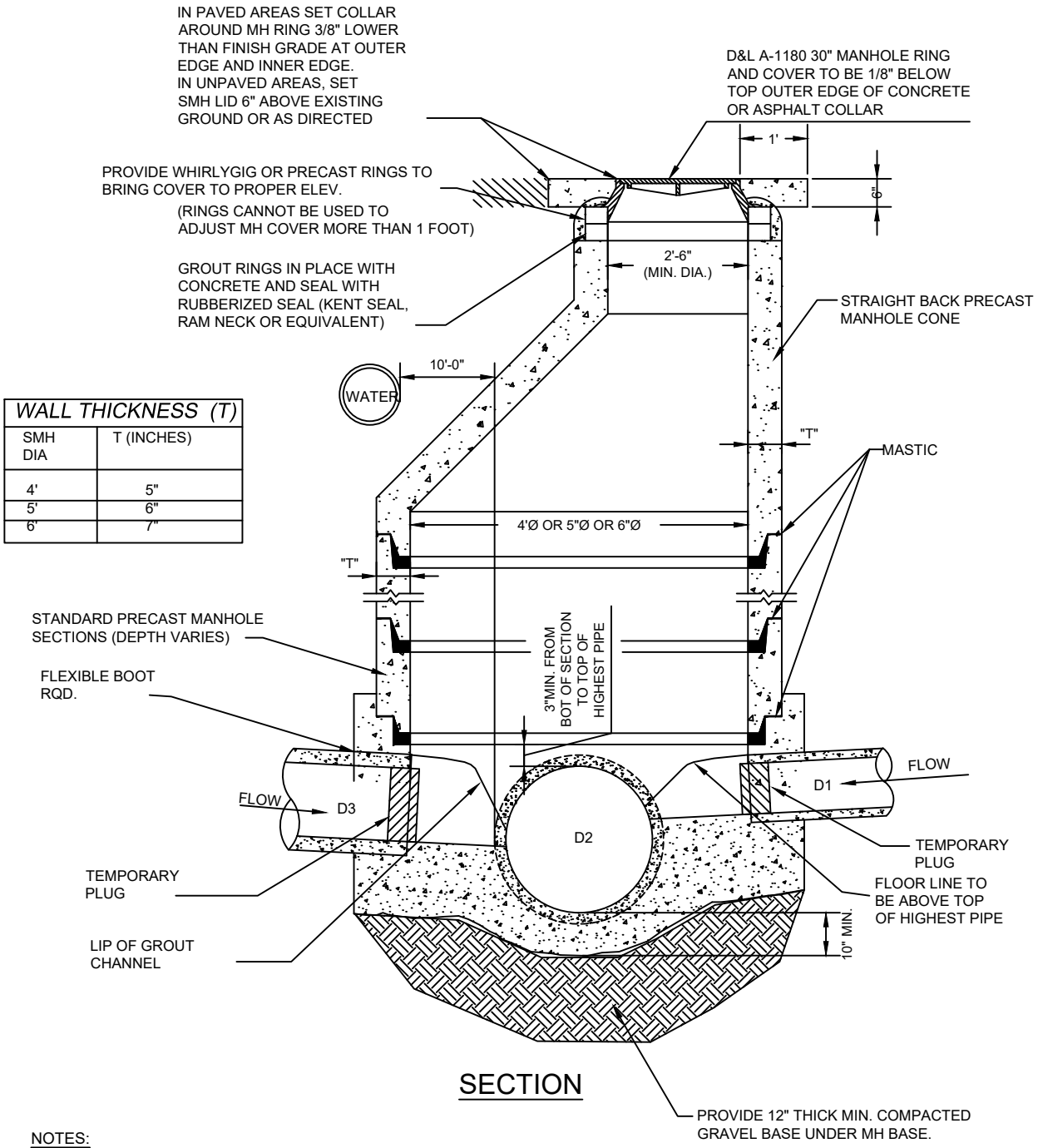
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

STANDARD SEWER TRENCH DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-1A



WALL THICKNESS (T)	
SMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"

SECTION

NOTES:

1. IF GRADE ALLOWS, INVERTS OF D1 & D3 SHALL MATCH THE 0.75 DEPTH POINT OF D2. OTHERWISE AS APPROVED BY DISTRICT.
2. AFTER ALL GRADING AROUND MANHOLE HAS BEEN COMPLETED AND FINAL SURFACING IS IN PLACE, REMOVE DEBRIS AND TEMPORARY PLUGS OR PLYWOOD FROM INSIDE OF MANHOLES. SET MANHOLE FRAME AND COVER TO 1/8" BELOW FINISH GRADE AFTER FINAL STREET GRADING
3. IS COMPLETE. CONE AND WALL SECTIONS TO CONFORM TO ASTM C-478
4. PLUG OUTLET OF DOWNSTREAM MANHOLE UNTIL CONSTRUCTION IS COMPLETE.

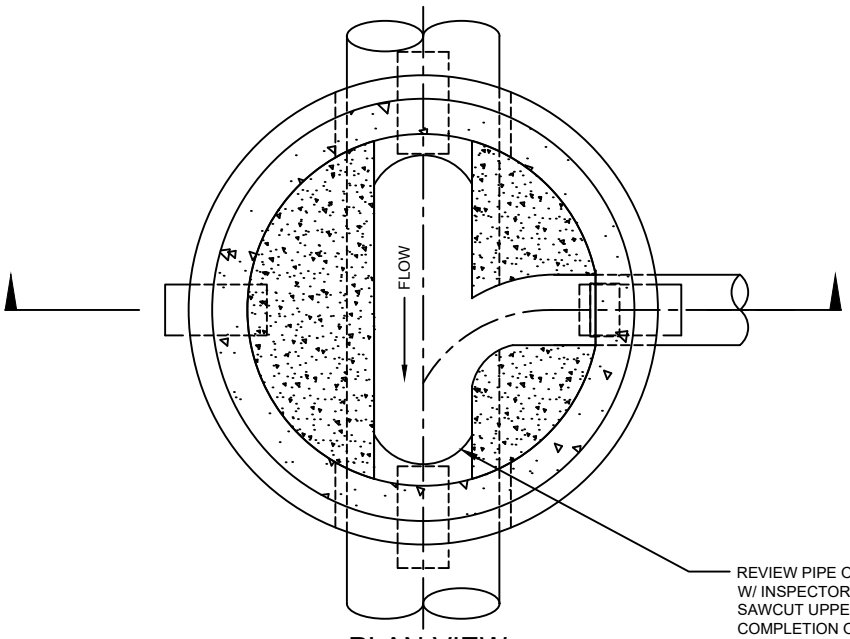
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

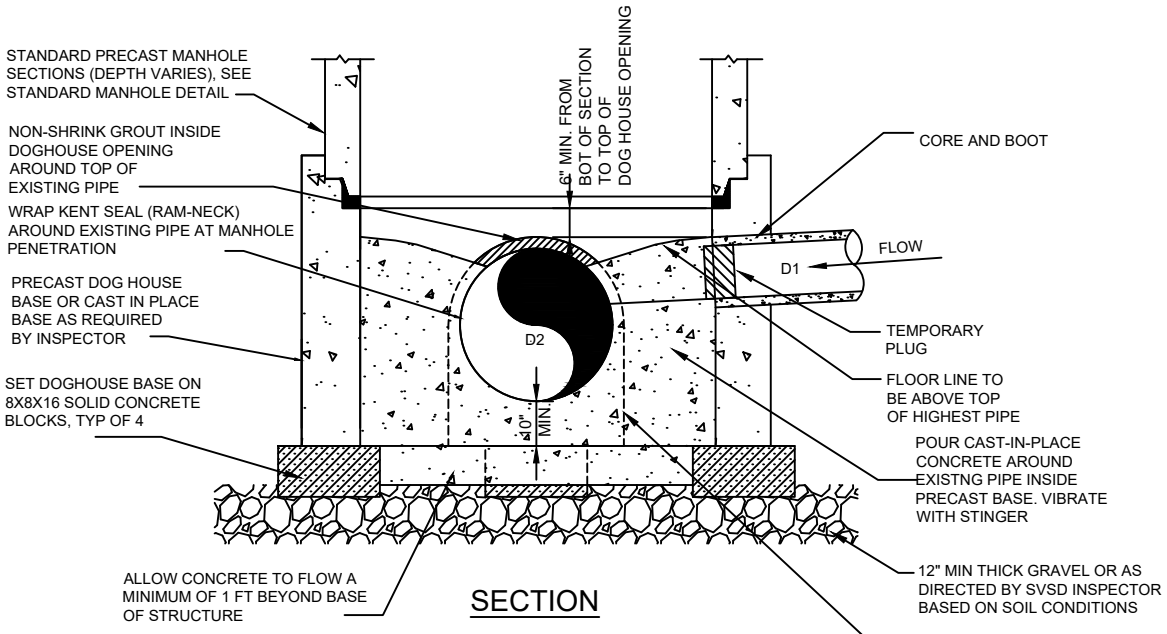
STANDARD MANHOLE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-2A



PLAN VIEW



SECTION

NOTES:

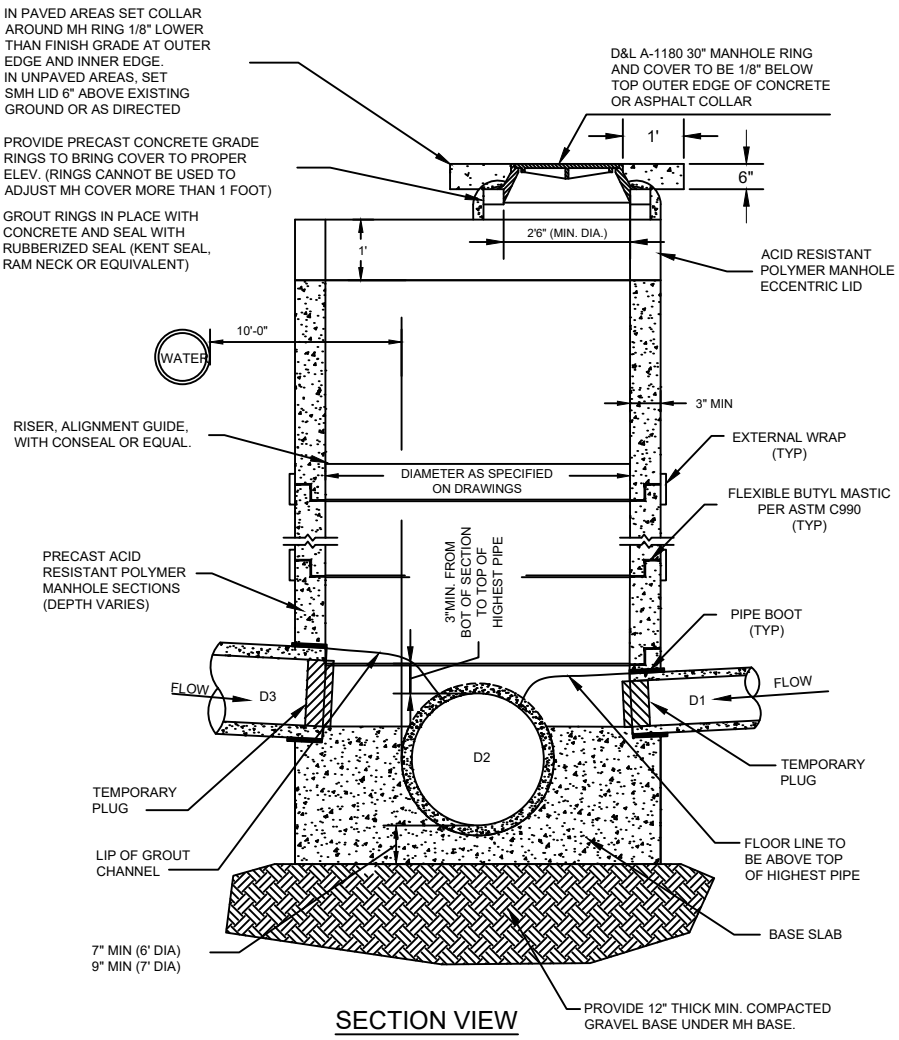
1. INVERT D1 SHALL MATCH THE 0.75 DEPTH POINT OF D2, UNLESS OTHERWISE APPROVED BY DISTRICT ENGINEER.
2. AFTER ALL GRADING AROUND MANHOLE HAS BEEN COMPLETED AND FINAL SURFACING IS IN PLACE, REMOVE DEBRIS AND TEMPORARY PLUGS OR PLYWOOD FROM INSIDE OF MANHOLES.
3. STUBS FOR FUTURE CONNECTIONS SHALL BE PLUGGED UNTIL ACTIVATION FOR SERVICE IS APPROVED BY SVSD.

NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

MANHOLE ON EXISTING PIPE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-2B	



SECTION VIEW

NOTES:

1. INVERTS OF D1 & D3 SHALL MATCH THE 0.75 DEPTH POINT OF D2 UNLESS OTHERWISE APPROVED BY DISTRICT.
2. AFTER ALL GRADING AROUND MANHOLE HAS BEEN COMPLETED AND FINAL SURFACING IS IN PLACE, REMOVE DEBRIS AND TEMPORARY PLUGS OR PLYWOOD FROM INSIDE OF MANHOLES.
3. PRE-CAST MANHOLES ARE REQUIRED.
4. SET MANHOLE FRAME AND COVER TO 1/8" BELOW FINISH GRADE AFTER FINAL STREET GRADING IS COMPLETE.
5. SECTIONS TO CONFORM TO ASTM C-478 AND D-6783 (MATERIALS).
6. WHERE POSSIBLE, PLUG OUTLET OF DOWNSTREAM MANHOLE UNTIL CONSTRUCTION IS COMPLETE.

NO SCALE

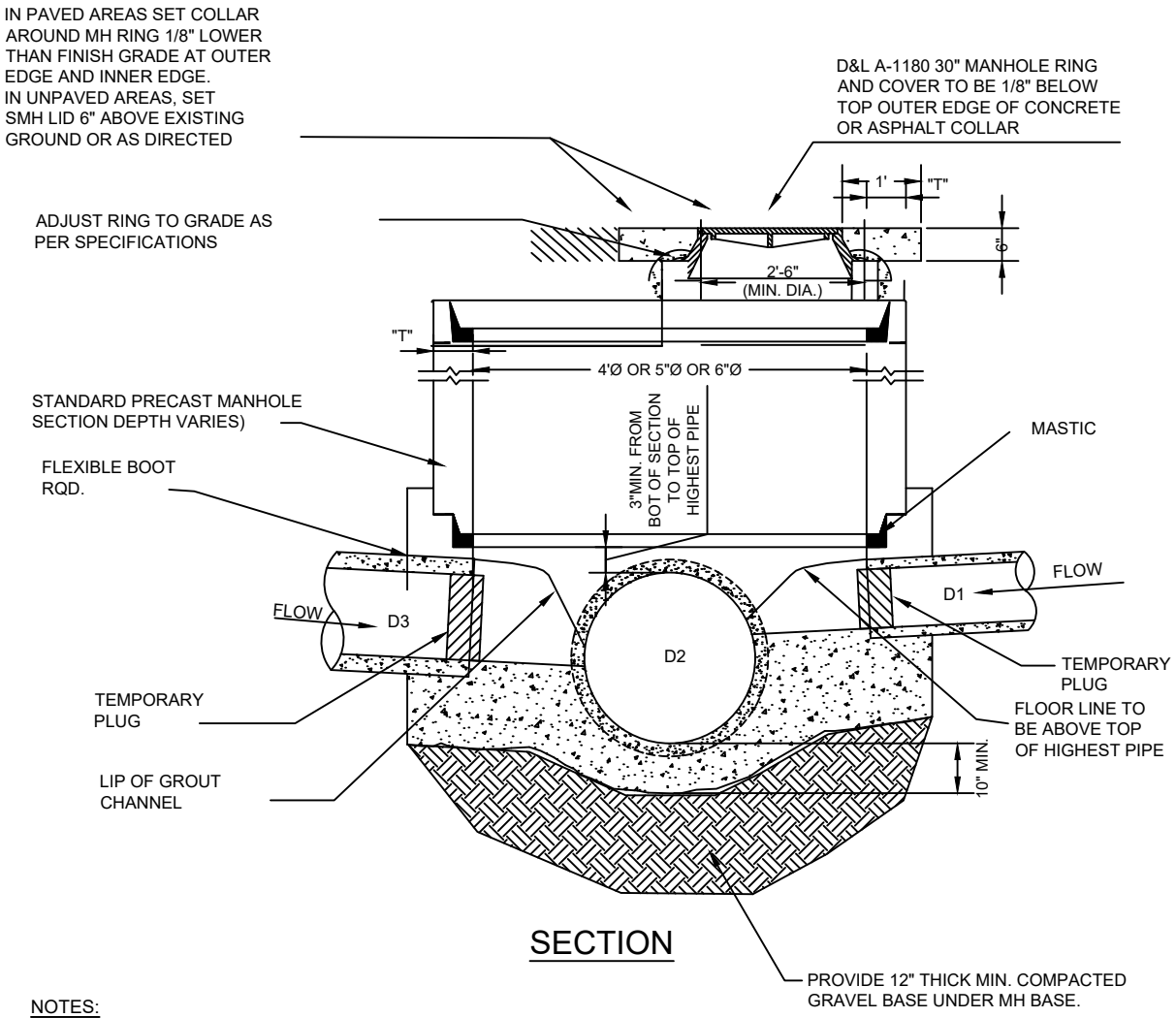
JORDAN BASIN IMPROVEMENT DISTRICT

ACID RESISTANT POLYMER MANHOLE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-2C

WALL THICKNESS (T)	
SMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"



SECTION

NOTES:

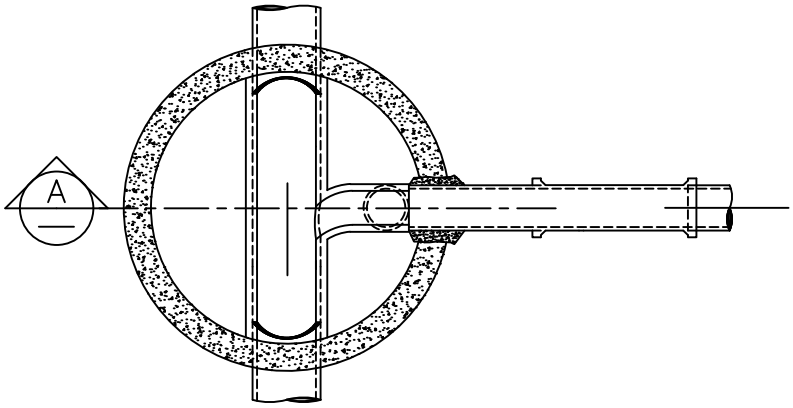
1. IF GRADE ALLOWS, INVERTS OF D1 & D3 SHALL MATCH THE 0.75 DEPTH POINT OF D2. OTHERWISE AS APPROVED BY DISTRICT.
2. AFTER ALL GRADING AROUND MANHOLE HAS BEEN COMPLETED AND FINAL SURFACING IS IN PLACE, REMOVE DEBRIS AND TEMPORARY PLUGS OR PLYWOOD FROM INSIDE OF MANHOLES. SET MANHOLE FRAME AND COVER TO 1/8" BELOW FINISH GRADE AFTER FINAL STREET GRADING
3. IS COMPLETE. CONE AND WALL SECTIONS TO CONFORM TO ASTM C-478
4. PLUG OUTLET OF DOWNSTREAM MANHOLE UNTIL CONSTRUCTION IS COMPLETE.

NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

SHALLOW MANHOLE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-2D	



PLAN VIEW

NOTES:

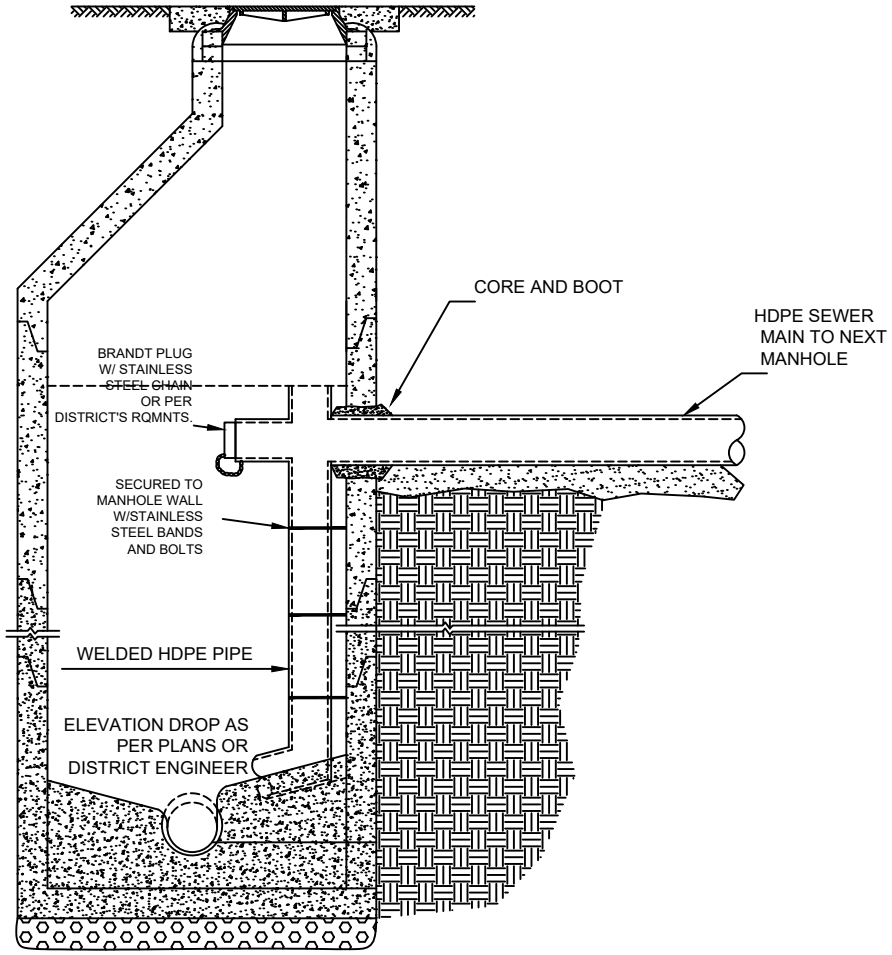
1. DROP MANHOLES REQUIRED FOR ANY LINE ENTERING MANHOLE TWO FEET OR MORE ABOVE FLOWLINE OF MAIN LINE.

2. MANHOLES TO CONFORM WITH STANDARD MANHOLE DETAILS (STANDARD No. SS-2A).

3. ALL PIPE AND FITTINGS SHALL CONFORM TO ASTM PE3408 SDR 17 HDPE SEWER PIPE.

4. CONE SHALL BE ROTATED PER INSPECTOR'S RECOMMENDATIONS.

5. DROP MANHOLES ARE TO BE USED ONLY WHEN ACCEPTED BY THE DISTRICT.



SECTION VIEW "A"

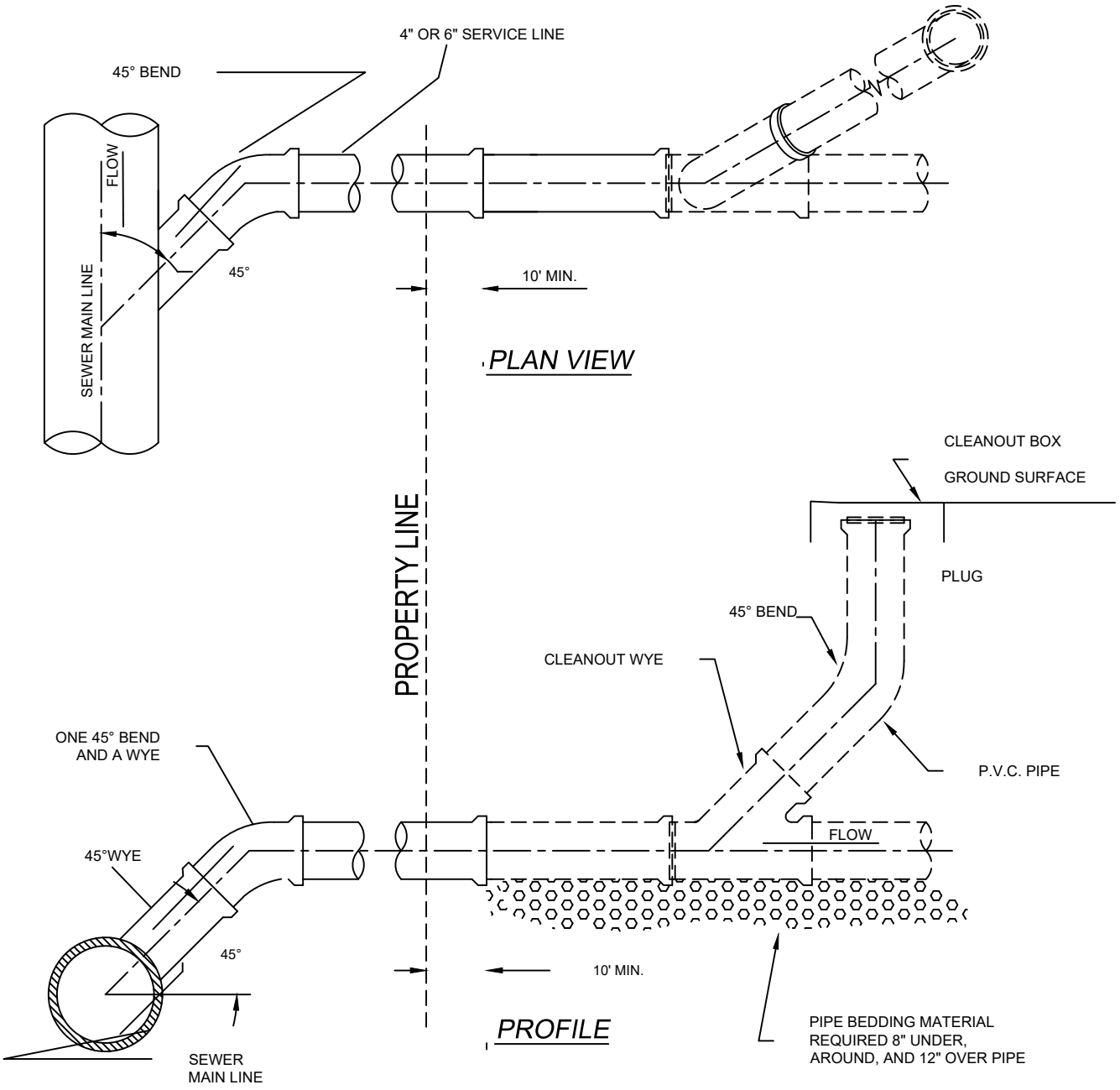
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

INSIDE DROP MANHOLE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-1A



NOTES:

1. ALL SERVICES SHALL BE 4" DIAMETER MINIMUM, UNLESS DIRECTED OTHERWISE AND SHALL BE EXTENDED FROM MAIN LINES TO 10' INSIDE OF PROPERTY LINES.

2. MINIMUM SLOPE: 1/4" PER FOOT (2%) OR WHERE APPROVED BY THE DISTRICT 1/8" PER FOOT(1%).

3. CLEAN-OUTS SHALL BE NO MORE THAN 100 FEET APART MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT.

4. ALL 90° CONNECTIONS TO MAIN MUST BE CONSTRUCTED WITH ONE 45° BEND AND A WYE.

5. 90° FITTINGS ARE NOT ALLOWED. 90° SHALL BE MADE WITH TWO 45° BENDS OR A COMBO WYE AND 45° BEND.

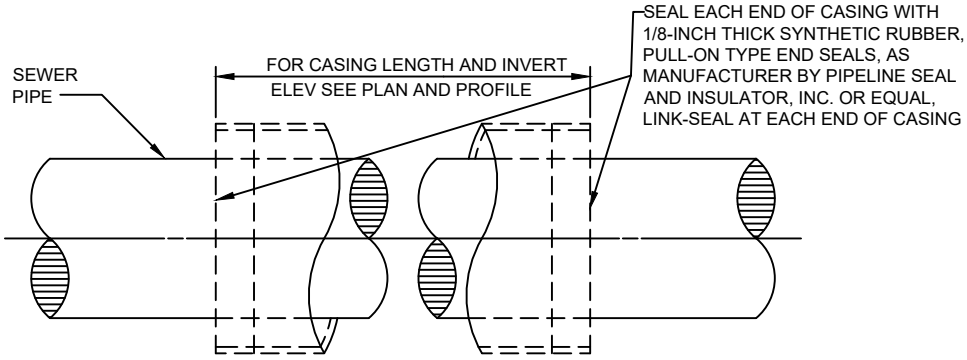
6.. DIRECT NOSE-ON CONNECTIONS ARE USED WHEN CONNECTING TO EXISTING MAIN LINE. ALL NOSE-ON WORK IS TO BE DONE BY DISTRICT PERSONNEL.

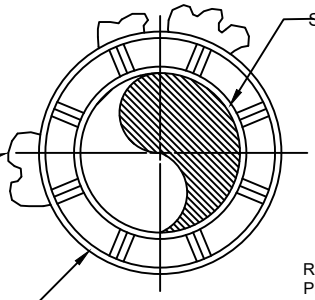
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

STANDARD SEWER SERVICE CONNECTION & CLEAN-OUT

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-3A	





ANY VOIDS CREATED BY BORING, JACKING, OR TUNNELING SHALL BE FILLED BY PRESSURE GROUTING.

CASING SPACERS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC. MODEL S12G-2 WITH A MAXIMUM SPACING OF 6-FT. SPACES SHALL BE CONCENTRIC TO CENTER THE PIPE INSIDE THE CASING. PIPE THROUGHOUT THE LENGTH OF THE CASING SHALL BE AT A CONTINUOUS GRADE AS SHOWN IN DRAWINGS.

SECTION

RECOMMENDED SPACING FOR PVC TYPE PIPE IS 2 SPACERS PER SEGMENT. ONE SPACER SHALL BE PLACED AT THE CENTER OF THE SEGMENT AND THE OTHER ON THE SPIGOT END OF EACH SEGMENT AT THE LINE MARKING THE LIMIT OF INSERTION INTO THE BELL. WHEN THE JOINT IS COMPLETE, THE SPACER SHALL BE IN CONTACT WITH THE BELL OF THE JOINT SO THE SPACER PUSHES THE JOINT AND RELIEVES COMPRESSION WITHIN THE JOINT.

MINIMUM WALL THICKNESS OF CASINGS	
Diameter	Wall Thickness
12" and under	0.188"
14" - 18"	0.312"
20" - 22"	0.375"
24" - 26"	0.438"
28" - 32"	0.500"
34" - 42"	0.562"

LARGER CASINGS AS DIRECTED BY THE DISTRICT ENGINEER.

NOTES:

1. CASING PIPES SHALL BE REQUIRED AS INDICATED ON THE DRAWINGS AND/OR WHERE REQUIRED BY THE DISTRICT INSPECTOR OR ENGINEER.
2. THE CASING PIPE SHALL BE SIZED TWICE DIAMETER OF CARRIER PIPE.
3. CARRIER PIPE SHALL BE TESTED BEFORE SEALING THE ENDS OF THE CASING.
4. SPACERS SHALL BE SECURELY ATTACHED TO CARRIER PIPE PER MANUFACTURER'S REQUIREMENTS.
5. CASING PIPE SHALL BE WELDED STEEL, ASTM A53, GRADE B.

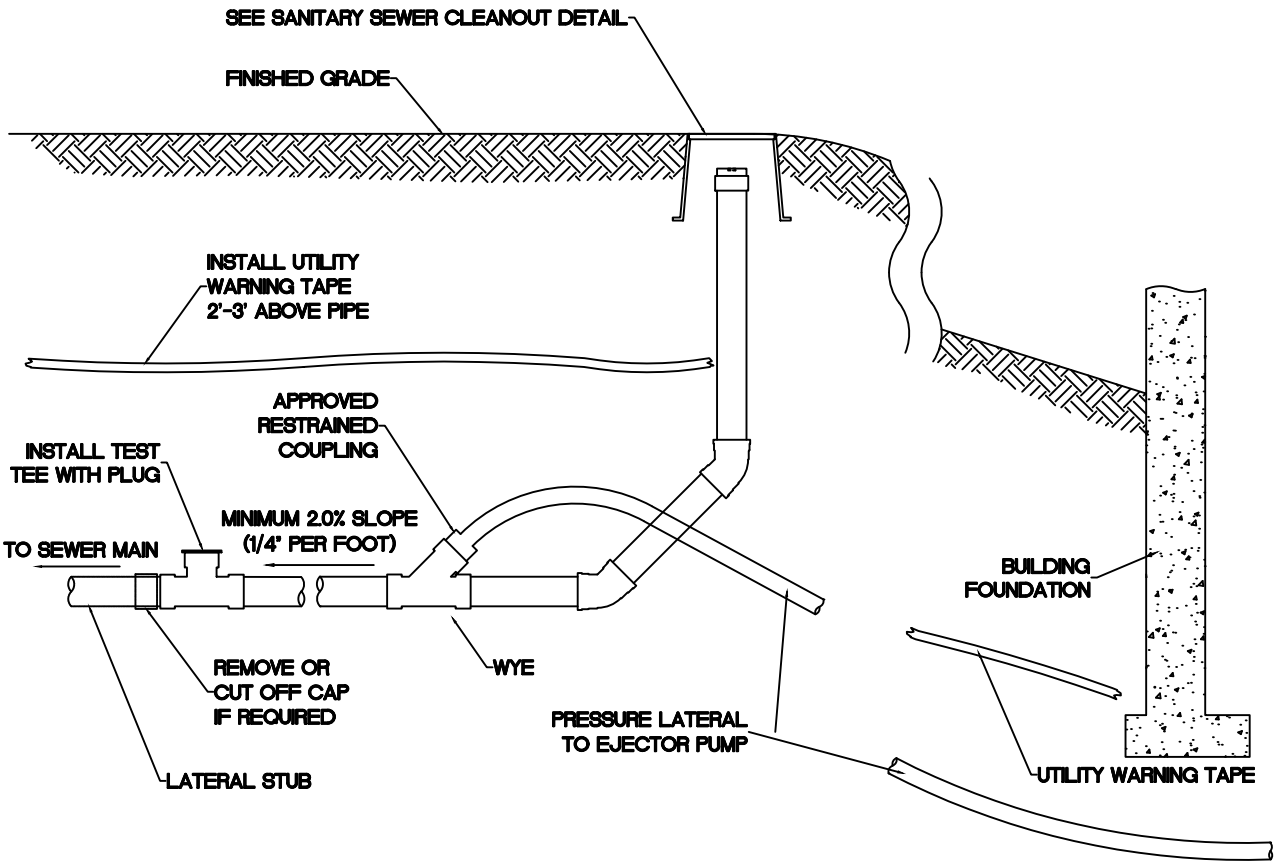
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

STEEL CASING FOR SEWER PIPE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-4



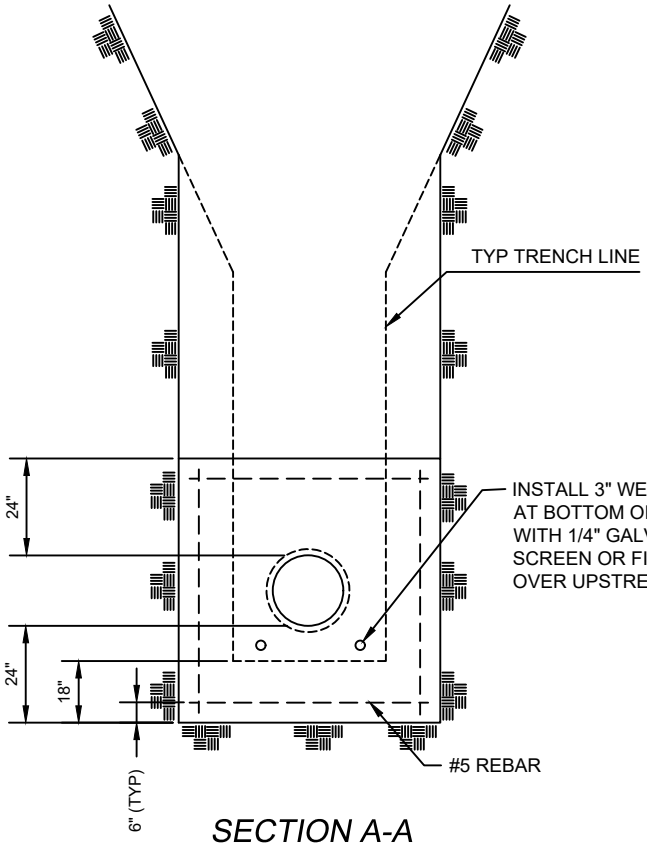
NOTE
1. Four feet of cover is required over all sewer lines.

NO SCALE

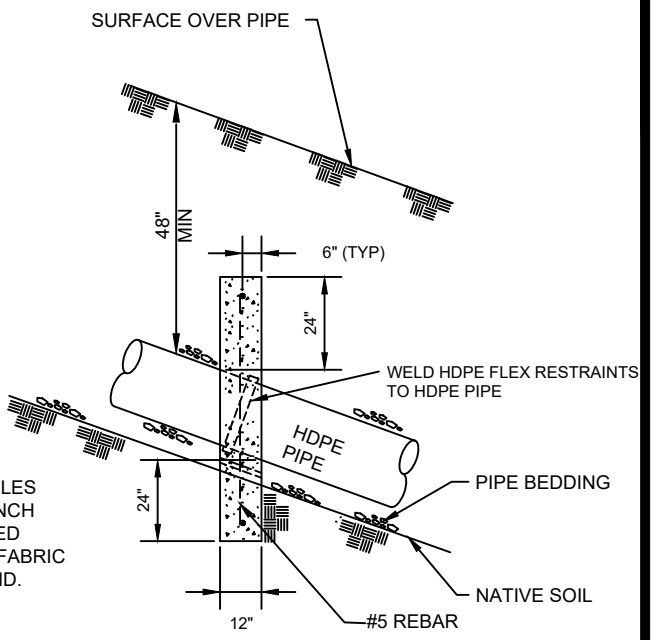
JORDAN BASIN IMPROVEMENT DISTRICT

PRESSURE SEWER LATERAL TO GRAVITY LINE DETAIL

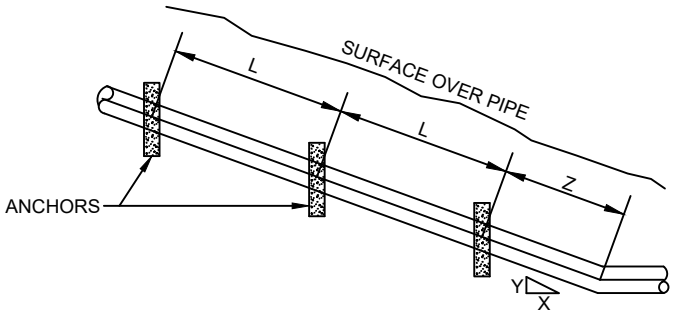
DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-5	



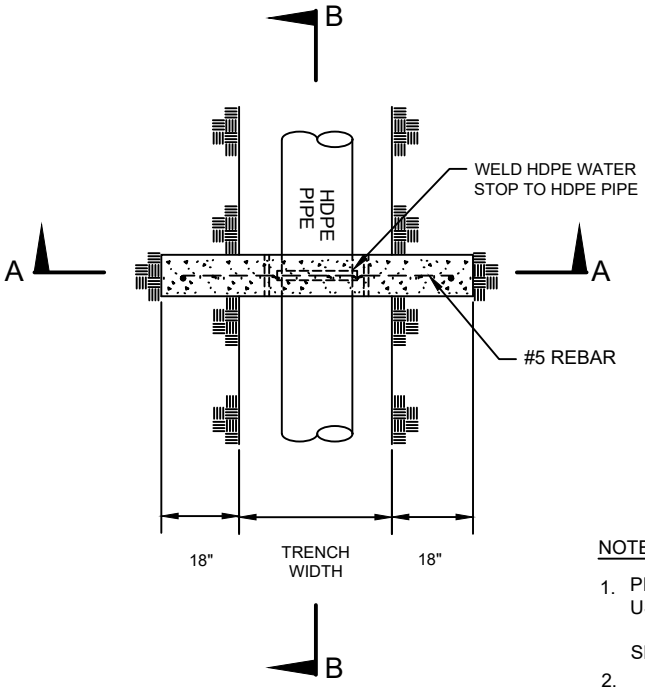
SECTION A-A



SECTION B-B



ELEVATION PIPE ANCHORS



NO SCALE

PLAN VIEW

TABLE "A"		
PIPE SLOPE (%) Y/X	L DISTANCE (MAX)	Z DISTANCE (MAX)
15-35	36'	36'
36-50	24'	24'
51 AND OVER	16'	12'

NOTES:

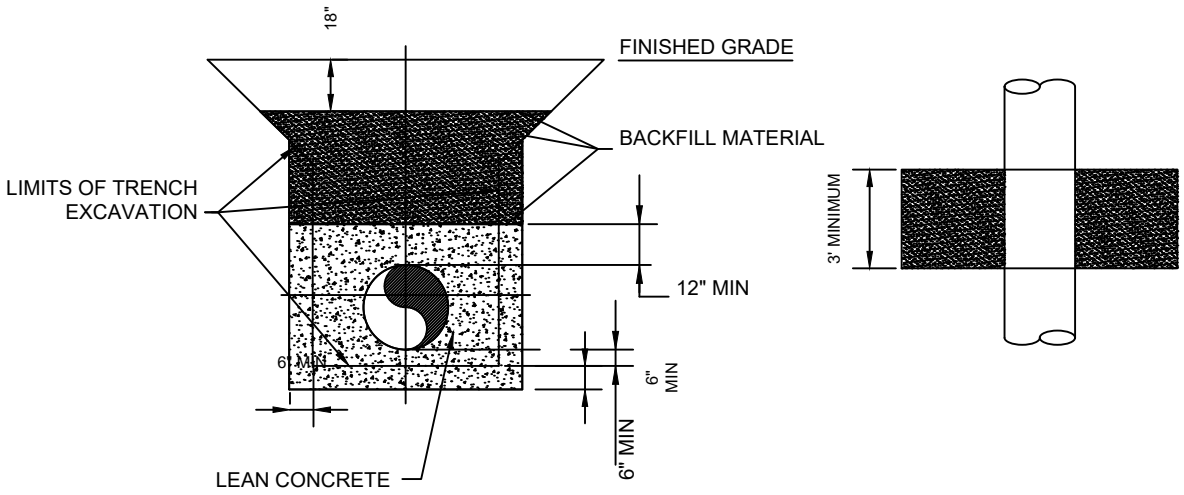
1. PIPE ANCHOR WALLS (CLASS 3000 CONCRETE) SHALL BE CONSTRUCTED USING FORMS. REMOVE FORMS PRIOR TO BACKFILLING TRENCH.

   SEE TABLE "A" FOR SPACING OF ANCHORS VERSUS PIPE SLOPES.
2.

JORDAN BASIN IMPROVEMENT DISTRICT

PIPE ANCHOR DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-6	



NOTES:

1. LEAN CONCRETE SHALL BE USED AS TRENCH DIKES.

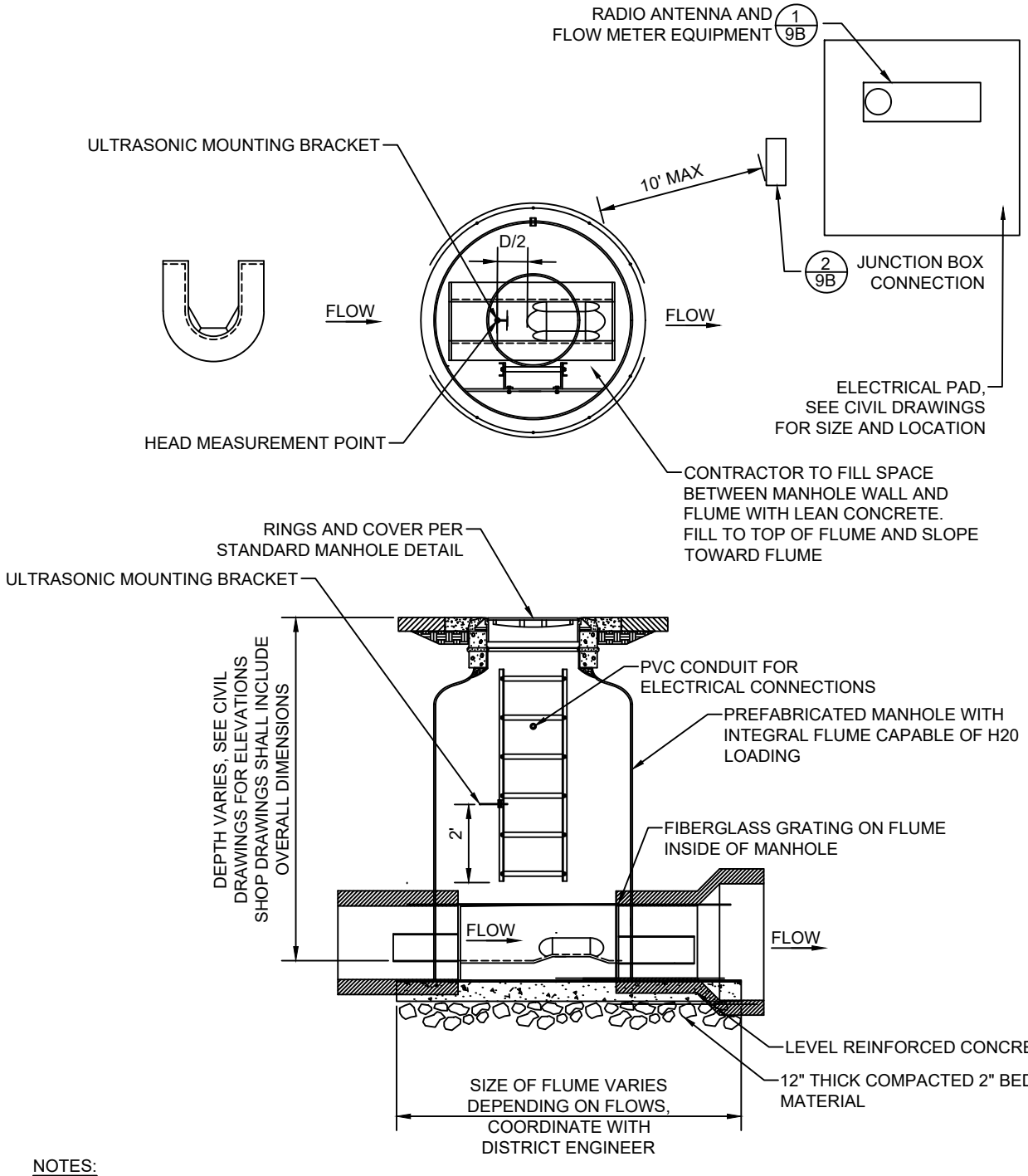
TRENCH DIKE

NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

TRENCH DIKE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-7	



NOTES:

1. FURNISH AND INSTALL FLOW METER MANHOLE PER SVSD SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.
2. ELECTRICAL DRAWINGS SHALL BE PROVIDED SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.
3. STRUCTURAL DRAWINGS AND CALCULATIONS FOR THE CONCRETE PAD SHALL BE PROVIDED SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.

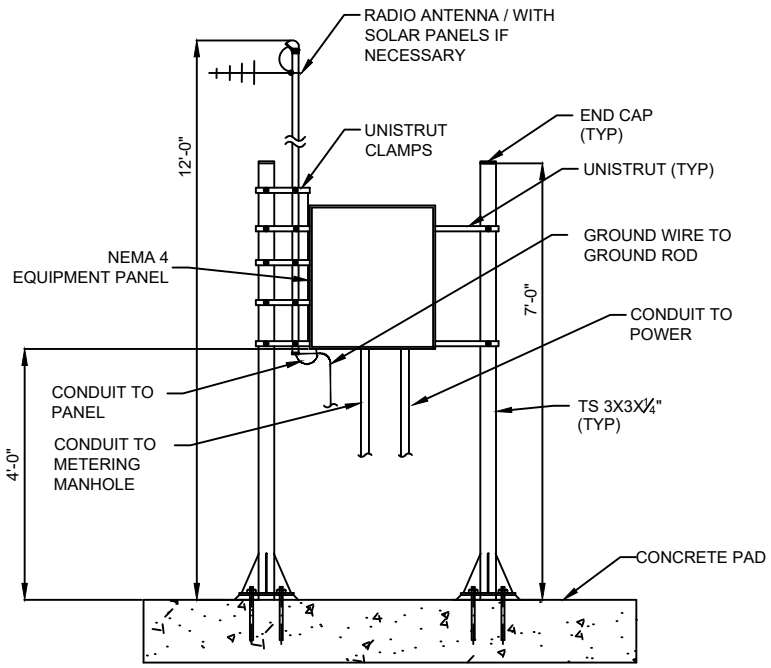
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

PALMER-BOWLES FLOW METER DETAIL (1)

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

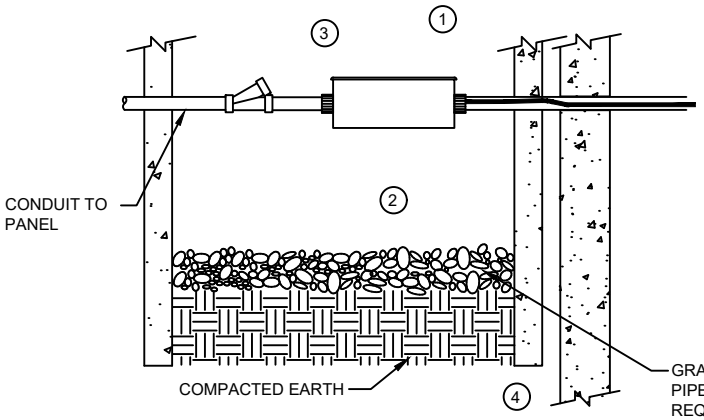
DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-8A



RADIO ANTENNA AND FLOW METER EQUIPMENT DETAIL (1 / 9A)

NOTES:

1. CONTRACTOR SHALL COORDINATE LOCATION OF RADIO ANTENNA, SOLAR PANELS IF NECESSARY, AND FLOW METER ELECTRICAL EQUIPMENT WITH OWNER AND ENGINEER.
2. CONTRACTOR SHALL COORDINATE CONNECTION OF CONDUIT TO METERING MANHOLE WITH ENGINEER.



KEY NOTES: (#)

1. CROUSE-HINDS GUE OR GUB CLASS 1 DIVISION 1 GROUP D JUNCTION BOX OR EQUAL. BOX AND CONDUITS MAY ALSO BE INSTALLED IN VERTICAL POSITION.
2. CROUSE-HINDS EYS CONDUIT SEALING FITTING OR EQUAL.
3. GALVANIZED RIGID STEEL CONDUIT IN CONCRETE OR OUTSIDE OF BOX SHALL BE PVC WRAPPED OR PVC COATED.
4. JUNCTION BOX SIZE DETERMINED BY QUANTITY OF CONNECTIONS AND SIZED BY CONTRACTOR. DEPTH SHALL BE MINIMUM 2.5 FEET.

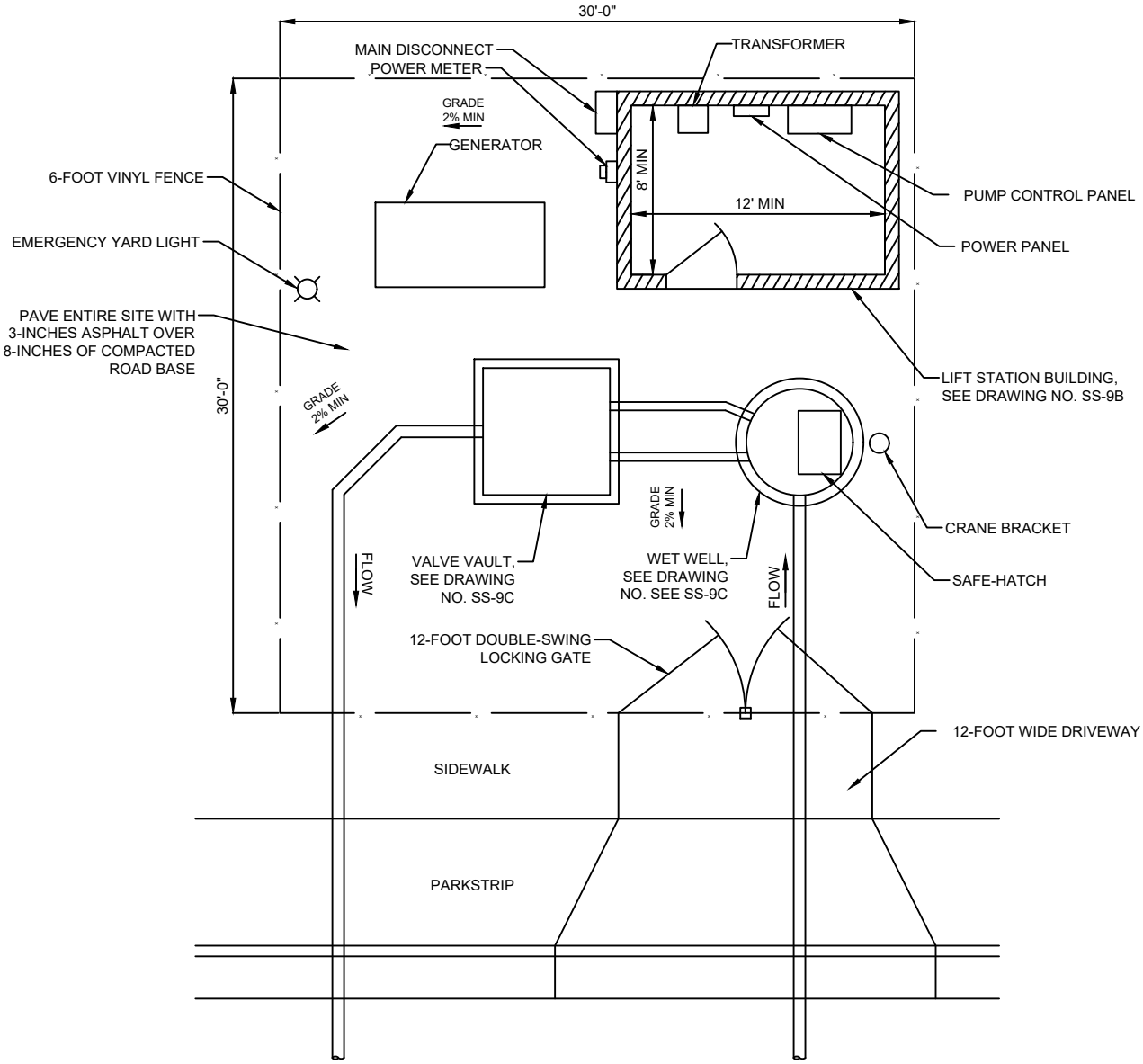
JUNCTION BOX CONNECTION DETAIL (2 / 9A)

NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

PALMER BOWLES FLOW METER DETAIL (2)

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-8B	



NOTES:

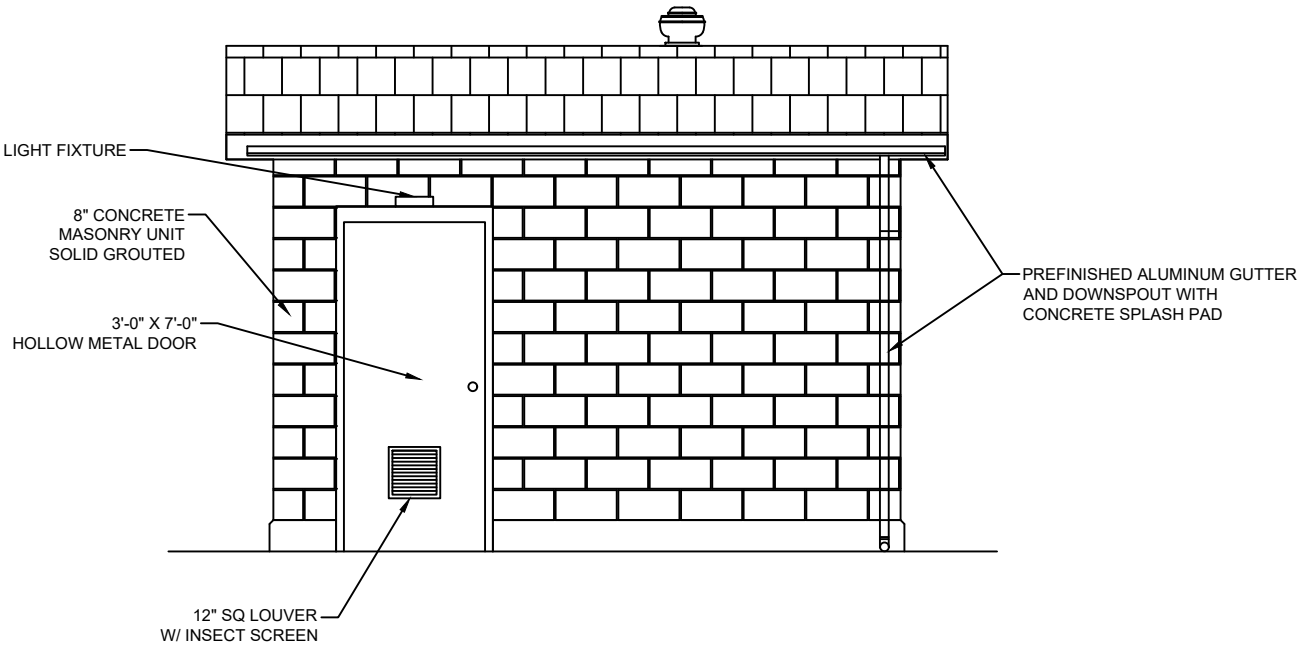
1. SITE PLAN SHOWN IS FOR REFERENCE ONLY. DEVELOPER SHALL PROVIDE DESIGN INCLUDING CIVIL, ELECTRICAL, STRUCTURAL, ETC. TO DISTRICT FOR REVIEW.

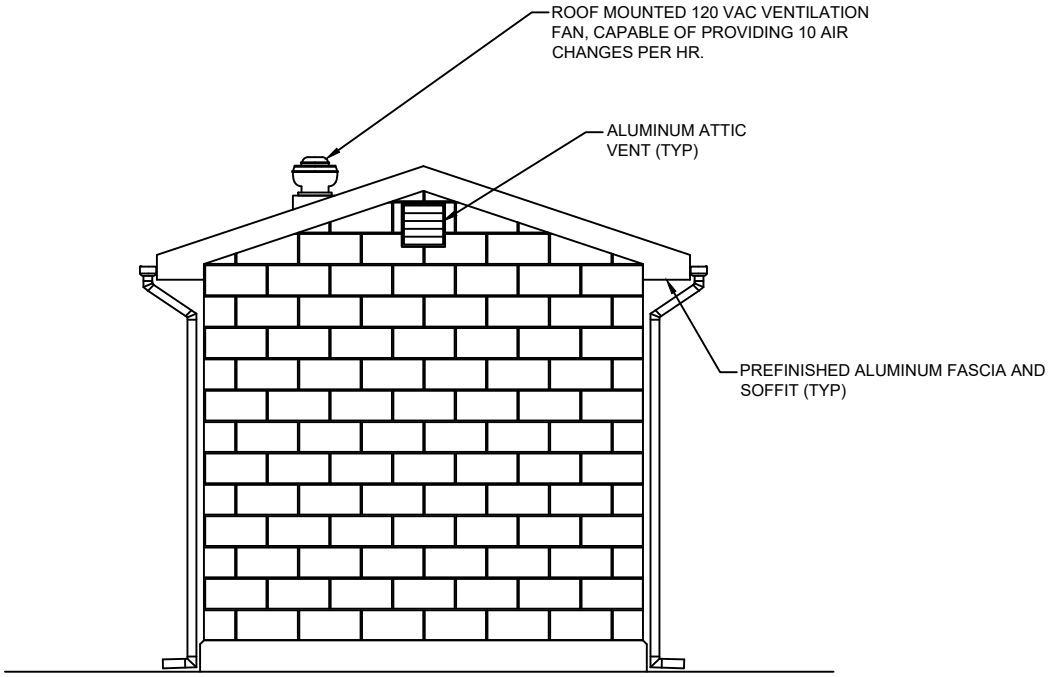
NO SCALE

JORDAN BASIN
IMPROVEMENT DISTRICT

LIFT STATION SITE PLAN DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-9A	





NOTES:

1. STRUCTURAL DRAWINGS AND CALCULATIONS SHALL BE PROVIDED SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.

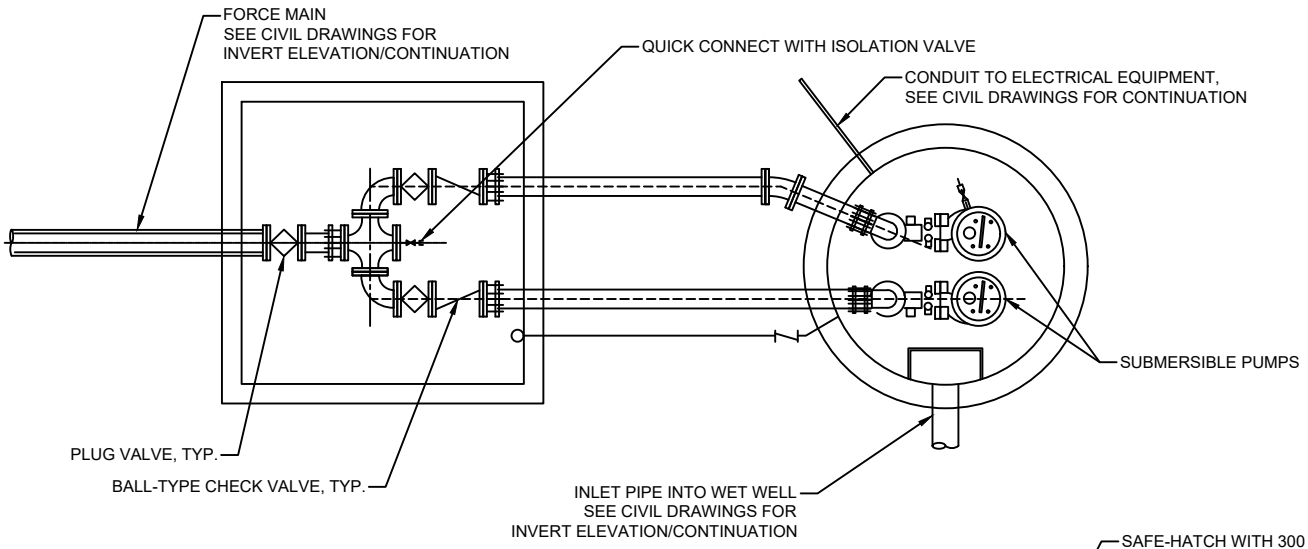
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

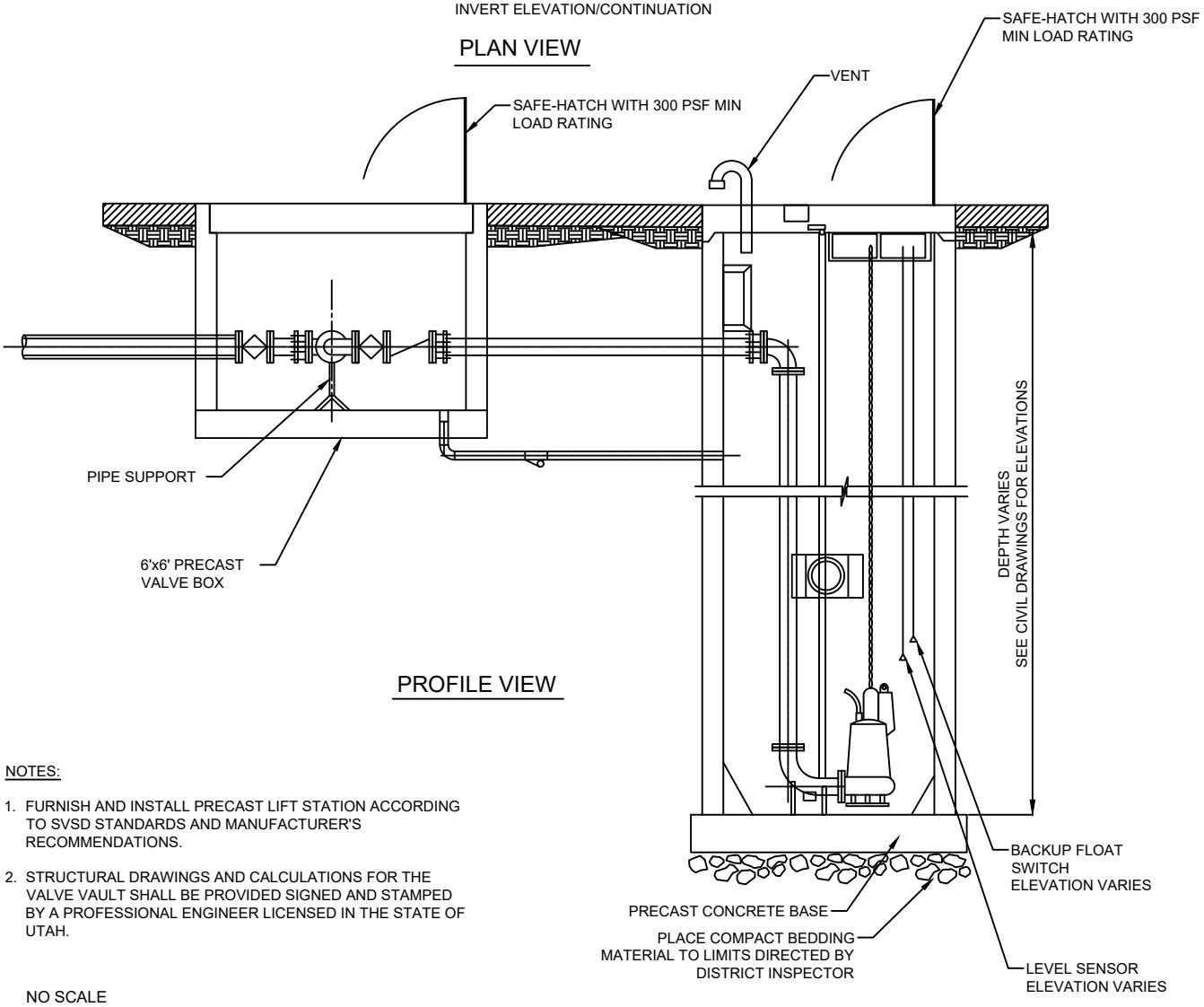
LIFT STATION BUILDING ELEVATION VIEW DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-9B



PLAN VIEW



PROFILE VIEW

NOTES:

1. FURNISH AND INSTALL PRECAST LIFT STATION ACCORDING TO SVSD STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
2. STRUCTURAL DRAWINGS AND CALCULATIONS FOR THE VALVE VAULT SHALL BE PROVIDED SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.

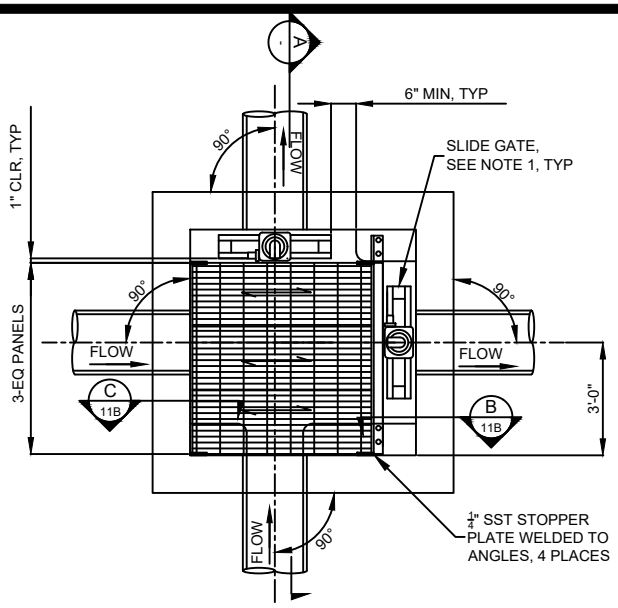
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

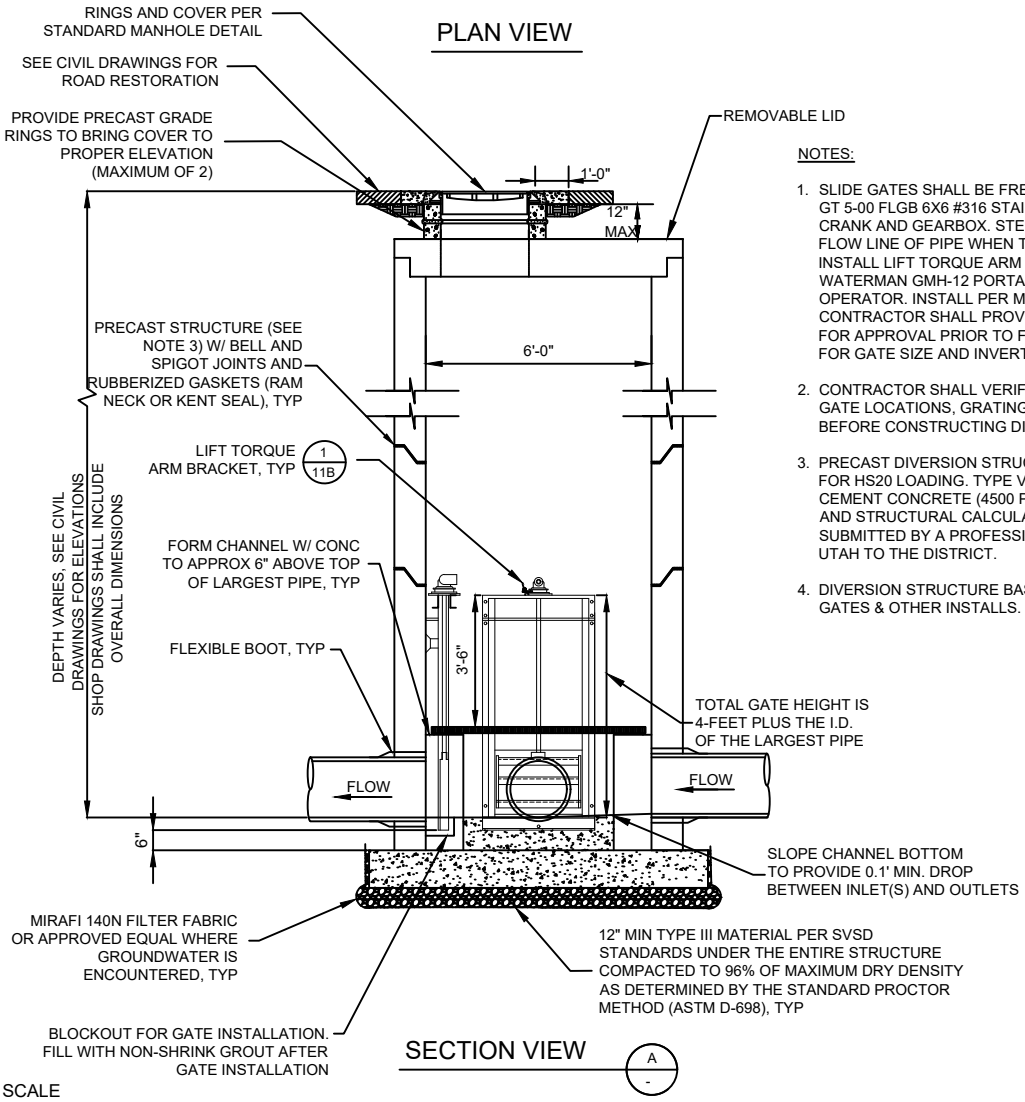
LIFT STATION METER VAULT & WET WELL DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-9C



PLAN VIEW



SECTION VIEW A -

NO SCALE

NOTES:

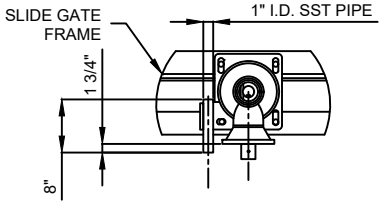
1. SLIDE GATES SHALL BE FRESNO 8200 SERIES NON-RISING STEM GT 5-00 FLGB 6X6 #316 STAINLESS STEEL FR/FSTR WITH 9" HAND CRANK AND GEARBOX. STEM SHALL NOT PROTRUDE THROUGH FLOW LINE OF PIPE WHEN THE GATE IS OPEN. PROVIDE AND INSTALL LIFT TORQUE ARM BRACKET COMPATIBLE WITH WATERMAN GMH-12 PORTABLE GAS ENGINE DRIVEN HYDRAULIC OPERATOR. INSTALL PER MANUFACTURER'S REQUIREMENTS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO DISTRICT FOR APPROVAL PRIOR TO FABRICATION. SEE CIVIL DRAWINGS FOR GATE SIZE AND INVERT ELEVATIONS
2. CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING PIPES, GATE LOCATIONS, GRATING, EXACT STRUCTURE LOCATION, ETC. BEFORE CONSTRUCTING DIVERSION STRUCTURE.
3. PRECAST DIVERSION STRUCTURE SHALL BE DESIGNED RATED FOR HS20 LOADING. TYPE V SULFATE RESISTANT PORTLAND CEMENT CONCRETE (4500 PSI) SHALL BE USED. SHOP DRAWINGS AND STRUCTURAL CALCULATIONS SHALL BE STAMPED & SUBMITTED BY A PROFESSIONAL ENGINEER IN THE STATE OF UTAH TO THE DISTRICT.
4. DIVERSION STRUCTURE BASE SHALL BE PREFABRICATED WITH GATES & OTHER INSTALLS.

JORDAN BASIN IMPROVEMENT DISTRICT

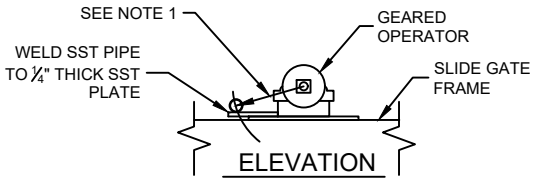
DIVERSION STRUCTURE DETAIL (1)

DRAWN:	DESIGNED:	CHECKED:	APPROVED:

DATE	FILE NAME	DRAWING NAME
AUG 2024		SS-10A



PLAN

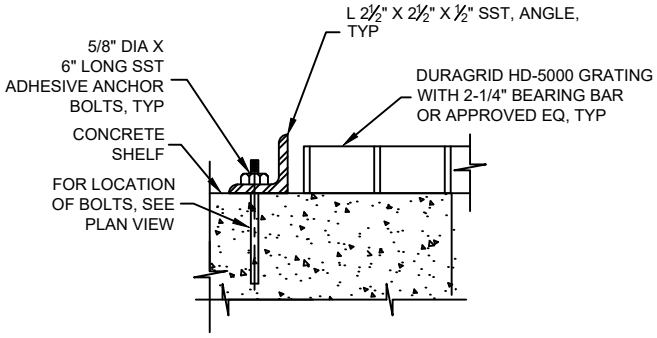


ELEVATION VIEW

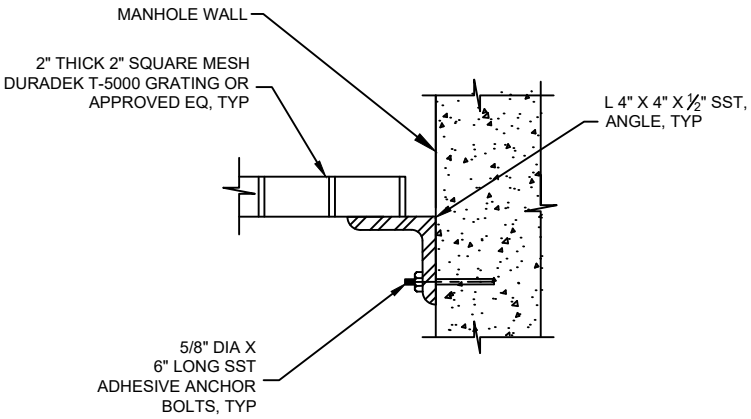
NOTES:

1. ATTACH LIFT TORQUE ARM BRACKET TO GEARED OPERATOR OR SLIDE GATE FRAME AS REQUIRED TO PROVIDE 6-INCH SEPARATION BETWEEN CENTER OF PIPE AND CENTER OF GEARED OPERATOR.
2. BRACKET SHALL BE COMPATIBLE WITH WATERMAN GMH-12 PORTABLE GAS ENGINE DRIVEN HYDRAULIC OPERATOR.

LIFT TORQUE ARM BRACKET 1 / 11A



CONNECTION DETAIL B / 11A



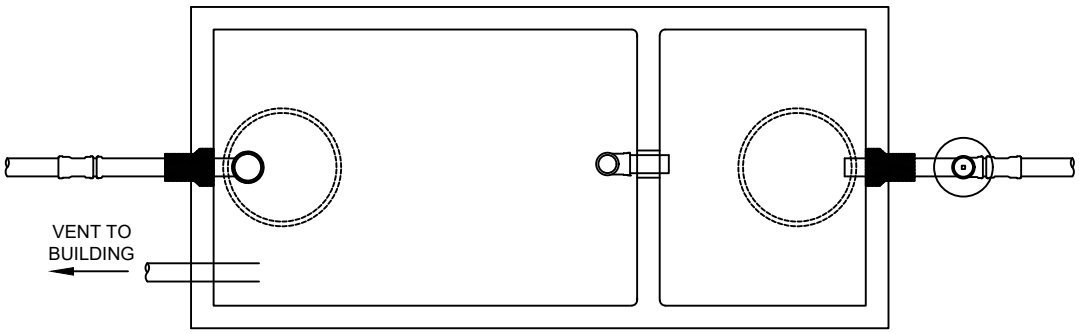
WALL CONNECTION DETAIL C / 11A

NO SCALE

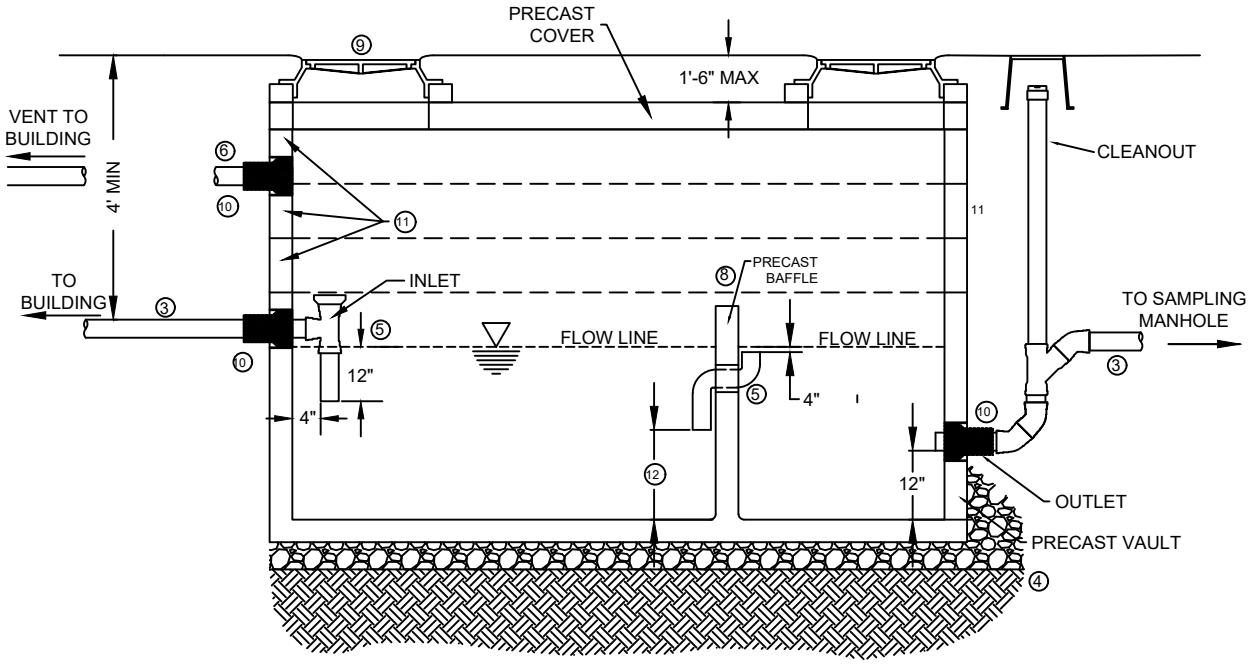
JORDAN BASIN IMPROVEMENT DISTRICT

DIVERSION STRUCTURE DETAIL (2)

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: SS-10B	



PLAN VIEW



PROFILE VIEW

NOTES:

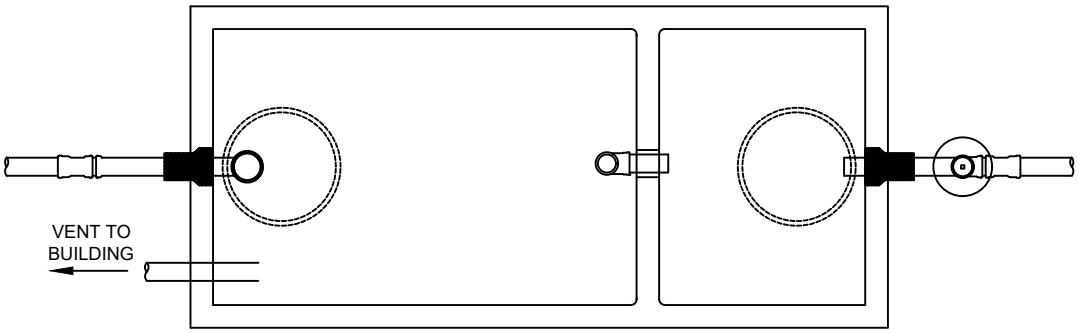
1. THE GREASE INTERCEPTOR CAPACITY IS DEFINED AS THE STORAGE VOLUME OF THE VAULT BELOW THE OUTLET PIPE ELEVATION.
2. THE GREASE INTERCEPTOR SHALL HAVE A MINIMUM CAPACITY OF 800 GALLONS.
3. THE INLET PIPE SHALL BE BETWEEN ONE AND THREE INCHES HIGHER THAN THE OUTLET PIPE.
4. THE GREASE INTERCEPTOR SHALL BE INSTALLED LEVEL AND ON A COMPACTED FOUNDATION WITH 12" BEDDING MATERIAL AS SPECIFIED IN 407.01.
5. PIPING THROUGH BAFFLE WALL SHALL BE 6" SOLVENT WELD PVC. THE INLET AND OUTLET PIPES SHALL BE GASKETED PVC,
6. GREASE INTERCEPTOR SHALL BE VENTED INDEPENDENTLY THROUGH THE BUILDING, AWAY FROM AIR INTAKES, MIN SIZE 2".
7. SANITARY WASTES SHALL NOT BE PLUMBED TO GREASE INTERCEPTOR.
8. THE DIMENSIONS AND CONFIGURATION OF THE VAULT AND BAFFLE SHALL BE ACCORDING TO THE MANUFACTURER'S REQUIREMENTS FOR THE SIZE OF INTERCEPTOR INSTALLED. THE VOLUME OF THE FIRST CHAMBER SHALL BE DOUBLE THAT OF THE SECOND CHAMBER. THE TOP OF THE BAFFLE WALL SHALL BE AT LEAST 3" ABOVE THE CROWN OF THE INLET PIPE AND SHALL MAINTAIN A 3" GAP FROM THE BOTTOM OF THE COVER.
9. SEE STD DETAIL SS-2A FOR REQUIREMENTS IN THIS AREA.
10. CORED FOR FLEXIBLE RUBBER BOOT PIPE CONNECTOR. FLEXIBLE PIPE CONNECTOR GROUTED AFTER INSTALLATION.
11. VAULT RISER SECTIONS AS REQUIRED (JOINT SEALANT AT ALL JOINTS)
12. HALFWAY BETWEEN FLOOR AND FLOW LINE (DEPTH OF FLOW MIDPOINT)

NO SCALE

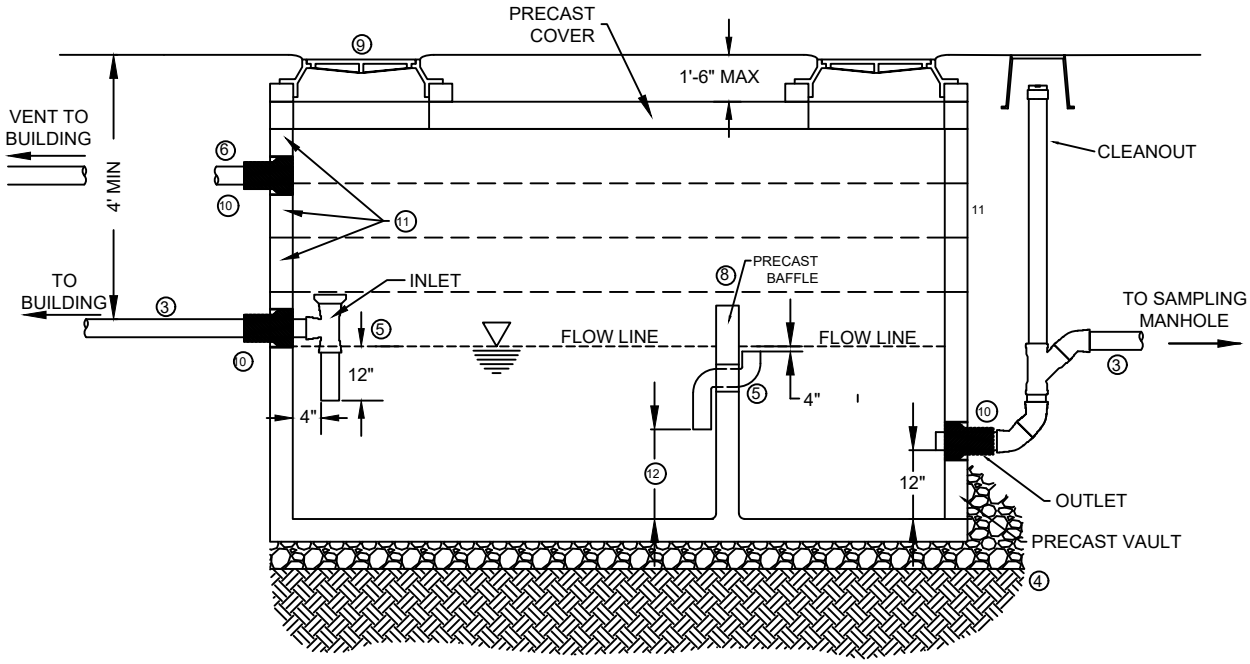
JORDAN BASIN
IMPROVEMENT DISTRICT

GREASE INTERCEPTOR DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: PT-1	



PLAN VIEW



PROFILE VIEW

NOTES:

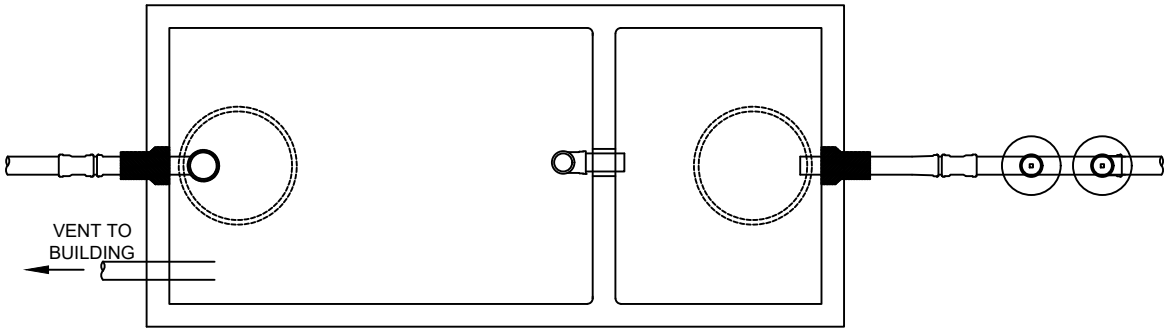
1. THE SAND / OIL SEPARATOR CAPACITY IS DEFINED AS THE STORAGE VOLUME OF THE VAULT BELOW THE OUTLET PIPE ELEVATION.
2. THE SAND / OIL SEPARATOR SHALL HAVE A MINIMUM CAPACITY OF 450 GALLONS.
3. THE INLET PIPE SHALL BE BETWEEN ONE AND THREE INCHES HIGHER THAN THE OUTLET PIPE.
4. THE SAND / OIL SEPARATOR SHALL BE INSTALLED LEVEL AND ON A COMPACTED FOUNDATION WITH 12" BEDDING MATERIAL AS SPECIFIED IN 407.01.
5. PIPING THROUGH BAFFLE WALL SHALL BE 6" SOLVENT WELD PVC. THE INLET AND OUTLET PIPES SHALL BE GASKETED PVC,
6. THE SAND/ OIL SEPARATOR MAY BE VENTED INDEPENDENTLY THROUGH THE BUILDING, AWAY FROM AIR INTAKES, MIN SIZE 2", OR THROUGH VENTED LIDS.
7. SANITARY WASTES SHALL NOT BE PLUMBED TO SAND / OIL SEPARATOR.
8. THE DIMENSIONS AND CONFIGURATION OF THE VAULT AND BAFFLE SHALL BE ACCORDING TO THE MANUFACTURER'S REQUIREMENTS FOR THE SIZE OF INTERCEPTOR INSTALLED. THE VOLUME OF THE FIRST CHAMBER SHALL BE DOUBLE THAT OF THE SECOND CHAMBER. THE TOP OF THE BAFFLE WALL SHALL BE AT LEAST 3" ABOVE THE CROWN OF THE INLET PIPE AND SHALL MAINTAIN A 3" GAP FROM THE BOTTOM OF THE COVER.
9. SEE STD DETAIL SS-2A FOR REQUIREMENTS IN THIS AREA.
10. CORED FOR FLEXIBLE RUBBER BOOT PIPE CONNECTOR. FLEXIBLE PIPE CONNECTOR GROUTED AFTER INSTALLATION.
11. VAULT RISER SECTIONS AS REQUIRED (JOINT SEALANT AT ALL JOINTS)
12. HALFWAY BETWEEN FLOOR AND FLOW LINE (DEPTH OF FLOW MIDPOINT)

NO SCALE

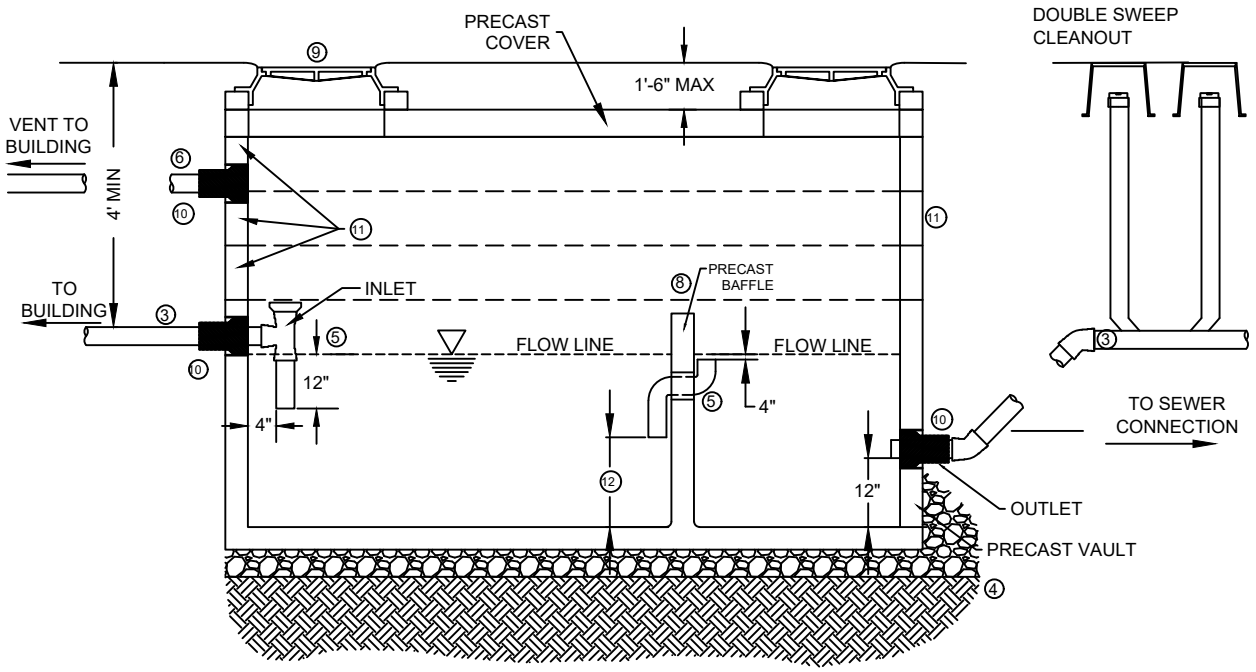
JORDAN BASIN
IMPROVEMENT DISTRICT

SAND / OIL SEPARATOR DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: PT-2	



PLAN VIEW



PROFILE VIEW

NOTES:

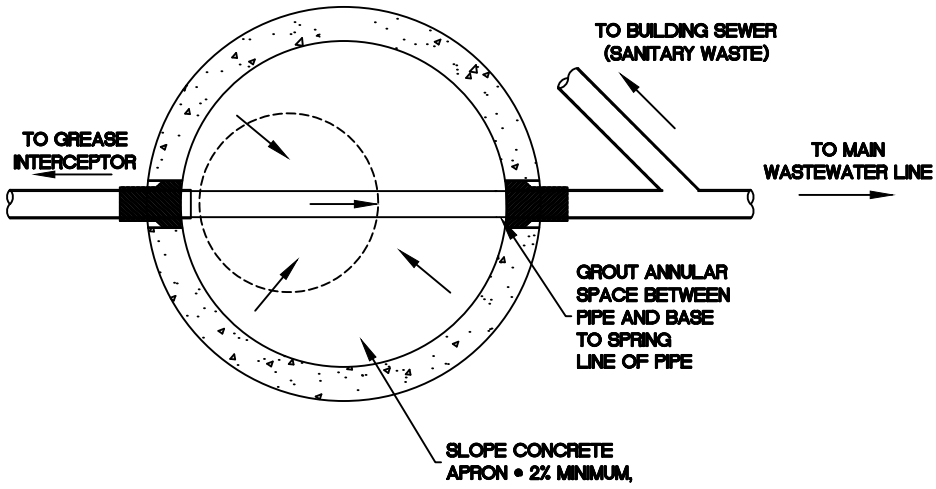
1. THE SAND/OIL INTERCEPTOR CAPACITY IS DEFINED AS THE STORAGE VOLUME OF THE VAULT BELOW THE OUTLET PIPE ELEVATION.
2. THE SAND/OIL INTERCEPTOR SHALL HAVE A MINIMUM CAPACITY OF 450 GALLONS.
3. THE INLET PIPE SHALL BE BETWEEN ONE AND THREE INCHES HIGHER THAN THE OUTLET PIPE.
4. THE SAND/OIL INTERCEPTOR SHALL BE INSTALLED LEVEL AND ON A COMPACTED FOUNDATION WITH 12" BEDDING MATERIAL AS SPECIFIED IN 407.01.
5. PIPING THROUGH BAFFLE WALL SHALL BE 6" SOLVENT WELD PVC. THE INLET AND OUTLET PIPES SHALL BE GASKETED SDR 35 PVC OR AS APPROVED.
6. OIL/SAND SEPARATORS MAY HAVE VENTED LIDS IN LIEU OF SEPARATE VENT THROUGH BUILDING.
7. SANITARY WASTES SHALL NOT BE PLUMBED TO SAND/OIL INTERCEPTOR.
8. THE DIMENSIONS AND CONFIGURATION OF THE VAULT AND BAFFLE SHALL BE ACCORDING TO THE MANUFACTURER'S REQUIREMENTS FOR THE SIZE OF INTERCEPTOR INSTALLED. THE VOLUME OF THE FIRST CHAMBER SHALL BE DOUBLE THAT OF THE SECOND CHAMBER. THE TOP OF THE BAFFLE WALL SHALL BE AT LEAST 3" ABOVE THE CROWN OF THE INLET PIPE AND SHALL MAINTAIN A 3" GAP FROM THE BOTTOM OF THE COVER.
9. SEE STD DETAIL SS-2A FOR REQUIREMENTS IN THIS AREA.
10. CORED FOR FLEXIBLE RUBBER BOOT PIPE CONNECTOR. FLEXIBLE PIPE CONNECTOR GROUTED AFTER INSTALLATION.
11. VAULT RISER SECTIONS AS REQUIRED (JOINT SEALANT AT ALL JOINTS)
12. HALFWAY BETWEEN FLOOR AND FLOW LINE (DEPTH OF FLOW MIDPOINT)

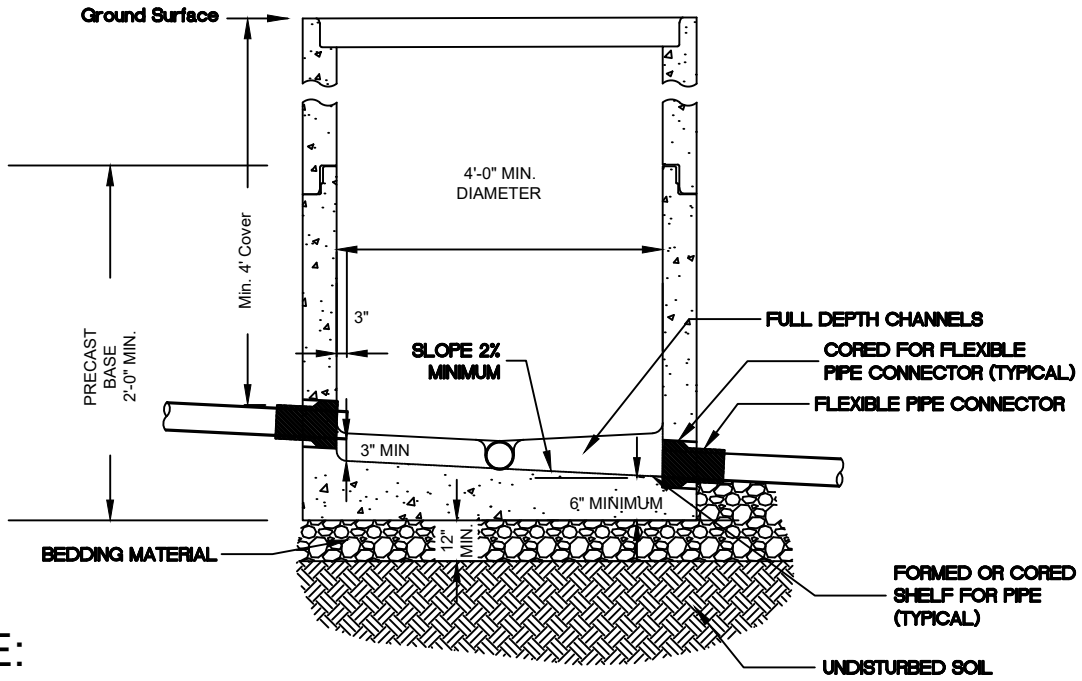
NO SCALE

JORDAN BASIN IMPROVEMENT DISTRICT

SAND / OIL SEPARATOR (PARKING GARAGE) DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: PT-3	





NOTE:

1. BOTTOM OF INLET PIPE INTO MANHOLE MUST BE AT LEAST 3-INHCES ABOVE THE BOTTOM OF THE TROUGH AND EXTENDED 3-INCHES BEYOND THE INSIDE OF THE MANHOLE WALL.
2. WIDTH AND DIAMETER OF TROUGH MUST BE SAME AS DIAMETER OF INLET PIPE.
3. SANITARY WASTE LINE MUST CONNECT AT LEAST TWO FEET DOWNSTREAM OF SAMPLING MANHOLE.
4. MANHOLE OPENING SHALL BE CENTERED OVER INLET PIPE.
5. THE SAMPLING MANHOLE SHALL BE INSTALLED LEVEL AND ON A COMPACTED FOUNDATION WITH 12" BEDDING MATERIAL AS SPECIFIED IN 407.01

.

NO SCALE

JORDAN BASIN
IMPROVEMENT DISTRICT

SAMPLING MANHOLE DETAIL

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DATE: AUG 2024	FILE NAME:	DRAWING NAME: PT-4	