RESOLUTION 2016-02

A Resolution of the Four Corner County Water and Sewer District modifying Rules and Regulations to include *Design Standards and Specification Guide, Connection Guidelines for water systems, Connection Guidelines for wastewater systems, Connection Guidelines for wastewater system for Black Bull Subdivision and Middle Creek Parklands Subdivision* and *Connection Guidelines for water systems for Black Bull Subdivision and Middle Creek Parklands Subdivision.*

RECITALS

WHEREAS, the Four Corners County Water and Sewer District ("District") is a county water and sewer district duly established in 2003; and Regulations to govern water and wastewater for the Four Corners County Water and Sewer District; and

WHEREAS, the District established Rules and Regulations to govern water and wastewater for the Four Corners County Water and Sewer District; and

WHEREAS, the District in 2015 undertook the purchase of the Utility Solutions assets which provide service to the District and to Elk Grove Subdivision; and

WHEREAS, the Rules and Regulations authorized the enforcement of standards and specifications for water and wastewater service connection within the District and for out of District customers, which now includes Elk Grove Subdivision; and

WHEREAS, the Utility Solutions adopted and enforces such standards and specification prior to the purchase and sale; and

WHEREAS, the District may collect a capacity fee which re-captures, to the fullest extent of the law, the costs of capital improvements that provide service capacity to future customers.

NOW THEREFORE, the Four Corners County Water and Sewer District resolves to modify the Rules and Regulations as follows:

The design standards and specifications and connections as identified herein and attached hereto are adopted for the District and out of District customers as if each stated Four Corners County Water and Sewer District, including but not limited to:

Design Standards and Specification Guide,
Connection Guidelines for water systems,
Connection Guidelines for wastewater systems,
Connection Guidelines for wastewater system for Black Bull Subdivision and Middle Creek Parklands Subdivision and
Connection Guidelines for water systems for Black Bull Subdivision and Middle Creek Parklands Subdivision.

AND

The District adopts Capacity fees are $2,500 per EDU (Equivalent Dwelling Unit) for water and $5,000 per EDU for sewer. Equivalent Dwelling Units, EDUs, are a maximum daily water demand of 250 gallons. Condominium units require a minimum of 1 EDU per unit

Dated this __ day of January 2016.

Cory Klumb, President

ATTESTED:

Maralee Parsons Sullivan, Secretary

UTILITY SOLUTIONS

DESIGN STANDARDS AND SPECIFICATIONS GUIDE

Prepared by:

MORRISON MAIERLE, INC.

February 2006

Approved By:_____

UTILITY SOLUTIONS LLC

DESIGN STANDARDS AND SPECIFICATIONS GUIDE

January 2006

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FOREWORD

The Utility Solutions, LLC central water and sewer systems are located in the Four Corners area of Gallatin County, which is eight miles west of Bozeman, Montana and eight miles south of Belgrade, Montana. Utility Solutions, LLC has been formed to solve the problems encountered with providing central water and sewer systems in the Four Corners area. It is a public utility, privately owned that will permit, construct, and operate water and sewer infrastructure for properties in the Four Corners area. By providing central systems with responsible administration, residents will be safer based on the use of modern technology and constant monitoring.

This document has been prepared to assist design engineers, architects, developers, contractors, or other interested individuals with the preparation of plans and specifications for Utility Solutions water and sewer infrastructure improvements and extensions so that they will be compatible with the characteristics of the existing system. This is not an all-inclusive policy. All work shall comply with applicable Montana Public Works Standard Specifications (MPWSS) 5th Edition March 2003, Montana Department of Environmental Quality (MDEQ) standards, Gallatin County regulations, and local fire district rules & regulations. All connections to Utility Solutions, LLC will be subject to review and approval by the appropriate agencies and the utility prior to any construction of infrastructure.

UTILITY DESIGN CRITERIA

A. WATER DISTRIBUTION LINES AND DESIGN CRITERIA

1. All additions or modifications to the Utility Solutions, LLC water system will be designed in accordance with the criteria set forth in this and other sections of this Guide as approved by Utility Solutions, LLC. Polyvinyl Chloride (PVC) Pressure Pipe (Northern Pipe Products PVC AWWA C-900, or equivalent) shall be used exclusively unless special approval, in writing, of alternate materials is given by Utility Solutions, LLC. Ductile iron pipe (ASTM A536) with a minimum pressure rating of 250 psi shall be installed in buildings, beneath structures, and in vaults. The ductile iron pipe shall extend a minimum of 2 feet from buried vaults and 5 feet from building foundations. Bends and fittings shall also be ductile iron pipe with mechanical joints compatible with PVC pipe materials. All additions to the water system will also be designed and installed in accordance with MPWSS, MDEQ, and applicable Fire District Standards.

2. Master Water Plan: A master water plan may be required at the discretion of Utility Solutions, LLC for each subdivision or other major development prior to approval of any portion of the water system. An overall plan of the development, including all areas outside of the study area which would naturally be served through the study area shall be submitted to ensure that main location and sizes will allow for future connections. No irrigation water will be provided by Utility Solutions, LLC unless specifically agreed to as part of a master water plan process.

3. Design Report: A design report prepared by a professional engineer licensed in the State of Montana demonstrating compliance with these requirements shall be submitted to and approved by Utility Solutions, LLC concurrently with MDEQ review. Design parameters and the critical conditions shall be shown on an overall plan of the new service area. An overall plan of development, including all areas outside of the study area which would naturally be served through the study area may be required by Utility Solutions, LLC.

4. Main Size: The water distribution system shall be designed to meet the maximum demand plus fire flow and the peak hour demand. The design shall be based on a maximum hour to average day ratio of 3:1 (for an average daily usage of 100-gallons per day per person and 2.5 persons per household),

plus fire flow demand as determined by ISO (Insurance Services Office) criteria. A "C" Factor of 130 shall be used in modeling system designs. The working residual water pressure shall not be less than 20-psi at any point in the water distribution under maximum day plus fire flow. The velocity of the water in the system shall not exceed 15-feet per second through a main line. The minimum diameter for any new main is 6-inch. Water and sewer mains that cross perpendicularly shall have a minimum of 18-inches of vertical separation and be separated by a minimum of 11 feet horizontally.

5. Main Extensions: All main extensions shall be looped, where possible at the discretion of Utility Solutions, LLC. All dead end mains shall end with a fire hydrant or blow-off hydrant, preferable above grade. Permanent dead-end mains shall not exceed 500-feet long. Temporary dead-end mains scheduled for future extension may end with a temporary at-grade blow-off in lieu of a fire hydrant or blow-off hydrant at the discretion of Utility Solutions, LLC. See Figure Numbers 02660-5 and 02660-6 for depictions of blow-off hydrants. All water mains shall be installed with tracer wire and detectable tape marked "water" for future locating.

6. Services: Water services shall be installed in accordance with the following unless otherwise approved or required by Utility Solutions, LLC.

    a. A water line is designated as either a service line or water main based on its use, not its size. Generally, a line serving a single building or facility is considered a service line; a line serving more than one building, or intended to serve more that one building or facility is generally designated as a water main. The standard sizes of service lines are 3/4-, 1-, 1½-, 2-, 4-, 6-, or 8-inch. Fire service lines shall be sized by licensed fire suppression professional.

    b. Residential water service stubs shall be installed in accordance with Figure Number 02660-1. Residential water service pipe shall be IPS polyethylene pressure pipe, and shall conform to AWWA C901 (Polyethylene (PE) Pressure Pipe, Tubing and Fittings 2-inch Through 3-inch for Water) and ASTM PE 3406-3408. Plans and specifications prepared by a Professional Engineer licensed in the State of Montana shall be submitted to Utility Solutions, LLC for service lines larger than 4-inch.

c. Commercial water service stubs shall be installed in accordance with Figure Number 02660-1. Commercial water service pipe shall be 4-inch or larger PVC (Northern Pipe Products PVC AWWA C-900, or approved equal). The services shall have a gate valve located at the main line and have a tapped end-cap with an IPS polyethylene pressure pipe blow off extending to the ground surface.

d. The service line stubs shall generally be installed at the center of each lot, to 8-10 feet inside the lot line. Water services shall be located in accordance with Figure Number 02660-2. Water services and sewer services are required to have a minimum of 8-feet of horizontal separation. All water services will be installed with tracer wire from the main to its termination at the curb stop. An easement shall be provided to allow access to the curb stops located inside the lot line.

e. Corporation Stops shall be brass corporation stops with inlet end to suit tapping requirements and compression outlet for IPS polyethylene pipe. Corporation stops shall be Mueller B-25009 compression fittings, or an Engineer-approved equal.

f. Service saddles, where required, shall be flat, double strap saddles, stainless steel with NPR gaskets and corporation stop threads. Service clamps shall be Romac Style 306 Service Saddle, or Engineer-approved equal. Service clamps for PVC shall provide full support around the circumference of the pipe with a bearing area of sufficient width along the axis of the pipe so that the pipe will not be distorted when the clamp is tightened.

g. Curb stops shall be a ball type valve with Minneapolis pattern screw mount. Curb stops shall be Mueller Model B-20287, or Engineer-approved equal.

h. Curb boxes shall be extension type and shall have an extended length of 7.0 feet. Curb boxes furnished shall be Mueller model H-10300, or Engineer-approved equal.

i. No service line shall be extended into a building until an "Application for Service" has been completed and approved by Utility Solutions, LLC.

j. Backflow prevention devices shall be installed on each fire and domestic service line. Meters will be supplied by Utility Solutions, LLC and installed on all service lines, including fire service lines, by the contractor and inspected by Utility Solutions, LLC. Meter pits shall not be used unless specifically approved by Utility Solutions, LLC.

k. All service connections shall be uniform in size from the service tap to the building structure or structures unless otherwise approved or required by Utility Solutions, LLC. Utility Solutions, LLC shall reserve the right to require a larger service connection to any building, structure, or development if the water requirements, when calculated by the fixture unit method, as specified in the Uniform Plumbing Code, cause the service line to exceed ten (10) feet per second. Each service line and meter shall supply a specific building.

l. All service line stubs shall be sized to adequately serve the maximum anticipated demand for the property being served.

m. Separate irrigation water supply service design, if proposed, will be reviewed by Utility Solutions, LLC to ensure separation from the potable water system. Irrigation water services shall be located a minimum of 8' from potable water services and will not be allowed to terminate within any structure. Measures shall be taken in the design to prevent cross-connection of the potable and irrigation water system components.

7. Valves: Valves shall be installed in accordance with the following unless otherwise approved or required by Utility Solutions, LLC.

   a. Gate valves shall be iron body, resilient seat gate valves with non-rising stems with design, construction and potable rating conforming to AWWA C509 and ANSI/NSF 61. Main line gate valves for underground installation shall be mechanical joint by mechanical joint with thrust restraint and shall have a 2-inch square operating nut for key operation. All valves shall open counter clockwise. Valves shall be Mueller A-2300 series resilient gate valves, or Engineer-approved equal.

b. Every leg of a main intersection shall have a valve. Water main valves shall be located in accordance with Figure Number 02660-2.

c. All connections to an existing water main will begin with a new valve and have a detailed plan for disinfection and testing.

d. Valves shall be located at not more than 500-foot intervals in commercial districts and at not more than one block or 800-foot intervals in other districts.

e. Valves shall be placed so that the main shut-downs can be accomplished with only one fire hydrant being out of service at a time.

f. Valve boxes shall be cast iron, 5 ¼-inch diameter, adjustable valve boxes with base as required for the valve size used. Valve boxes shall be of the screw type and of sufficient length for the pipe bury as specified. The cast iron cover of the valve box shall have the word "Water" stamped thereon. Valve boxes shall be SIGMA VB630DD, or an Engineer-approved equal.

g. All valve boxes shall be located in finished asphalt unless specifically approved by Utility Solutions, LLC

8. Hydrants: Hydrants shall be installed in accordance with the following unless otherwise approved or required by Utility Solutions, LLC.

   a. Hydrants shall be Mueller Super Centurion, or an Engineer-approved equal. Hydrants shall be connected to the flange side of a 6-inch (flange by mechanical joint) gate valve and connected to the hydrant lead. Hydrants shall be a minimum of 7.0' tall from bury line to water main invert and be designed taller for larger sized mains. Hydrant assemblies shall be installed in accordance with Figure Number 02660-3.

   b. Hydrants shall be provided at each street intersection and at intermediate points so that hydrants are spaced from 350- to 600-feet depending on the area being served and according to the requirements of the applicable fire authority. Mid-block hydrants shall be

installed in line with lot lines. See Figure Numbers 02660-2, and 02660-4.

9. Air Relief: Air relief shall be provided at all high points in the line where air can accumulate by means of hydrants, services, or other air relief valves.

10. Pressure Reducing Valves: Pressure reducing valves shall be installed when the anticipated average-day line pressure exceeds 120 psi.

11. Thrust Restraint: All thrust restraint shall be designed to withstand the test pressure or the working pressure plus the surge allowance, whichever is larger. Adequate factors of safety shall be employed in the design. Mechanical joint restraints shall be EBAA Iron Series 2000PV, or Engineer-approved equal. Bell restraints for PVC pipe shall be EBAA Series 1600, or Engineer-approved equal. All water system piping will be pressure tested in accordance with MPWSS 5th Edition March 2003.

B. SANITARY SEWER SYSTEM DESIGN CRITERIA

1. All additions or modifications to the Utility Solutions, LLC sanitary sewer system will be designed in accordance with the criteria set forth in this and other sections of this Guide as approved by Utility Solutions, LLC. All additions to the sewer system will also be designed and installed in accordance with MPWSS, MDEQ, and applicable local Standards.

2. Master Sewer Plan: A master sewer plan may be required by Utility Solutions, LLC for each subdivision or other major development prior to approval of any portion of the sewer system. An overall plan of the development, including all areas outside of the study area which would naturally be served through the study area shall be submitted to ensure that main location and sizes will allow for future connections.

3. Design Report: A design report prepared by a professional engineer licensed in the State of Montana demonstrating compliance with these requirements shall be submitted to and approved by Utility Solutions, LLC concurrently with MDEQ review. Design parameters and the critical conditions shall be shown on an overall plan of the new service area. An overall plan of development, including all areas outside of the study

area which would naturally be served through the study area may be required by Utility Solutions, LLC

4. New sewer lines shall be sized to flow at no more than 75-percent of full capacity at peak hour conditions upon the full build-out of the development. The effects of the proposed development's sewer loading on existing downstream sewer lines shall be analyzed.

5. New sanitary sewer lines to serve residential areas shall be designed to accommodate an average daily flow rate of 100-gallons per person per day with 2.5 persons per household per Circular DEQ-2 and the Gallatin Co. Census Data. Residential densities for new developments shall be calculated based on anticipated property usage.

6. New sanitary sewer lines to serve non-residential areas shall be designed to accommodate the average daily flows based on Circular DEQ-4, Tables 5.1 & 5.2 or as approved by Utility Solutions, LLC. All non-residential services shall contain applicable pre-treatment devices to ensure that wastewater entering the sewer system is residential-type wastewater. Pre-treatment shall be reviewed and approved by Utility Solutions, LCL on a case by case basis.

7. A Manning's friction factor of 0.013 shall be used in designing new sewers. A peaking factor shall be calculated for each pipe segment based on the following formula;

$$\frac{Qmax}{Qave} = \frac{18 + P^{1/2}}{4 + P^{1/2}}$$ (P = Population/thousands)

8. Manholes: Manholes shall be installed in accordance with the following unless otherwise approved or required by Utility Solutions, LLC.

    a. Construct manholes from precast concrete sections having frames, covers, and steps in accordance with Figure Numbers 02730-1 and 02730-2. Manholes shall meet ASTM C478; "Precast Reinforced Concrete Manhole Sections", specifically including mandatory rejection requirements. Steps shall be manufactured by M.A. Industries Inc., or Engineer-approved equal. Frames and covers shall be IFCO 772-B frame with "SANITARY SEWER" cover, or Engineer-approved equal.

b. Manhole Spacing and Location: The maximum distance between manholes shall be as follows:

SEWER PIPE SIZE	MAXIMUM DISTANCE
8" to15"	400'
18" to 30"	500'
Larger than 30 "	600'

All Manhole lids shall be located in finished asphalt or concrete surfaces unless specifically approved by Utility Solutions, LLC. Any manholes approved for installation outside of asphalt shall have access and carsonite markers provided.

c. All manholes installed in groundwater areas will be installed with a waterproof coating for concrete structures.

d. Barrel Size: The alignment and number of pipes into the manhole will determine the barrel size of pipe used. All 48-inch manholes will have eccentric cone top sections if the total manhole height is greater than six feet. All other manholes will be straight with flat tops. All drop manholes shall be "inside drop" with a minimum barrel diameter of 60-inch. The internal diameter of the manhole barrel shall be typically as follows:

SEWER PIPE SIZE	BARREL SIZE
12" or less	48"
15" to 27"	60"
30 " to 48"	72"

e. Manhole Channels: All manholes shall have full depth channels. When a smaller main is being connected to a lager main at a manhole, the manhole inverts shall be set so that the 8/10 depth of flow of each main is equal in elevation. The minimum drop across a manhole (invert in to invert out) is 0.1' (cut-in manholes excepted). A drop across the manhole of 0.2' is recommended where grade permits.

9. Sanitary Sewer Mains: The minimum diameter of a sewer main is 8-inches. Main size lines shall be sized for flow, not available slope. PVC pipe shall be used for all gravity flow mains unless other materials are specifically approved. PVC sewer pipe shall

meet ASTM D1784, "Rigid Polyvinyl Chloride Compounds" requirements and ASTM D3034, "Standard Specifications for Polyvinyl Chloride Sewer pipe and Fittings", with an SDR of 35 4"-15". Sewer and water mains that cross perpendicularly shall have a minimum of 18-inches of vertical separation. All sewer mains shall be installed with detectable tape marked "sewer".

10. Sanitary Sewer Services: The minimum diameter of a service is 4-inch. Service pipe shall be SDR 35, PVC, pipe conforming to ASTM D 3404. Services shall connect to the main with in-line gasketed wyes for new services or cut in wyes with a saddle gasket and stainless steel straps for addition of services to existing sewer mains. The service line stub, from the main to 8-10 feet inside the property line or easement line, shall be installed with a maximum slope of ½-inch per foot. The minimum slope of a 4-inch service stub is ¼ -inch per foot. The minimum slope of a 6-inch service line stub is 1/8-inch per foot. Sewer service line stubs will typically be installed 15-feet from the downstream lot line, to 8-10 feet inside the property line. Services are to be installed perpendicular to the main except at end of main locations such as cul de sacs. Sanitary sewer services shall be installed in accordance with Figure Numbers 02660-2 and 02730-4. Sewer services and water services are required to have a minimum of 8-feet of horizontal separation. Sewer services that cross water mains shall be installed below water mains with a minimum of 6-inches of vertical separation.

11. Sanitary sewer service cleanouts shall be installed for long sewer services and located at not more than 100-foot intervals. See Figure Number 02730-5.

12. Access Roads: A 12'-wide all-weather gravel access road shall be constructed to provide access to all sanitary sewer manholes and lift stations not located within a paved public or private street or parking lot.

13. Sanitary Sewer Lift Stations:

    a. Lift Station wet wells shall be watertight pre-cast concrete structures with an inside diameter of 72" or inside dimensions of 10'x10'. Wet wells installed in high groundwater areas will be installed with a waterproof coating for concrete structures. Buoyancy calculation will be required as part of the Engineer's design report. Penetrations into the wet well shall be Z-Lock gaskets cast into the concrete. Each wet well will have lockable

aluminum hatches cast into the concrete lid, providing for access to and removal of the submersible pumps. All wet wells shall contain a hopper bottom sloped toward the pumps. Each wet well will contain a carbon filter with a standpipe to 18" above the ground surface with a protective shield. Other structure sizes or basic design characteristics may be reviewed by Utility Solutions, LLC on a case by case basis.

b. Lift Station valve vaults shall be watertight pre-cast concrete structures with an inside diameter of 72" or inside dimensions of 6'x10'. Valve vaults installed in high groundwater areas will be installed with a waterproof coating for concrete structures. Buoyancy calculation will be required as part of the Engineer's design report. Penetrations into the valve vault shall be Z-Lock gaskets cast into the concrete. Each valve vault will have an IFCO 773 insulated ring and cover along with access steps cast into the wall. All valve vaults shall contain a check valve, manually operated valves for each pump, a Badger magmeter flow meter with primo electronics, a floor drain, and 120V power along with a timer operated light fixture.

c. Lift Station pumps shall be Hydromatic or approved equal explosion-proof, non-clog submersible pumps with pultruded I-beam rail system and lifting chain. Each lift station will have a duplex pump configuration. An Engineer's design report containing pumping conditions shall be submitted to Utility Solutions, LLC for review and approval.

d. Piping inside the lift station and valve vault to 5 feet outside the concrete structures shall be Class 51 ductile iron pipe. Piping shall have ANSI 150 flanged ends or flange adapters for plain ends with thrust restraint provided.

e. Backup power shall be provided for each lift station site based on the power needs of the pumps and electrical panel/telemetry installation. Power generation shall be accomplished by a Cat/Olympian or approved equal natural gas fired engine in a weather-proof enclosure designed for sound dampening. The backup power package shall be connected to an ASCO transfer switch or approved equal.

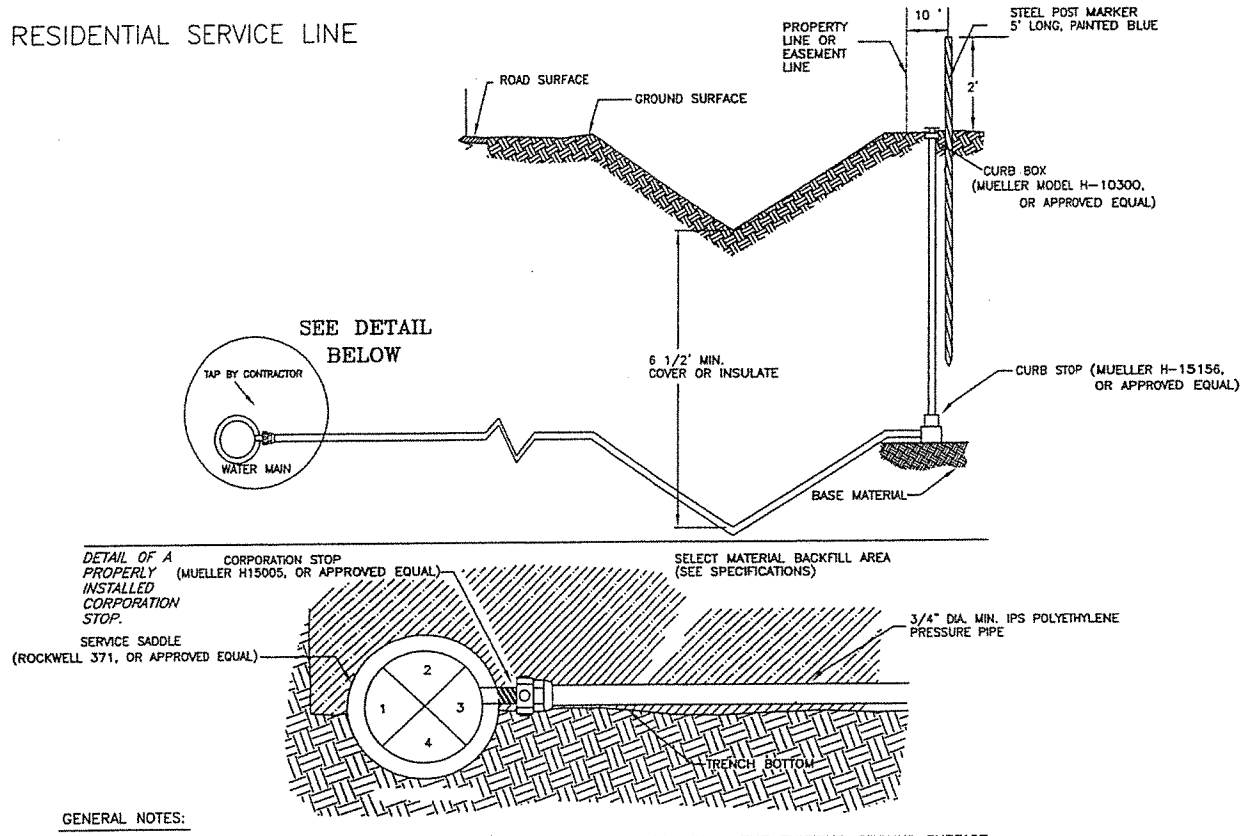
f. An electrical panel installation shall be adjacent to all lift station vaults containing a transformer pad according to NW Energy specifications, a service meter, main shut-off breaker, two motor starters, a backup power transfer switch, a 120 volt transformer, a 120 volt breaker box, and a telemetry enclosure provided by Industrial Automation Consulting (IAC) or approved equal. Electrical and telemetry components will be located in a small building enclosure. An option for housing the electrical components through the use of NEMA weather approved boxes mounted to rails anchored in concrete may be discussed with Utility Solutions, LLC where a building enclosure is not feasible. All electrical and telemetry components shall be reviewed and approved by Utility Solutions, LLC.

g. Typical lift station installations are shown in Figures 02730-6 and 02730-7. A tour of existing Utility Solutions, LLC lift station infrastructure is encouraged prior to initiating new designs.

h. Pressure testing of lift station and valve vaults will be required to determine water-tightness of the sewer components. Testing shall conform to MPWSS 5th Edition March 2003.

i. Security fencing of sewer components such as the lift stations, electrical enclosures, and backup power generators may be required at the discretion of Utility Solutions, LLC.

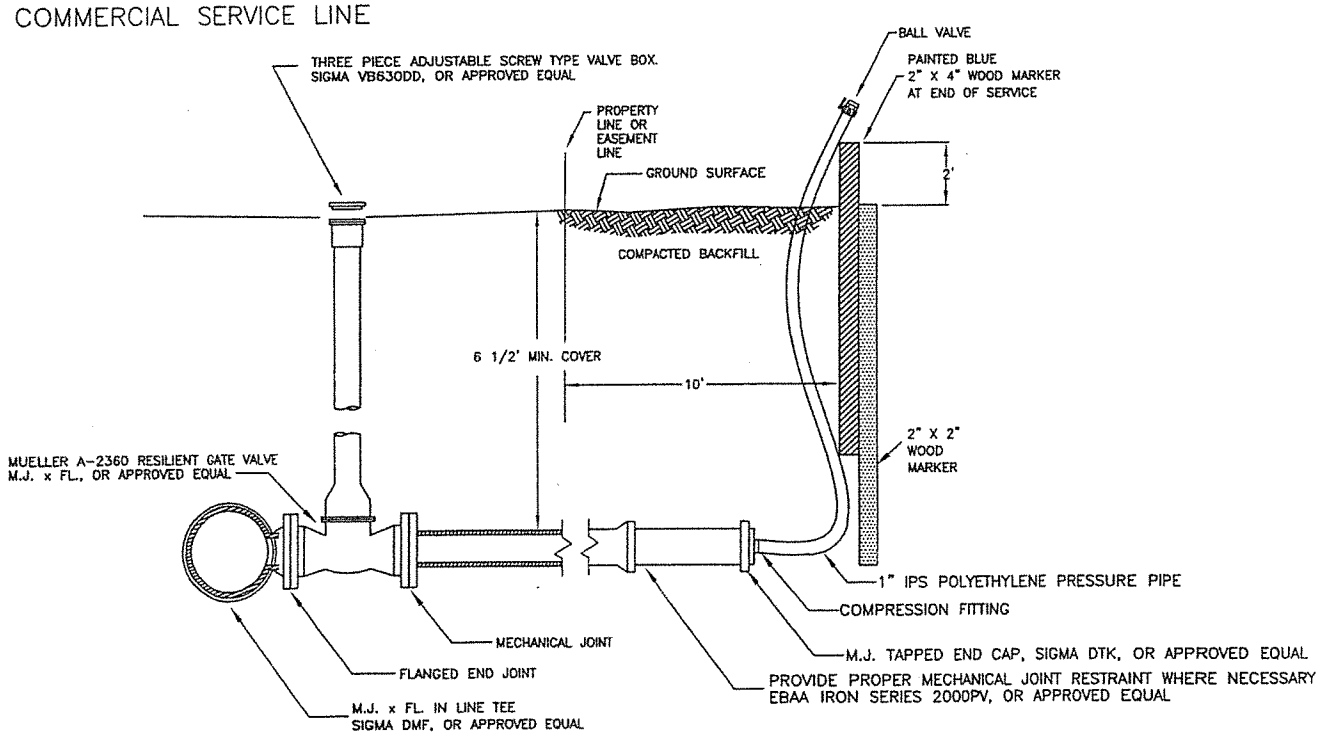
RESIDENTIAL SERVICE LINE



GENERAL NOTES:

1. WATER SERVICE LINES SHALL HAVE A MINIMUM 6 1/2 FOOT COVER MEASURED FROM THE EXISTING GROUND SURFACE.
2. WATER SERVICE LINES SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING SHALL BE 1" DIA. MAXIMUM WITHIN 6" OF SERVICE PIPE.

COMMERCIAL SERVICE LINE



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APPR. BY: ???
DATE: XX/XXXX

UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

WATER SERVICE LINE

FIGURE NUMBER 02660-1

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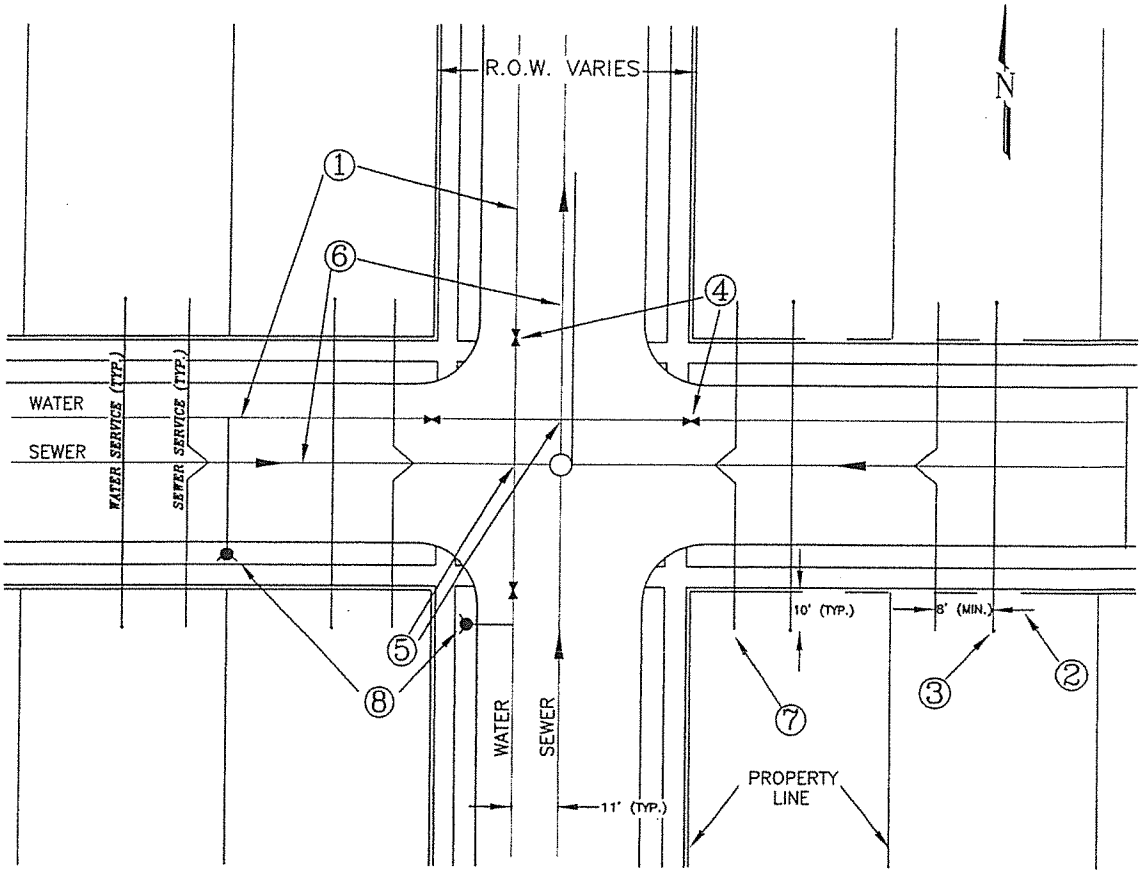

1. WATER MAINS LOCATED 11' FROM SEWER MAINS (CENTER–TO–CENTER). 10' MINIMUM BETWEEN OUTER EDGES OF PIPE REQUIRED.
2. WATER SERVICES LOCATED AT A MINIMUM OF 8' FROM SEWER SERVICES.
3. WATER SERVICE STUB LOCATED AT CENTER OF LOT, 10' INSIDE OF LOT LINE; SEE STANDARD DRAWING FIGURE NUMBER 02660–1 FOR DETAILS.
4. WATER MAIN VALVES LOCATED AT PROPERTY LINE.
5. WATER & SEWER MAIN CROSSING.
6. SEWER MAINS GENERALLY LOCATED ON STREET CENTERLINE.
7. SEWER SERVICE STUB LOCATED 10' FROM DOWNSTREAM PROPERTY LINE, 10' INSIDE OF LOT LINE; SEE STANDARD DRAWING FIGURE NUMBER 02730–4 FOR DETAILS.
8. HYDRANTS LOCATED 5' FROM VALVE OR ON PROPERTY LINES EXTENDED FOR MID–BLOCK LOCATIONS.

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WATER AND SEWER MAIN AND SERVICES LOCATIONS

FIGURE NUMBER 02660-2

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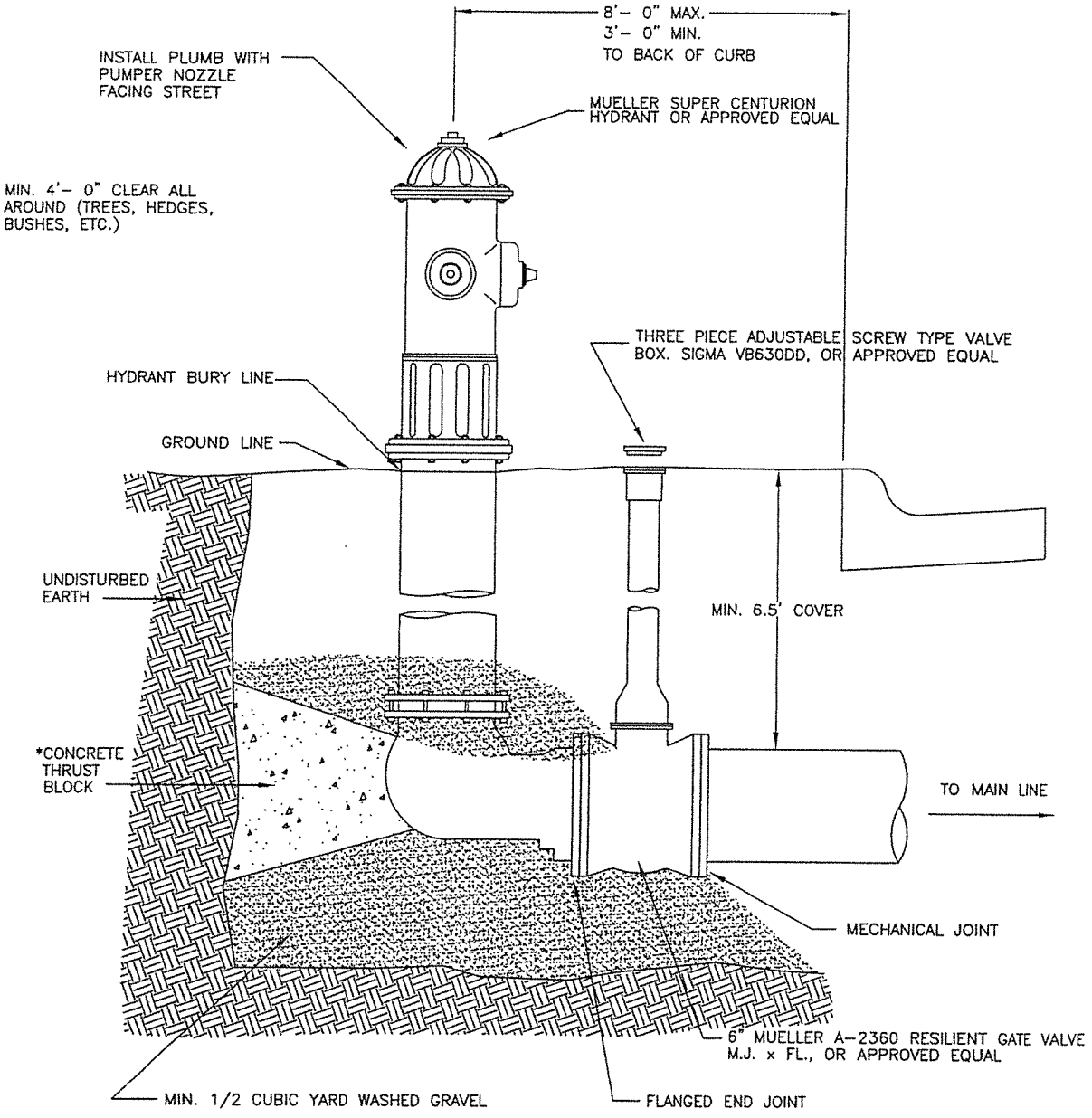

*MEGA–LUG OR APPROVED EQUAL JOINT RESTRAINTS SHALL BE USED IN LIEU OF CONCRETE THRUST BLOCK

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FIRE HYDRANT DETAIL

FIGURE NUMBER 02660-3

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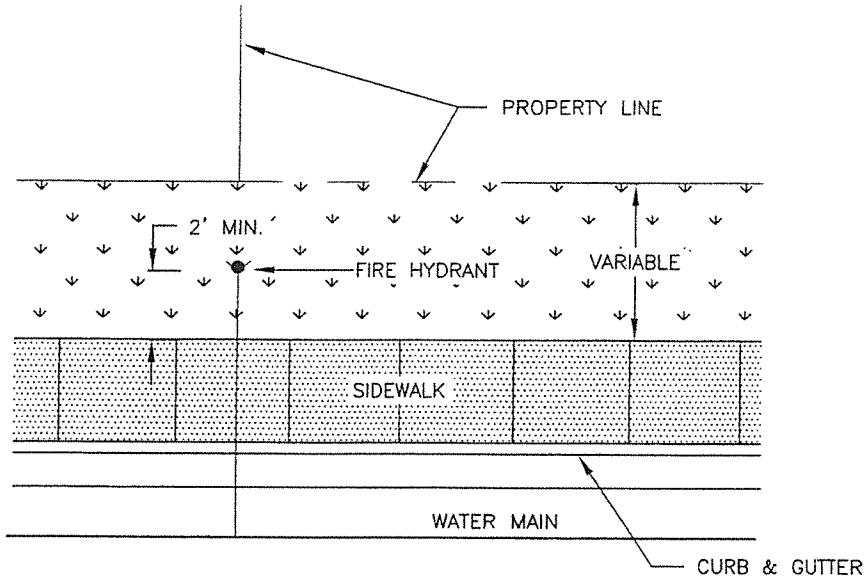
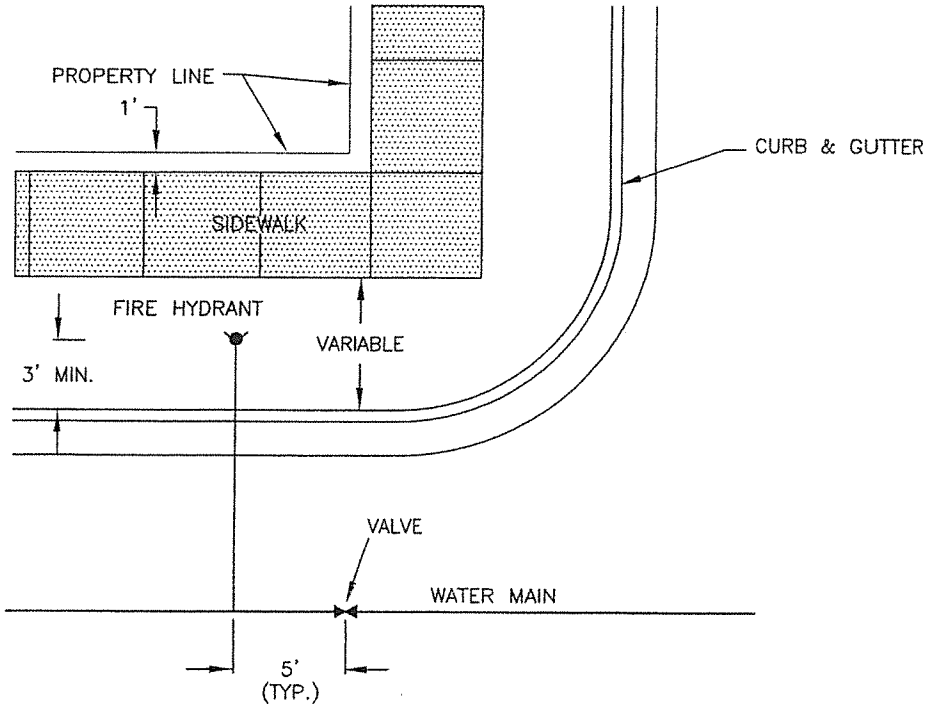


CURB WALK DETAIL



BOULEVARD WALK DETAIL

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FIRE HYDRANT LOCATION DETAIL

FIGURE NUMBER 02660-4

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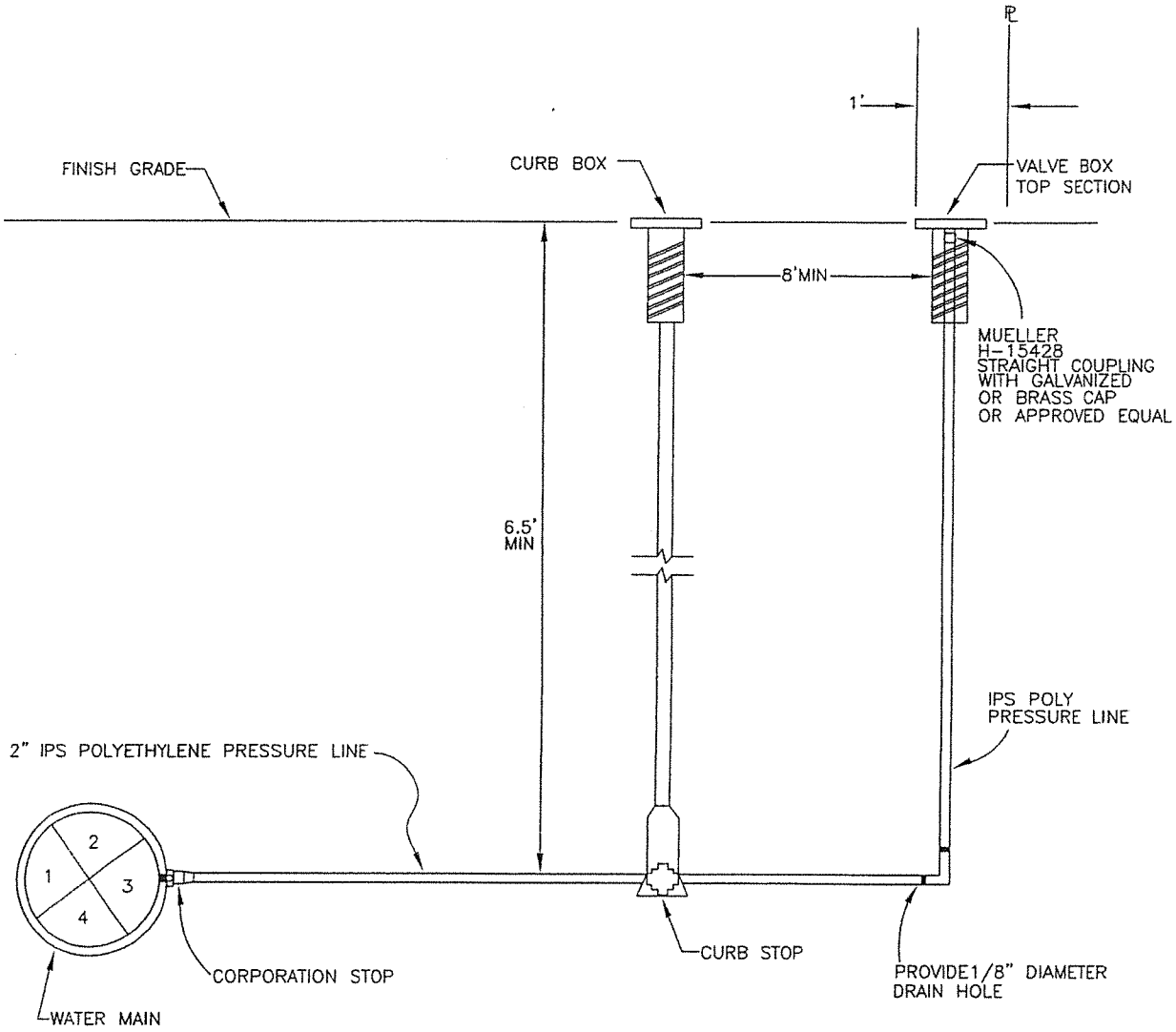

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TYPICAL AT-GRADE BLOW-OFF

FIGURE NUMBER 02660-5

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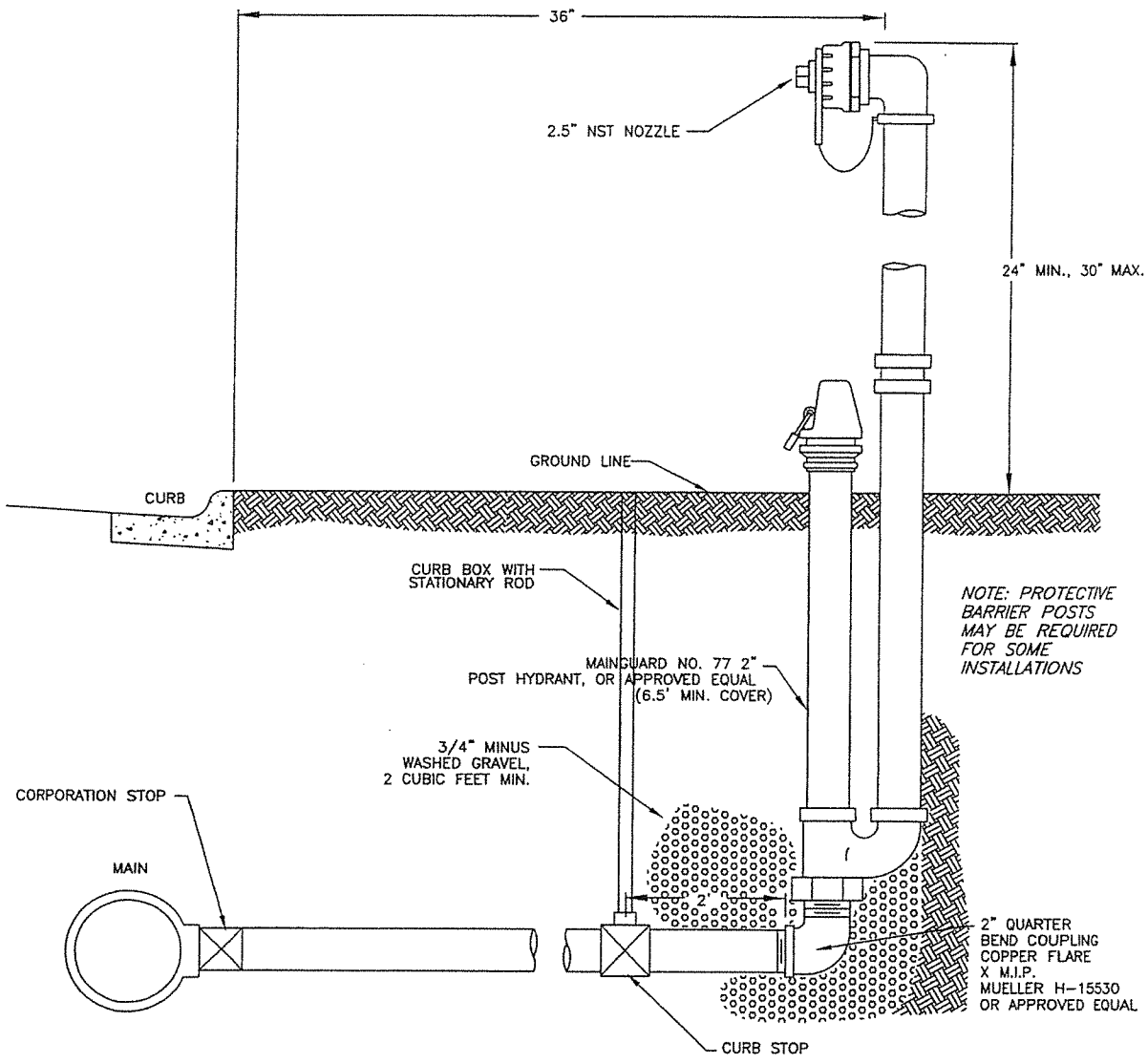

Blow-off hydrants shall be non-freezing, self draining type with a 6.5' bury. These hydrants will be furnished with a 2" FIP inlet, a non-turning operating rod, and shall open to the left. All of the working parts shall be of bronze-to-bronze design, and be serviceable from above grade with no digging. The outlet shall also be bronze and be 2 1/2" NST. Hydrants shall be lockable and shall be Mainguard #77 as manufactured by Kupferle Foundry Co., St. Louis, MO, or approved equal.

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CHK'D. BY: ELB
APPR. BY: ???
DATE: XX/XXXX

UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

TYPICAL BLOW-OFF HYDRANT

FIGURE NUMBER 02660-6

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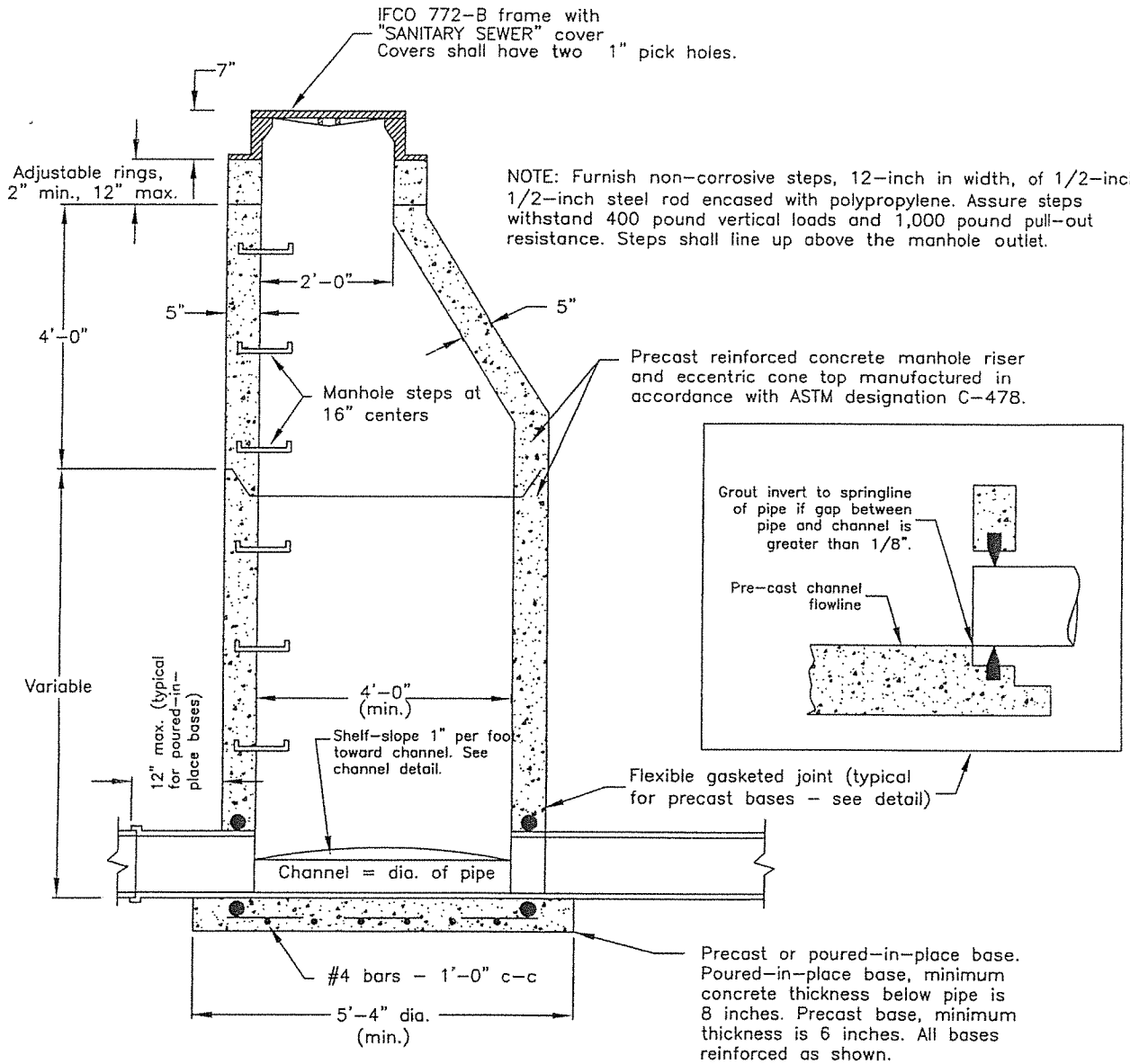

NOTE: All joints between manhole sections, manhole ring & top section, and around sewer pipe into manhole shall be watertight. Jointing material shall be "Ram-Nek" or approved equal for all joints except between sewer pipe and manhole wall.

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UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

ECCENTRIC MANHOLE DETAIL

FIGURE NUMBER 02730-1

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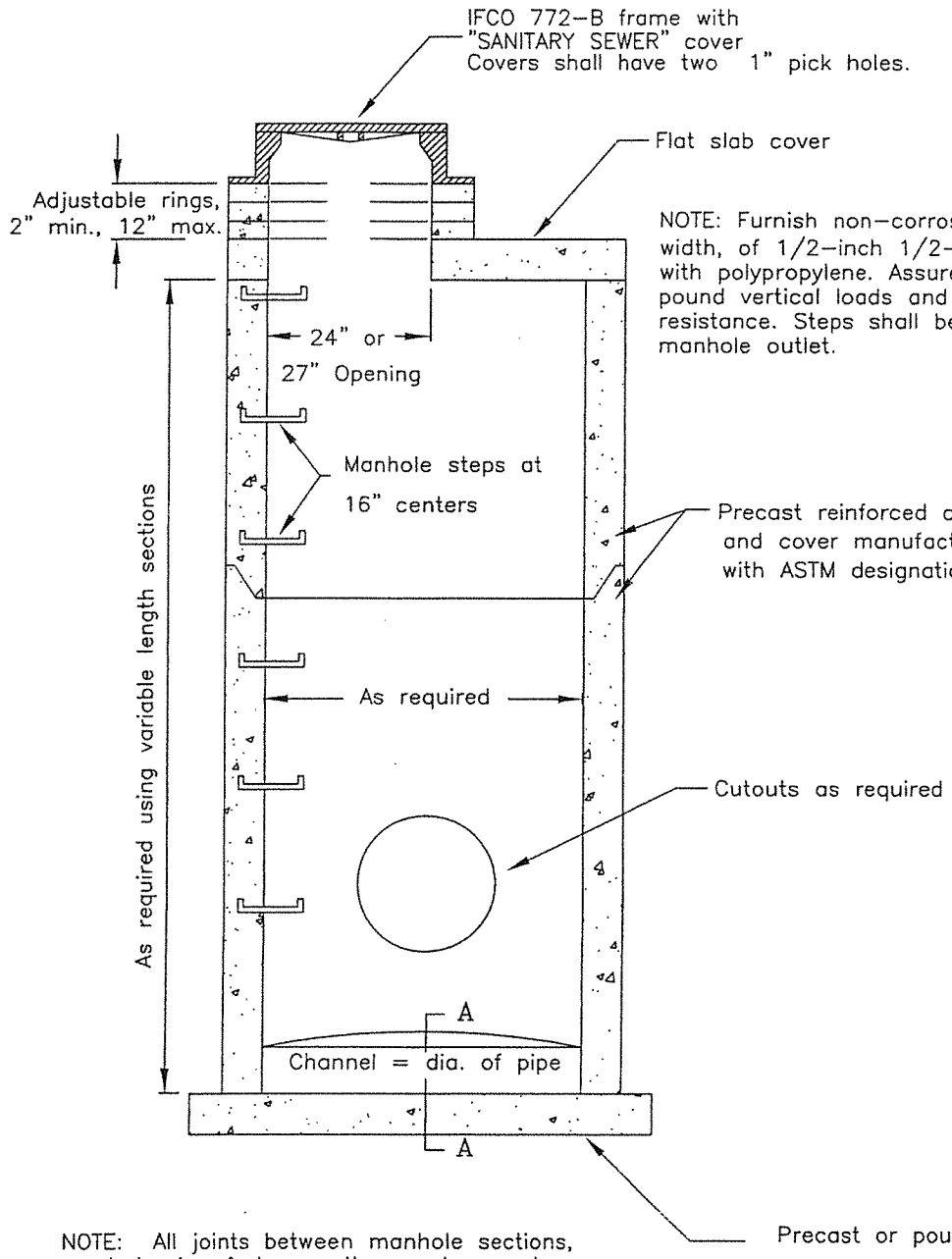

NOTE: Furnish non–corrosive steps, 12–inch in width, of 1/2–inch 1/2–inch steel rod encased with polypropylene. Assure steps withstand 400 pound vertical loads and 1,000 pound pull–out resistance. Steps shall be lined up above the manhole outlet.

Precast reinforced concrete manhole riser and cover manufactured in accordance with ASTM designation C–478.

NOTE: All joints between manhole sections, manhole ring & top section, and around sewer pipe into manhole shall be water–tight. Jointing material shall be "Ram–Nek" or approved equal for all joints except between sewer pipe and manhole wall.

Precast or poured–in–place base. Poured–in–place base, minimum concrete thickness below pipe is 8 inches. Precast base, minimum thickness is 6 inches.

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UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

STRAIGHT MANHOLE DETAIL

FIGURE NUMBER 02730-2

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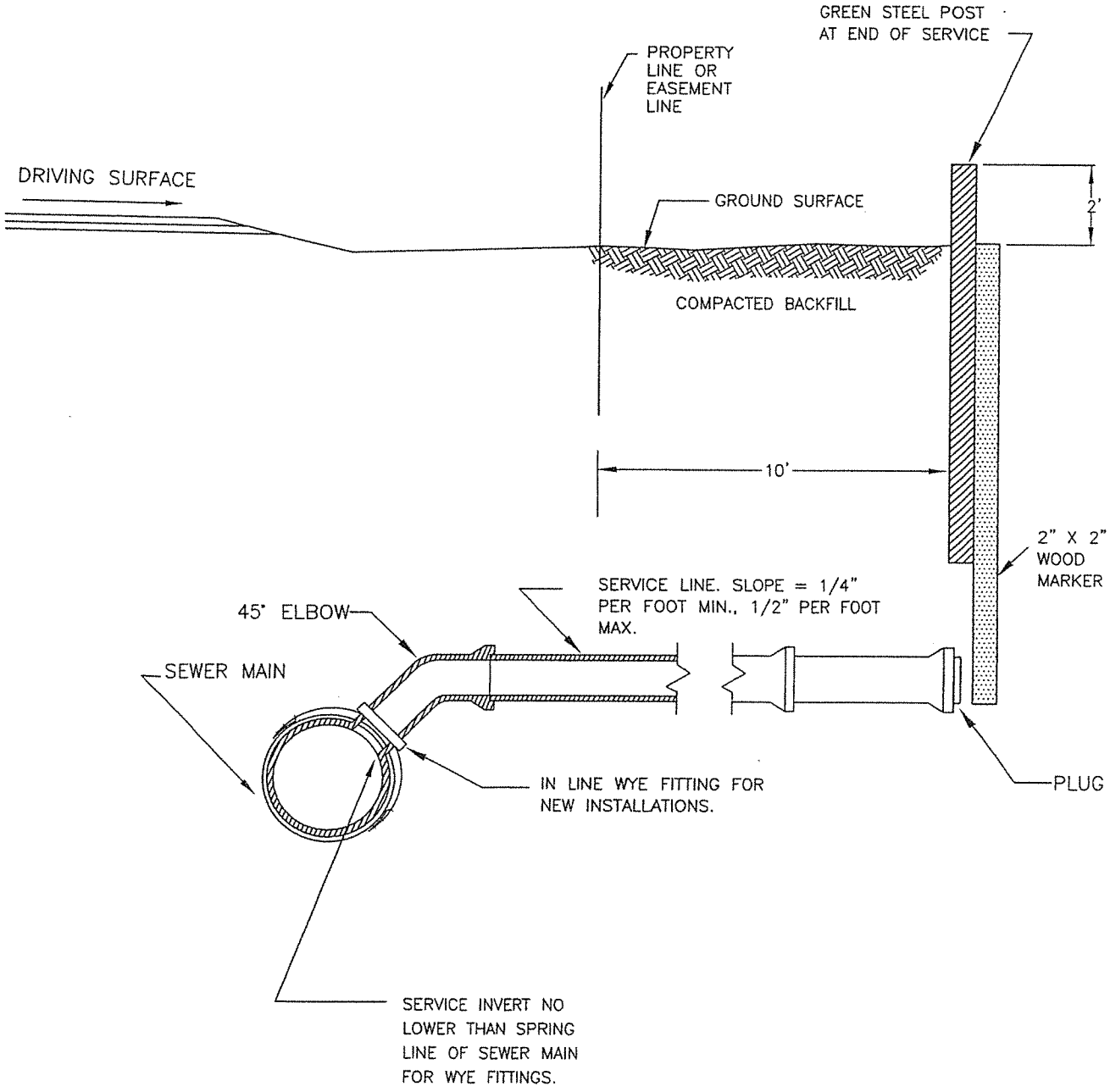

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BOZEMAN MONTANA

PROJECT NO.
3709.017

SANITARY SEWER SERVICE LINE

FIGURE NUMBER
02730-3

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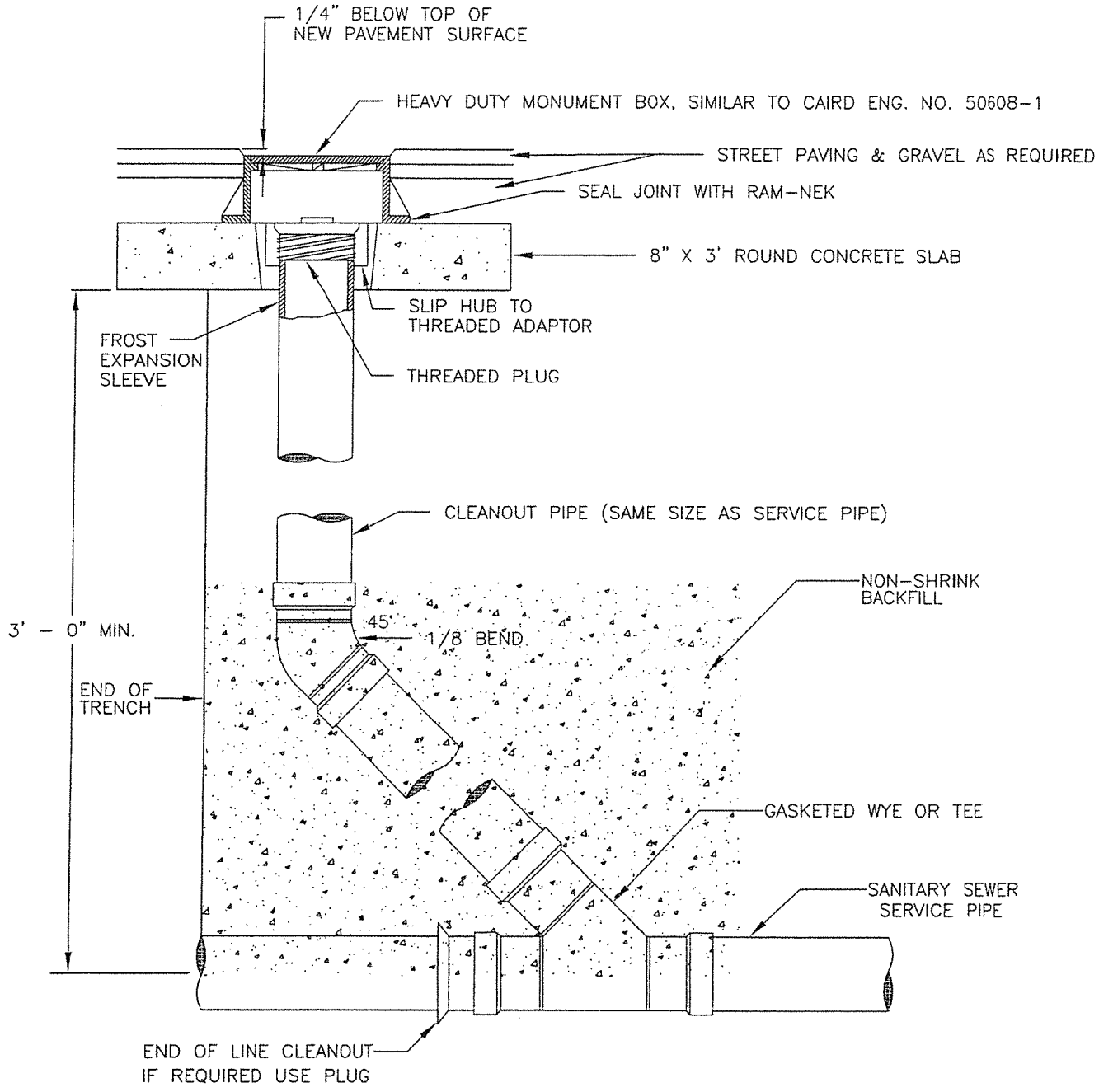

NOTE: DETAIL ABOVE SHOWS A SEWER CLEANOUT AT THE END OF A SERVICE LINE. CONTRACTOR IS NOT REQUIRED TO INSTALL CLEANOUT AT THE END OF A SERVICE LINE, BUT IS REQUIRED TO INTALL AT A MAXIMUM OF 100' INTERVALS ALONG SERVICE LINE. MAY USE GASKETED TEE IN PLACE OF THE GASKETED WYE AND OMIT THE 45 DEGREE BEND. SEE FIGURE NUMBER 02730-4.

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UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

SANITARY SEWER SERVICE CLEANOUT

FIGURE NUMBER 02730-4

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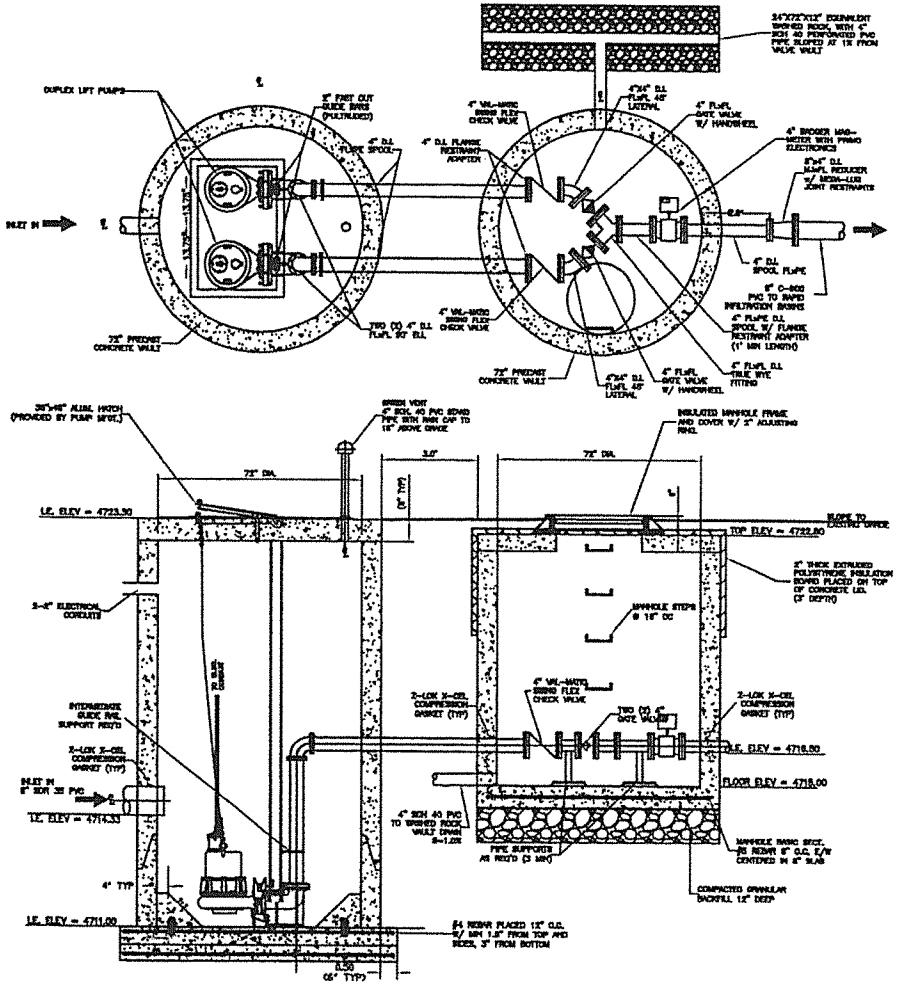

GENERAL NOTES:

1. INSTALLER SHALL CHECK THAT ALL REQUIRED MATERIAL IS PRESENT AND CONFORMS TO APPROVED SHOP DRAWINGS.
2. ALL CONCRETE AND GROUTING SHALL CONFORM TO MPW 2005 SPECIFICATIONS.
3. TANK DEPTH: 12.30 FT. 1 INTERMEDIATE GUIDERAIL BRACE REQUIRED
4. LIFTING CHAIN MUST NOT INTERFERE WITH CORD CAP ASSEMBLY.
5. REFERENCE CONTROL PANEL DATA BOOK FOR PROPER SELECTION, AND OPTIONS.
6. EQUIPMENT FOR CONFINED SPACE ENTRY IN ACCORDANCE WITH OSHA AND REGULATORY AGENCY REQUIREMENTS SHALL BE PROVIDED.
7. LIFT STATION SENSING PRESSURE SYSTEM 700-140-4005 LEAD, TRANSDUCER AND WARRICK MRE-46-W EMERGENCY FLOAT SWITCH.

LIFT STATION OPTIONS

LIFTING MECHANISM: SST. CHAIN	☒
CONTROL PANEL: REMOTE LOCATION (REQUIRES J-BOX)	☒
GUIDE RAIL BRACE GROUP PROVIDED	☒
DOOR & FRAME (ALL): ALUMINUM, 300 psf (min.)	☒
BASIN SIZE: 6'-0" DIA.	☒
VALVE VAULT SIZE: 6'-0" DIA.	☒
PIPING SIZE:	4" CL. 51 D.I. & C900 PVC

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UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

SAMPLE LIFT STATION 1

PROJECT NO. 3709.017

FIGURE NUMBER 02730-5

GENERAL NOTES:

A.) ALL WORKERS SHALL COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS WHILE WORKING AROUND AND WITHIN THE EXISTING LIFT STATION.

B.) ** – DENOTES EQUIPMENT SUPPLIED BY PUMP MANUFACTURER. DIMENSIONS AND LOCATION TO BE DETERMINED OR VERIFIED BY PUMP MANUFACTURER.

C.) BACK–UP POWER PROVIDED BY (1) CAT/OLYMPIAN G100F3 100KW NATURAL GAS GENERATOR.

D.) VALVE VAULT EQUIPPED WITH 110V AC POWER TO RUN LIGHT, TIMER, SUMP PUMP, AND MAG FLOWMETER.

E.) PLAIN END DUCTILE IRON PIPE CONNECTED TO ADJACENT FLANGES BY E–Z FLANGE ADAPTERS.

D.) LIFT STATION CONTAINS PRESSURE SYSTEMS 750–140–4005 LEVEL TRANSDUCER AND WARRICK MGRE–40–W EMERGENCY FLOAT SWITCH.

DETAIL NOTES:

1.) SUBMERSIBLE PUMPS ARE (2) 40 HP, 460V, 3–PHASE, 1750 RPM HYDROMATIC MODEL S6LX NCLOG–6 CENTRIFUGAL IMPELLER PUMPS WITH 11.8125" BALANCED, ENCLOSED, 2–VANE IMPELLERS. 113 FT HEAD, 605 GPM

2.) 28" ROUND FROST RESISTANT C.I. RING AND COVER W/ SOLID ALUMINUM INNER LID AND PENTAGON BOLT LOCKING DEVICE, IFCO #773. INNER LID HAS 4" THICK BY 28" DIA. POLYSTYRENE INSULATION BOLTED TO BOTTOM.

3.) ALL CONDUIT PENETRATIONS ARE Z–LOK X–CEL COMPRESSION GASKETS.

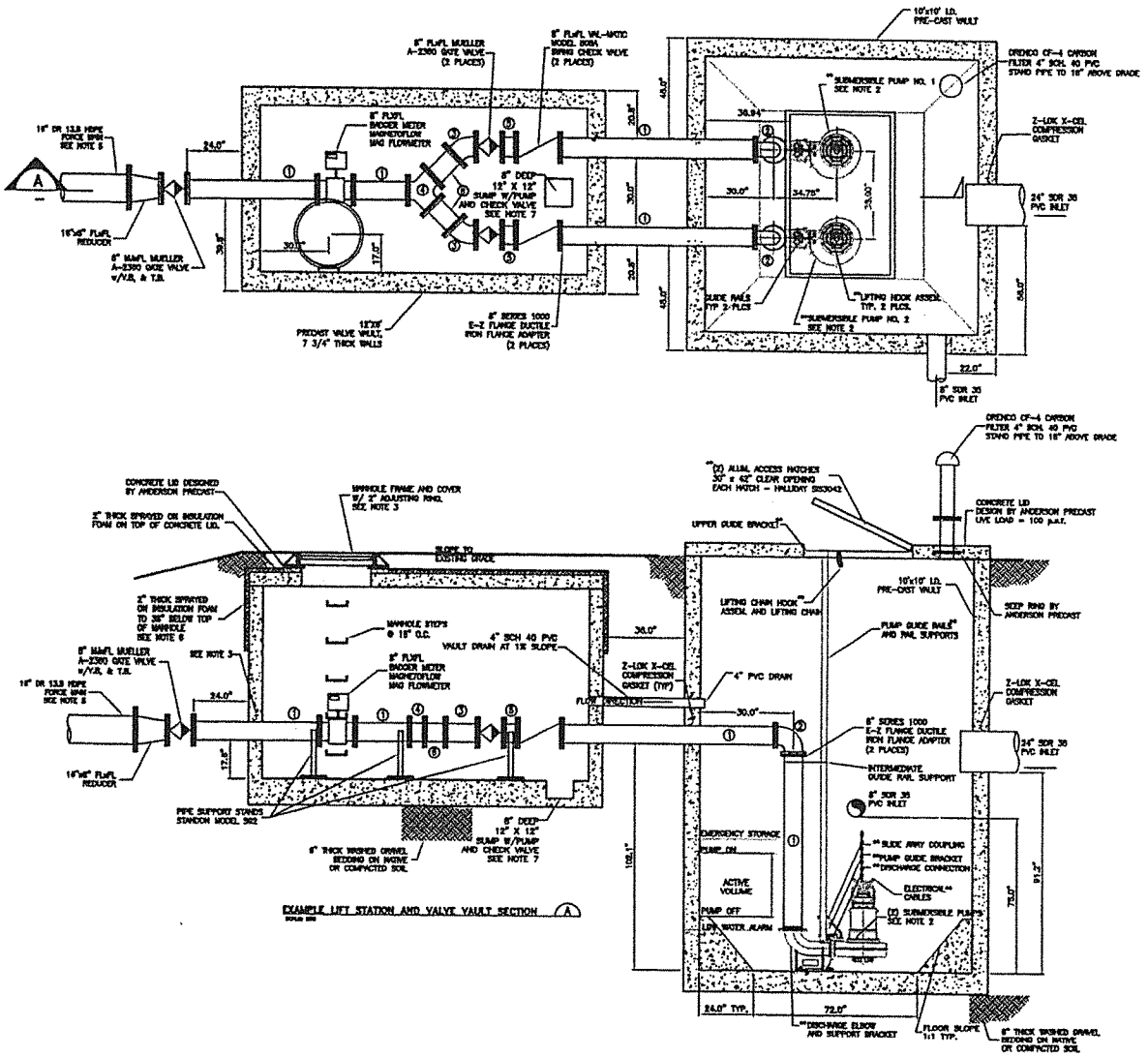
4.) THE FORCE MAIN IS 16–INCH DR 13.5 HDPE PRESSURE PIPE. PIPE MEETS THE REQUIREMENTS OF THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, SECTION 02610B. ENDS OF THE HDPE FORCE MAIN ARE FLANGED CONNECTIONS HEAT BONDED TO THE PIPE.

5.) SPRAYED INSULATION IS CLOSED–CELL FOAM BY CORBOND CORP.

6.) FLOAT–OPERATED PUMP PLACED WITHIN SUMP IN VALVE VAULT FLOOR TO EVACUTATE LIQUIDS IN THE VAULT BY MEANS OF A 4–INCH CHECK VALVE PLUMBED TO THE 4" PVC DRAIN PIPE MOUNTED ABOVE.

PIPE FITTING SCHEDULE

ID	FITTING
1	8" SPOOL, FL X PE (CLDI)
2	8" 90° ELBOW, FL X FL (CLDI)
3	8" 45° ELBOW, FL X FL (CLDI)
4	8" TRUE "Y", FL X FL (CLDI)
5	6" LONG, 8" SPOOL, FL X FL (CLDI)
6	13" LONG, 8" SPOOL, FL X FL (CLDI)



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DATE: 01/2006

UTILITY SOLUTIONS LLC
BOZEMAN MONTANA

PROJECT NO. 3709.017

SAMPLE LIFT STATION 2

FIGURE NUMBER 02730-6

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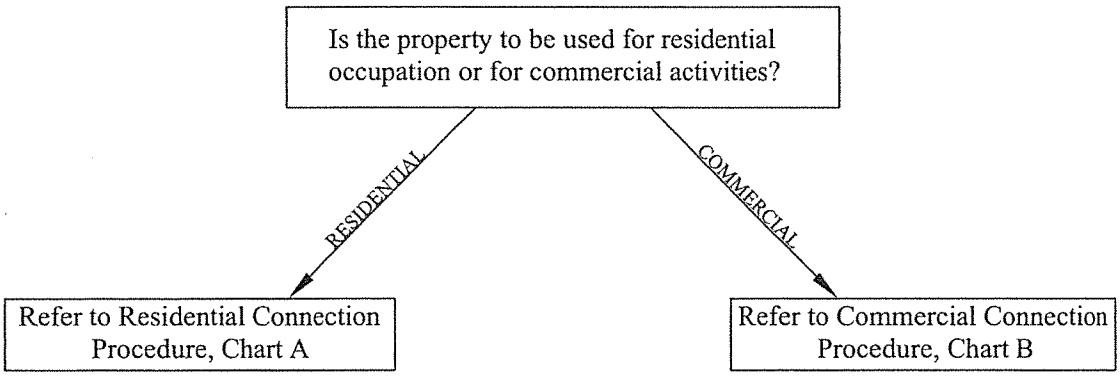
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

UTILITY SOLUTIONS

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169



Revision 2008-1

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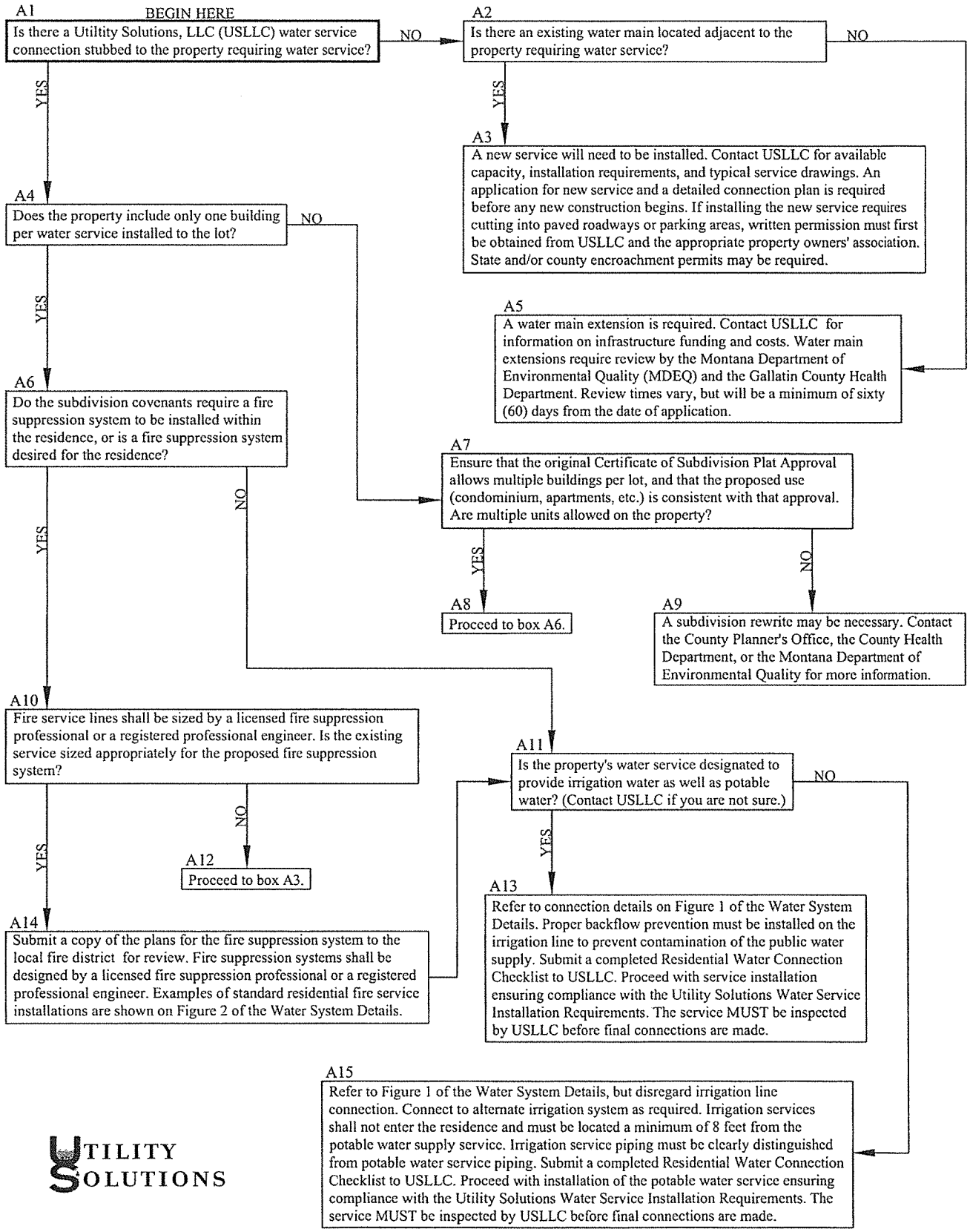
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

RESIDENTIAL, CHART A



UTILITY SOLUTIONS

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UTILITY SOLUTIONS

Water Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Residential Service

Completed by USLLC
Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from water main to lot/parcel

☐ ☐ Service size meets fire protection requirements

☐ ☐ One water service per building

☐ ☐ One water meter and curbstop per dwelling unit

☐ ☐ Curbstop brought to finished grade and accessible

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ 6.5' minimum cover placed over service line

☐ ☐ Backflow prevention device installed inside building (Watts L 7 Dual Check ONLY)

☐ ☐ Backflow prevention device attached directly to meter coupling

☐ ☐ Water meter installed inside building

☐ ☐ Water meter includes remote-reading capabilities (Sensus Model SR EC)

☐ ☐ Shut-off valves located before and after water meter to facilitate replacement/repair

☐ ☐ Minimum 6" vertical separation at sewer crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

☐ ☐ Minimum 8' horizontal separation between potable water and irrigation services

☐ ☐ IRRIGATION SERVICE DOES NOT CONNECT IN ANY WAY TO POTABLE WATER SERVICE OR ENTER THE BUILDING

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public water system

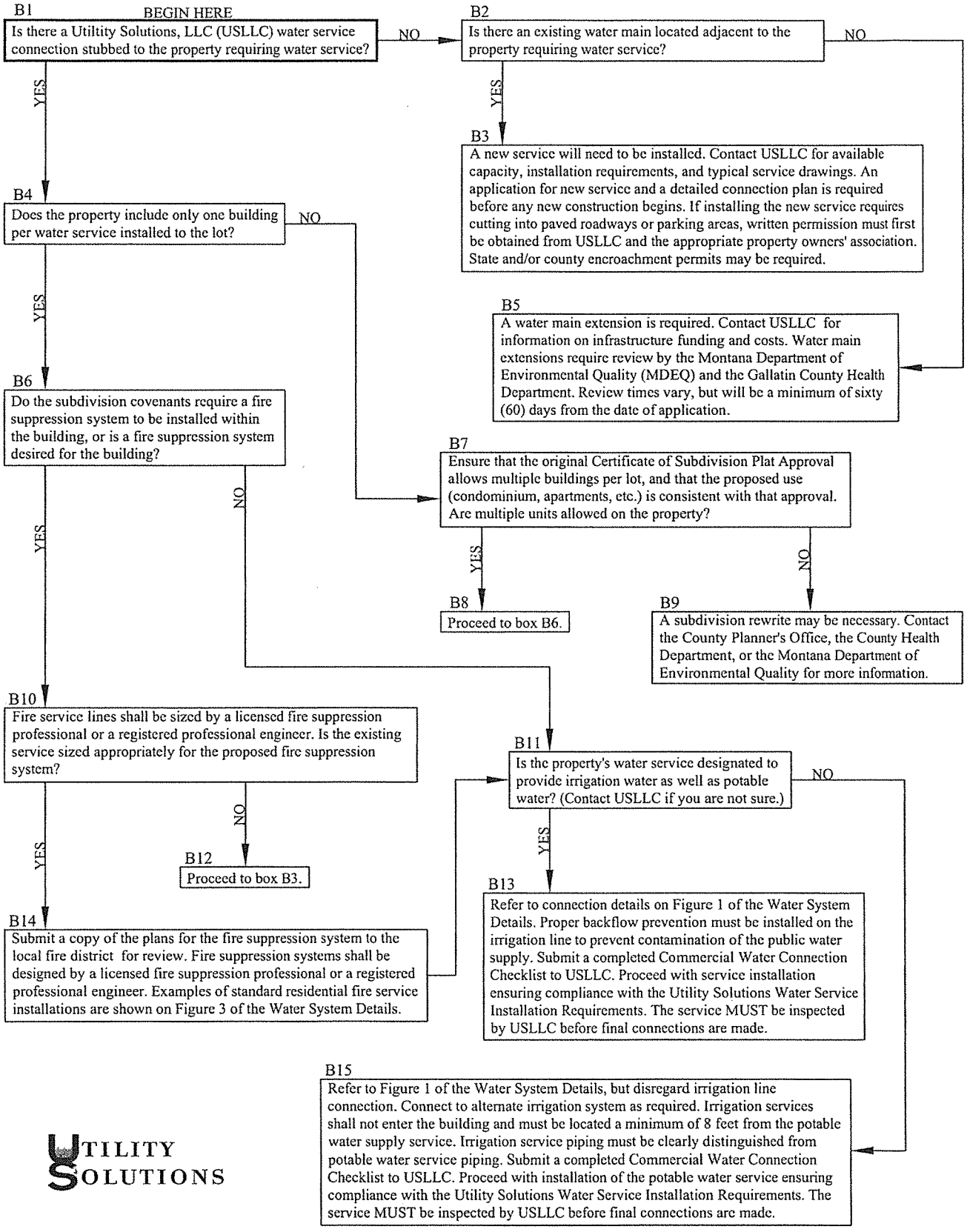
☐ ☐ As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

COMMERCIAL, CHART B



UTILITY SOLUTIONS

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UTILITY SOLUTIONS

Water Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Commercial Service

Completed by USLLC
Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from water main to lot/parcel

☐ ☐ Service size meets fire protection requirements

☐ ☐ One water service per building

☐ ☐ One water meter and shut-off per building

☐ ☐ Curbstops/blow-offs brought to finished grade and accessible

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ 6.5′ minimum cover placed over service line

☐ ☐ Backflow prevention device installed inside building or meter pit

☐ ☐ Backflow prevention device attached directly to meter coupling

☐ ☐ Water meter installed inside building or in meter vault

☐ ☐ Water meter includes remote-reading capabilities (Sensus Model SR EC)

☐ ☐ Shut-off valves located before and after water meter to facilitate replacement/repair

☐ ☐ Minimum 6″ vertical separation at sewer crossings

☐ ☐ Minimum 8′ horizontal separation between water and sewer services

☐ ☐ Minimum 8′ horizontal separation between potable water and irrigation services

☐ ☐ IRRIGATION SERVICE DOES NOT CONNECT IN ANY WAY TO POTABLE WATER SERVICE OR ENTER THE BUILDING

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public water system

☐ ☐ As-built drawing provided (8.5″x11″ paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

UTILITY SOLUTIONS

Water and Sewer Service Guidelines

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Connection to the Utility Solutions, LLC Water and Wastewater system must follow these guidelines:

1. The owner is responsible for the cost of the sewer and water services from the building to the lateral stub at the property line.
2. The owner or their contractor is responsible for finding the sewer lateral stub but the owner/contractor may contact Utility Solutions, LLC to assist with the location. The owner and contractor are solely responsible for damage to water or sewer infrastructure associated with water and sewer service installation.
3. All underground plumbing must be done by licensed plumbers.
4. All connections to Utility Solutions, LLC public sewer & water systems shall be to the sewer lateral stub and/or water service curb stop at the lot line. If a sewer lateral stub and/or water service curb stop have not been stubbed to the lot line, then the Owner will be responsible for the cost of installing a lateral and/or curb stop from the main line to the property line. Shop drawings must be submitted by the contractor and approved by Utility Solutions, LLC for connection to any water or sewer main line.
5. All sewer laterals and water services must be constructed and laid in accordance with the Montana Public Works Standard Specifications, DEQ requirements, Utility Solutions, LLC Standard Specifications, and Regulations of the Four Corners County Water & Sewer District which include, but are not limited to:
    a. Pipe Bedding- 4 inches under lateral and 6 inches over lateral piping, using 1 inch minus washed bedding material is required.
    b. Minimum Slope-All sewer laterals must be installed at a minimum slope of 2.00% (1/4" PER FOOT) unless otherwise approved in writing.
    c. Clean Outs-One clean out sweep is required within 3 feet from the building, and a double sweep tee every 100 feet thereafter in accordance with the Uniform Plumbing Code.
    d. Accessibility-All CLEANOUTS and CURBSTOPS will be readily accessible and operational at the completion of the project.
    e. Water meters shall be installed indoors, with a remote reading device wired to the outside of the establishment. Shut-off valves are required immediately before and after the water meter to facilitate replacement and/or repair.
    f. Multi-family housing requires a water meter and curb stop for every unit. Commercial buildings require one curb stop and water meter per building.
    g. ALL CONNECTIONS TO WATER AND SEWER MAIN LINES MUST BE APPROVED IN WRITING BY UTILITY SOLUTIONS, LLC.
    h. CUTTING INTO ASPHALT ROADWAYS FOR WATER AND SEWER INSTALLATION SHALL REQUIRE WRITTEN PERMISSION FROM UTILITY SOLUTIONS, LLC AND THE APPLICABLE PROPERTY OWNERS ASSOCIATION ALONG WITH APPROPRIATE STATE AND COUNTY ENCROACHMENT PERMITS AS NECESSARY.
    i. Backflow prevention devices are required on all services, as well as sprinkler and irrigation systems in accordance with the Uniform Plumping Code (UPC-2003).
    j. Backflow assembly must be directly attached to meter coupling unless prior approval has been obtained. Watts 007 Dual Check is the only back flow prevention allowed for single family homes and multi-family residential. Shut-Off Valves on backflow assemblies are not accepted as down stream Shut Off Valves.
    k. All water and sewer work including materials, equipment, and labor shall be guaranteed for a period of 1 year from completion and acceptance. A written warranty shall be provided to Utility Solutions, LLC.
6. Provisions for pre-treatment are required when in the judgment of Utility Solutions, LLC that such waste pretreatment is essential to produce residential-type wastewater. An approved type of grease trap complying with the provisions of the Uniform Plumbing Code (UPC-2003) Ch.10 shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants,

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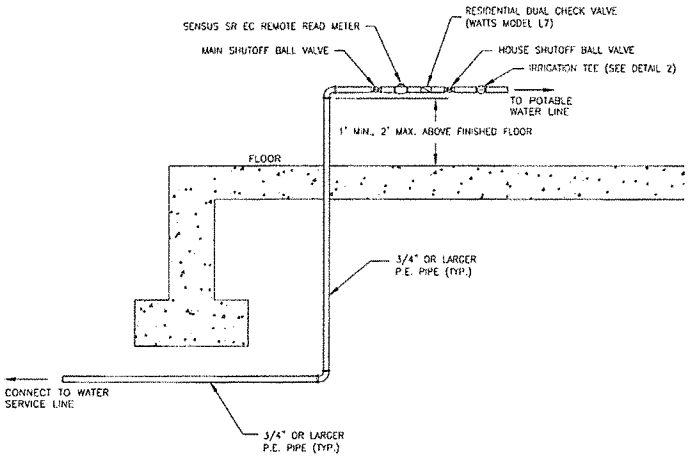
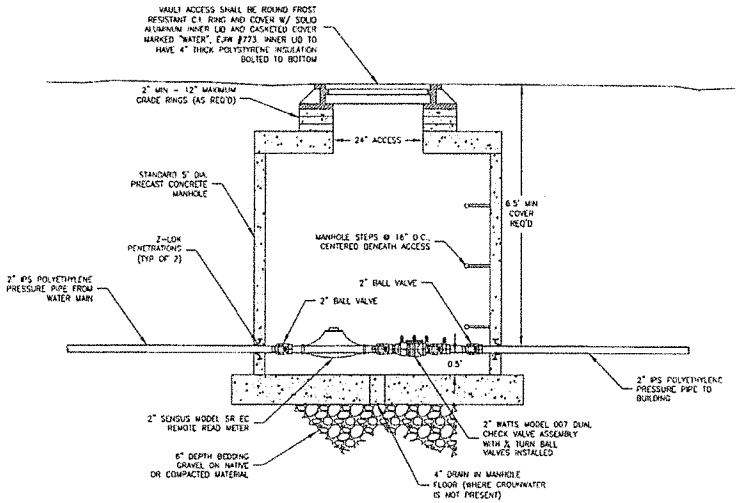
bars, hotels, or other establishments where grease may be introduced into the sewage system in quantities that can effect line stoppage or hinder sewage treatment. A grease trap is generally not required for individual residential dwelling units. Other types of pollutants such as metals, VOCs, sediments, chemicals, ect. must have a pre-treatment facility designed and approved prior to construction. Utility Solutions, LLC reserves the right to reject wastewater that is not residential-type.

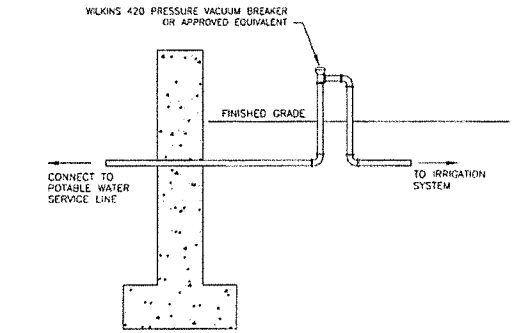
7. No floor drains may be connected to the sewer system.
8. All sewer laterals and water services must be inspected by a representative from Utility Solutions, LLC prior to backfilling over the sewer and water services.
9. The sewer and/or water lateral contractor will make accommodations for Utility Solutions, LLC representatives for the safe inspection of the work and must give Utility Solutions, LLC at least ONE (1) business days advance notice when the laterals are ready for inspection and connection to the public sewer and/or water systems.
10. In areas where groundwater conditions necessitate dewatering, the contractor shall use appropriate dewatering equipment and comply with all local and state regulations. The contractor shall not allow groundwater to enter any part of the District's water distribution or sewer collection systems.
11. The contractor is responsible for the removal of any mud, sand, or other debris which enters the water or sewer system lateral piping as a result of the lateral installation procedure.
12. The sewer lateral and/or water service contractor is responsible for any damages, or disturbance to the public right-of-way and roads. Restoration of the public right-of-way and/or roads will be the responsibility of the sewer lateral and/or water service contractor. The restoration work must be completed in a manner that is satisfactory to all parties involved and a 2 year written warranty relating to trench backfill and asphalt pavement shall be issued.
13. Sewer laterals and water service laterals shall not be laid in a common trench. At least 8 feet of separation must be maintained without prior approval of the District. If sewer & water lines cross, at least 6 inches of separation must be maintained.
14. In subdivisions that utilize a separate water service for irrigation, that service may not terminate within the foundation of a structure, shall maintain 8' separation from the potable water main, shall be buried below frost depth prior to winterization apparatus, and have markings of "Non-Potable Water".
15. As-built drawings showing the locations of water and sewer service lines shall be provided to Utility Solutions, LLC prior to service initiation. The as-built drawing shall be legible on a minimum 8.5"x11" page and include pipe types, pipe sizes, slopes, cleanouts, curb stops, valves, distances from building corners or other permanent improvements, and any other applicable information.
16. Residential and Commercial structures shall be constructed with automatic fire sprinkler systems if deemed required by the Fire District or in the subdivision covenants. Fire sprinkler systems shall meet the requirements of NFPA 13D/Uniform Fire Code. A stamped set of engineered sprinkler system plans shall be submitted to the Fire District prior to construction. Fees and inspections shall be coordinated with the Fire District. Fire service line installation including valves, metering, and backflow prevention shall conform to Utility Solutions, LLC Standard Specifications.



1 STANDARD POTABLE SERVICE LINE INSTALLATION
SCALE: NTS



3 COMMERCIAL METERING VAULT
SCALE: NTS



NOTE: IRRIGATION SERVICE NOT PROVIDED TO NORTHSTAR SUBDIVISION COMMERCIAL PHASE 2, BLACK BULL SUBDIVISION, AND MIDDLE CREEK PARKLANDS SUBDIVISION.

CONNECTION TO POTABLE WATER SERVICE LINE MUST OCCUR FOLLOWING WATER METER AND BACKFLOW PROTECTION DEVICE. WINTERIZATION PROVISIONS TO BE PROVIDED BY IRRIGATION SYSTEM CONTRACTOR.

2 STANDARD POTABLE IRRIGATION LINE CONNECTION
SCALE: NTS

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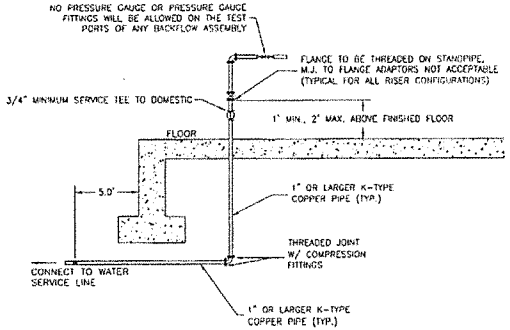
DRAWN BY: TMC
CHK'D BY: DHW
APPR. BY: ELB
DATE: 09/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

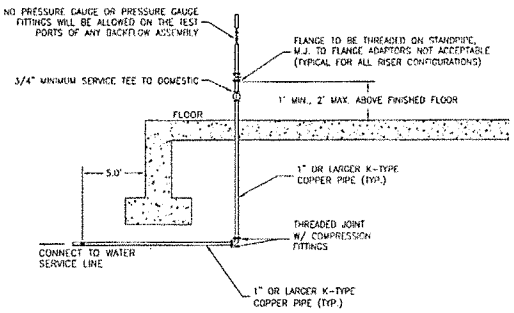
PROJECT NO 3709.018

WATER SERVICE DETAILS

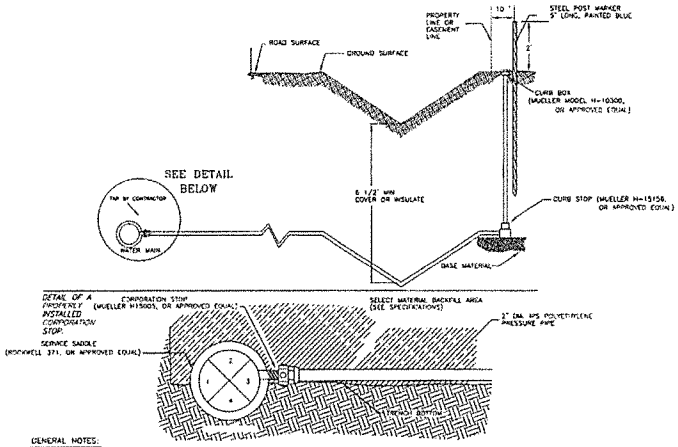
FIGURE NUMBER FIG. 1



1 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS

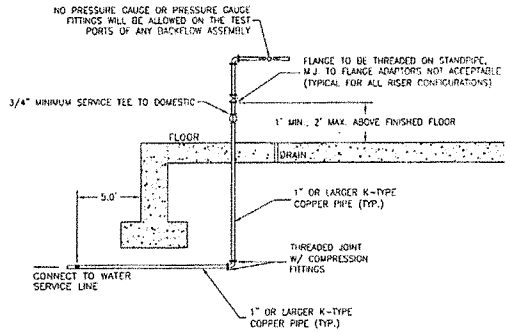


2 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS

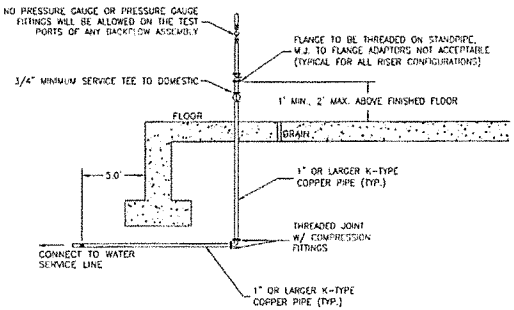


GENERAL NOTES:
1. WATER SERVICE LINES SHALL HAVE A MINIMUM 6 1/2 FOOT COVER MEASURED FROM THE EXISTING GROUND SURFACE.
2. WATER SERVICE LINES SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING SHALL BE 1" DIA. MAXIMUM WITHIN 6" OF SERVICE PIPE.

5 WATER MAIN CONNECTION
SCALE: NTS

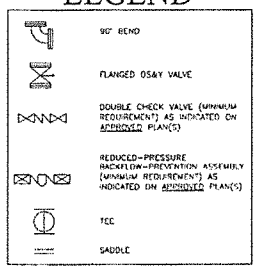


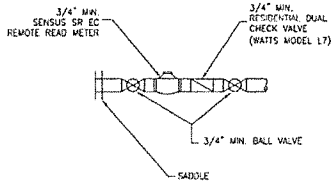
3 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS IV & V SYSTEMS
SCALE: NTS



4 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS IV & V SYSTEMS
SCALE: NTS

LEGEND





6 DOMESTIC CONNECTION
SCALE: NTS

NOTE: PROVIDE FLEXIBLE, WATER-TIGHT CONNECTION FOR ALL FLOOR PIPE PENETRATIONS.

MORRISON MAIERLE, INC.
A Employee-Owned Company
Engineers Surveyors Scientists Planners
901 Technology Blvd
Bozeman MT 59718
Phone: (406) 587-0721
Fax: (406) 587-1178

H:\3709\018\ACAD\DESIGN\fire service.dwg Plotted by eric.blankenship on Feb/8/2008

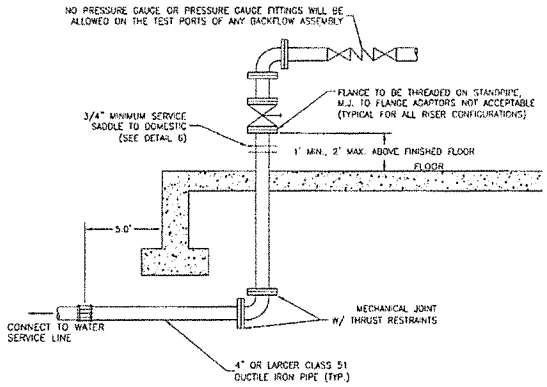
DRAWN BY: TMC
CHKD BY: DHW
APPR BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

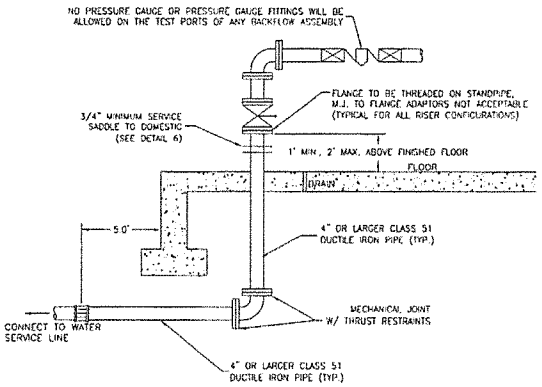
RESIDENTIAL FIRE SERVICE LINE

PROJECT NO 3709.018

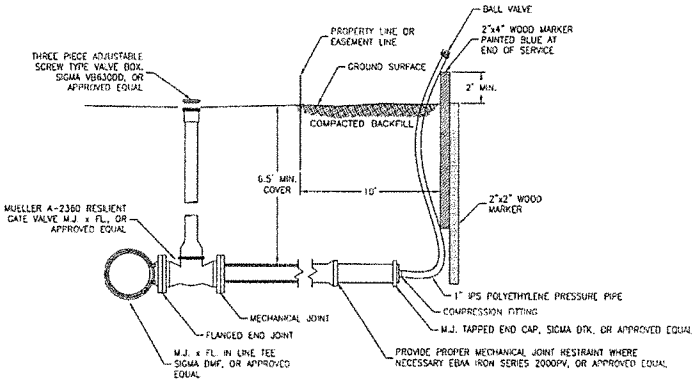
FIGURE NUMBER FIG. 2



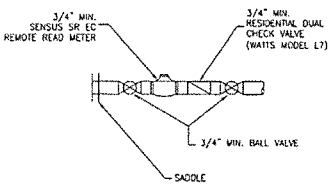
1 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS



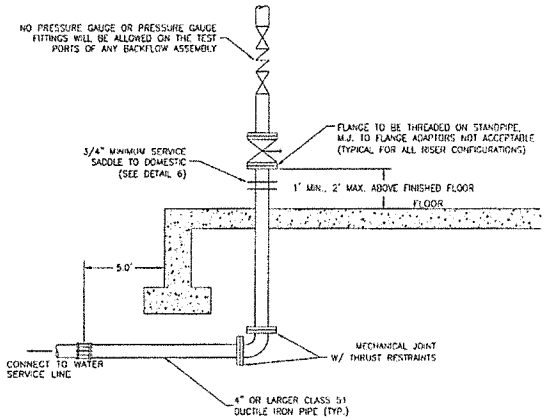
2 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS IV & V SYSTEMS
SCALE: NTS



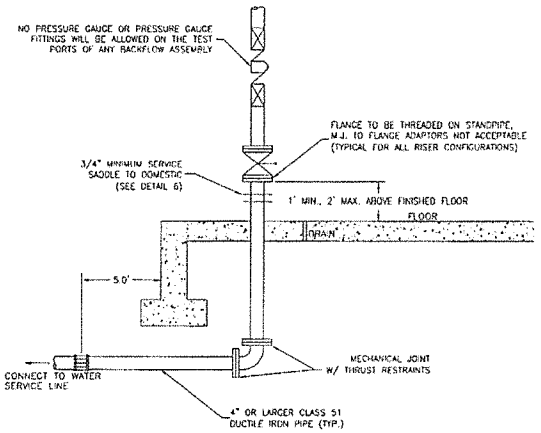
5 WATER MAIN CONNECTION
SCALE: NTS



6 DOMESTIC CONNECTION
SCALE: NTS



3 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS



4 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS IV & V SYSTEMS
SCALE: NTS

LEGEND

- 90° BEND
- FLANGED OS&Y VALVE
- DOUBLE CHECK VALVE (MINIMUM REQUIREMENT) AS INDICATED ON APPROVED PLAN(S)
- REDUCED-PRESSURE BACKFLOW-PREVENTION ASSEMBLY (MINIMUM REQUIREMENT) AS INDICATED ON APPROVED PLAN(S)
- TEE
- SADDLE

NOTE: PROVIDE FLEXIBLE, WATER-TIGHT CONNECTION FOR ALL FLOOR PIPE PENETRATIONS.

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers, Surveyors, Planners
601 Technology Blvd.
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Fax: (406) 587-1170

DRAWN BY: TSC
CHK'D. BY: DHW
APPR. BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

COMMERCIAL FIRE SERVICE LINE

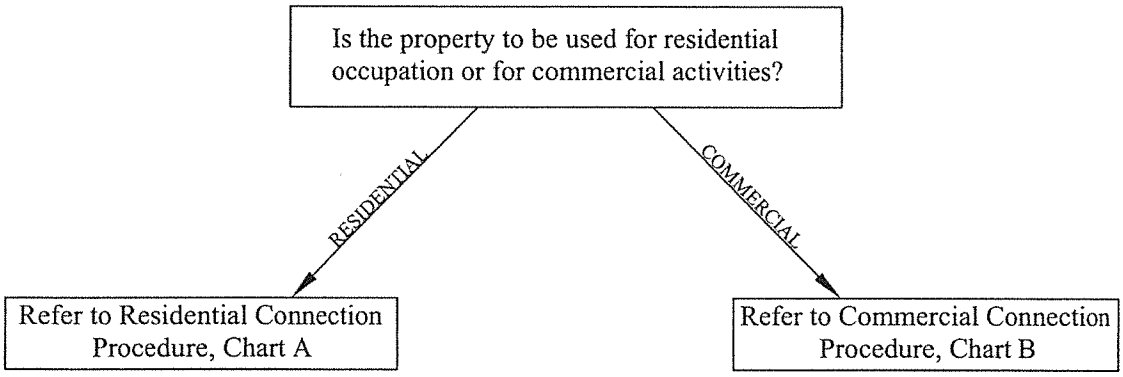
PROJECT NO. 3708.018

FIGURE NUMBER FIG. 3

CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WASTEWATER SYSTEM

UTILITY SOLUTIONS

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169



Revision 2008-1

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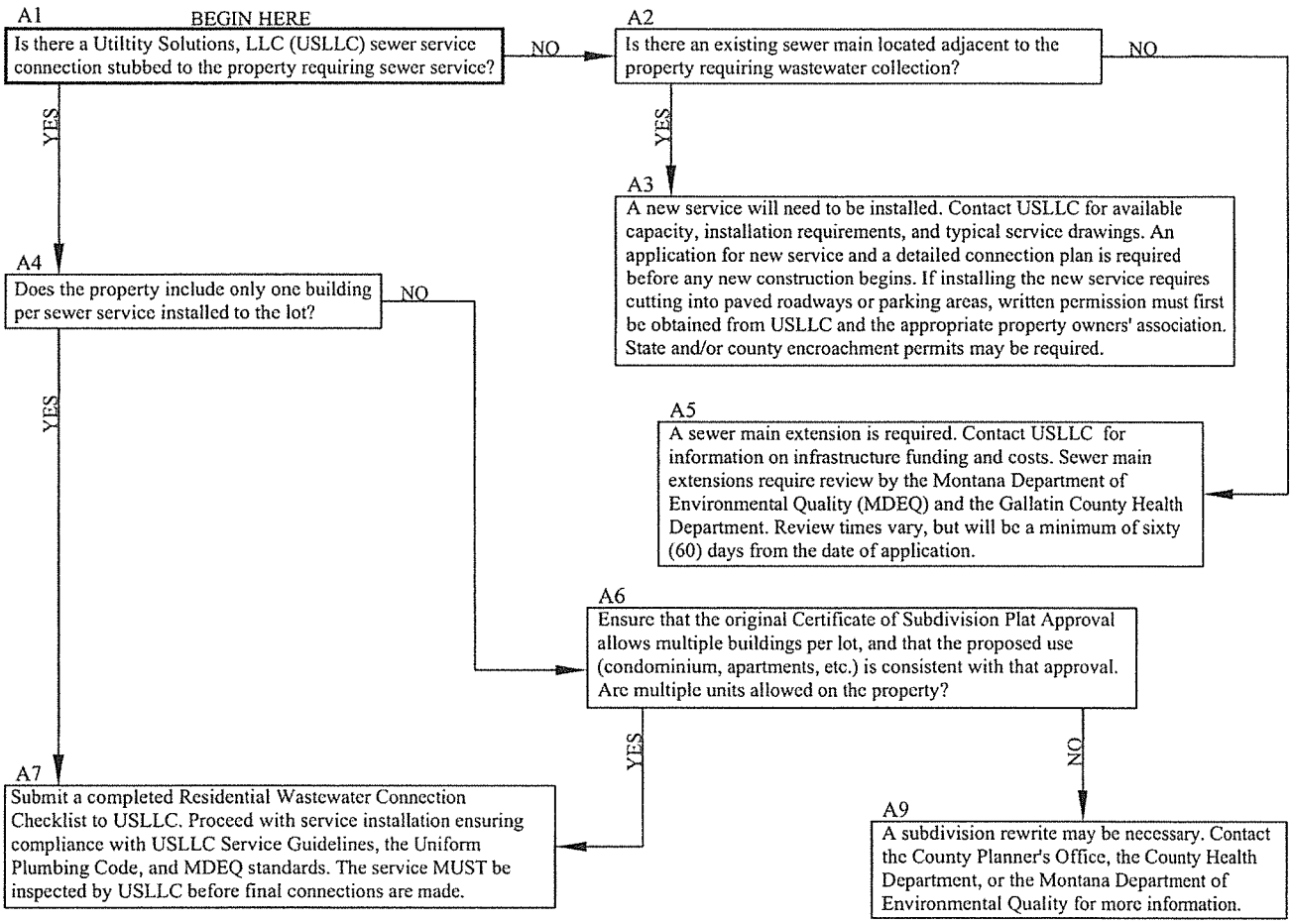
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM
RESIDENTIAL, CHART A



UTILITY SOLUTIONS

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UTILITY SOLUTIONS

Wastewater Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Residential Service

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

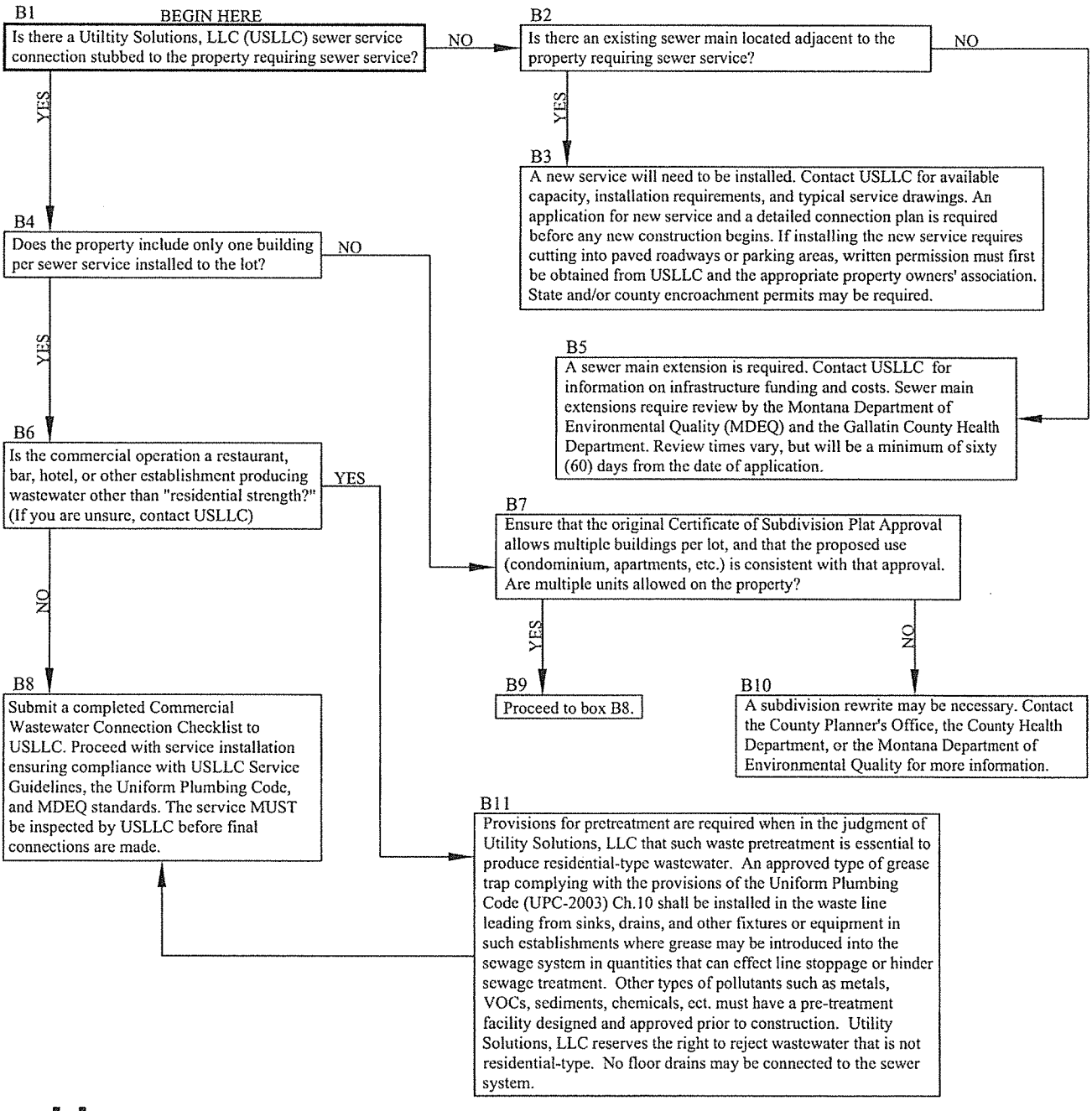
Builder/Applicant: _____ Ph:_____

Completed by USLLC	Completed by Builder	
☐	☐	Service installed from sewer main to lot/parcel
☐	☐	One sewer service per building
☐	☐	Cleanout placed within 3' of building
☐	☐	Cleanouts placed every 100' in compliance with Uniform Plumbing Code
☐	☐	Cleanouts placed at 45-degree or greater bends
☐	☐	Cleanouts placed at pipe size transition points
☐	☐	All cleanouts readily accessible and brought to grade
☐	☐	All underground plumbing associated with service extension performed by licensed plumbers
☐	☐	Minimum pipe slope of ¼" per foot (2.00%) on service laterals
☐	☐	Pipe bedded 4 inches under service lateral and 6 inches over service lateral using 1 inch minus washed bedding material
☐	☐	Minimum 6" vertical separation at water crossings
☐	☐	Minimum 8' horizontal separation between water and sewer services
☐	☐	Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public wastewater system
☐	☐	As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM
COMMERCIAL, CHART B



UTILITY SOLUTIONS

UTILITY SOLUTIONS

Wastewater Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Commercial Service

Completed by USLLC | Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from sewer main to lot/parcel

☐ ☐ One sewer service per building

☐ ☐ Cleanout placed within 3' of building

☐ ☐ Cleanouts placed every 100' in compliance with Uniform Plumbing Code

☐ ☐ Cleanouts placed at 45-degree or greater bends

☐ ☐ Cleanouts placed at pipe size transition points

☐ ☐ All cleanouts readily accessible and brought to grade

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ Minimum pipe slope of ¼" per foot (2.00%) on service laterals

☐ ☐ Pipe bedded 4 inches under service lateral and 6 inches over service lateral using 1 inch minus washed bedding material

☐ ☐ Appropriate pre-treatment device installed if required

☐ ☐ Minimum 6" vertical separation at water crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public wastewater system

☐ ☐ No floor drains are connected to the sewer service

☐ ☐ As-built drawing provided (8.5"x11" paper)

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Inspected by:	Date/Time:	Approval given: Y / N

UTILITY SOLUTIONS

Water and Sewer Service Guidelines

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

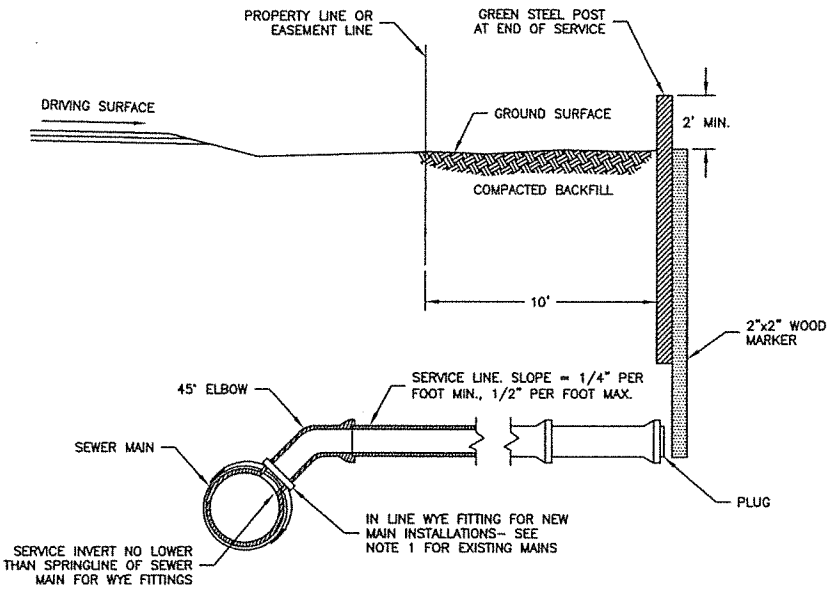
Connection to the Utility Solutions, LLC Water and Wastewater system must follow these guidelines:

1. The owner is responsible for the cost of the sewer and water services from the building to the lateral stub at the property line.
2. The owner or their contractor is responsible for finding the sewer lateral stub but the owner/contractor may contact Utility Solutions, LLC to assist with the location. The owner and contractor are solely responsible for damage to water or sewer infrastructure associated with water and sewer service installation.
3. All underground plumbing must be done by licensed plumbers.
4. All connections to Utility Solutions, LLC public sewer & water systems shall be to the sewer lateral stub and/or water service curb stop at the lot line. If a sewer lateral stub and/or water service curb stop have not been stubbed to the lot line, then the Owner will be responsible for the cost of installing a lateral and/or curb stop from the main line to the property line. Shop drawings must be submitted by the contractor and approved by Utility Solutions, LLC for connection to any water or sewer main line.
5. All sewer laterals and water services must be constructed and laid in accordance with the Montana Public Works Standard Specifications, DEQ requirements, Utility Solutions, LLC Standard Specifications, and Regulations of the Four Corners County Water & Sewer District which include, but are not limited to:
    a. Pipe Bedding- 4 inches under lateral and 6 inches over lateral piping, using 1 inch minus washed bedding material is required.
    b. Minimum Slope-All sewer laterals must be installed at a minimum slope of 2.00% (1/4" PER FOOT) unless otherwise approved in writing.
    c. Clean Outs-One clean out sweep is required within 3 feet from the building, and a double sweep tee every 100 feet thereafter in accordance with the Uniform Plumbing Code.
    d. Accessibility-All CLEANOUTS and CURBSTOPS will be readily accessible and operational at the completion of the project.
    e. Water meters shall be installed indoors, with a remote reading device wired to the outside of the establishment. Shut-off valves are required immediately before and after the water meter to facilitate replacement and/or repair.
    f. Multi-family housing requires a water meter and curb stop for every unit. Commercial buildings require one curb stop and water meter per building.
    g. ALL CONNECTIONS TO WATER AND SEWER MAIN LINES MUST BE APPROVED IN WRITING BY UTILITY SOLUTIONS, LLC.
    h. CUTTING INTO ASPHALT ROADWAYS FOR WATER AND SEWER INSTALLATION SHALL REQUIRE WRITTEN PERMISSION FROM UTILITY SOLUTIONS, LLC AND THE APPLICABLE PROPERTY OWNERS ASSOCIATION ALONG WITH APPROPRIATE STATE AND COUNTY ENCROACHMENT PERMITS AS NECESSARY.
    i. Backflow prevention devices are required on all services, as well as sprinkler and irrigation systems in accordance with the Uniform Plumping Code (UPC-2003).
    j. Backflow assembly must be directly attached to meter coupling unless prior approval has been obtained. Watts 007 Dual Check is the only back flow prevention allowed for single family homes and multi-family residential. Shut-Off Valves on backflow assemblies are not accepted as down stream Shut Off Valves.
    k. All water and sewer work including materials, equipment, and labor shall be guaranteed for a period of 1 year from completion and acceptance. A written warranty shall be provided to Utility Solutions, LLC.
6. Provisions for pre-treatment are required when in the judgment of Utility Solutions, LLC that such waste pretreatment is essential to produce residential-type wastewater. An approved type of grease trap complying with the provisions of the Uniform Plumbing Code (UPC-2003) Ch.10 shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants,

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

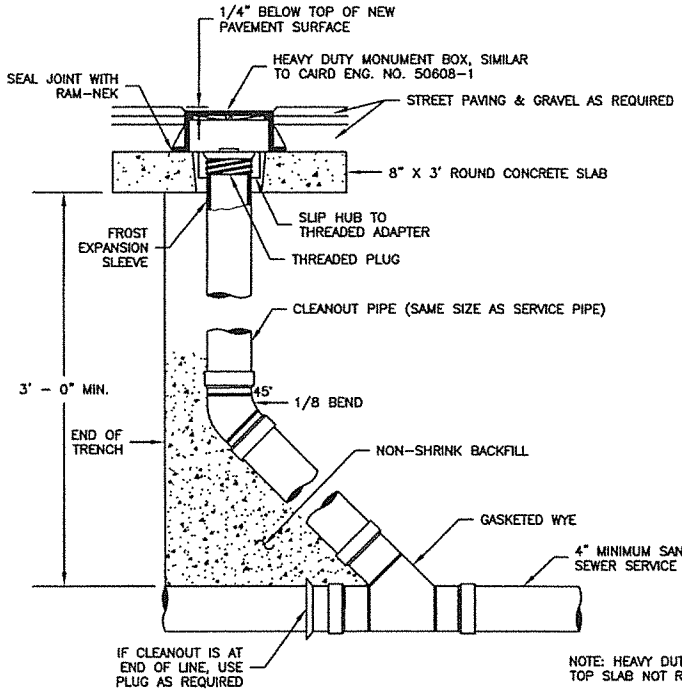
bars, hotels, or other establishments where grease may be introduced into the sewage system in quantities that can effect line stoppage or hinder sewage treatment. A grease trap is generally not required for individual residential dwelling units. Other types of pollutants such as metals, VOCs, sediments, chemicals, ect. must have a pre-treatment facility designed and approved prior to construction. Utility Solutions, LLC reserves the right to reject wastewater that is not residential-type.

7. No floor drains may be connected to the sewer system.
8. All sewer laterals and water services must be inspected by a representative from Utility Solutions, LLC prior to backfilling over the sewer and water services.
9. The sewer and/or water lateral contractor will make accommodations for Utility Solutions, LLC representatives for the safe inspection of the work and must give Utility Solutions, LLC at least ONE (1) business days advance notice when the laterals are ready for inspection and connection to the public sewer and/or water systems.
10. In areas where groundwater conditions necessitate dewatering, the contractor shall use appropriate dewatering equipment and comply with all local and state regulations. The contractor shall not allow groundwater to enter any part of the District's water distribution or sewer collection systems.
11. The contractor is responsible for the removal of any mud, sand, or other debris which enters the water or sewer system lateral piping as a result of the lateral installation procedure.
12. The sewer lateral and/or water service contractor is responsible for any damages, or disturbance to the public right-of-way and roads. Restoration of the public right-of-way and/or roads will be the responsibility of the sewer lateral and/or water service contractor. The restoration work must be completed in a manner that is satisfactory to all parties involved and a 2 year written warranty relating to trench backfill and asphalt pavement shall be issued.
13. Sewer laterals and water service laterals shall not be laid in a common trench. At least 8 feet of separation must be maintained without prior approval of the District. If sewer & water lines cross, at least 6 inches of separation must be maintained.
14. In subdivisions that utilize a separate water service for irrigation, that service may not terminate within the foundation of a structure, shall maintain 8' separation from the potable water main, shall be buried below frost depth prior to winterization apparatus, and have markings of "Non-Potable Water".
15. As-built drawings showing the locations of water and sewer service lines shall be provided to Utility Solutions, LLC prior to service initiation. The as-built drawing shall be legible on a minimum 8.5"x11" page and include pipe types, pipe sizes, slopes, cleanouts, curb stops, valves, distances from building corners or other permanent improvements, and any other applicable information.
16. Residential and Commercial structures shall be constructed with automatic fire sprinkler systems if deemed required by the Fire District or in the subdivision covenants. Fire sprinkler systems shall meet the requirements of NFPA 13D/Uniform Fire Code. A stamped set of engineered sprinkler system plans shall be submitted to the Fire District prior to construction. Fees and inspections shall be coordinated with the Fire District. Fire service line installation including valves, metering, and backflow prevention shall conform to Utility Solutions, LLC Standard Specifications.



NOTE:
1.) USE A MOLDED SADDLE WYE, GASKETED BRANCH, SOLVENT SKIRT WITH STAINLESS STEEL STRAPS, GPK 101- SERIES OR APPROVED EQUAL.

1 SEWER MAIN CONNECTION
SCALE: NTS



NOTE: HEAVY DUTY MONUMENT BOX AND CONCRETE TOP SLAB NOT REQUIRED IN NON-TRAFFIC AREAS.

2 SEWER CLEANOUT
SCALE: NTS

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers
Surveyors
Scientists
Planners
901 Technology Blvd.
Bozeman MT 59718
Phone: (406) 587-0721
Fax: (406) 587-1176

DRAWN BY: DHW
CHK'D. BY: ELB
APPR. BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM DETAILS
BOZEMAN MONTANA

PROJECT NO. 3709.017

SEWER SERVICE DETAILS

FIGURE NUMBER FIG. 1

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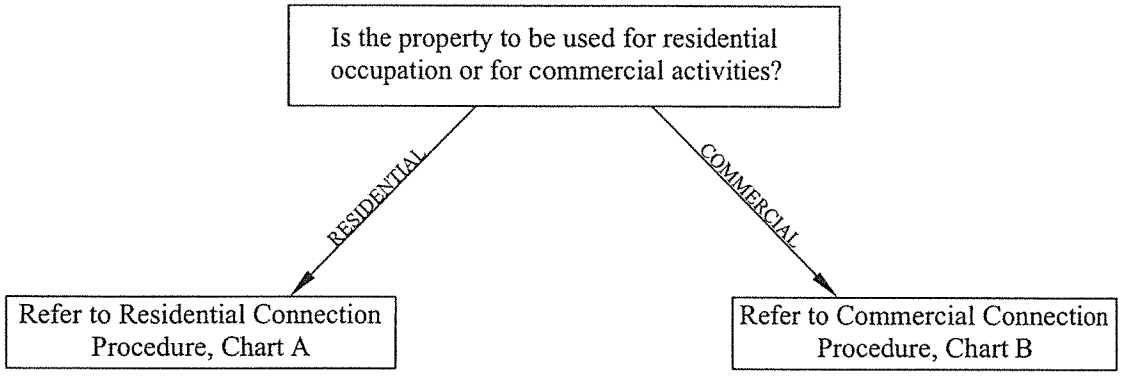
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WASTEWATER SYSTEM

BLACK BULL SUBDIVISION
MIDDLE CREEK PARKLANDS SUBDIVISION

UTILITY SOLUTIONS

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169



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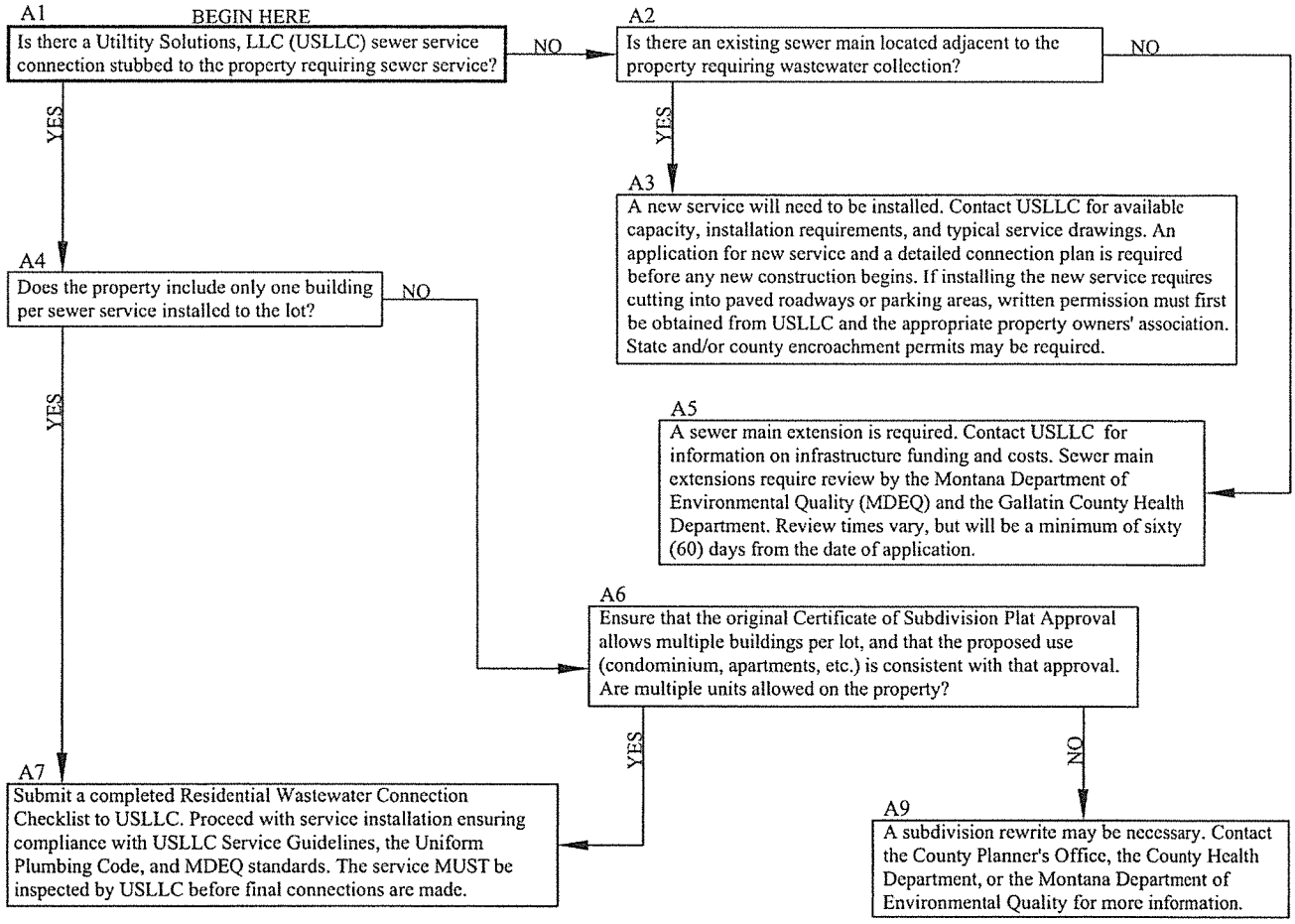
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM
RESIDENTIAL, CHART A



UTILITY SOLUTIONS

UTILITY SOLUTIONS

Wastewater Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Residential Service

Completed by USLLC | Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from sewer main to lot/parcel

☐ ☐ One sewer service per building

☐ ☐ Cleanout placed within 3' of building

☐ ☐ Cleanouts placed every 100' in compliance with Uniform Plumbing Code

☐ ☐ Cleanouts placed at 45-degree or greater bends

☐ ☐ Cleanouts placed at pipe size transition points

☐ ☐ All cleanouts readily accessible and brought to grade

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ Minimum pipe slope of ¼" per foot (2.00%) on service laterals

☐ ☐ Pipe bedded 4 inches under service lateral and 6 inches over service lateral using 1 inch minus washed bedding material

☐ ☐ Minimum 6" vertical separation at water crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

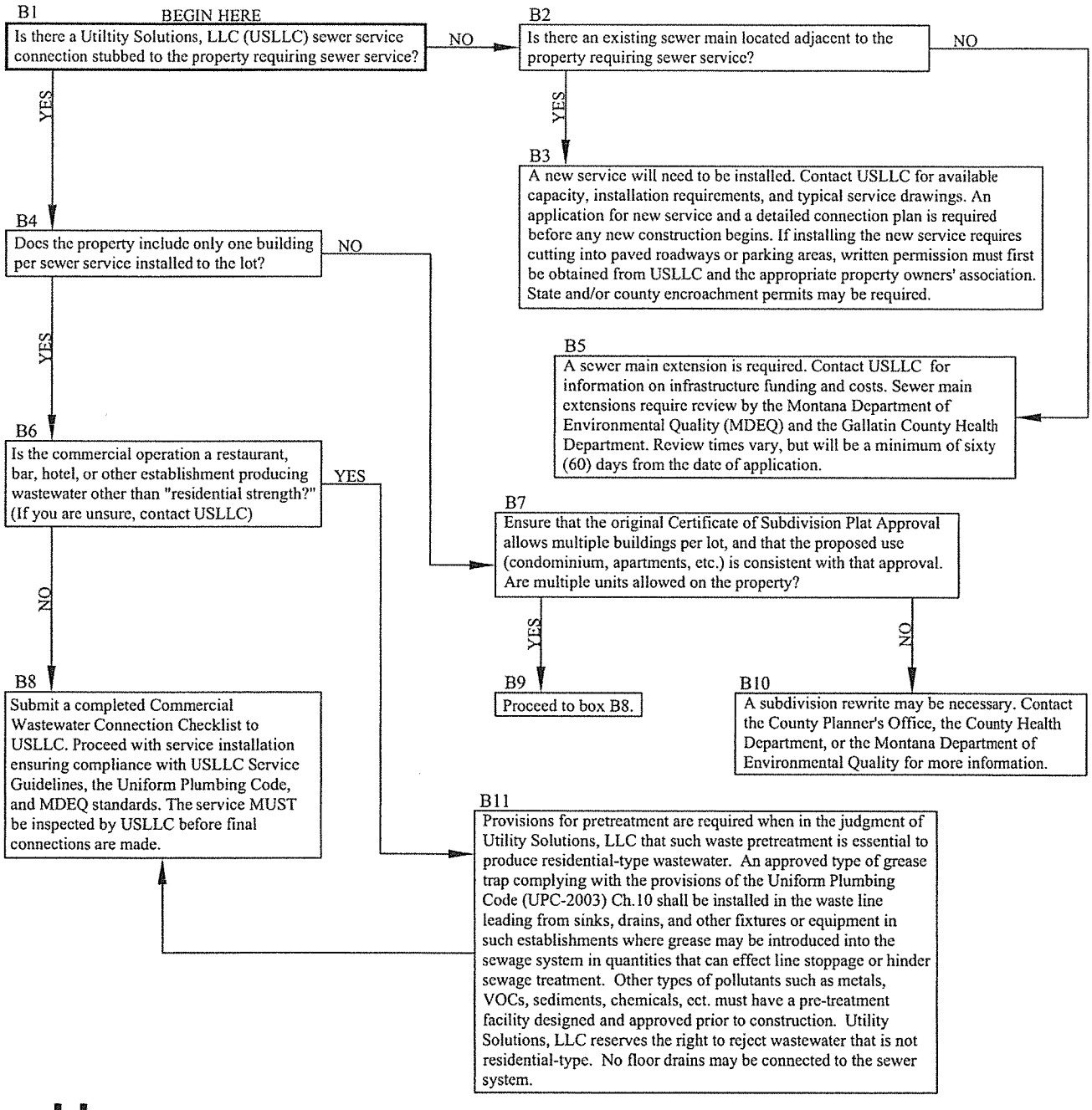
☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public wastewater system

☐ ☐ As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM
COMMERCIAL, CHART B



UTILITY SOLUTIONS

UTILITY SOLUTIONS

Wastewater Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Commercial Service

Completed by USLLC | Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from sewer main to lot/parcel

☐ ☐ One sewer service per building

☐ ☐ Cleanout placed within 3' of building

☐ ☐ Cleanouts placed every 100' in compliance with Uniform Plumbing Code

☐ ☐ Cleanouts placed at 45-degree or greater bends

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☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ Minimum pipe slope of ¼" per foot (2.00%) on service laterals

☐ ☐ Pipe bedded 4 inches under service lateral and 6 inches over service lateral using 1 inch minus washed bedding material

☐ ☐ Appropriate pre-treatment device installed if required

☐ ☐ Minimum 6" vertical separation at water crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public wastewater system

☐ ☐ No floor drains are connected to the sewer service

☐ ☐ As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

UTILITY SOLUTIONS

Water and Sewer Service Guidelines

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Connection to the Utility Solutions, LLC Water and Wastewater system must follow these guidelines:

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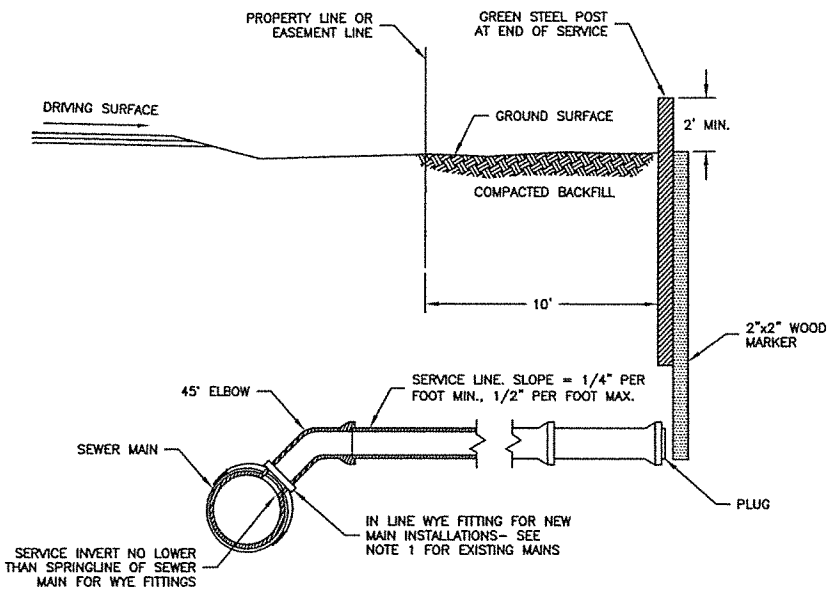
3. All underground plumbing must be done by licensed plumbers.
4. All connections to Utility Solutions, LLC public sewer & water systems shall be to the sewer lateral stub and/or water service curb stop at the lot line. If a sewer lateral stub and/or water service curb stop have not been stubbed to the lot line, then the Owner will be responsible for the cost of installing a lateral and/or curb stop from the main line to the property line. Shop drawings must be submitted by the contractor and approved by Utility Solutions, LLC for connection to any water or sewer main line.
5. All sewer laterals and water services must be constructed and laid in accordance with the Montana Public Works Standard Specifications, DEQ requirements, Utility Solutions, LLC Standard Specifications, and Regulations of the Four Corners County Water & Sewer District which include, but are not limited to:
    a. Pipe Bedding- 4 inches under lateral and 6 inches over lateral piping, using 1 inch minus washed bedding material is required.
    b. Minimum Slope-All sewer laterals must be installed at a minimum slope of 2.00% (1/4" PER FOOT) unless otherwise approved in writing.
    c. Clean Outs-One clean out sweep is required within 3 feet from the building, and a double sweep tee every 100 feet thereafter in accordance with the Uniform Plumbing Code.
    d. Accessibility-All CLEANOUTS and CURBSTOPS will be readily accessible and operational at the completion of the project.
    e. Water meters shall be installed indoors, with a remote reading device wired to the outside of the establishment. Shut-off valves are required immediately before and after the water meter to facilitate replacement and/or repair.
    f. Multi-family housing requires a water meter and curb stop for every unit. Commercial buildings require one curb stop and water meter per building.
    g. ALL CONNECTIONS TO WATER AND SEWER MAIN LINES MUST BE APPROVED IN WRITING BY UTILITY SOLUTIONS, LLC.
    h. CUTTING INTO ASPHALT ROADWAYS FOR WATER AND SEWER INSTALLATION SHALL REQUIRE WRITTEN PERMISSION FROM UTILITY SOLUTIONS, LLC AND THE APPLICABLE PROPERTY OWNERS ASSOCIATION ALONG WITH APPROPRIATE STATE AND COUNTY ENCROACHMENT PERMITS AS NECESSARY.
    i. Backflow prevention devices are required on all services, as well as sprinkler and irrigation systems in accordance with the Uniform Plumping Code (UPC-2003).
    j. Backflow assembly must be directly attached to meter coupling unless prior approval has been obtained. Watts 007 Dual Check is the only back flow prevention allowed for single family homes and multi-family residential. Shut-Off Valves on backflow assemblies are not accepted as down stream Shut Off Valves.
    k. All water and sewer work including materials, equipment, and labor shall be guaranteed for a period of 1 year from completion and acceptance. A written warranty shall be provided to Utility Solutions, LLC.
6. Provisions for pre-treatment are required when in the judgment of Utility Solutions, LLC that such waste pretreatment is essential to produce residential-type wastewater. An approved type of grease trap complying with the provisions of the Uniform Plumbing Code (UPC-2003) Ch.10 shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants,

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

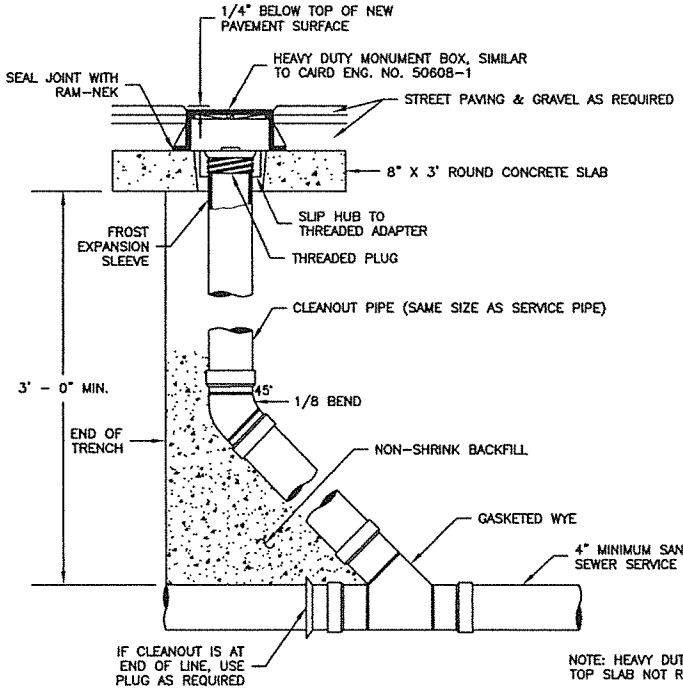
bars, hotels, or other establishments where grease may be introduced into the sewage system in quantities that can effect line stoppage or hinder sewage treatment. A grease trap is generally not required for individual residential dwelling units. Other types of pollutants such as metals, VOCs, sediments, chemicals, ect. must have a pre-treatment facility designed and approved prior to construction. Utility Solutions, LLC reserves the right to reject wastewater that is not residential-type.

7. No floor drains may be connected to the sewer system.
8. All sewer laterals and water services must be inspected by a representative from Utility Solutions, LLC prior to backfilling over the sewer and water services.
9. The sewer and/or water lateral contractor will make accommodations for Utility Solutions, LLC representatives for the safe inspection of the work and must give Utility Solutions, LLC at least ONE (1) business days advance notice when the laterals are ready for inspection and connection to the public sewer and/or water systems.
10. In areas where groundwater conditions necessitate dewatering, the contractor shall use appropriate dewatering equipment and comply with all local and state regulations. The contractor shall not allow groundwater to enter any part of the District's water distribution or sewer collection systems.
11. The contractor is responsible for the removal of any mud, sand, or other debris which enters the water or sewer system lateral piping as a result of the lateral installation procedure.
12. The sewer lateral and/or water service contractor is responsible for any damages, or disturbance to the public right-of-way and roads. Restoration of the public right-of-way and/or roads will be the responsibility of the sewer lateral and/or water service contractor. The restoration work must be completed in a manner that is satisfactory to all parties involved and a 2 year written warranty relating to trench backfill and asphalt pavement shall be issued.
13. Sewer laterals and water service laterals shall not be laid in a common trench. At least 8 feet of separation must be maintained without prior approval of the District. If sewer & water lines cross, at least 6 inches of separation must be maintained.
14. A separate water service for irrigation may not terminate within the foundation of a structure, shall maintain 8' separation from the potable water main, shall be buried below frost depth prior to winterization apparatus, and have markings of "Non-Potable Water".
15. As-built drawings showing the locations of water and sewer service lines shall be provided to Utility Solutions, LLC prior to service initiation. The as-built drawing shall be legible on a minimum 8.5"x11" page and include pipe types, pipe sizes, slopes, cleanouts, curb stops, valves, distances from building corners or other permanent improvements, and any other applicable information.
16. Residential and Commercial structures shall be constructed with automatic fire sprinkler systems if deemed required by the Fire District or in the subdivision covenants. Fire sprinkler systems shall meet the requirements of NFPA 13D/Uniform Fire Code. A stamped set of engineered sprinkler system plans shall be submitted to the Fire District prior to construction. Fees and inspections shall be coordinated with the Fire District. Fire service line installation including valves, metering, and backflow prevention shall conform to Utility Solutions, LLC Standard Specifications.



NOTE:
1.) USE A MOLDED SADDLE WYE, GASKETED BRANCH, SOLVENT SKIRT WITH STAINLESS STEEL STRAPS, GPK 101– SERIES OR APPROVED EQUAL.

1 SEWER MAIN CONNECTION
SCALE: NTS



NOTE: HEAVY DUTY MONUMENT BOX AND CONCRETE TOP SLAB NOT REQUIRED IN NON–TRAFFIC AREAS.

2 SEWER CLEANOUT
SCALE: NTS

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers
Surveyors
Scientists
Planners
901 Technology Blvd.
Bozeman MT 59718
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Fax: (406) 587-1176

DRAWN BY: DHW
CHK'D. BY: ELB
APPR. BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WASTEWATER SYSTEM DETAILS
BOZEMAN MONTANA

PROJECT NO. 3709.017

SEWER SERVICE DETAILS

FIGURE NUMBER
FIG. 1

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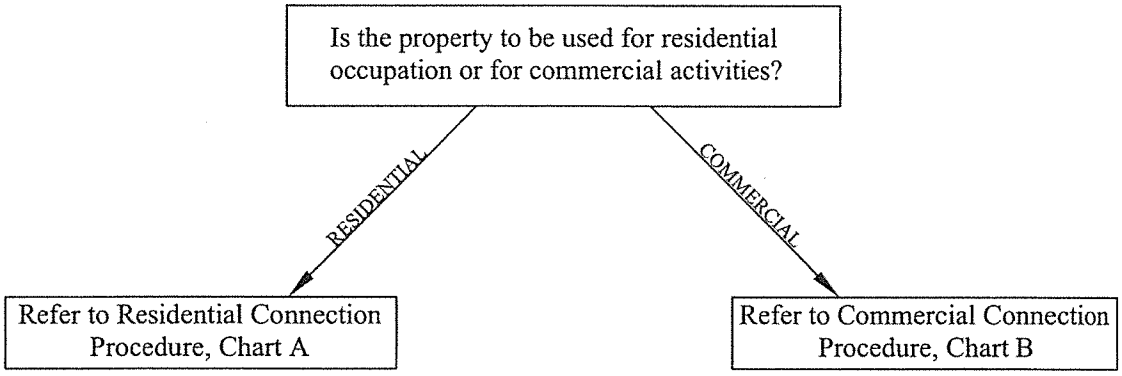
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

BLACK BULL SUBDIVISION
MIDDLE CREEK PARKLANDS SUBDIVISION

UTILITY SOLUTIONS

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169



Revision 2008-1

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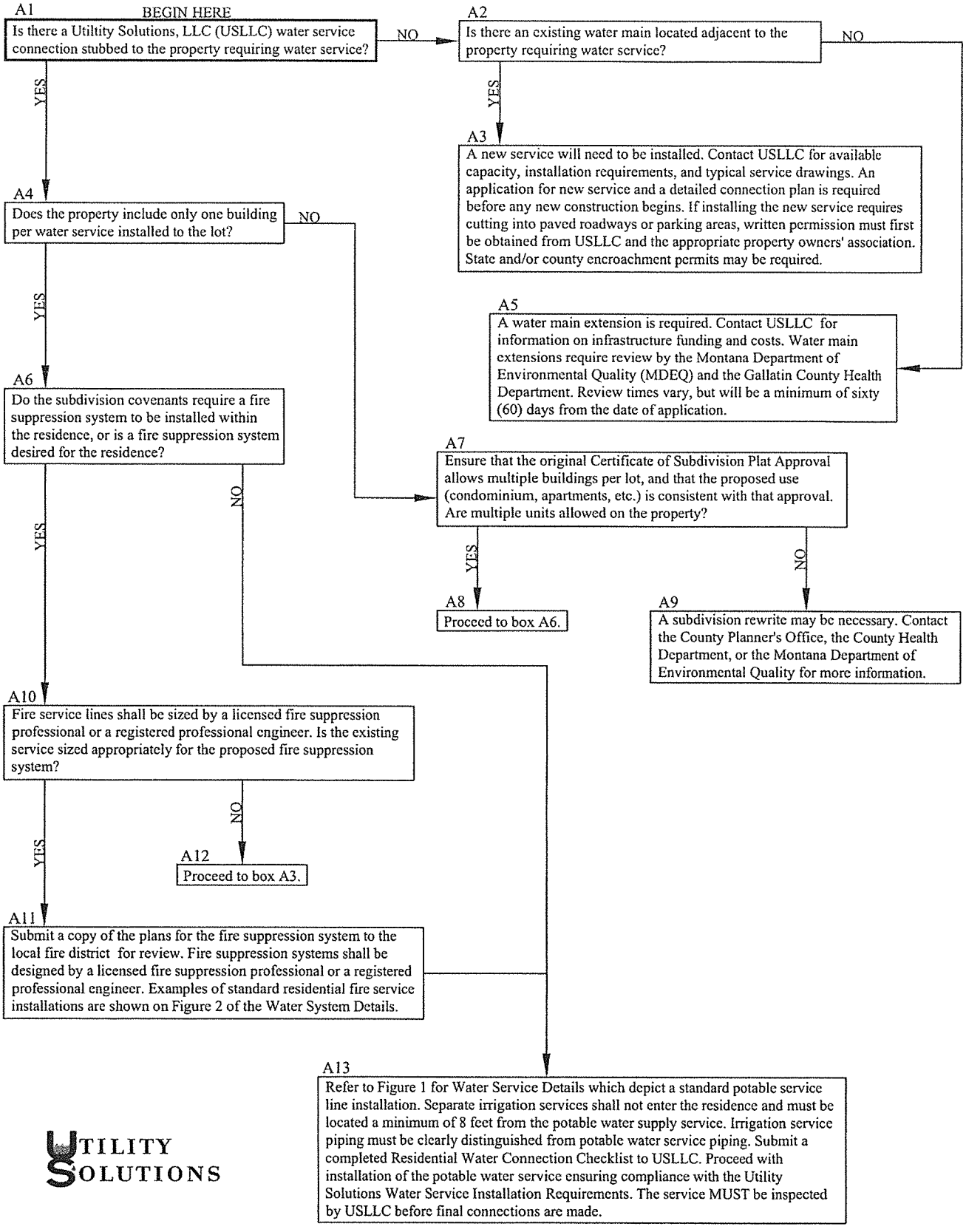
CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

RESIDENTIAL, CHART A



UTILITY SOLUTIONS

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UTILITY SOLUTIONS

Water Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Residential Service

Completed by USLLC | Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from water main to lot/parcel

☐ ☐ Service size meets fire protection requirements

☐ ☐ One water service per building

☐ ☐ One water meter and curbstop per dwelling unit

☐ ☐ Curbstop brought to finished grade and accessible

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ 6.5' minimum cover placed over service line

☐ ☐ Backflow prevention device installed inside building (Watts L 7 Dual Check ONLY)

☐ ☐ Backflow prevention device attached directly to meter coupling

☐ ☐ Water meter installed inside building

☐ ☐ Water meter includes remote-reading capabilities (Sensus Model SR EC)

☐ ☐ Shut-off valves located before and after water meter to facilitate replacement/repair

☐ ☐ Minimum 6" vertical separation at sewer crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

☐ ☐ Minimum 8' horizontal separation between potable water and irrigation services

☐ ☐ IRRIGATION SERVICE DOES NOT CONNECT IN ANY WAY TO POTABLE WATER SERVICE OR ENTER THE BUILDING

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public water system

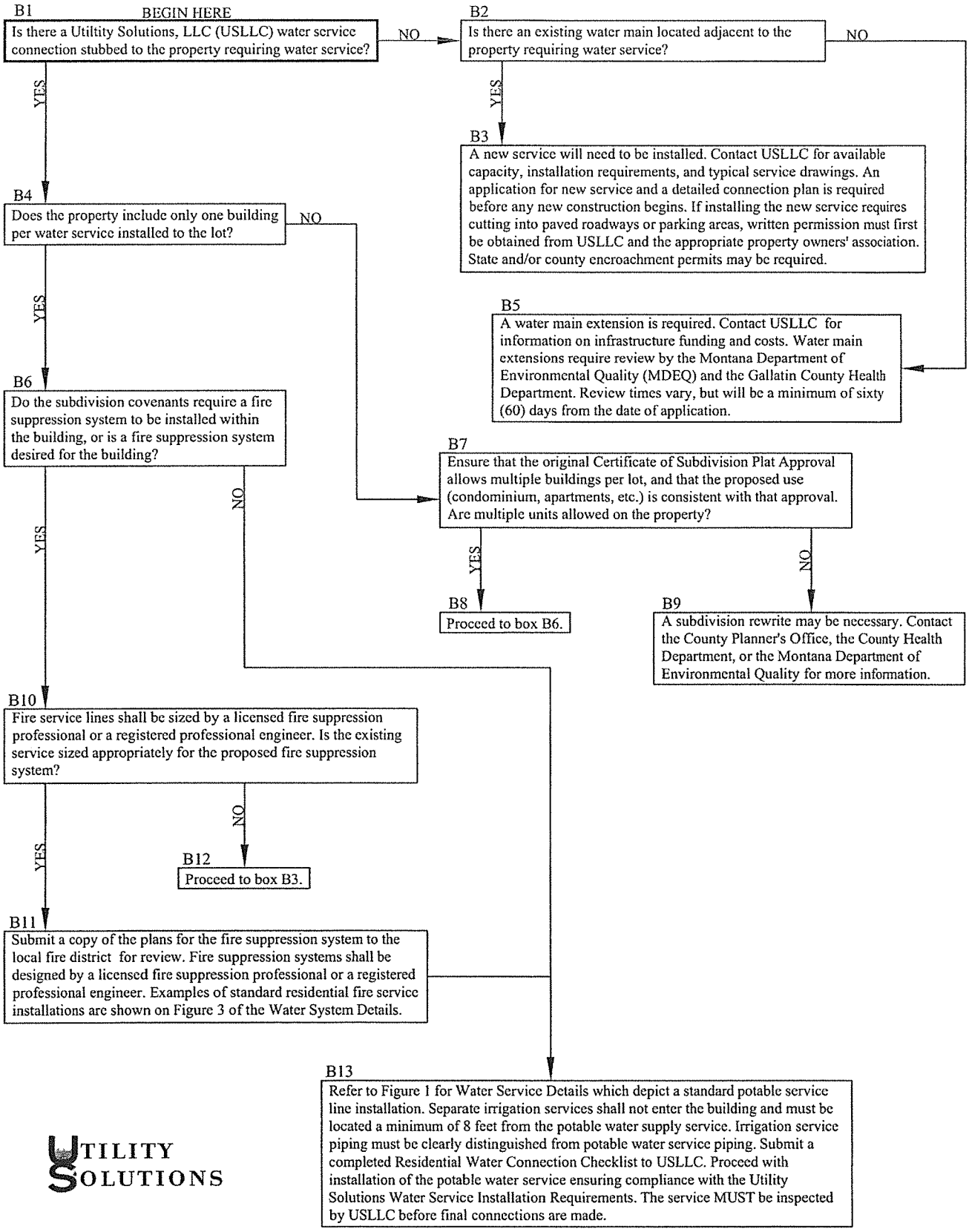
☐ ☐ As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

CONNECTION GUIDELINES FOR UTILITY SOLUTIONS, LLC WATER SYSTEM

COMMERCIAL, CHART B



UTILITY SOLUTIONS

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UTILITY SOLUTIONS

Water Service Connection Checklist

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Commercial Service

Completed by USLLC | Completed by Builder

Subdivision: _____ Block: _____ Lot: _____

Owner: _____ Ph:_____

Builder/Applicant: _____ Ph:_____

☐ ☐ Service installed from water main to lot/parcel

☐ ☐ Service size meets fire protection requirements

☐ ☐ One water service per building

☐ ☐ One water meter and shut-off per building

☐ ☐ Curbstops/blow-offs brought to finished grade and accessible

☐ ☐ All underground plumbing associated with service extension performed by licensed plumbers

☐ ☐ 6.5' minimum cover placed over service line

☐ ☐ Backflow prevention device installed inside building or meter pit

☐ ☐ Backflow prevention device attached directly to meter coupling

☐ ☐ Water meter installed inside building or in meter vault

☐ ☐ Water meter includes remote-reading capabilities (Sensus Model SR EC)

☐ ☐ Shut-off valves located before and after water meter to facilitate replacement/repair

☐ ☐ Minimum 6" vertical separation at sewer crossings

☐ ☐ Minimum 8' horizontal separation between water and sewer services

☐ ☐ Minimum 8' horizontal separation between potable water and irrigation services

☐ ☐ IRRIGATION SERVICE DOES NOT CONNECT IN ANY WAY TO POTABLE WATER SERVICE OR ENTER THE BUILDING

☐ ☐ Utility Solutions, LLC notified at least ONE (1) business day in advance when the service is ready for inspection and connection to the public water system

☐ ☐ As-built drawing provided (8.5"x11" paper)

For USLLC use only

Inspected by:	Date/Time:	Approval given: Y / N

UTILITY SOLUTIONS

Water and Sewer Service Guidelines

P.O. Box 10098
Bozeman, MT 59719
Tel.: (406) 585-4166
Fax: (406) 585-4169

Connection to the Utility Solutions, LLC Water and Wastewater system must follow these guidelines:

1. The owner is responsible for the cost of the sewer and water services from the building to the lateral stub at the property line.
2. The owner or their contractor is responsible for finding the sewer lateral stub but the owner/contractor may contact Utility Solutions, LLC to assist with the location. The owner and contractor are solely responsible for damage to water or sewer infrastructure associated with water and sewer service installation.
3. All underground plumbing must be done by licensed plumbers.
4. All connections to Utility Solutions, LLC public sewer & water systems shall be to the sewer lateral stub and/or water service curb stop at the lot line. If a sewer lateral stub and/or water service curb stop have not been stubbed to the lot line, then the Owner will be responsible for the cost of installing a lateral and/or curb stop from the main line to the property line. Shop drawings must be submitted by the contractor and approved by Utility Solutions, LLC for connection to any water or sewer main line.
5. All sewer laterals and water services must be constructed and laid in accordance with the Montana Public Works Standard Specifications, DEQ requirements, Utility Solutions, LLC Standard Specifications, and Regulations of the Four Corners County Water & Sewer District which include, but are not limited to:
    a. Pipe Bedding- 4 inches under lateral and 6 inches over lateral piping, using 1 inch minus washed bedding material is required.
    b. Minimum Slope-All sewer laterals must be installed at a minimum slope of 2.00% (1/4" PER FOOT) unless otherwise approved in writing.
    c. Clean Outs-One clean out sweep is required within 3 feet from the building, and a double sweep tee every 100 feet thereafter in accordance with the Uniform Plumbing Code.
    d. Accessibility-All CLEANOUTS and CURBSTOPS will be readily accessible and operational at the completion of the project.
    e. Water meters shall be installed indoors, with a remote reading device wired to the outside of the establishment. Shut-off valves are required immediately before and after the water meter to facilitate replacement and/or repair.
    f. Multi-family housing requires a water meter and curb stop for every unit. Commercial buildings require one curb stop and water meter per building.
    g. ALL CONNECTIONS TO WATER AND SEWER MAIN LINES MUST BE APPROVED IN WRITING BY UTILITY SOLUTIONS, LLC.
    h. CUTTING INTO ASPHALT ROADWAYS FOR WATER AND SEWER INSTALLATION SHALL REQUIRE WRITTEN PERMISSION FROM UTILITY SOLUTIONS, LLC AND THE APPLICABLE PROPERTY OWNERS ASSOCIATION ALONG WITH APPROPRIATE STATE AND COUNTY ENCROACHMENT PERMITS AS NECESSARY.
    i. Backflow prevention devices are required on all services, as well as sprinkler and irrigation systems in accordance with the Uniform Plumping Code (UPC-2003).
    j. Backflow assembly must be directly attached to meter coupling unless prior approval has been obtained. Watts 007 Dual Check is the only back flow prevention allowed for single family homes and multi-family residential. Shut-Off Valves on backflow assemblies are not accepted as down stream Shut Off Valves.
    k. All water and sewer work including materials, equipment, and labor shall be guaranteed for a period of 1 year from completion and acceptance. A written warranty shall be provided to Utility Solutions, LLC.
6. Provisions for pre-treatment are required when in the judgment of Utility Solutions, LLC that such waste pretreatment is essential to produce residential-type wastewater. An approved type of grease trap complying with the provisions of the Uniform Plumbing Code (UPC-2003) Ch.10 shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants,

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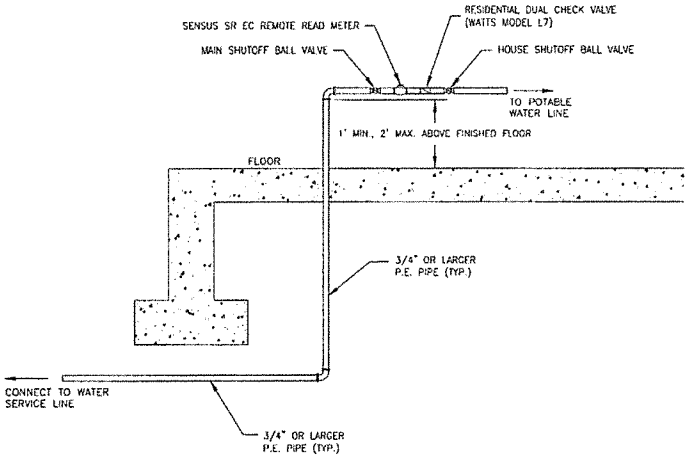
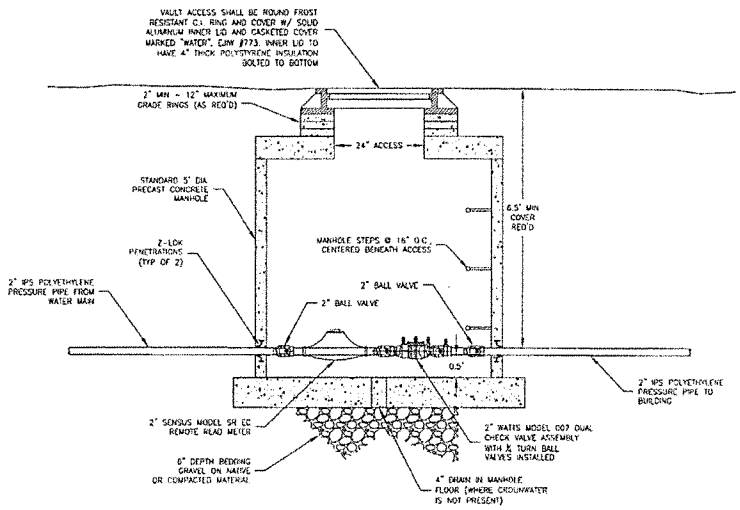
bars, hotels, or other establishments where grease may be introduced into the sewage system in quantities that can effect line stoppage or hinder sewage treatment. A grease trap is generally not required for individual residential dwelling units. Other types of pollutants such as metals, VOCs, sediments, chemicals, ect. must have a pre-treatment facility designed and approved prior to construction. Utility Solutions, LLC reserves the right to reject wastewater that is not residential-type.

7. No floor drains may be connected to the sewer system.
8. All sewer laterals and water services must be inspected by a representative from Utility Solutions, LLC prior to backfilling over the sewer and water services.
9. The sewer and/or water lateral contractor will make accommodations for Utility Solutions, LLC representatives for the safe inspection of the work and must give Utility Solutions, LLC at least ONE (1) business days advance notice when the laterals are ready for inspection and connection to the public sewer and/or water systems.
10. In areas where groundwater conditions necessitate dewatering, the contractor shall use appropriate dewatering equipment and comply with all local and state regulations. The contractor shall not allow groundwater to enter any part of the District's water distribution or sewer collection systems.
11. The contractor is responsible for the removal of any mud, sand, or other debris which enters the water or sewer system lateral piping as a result of the lateral installation procedure.
12. The sewer lateral and/or water service contractor is responsible for any damages, or disturbance to the public right-of-way and roads. Restoration of the public right-of-way and/or roads will be the responsibility of the sewer lateral and/or water service contractor. The restoration work must be completed in a manner that is satisfactory to all parties involved and a 2 year written warranty relating to trench backfill and asphalt pavement shall be issued.
13. Sewer laterals and water service laterals shall not be laid in a common trench. At least 8 feet of separation must be maintained without prior approval of the District. If sewer & water lines cross, at least 6 inches of separation must be maintained.
14. A separate water service for irrigation may not terminate within the foundation of a structure, shall maintain 8' separation from the potable water main, shall be buried below frost depth prior to winterization apparatus, and have markings of "Non-Potable Water".
15. As-built drawings showing the locations of water and sewer service lines shall be provided to Utility Solutions, LLC prior to service initiation. The as-built drawing shall be legible on a minimum 8.5"x11" page and include pipe types, pipe sizes, slopes, cleanouts, curb stops, valves, distances from building corners or other permanent improvements, and any other applicable information.
16. Residential and Commercial structures shall be constructed with automatic fire sprinkler systems if deemed required by the Fire District or in the subdivision covenants. Fire sprinkler systems shall meet the requirements of NFPA 13D/Uniform Fire Code. A stamped set of engineered sprinkler system plans shall be submitted to the Fire District prior to construction. Fees and inspections shall be coordinated with the Fire District. Fire service line installation including valves, metering, and backflow prevention shall conform to Utility Solutions, LLC Standard Specifications.



1 STANDARD POTABLE SERVICE LINE INSTALLATION
SCALE: NTS



3 COMMERCIAL METERING VAULT
SCALE: NTS

MORRISON MAIERLE, INC.
An Employee Owned Company
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Surveyors
Scientists
Planners
601 Technology Blvd
Bozeman MT 59718
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Fax: (406) 587-1178

H:\3709\018\ACAD\DETAILS\Water service RB.dwg Plotted by eric.blankenship on Jan/29/2008

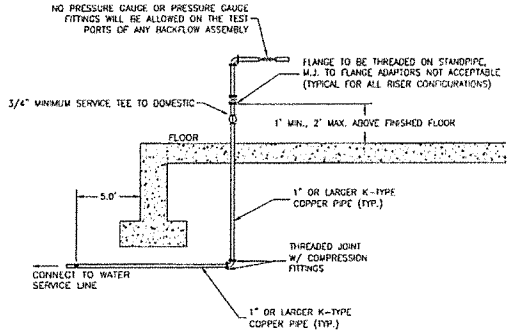
DRAWN BY: TMC
CHK'D BY: DHW
APPR BY: ELB
DATE: 03/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

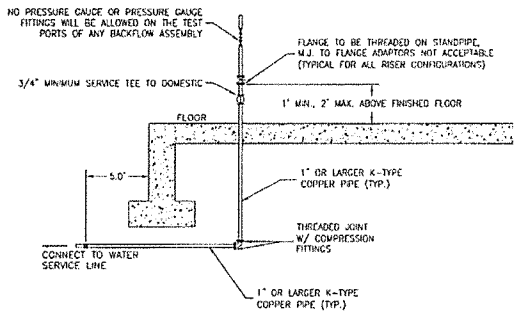
WATER SERVICE DETAILS

PROJECT NO 3709.018

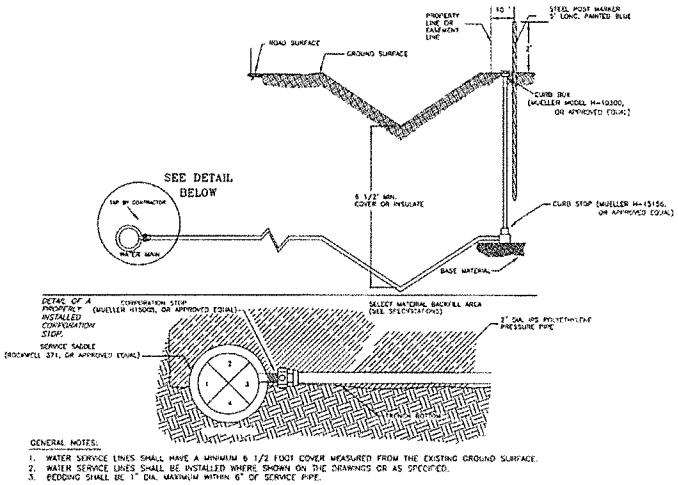
FIGURE NUMBER FIG. 1



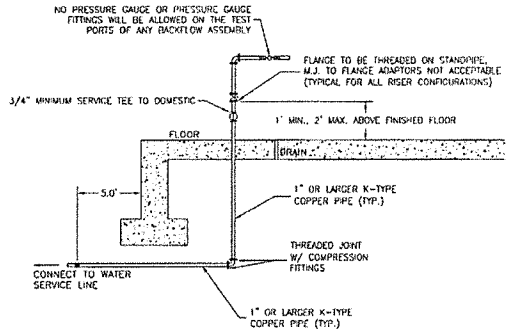
1 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS



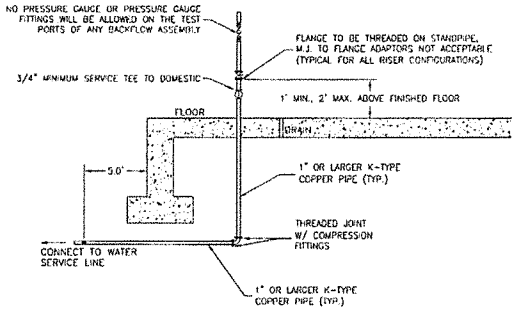
2 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS



5 WATER MAIN CONNECTION
SCALE: NTS

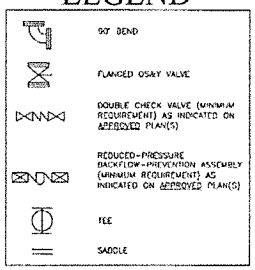


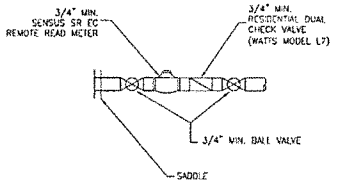
3 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS IV & V SYSTEMS
SCALE: NTS



4 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS IV & V SYSTEMS
SCALE: NTS

LEGEND





6 DOMESTIC CONNECTION
SCALE: NTS

NOTE: PROVIDE FLEXIBLE, WATER-TIGHT CONNECTION FOR ALL FLOOR PIPE PENETRATIONS.

MORRISON MAIERLE, INC.
An Employee Owned Company
Engineers, Surveyors, Scientists, Planners
903 Technology Blvd, Bozeman MT 59718
Phone: (406) 587-0721 Fax: (406) 587-1176
H:\17000\18\ACAD\DESIGN\fire service-06.dwg Plotted by ann hankins on Jan/28/2008

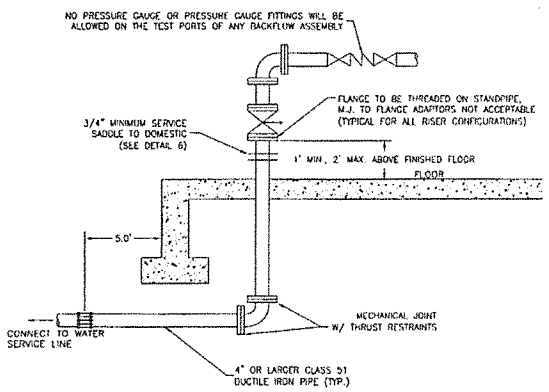
DRAWN BY: TMC
CHKD. BY: DHW
APPR. BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

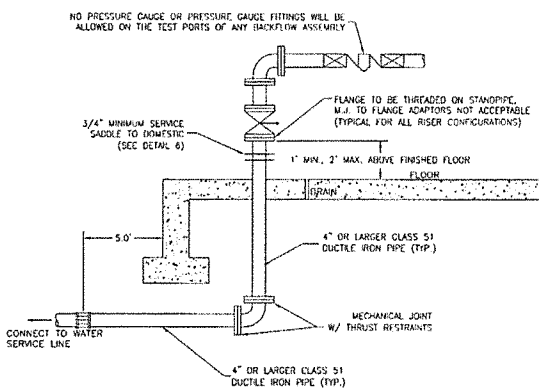
PROJECT NO. 3709.018

RESIDENTIAL FIRE SERVICE LINE

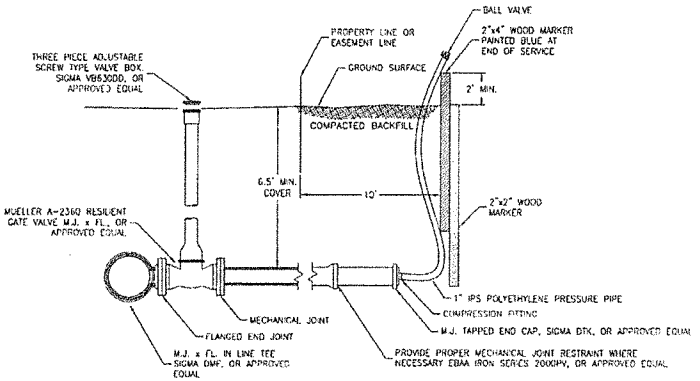
FIGURE NUMBER
FIG. 2



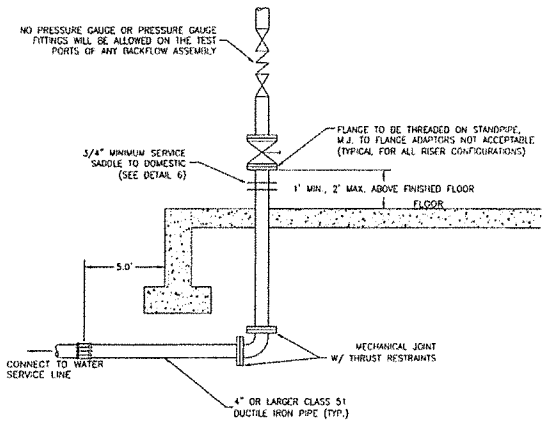
1 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS



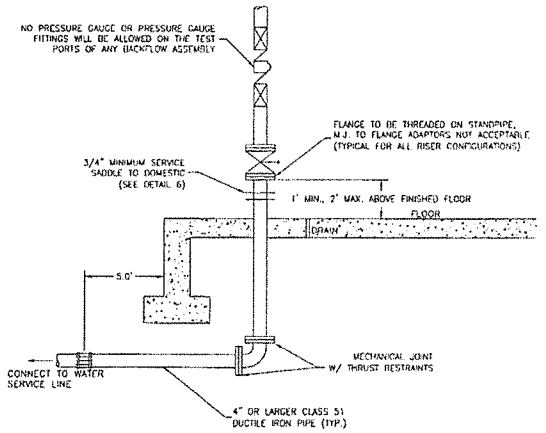
2 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 1 FOR CLASS IV & V SYSTEMS
SCALE: NTS



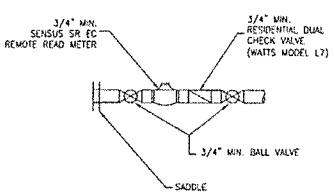
5 WATER MAIN CONNECTION
SCALE: NTS



3 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS I, II, & III SYSTEMS
SCALE: NTS

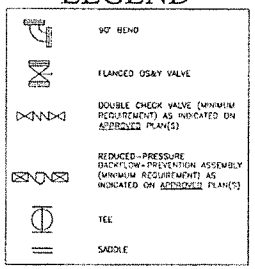


4 STANDARD FIRE SERVICE LINE INSTALLATION
OPTION 2 FOR CLASS IV & V SYSTEMS
SCALE: NTS



6 DOMESTIC CONNECTION
SCALE: NTS

LEGEND



NOTE: PROVIDE FLEXIBLE, WATER-TIGHT CONNECTION FOR ALL FLOOR PIPE PENETRATIONS.

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers, Surveyors, Planners
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DRAWN BY: TMC
CHK'D. BY: DMW
APPR. BY: ELB
DATE: 08/2007

UTILITY SOLUTIONS, LLC
WATER SYSTEM DETAILS
BOZEMAN MONTANA

COMMERCIAL FIRE SERVICE LINE

PROJECT NO. 3709.018

FIGURE NUMBER
FIG. 3