

PRELIMINARY ENGINEERING REPORT

**Amsterdam Road Property
Gallatin County, Montana**

January 2018

Prepared For:

Montana Department of Natural Resources and Conservation
Trust Land Management Division
1539 11th Avenue,
Helena, MT 59620-1601



Prepared By:

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I GENERAL INFORMATION

In October of 2017, the Montana Department of Natural Resources and Conservation (DNRC), Trust Land Management Division contracted with Stahly Engineering and Associates, Inc. (Stahly) to prepare a Preliminary Engineering Report to assist the DNRC in exploring potential development of the Amsterdam Road Property. This Report will identify the available infrastructure (water supply, wastewater disposal, storm water management, electrical, natural gas and communications) and present a potential phasing plan for developing the property.

The project site is located immediately adjacent and to the southwest of the City of Belgrade in Gallatin County, being approximately 450 acres located in Section 11, Township 1 South, Range 4 East, as shown on the following Vicinity Map, Aerial Map and USGS Topographic Map. The property is bordered by Amsterdam Road on the north, Thorpe Road on the west, Frank Road on the South and is located approximately one quarter of a mile west of Jackrabbit Lane. Amsterdam Road adjacent to the property is also a frontage road and component of an interchange with Interstate 90.

II SITE CONDITIONS

The Amsterdam Road Property is currently utilized as agriculture production with irrigation for hay or small grains. An irrigation ditch bisects the property from south to north, the west side of the property includes two (2) large irrigation pivots and the east side is irrigated with wheel lines.

Land use on the surrounding properties includes light commercial along Jackrabbit Lane to the east and along Amsterdam Road to the north. The areas to the south and west, mostly consists of low density residential development. Located immediately to the northwest is the River Rock Subdivision, a modern development which includes high density residences, an elementary school, a church, offices, and a park.

The property is partially zoned by the City of Belgrade, zoned AS, being an agriculture suburban district and the existing agricultural use being a permitted use. A copy of the City of Belgrade Zoning Map is included in Appendix A. The agricultural suburban district intent is to discourage small tract development in areas of agricultural importance by encouraging agricultural pursuits and protecting environmental concerns. Permitted uses include; farm or ranch dwellings with accessory buildings, home occupations, small-scale agricultural related commercial, and open space.

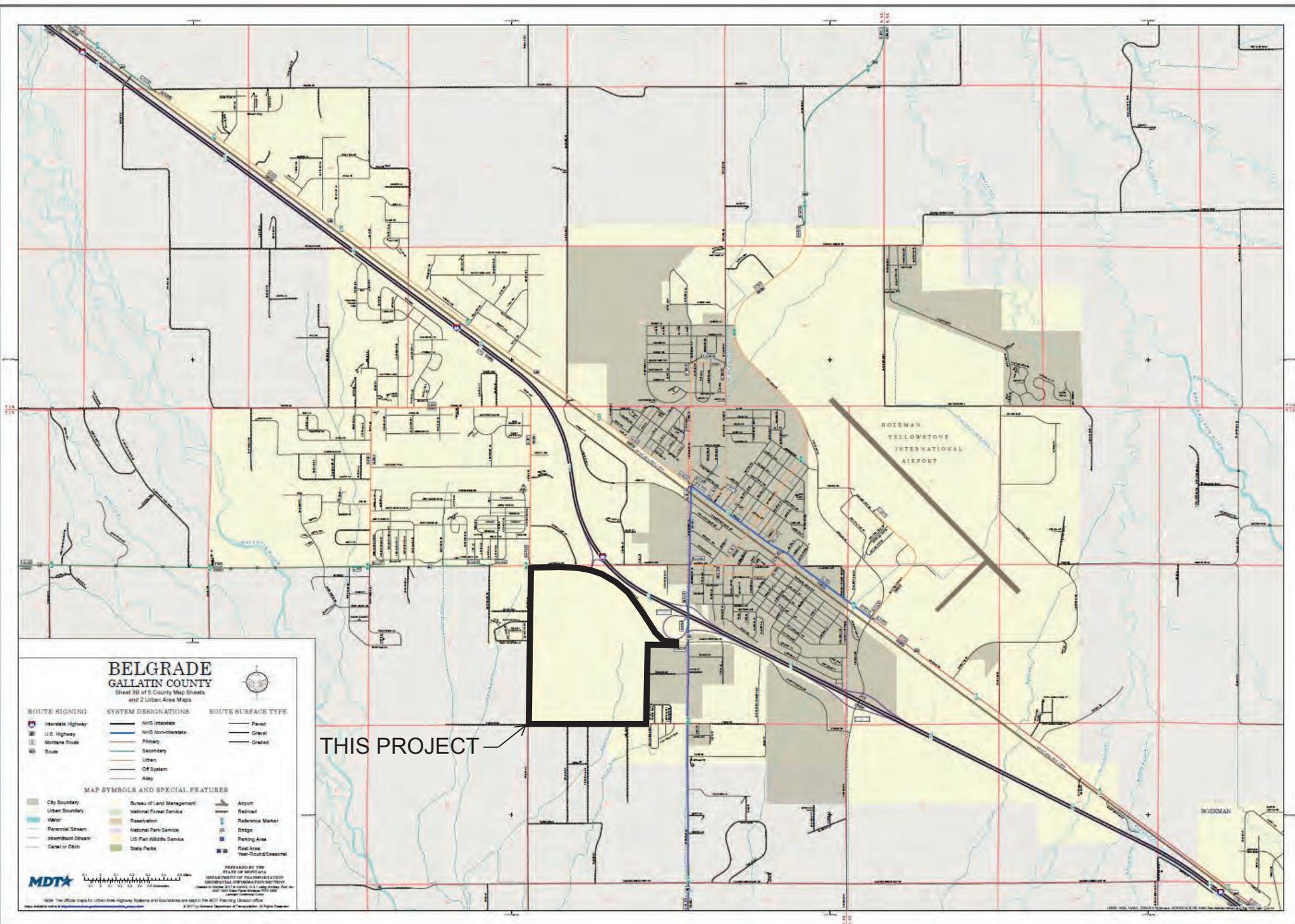
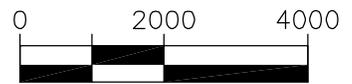


FIGURE 1.1



SCALE IN FEET



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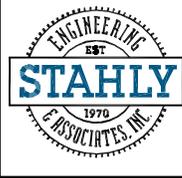
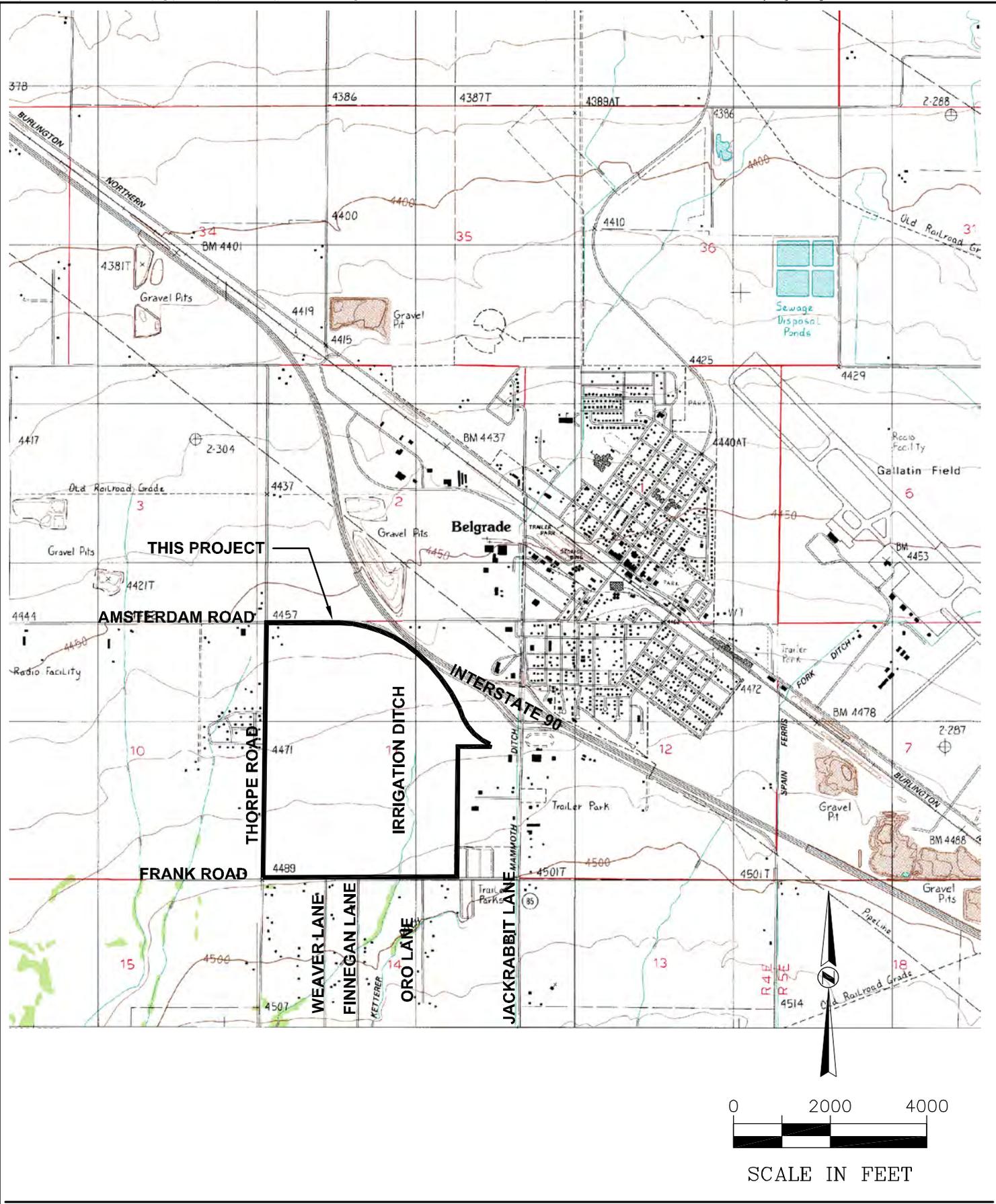
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AERIAL MAP

AMSTERDAM ROAD
 PROPERTY
 BELGRADE, MT

DESIGNED: GDW
 DRAWN: ALS
 CHECKED: GDW
 DATE: 12/4/2017

SHEET
FIGURE 1.2



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USGS TOPOGRAPHIC MAP

**AMSTERDAM ROAD
PROPERTY
BELGRADE, MT**

DESIGNED: GDW
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CHECKED: GDW
DATE: 12/4/2017

SHEET
FIGURE 1.3

The surrounding zoning includes commercial and manufacturing to the north, light manufacturing, highway business and medium density residential to the east, and areas un-zoned within Gallatin County to the south and west.

Environmental Conditions

The ground surface topography slopes from south to north at gradual rates ranging from 0 to 2 percent. There are no known geologic hazards such as falls, slides or slumps on the subject property that may affect development.

Reviews of well logs from the Montana Bureau of Mining and Geology, Groundwater Information Center in the vicinity of the property indicate gravel soils with a depth to groundwater of approximately 15 to 50 feet below the ground surface. Additionally, the US Department of Agriculture, Natural Resource and Conservation Service Soil Surveys describes soils at the property as Beavwan Loam and Beaverell-Beavwan complex, being loam or cobbly loams of farmlands of statewide or local importance.

The Weaver Ditch, an active irrigation ditch, bisects the property from south to north. A copy of the Gallatin County Water Resources Survey Map is included in Appendix B. The irrigation ditch channel and paralleling riparian fringe areas are likely to be considered jurisdictional wetlands, necessitating delineation for determination and will have some implications for setbacks and buffering with potential development. According to FEMA Flood Insurance Rate Map No. 30031C0590D, with an effective date of September 2, 2011, the site is located in Zone D, which are areas in which flood hazards are undetermined but possible.

With the past, historic use of the site being agricultural production the existing, predominant on-site vegetation is irrigated crops of hay or small grains with some riparian vegetation and trees located along the irrigation ditch. Due to the past agricultural land uses, lack of any heavy cover and presence of urbanization in the immediate vicinity, the property is not considered a valuable wildlife habitat.

Social Conditions

The DNRC conducted a Class III cultural and paleontological resources inventory in 2007 of the area of potential effect (APE). No cultural or paleontological resources were documented in the area surveyed. However, one actively used, privately owned, irrigation ditch (Weaver Ditch) passes through the APE. This ditch has not been formally recorded or evaluated against the National Register significance and integrity criteria. The functional use of the Weaver Ditch will not be modified or disturbed with proposed future developments on the subject state parcel. No additional archaeological or paleontological investigative work will be conducted in response to the proposed development. The proposed project will have No Effect to Antiquities as defined under the Montana State Antiquities Act. A formal report of findings concerning the 2007 inventory work was prepared by

the DNRC. The DNRC subsequently consulted the Montana State Historic Preservation Officer (SHPO), and the SHPO concurred with the DNRC's finding and recommendations per the mandates of the Montana State Antiquities Act.

A concrete ready-mix plant is located at the intersection of Amsterdam and Thorpe Roads, which may contribute noise or dust; there are no other adjacent uses that create glares or fumes near the project area.

Emergency services, including ambulance, police and fire protection are readily and immediately available from the City of Belgrade. Educational facilities (kindergarten through 12th grade) will be provided by the Belgrade School District.

III EXISTING INFRASTRUCTURE

Research was conducted with the various utility providers and the applicable utilities to serve development on the property are shown on the Utility Map in Appendix C and are described as follows.

A. Water Supply

City of Belgrade municipal eight (8) inch diameter water distribution mains are located in the northeast portion of the property, immediately adjacent to the property between Amsterdam Road and Thunder Road in addition to being located within Thunder Road and along Amsterdam Road. A larger, ten (10) inch diameter water main is located along the west side of Jackrabbit Lane.

B. Wastewater Disposal

City of Belgrade municipal twelve (12) inch diameter gravity wastewater collection mains are located in the northeast portion of the property, immediately adjacent to the property between Amsterdam Road and Thunder Road. The gravity mains convey wastewater to a lift station located along Amsterdam Road immediately adjacent to the northeast portion of the property.

C. Stormwater Management

There are no regional stormwater management facilities in the area, any development contributing additional stormwater runoff will need to be managed onsite in accordance with the City of Belgrade or Montana Department of Environmental Quality requirements.

D. Electrical Power

Northwestern Energy owns and maintains existing overhead, high voltage electrical power distribution utilities located immediately around the perimeter of

the property along Frank Road on the south, Thorpe Road on the west, and along Amsterdam Road on the north.

E. Natural Gas

Northwestern Energy owns and maintains existing natural gas utilities located immediately around the perimeter of the property, being two (2) inch diameter gas mains along Frank Road on the south, Thorpe Road on the west, and along a portion of Amsterdam Road on the north.

F. Communications

Centurylink owns and maintains existing communication utilities located immediately around the perimeter of the property, being copper cabling along Frank Road on the south, Thorpe Road on the west, and along Amsterdam Road on the north. In addition, Centurylink provides fiber optic cable along Jackrabbit Lane with connection point at existing pedestals as shown on the Utility Map.

IV POTENTIAL DEVELOPMENT PHASING

A. Phased Development Plan

Land development projects are typically phased for cost considerations based on market demand, traffic volumes with access, and availability of infrastructure. Based on the site characteristics, a recommended Phased Development Plan for land use is included in Appendix D.

Traffic becomes a major generator in the market demand and development potential. With the immediate access to Interstate 90, and the large traffic volumes on Amsterdam Road due to nearby high density residential use, commercial emphasis development is logical along the Amsterdam Road frontage. The remaining portion of the property may be better suited for residential development due to local housing shortages in the greater Bozeman area and a waning national demand for commercial or retail development. An option for residential development and a means to provide affordable housing may be additional mobile homes consistent with the adjacent development to the southeast of this project.

The main access point to the project will be the existing intersection with the Interstate 90 off ramp and Amsterdam Road which is currently signalized and has provisions for legal and physical access to the property. Additional access points for internal street connectivity are shown based on existing platted streets or public access easements.

Water and sewer infrastructure availability and costs are typically the primary utilities impacting development. City of Belgrade municipal water distribution and

wastewater collection mains are located immediately adjacent to the property allowing efficient connection to city services. Commercial development lends itself to municipal services due to the need for fire suppression provisions.

B. Infrastructure Plan Utilizing City of Belgrade Water and Sanitary Sewer

Connection to an existing public water supply will entail extending water distribution mains to serve the property. Connection to an existing public wastewater system will require wastewater collection gravity mains and possibly a wastewater pumping station and force main providing connection.

State of Montana regulations stipulate a connection to an existing public system within 500 feet unless the connection is demonstrated to be physically or economically impractical.

The City of Belgrade has indicated a strong desire to serve this property with immediate available water and wastewater infrastructure. Connection to municipal water mains will aid in the City's overall water distribution by increasing use from a nearby elevated water storage tank thus increasing water turnover and minimizing stagnation. Additionally, a limited amount of remaining wastewater capacity is available in the lift station located immediately adjacent to the property. Due to the existing lift station capacity limitation and site topography, an additional lift station will likely be needed in the northwest corner of the property to allow gravity conveyance and capacity for complete property development.

An Initial Phase Development Plan is included in Appendix E. This plan shows a potential street network with corresponding water and wastewater infrastructure necessary for one (1) acre lots suitable for commercial emphasis development which is consistent with the adjacent development. Due to the size of this property, it may be desirable to further reduce an initial phase as designated by Phase 1A and Phase 1B. With the immediate availability of municipal water and wastewater, Phase 1A can be developed to minimize expenses and allow immediate development which will create an income stream that will facilitate further development. Phase 1A will be limited by the available capacity in the existing lift station and topography that will allow gravity sewer main extensions.

Opinion of probable construction costs have been prepared and are included in Appendix F and G for the Initial Phases 1A and 1B and are summarized below.

<u>Description</u>	<u>Probable Cost</u>
Phase 1A	\$2.5 million
Phase 1B	\$8 million

Review of the probable costs opinions yields a significant cost difference, hence a recommendation for pursuing the Phase 1A development. Phase 1A can be developed with a much lower initial cost and provide immediate marketable lots and revenues for financing further project development.

C. Infrastructure Plan Utilizing Private Water and Sanitary Sewer

Private water and wastewater systems to serve this project will be public systems defined by the State which will serve 25 or more persons a day for 60 days or more within a year. Public systems are required to be designed and constructed to certain standards to ensure public health and human safety.

A new public water system would consist of water supply wells for a groundwater source and include storage tanks and a treatment system. Reviews of well logs in the area indicate an adequate availability of water quantity for domestic purposes. However, the need to acquire or modify water rights in addition to satisfying large fire demand requirements can be problematic for smaller public systems.

A new public wastewater system for wastewater treatment and disposal would consist of lagoons, septic tanks or other modern facilities for treatment with either land surface or subsurface disposal. The method of disposal typically becomes the controlling factor for on-site wastewater systems. Permit limits for discharge to surface waters are very stringent, land application requires sizable land areas that will limit the extent of on-site development and development in the immediate area prohibits access to land area in the vicinity.

VI CONCLUSIONS AND RECOMMENDATIONS

Due to the proximity of existing public water and wastewater systems with available capacity, connection to the City of Belgrade is recommended. Further, due to regulatory requirements, prohibitive construction costs, and size or capacity limitations, private water or wastewater systems are not recommended for any intensive land development on the property.

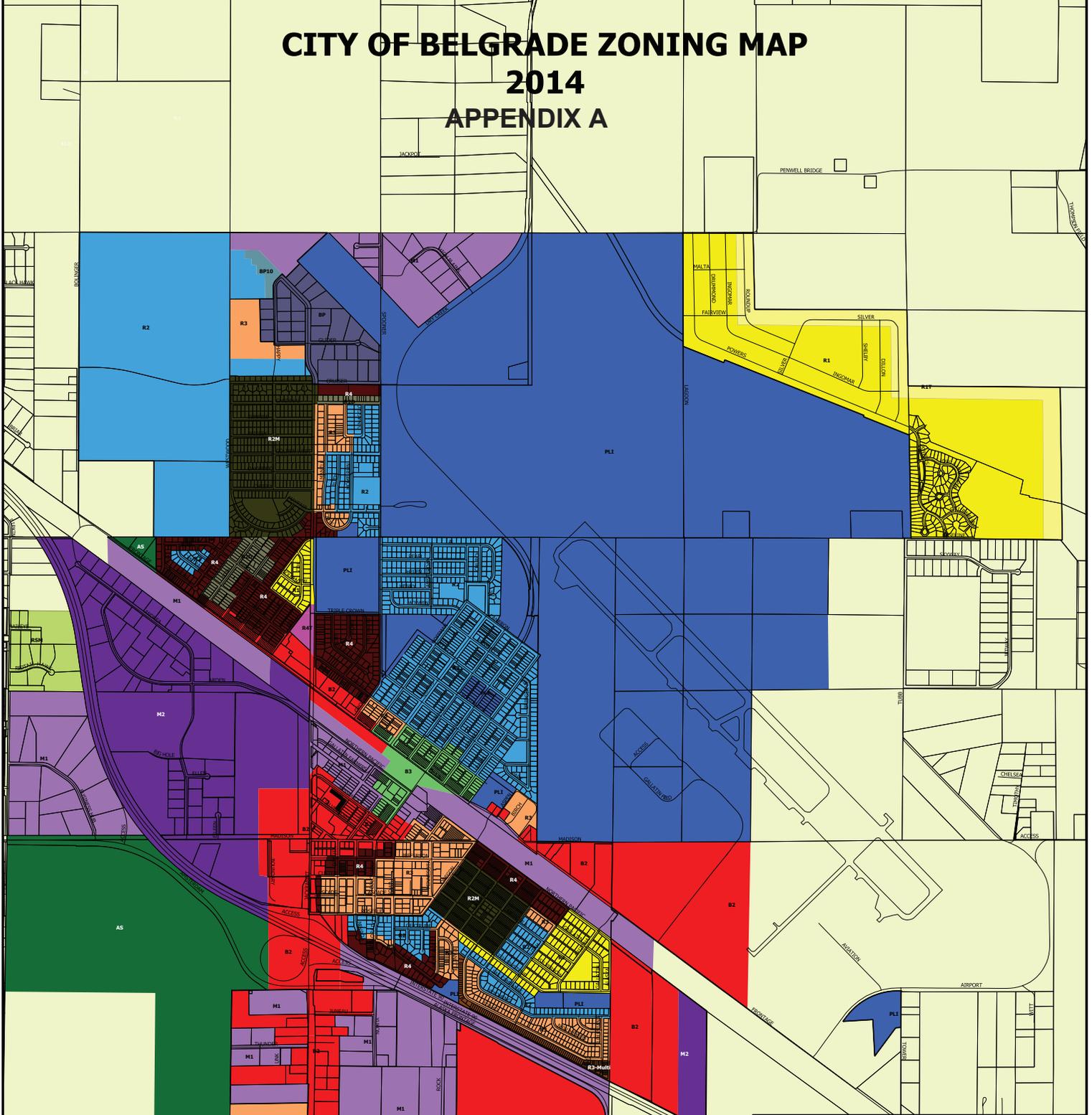
Further development of the property will include annexation into the City of Belgrade with zone changes to allow commercial and higher density residential development. Pursuing a subdivision on the property will allow for dedication of public streets and creating individual lots for marketing and selling.

Standard due diligence procedures for land development projects include conducting an environmental assessment, performing a land title survey with topographic and boundary information, and preparing a geotechnical analysis.

CITY OF BELGRADE ZONING MAP

2014

APPENDIX A



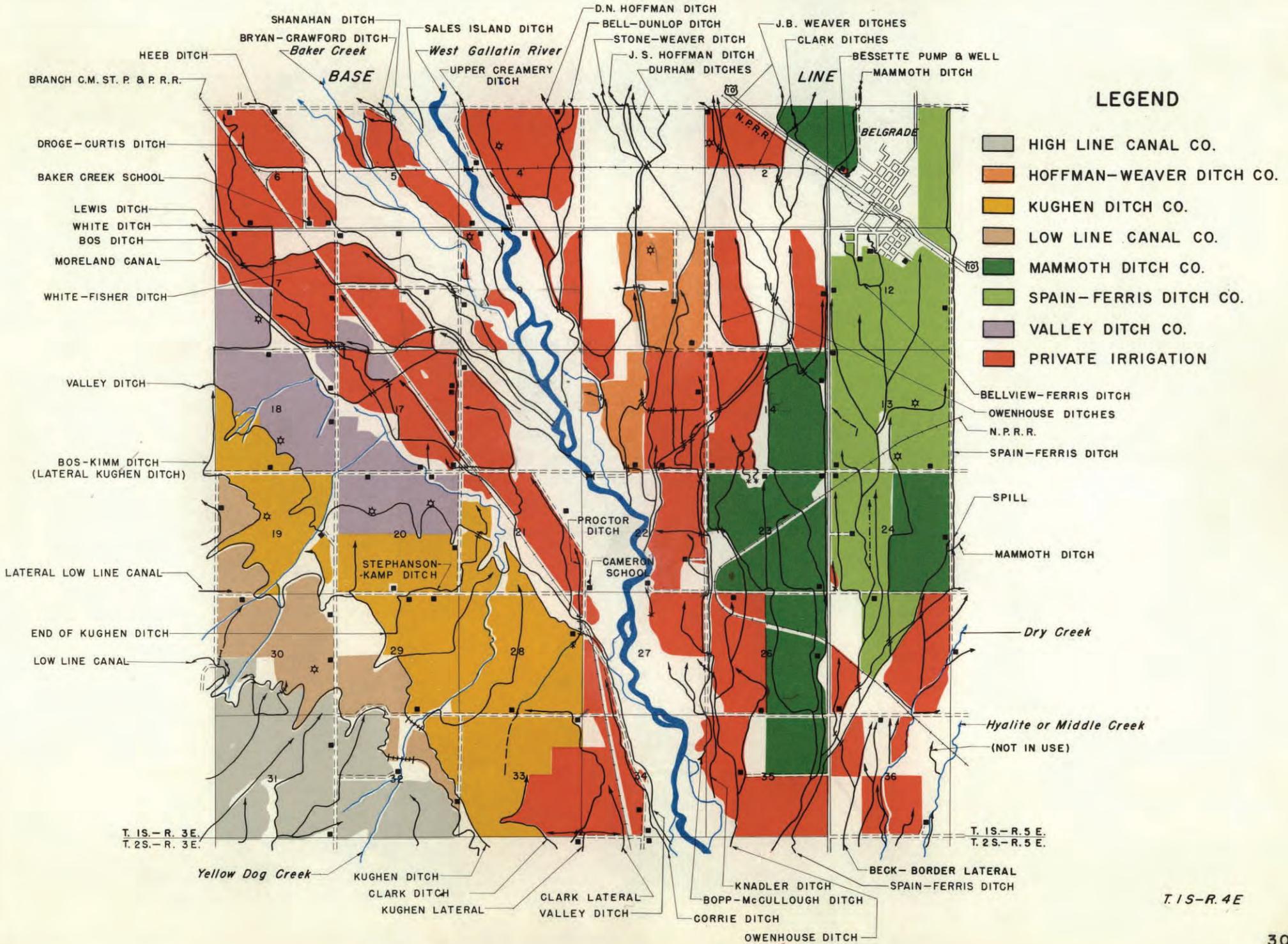
- Legend**
- Airport Runways
 - Belgrade City Limit
 - Roads
 - ▭ Parcels
 - ▭ Gallatin County
 - ▭ AS- Agricultural Suburban District
 - ▭ BP- Business Park
 - ▭ BP10- Business Park
 - ▭ B2- Highway Business District
 - ▭ B3- Central Business District
 - ▭ M1- Commercial Light Manufacturing District
 - ▭ M2- Manufacturing and Industrial
 - ▭ PL1- Public Lands and Institution
 - ▭ R1- Residential Single Family
 - ▭ R1T- Residential Transitional District
 - ▭ R2- Residential Single Family District Medium Density
 - ▭ R2D- Residential One and Two Family
 - ▭ R2M - Residential Single Family and Manufactured Homes
 - ▭ R3- Residential Medium Density District
 - ▭ R4- Residential Multi-Family District
 - ▭ R4T- Residential Transitional District
 - ▭ RSM- Residential Suburban Manufactured

This is to certify that this is an Official Zoning Map referred to in section 10-3-9 of the Official Code of the City of Belgrade, Montana.

MAYOR _____
 ATTESTED _____
 DATE _____

Author: Belgrade Planning Staff
 Base map source: Gallatin County GIS
 Date: February 2014

SCALE 1:6500

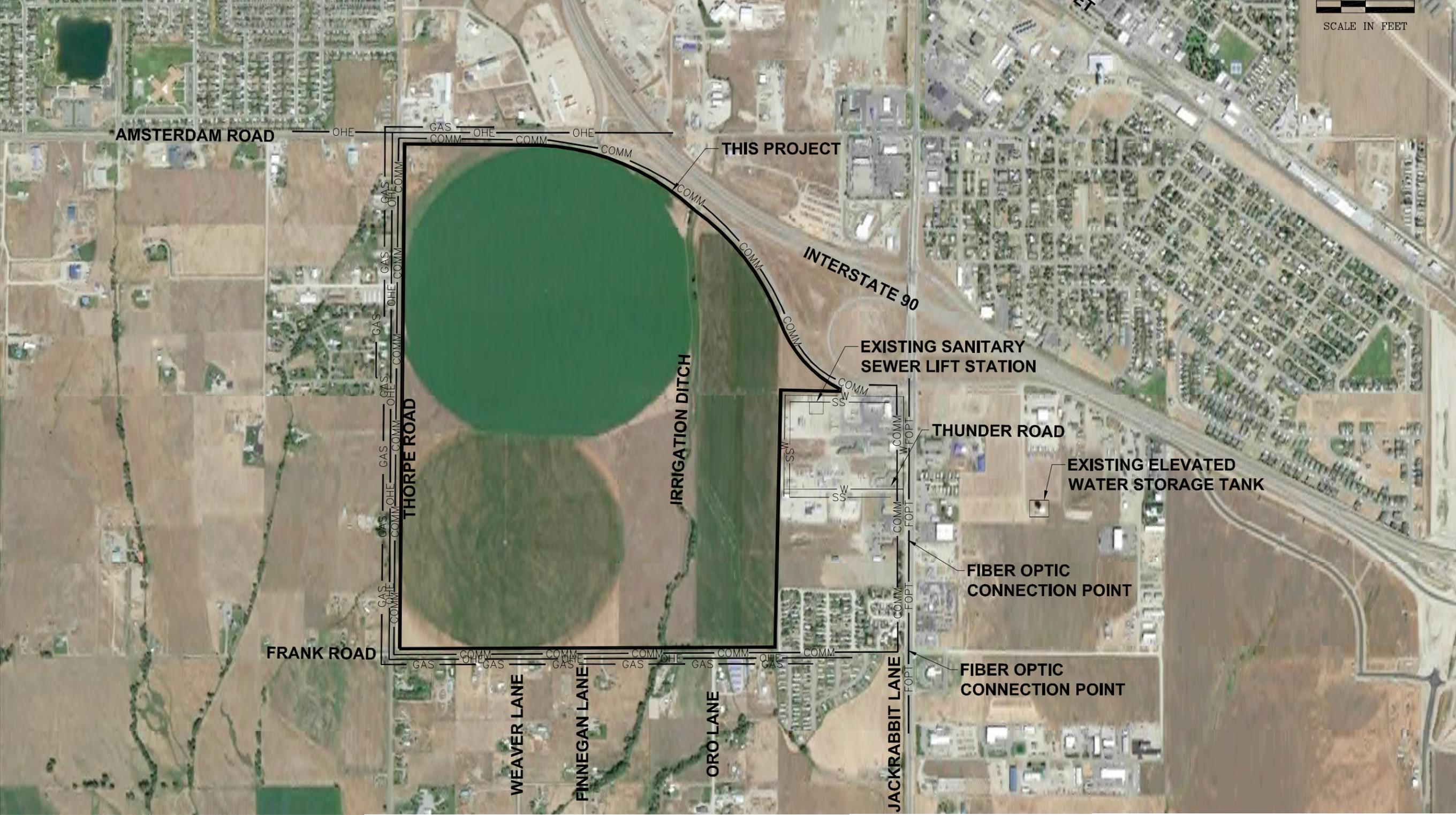


LEGEND

- HIGH LINE CANAL CO.
- HOFFMAN-WEAVER DITCH CO.
- KUGHEN DITCH CO.
- LOW LINE CANAL CO.
- MAMMOTH DITCH CO.
- SPAIN-FERRIS DITCH CO.
- VALLEY DITCH CO.
- PRIVATE IRRIGATION

T. 1S.-R. 4E

LEGEND	
UNDERGROUND COMMUNICATION	COMM
UNDERGROUND NATURAL GAS	GAS
UNDERGROUND FIBER OPTIC	FOPT
OVERHEAD ELECTRICAL	OHE
WATER MAIN	W
SANITARY SEWER MAIN	SS



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ISSUE/REVISION

No.	DATE	BY
1	11-6-17	ALS

DESCRIPTION

FEASIBILITY STUDY		
No.	DATE	BY
2		

DESCRIPTION

No.	DATE	BY
3		

DESCRIPTION

No.	DATE	BY
4		

DESCRIPTION

No.	DATE	BY
5		

DESCRIPTION

PRELIMINARY
 NOT FOR CONSTRUCTION

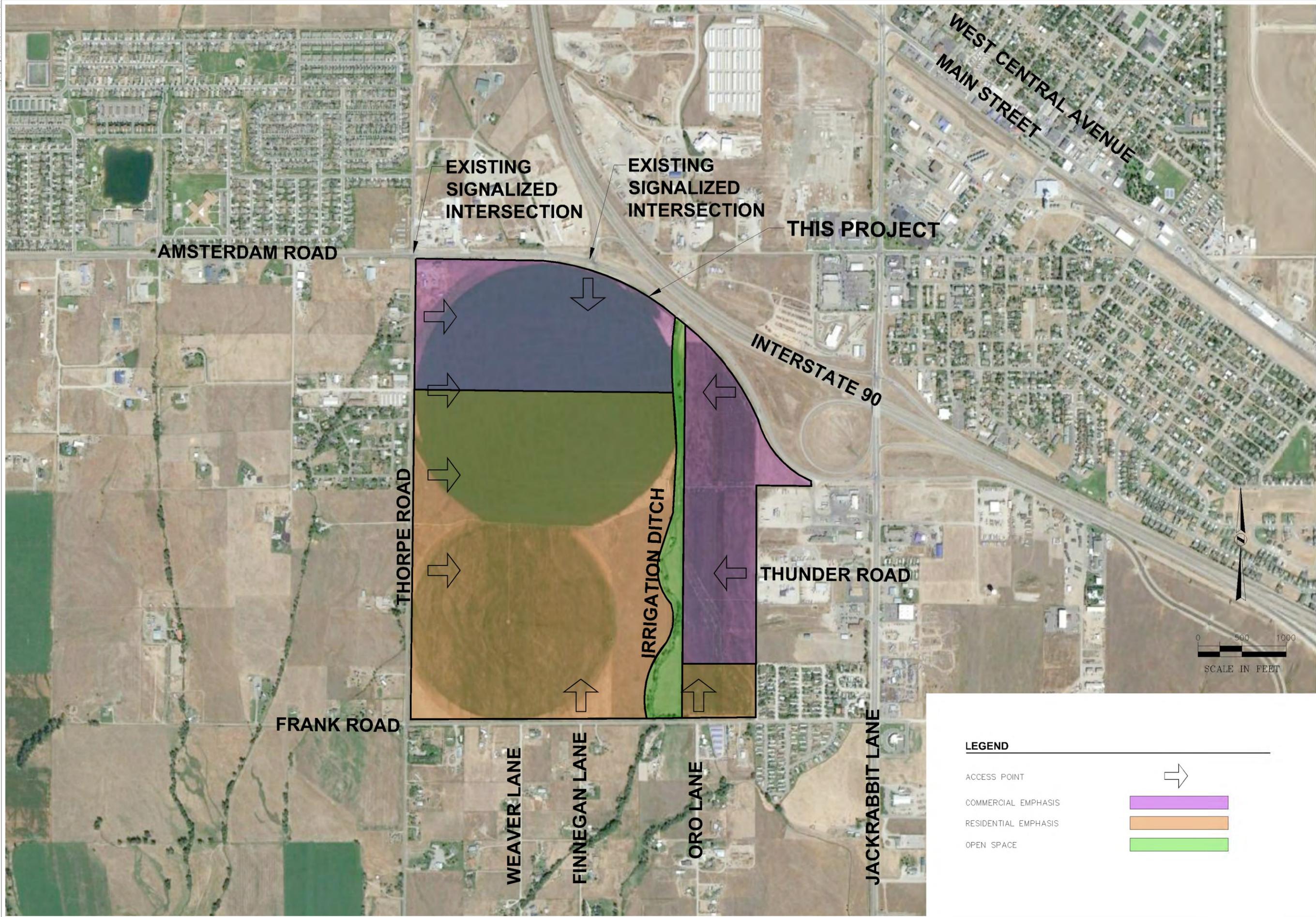
UTILITY MAP

AMSTERDAM ROAD PROPERTY

BELGRADE, MT

DESIGNED: GDW
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 DATE: 12/6/2017

SHEET
APPENDIX C



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FEASIBILITY STUDY

No.	DATE	BY
2		

DESCRIPTION

No.	DATE	BY
3		

DESCRIPTION

No.	DATE	BY
4		

DESCRIPTION

No.	DATE	BY
5		

DESCRIPTION

PRELIMINARY
 NOT FOR CONSTRUCTION

OVERALL PHASE DEVELOPMENT PLAN

AMSTERDAM ROAD PROPERTY

BELGRADE, MT

DESIGNED: GDW
 DRAWN: ALS
 CHECKED: GDW
 DATE: 12/20/2017

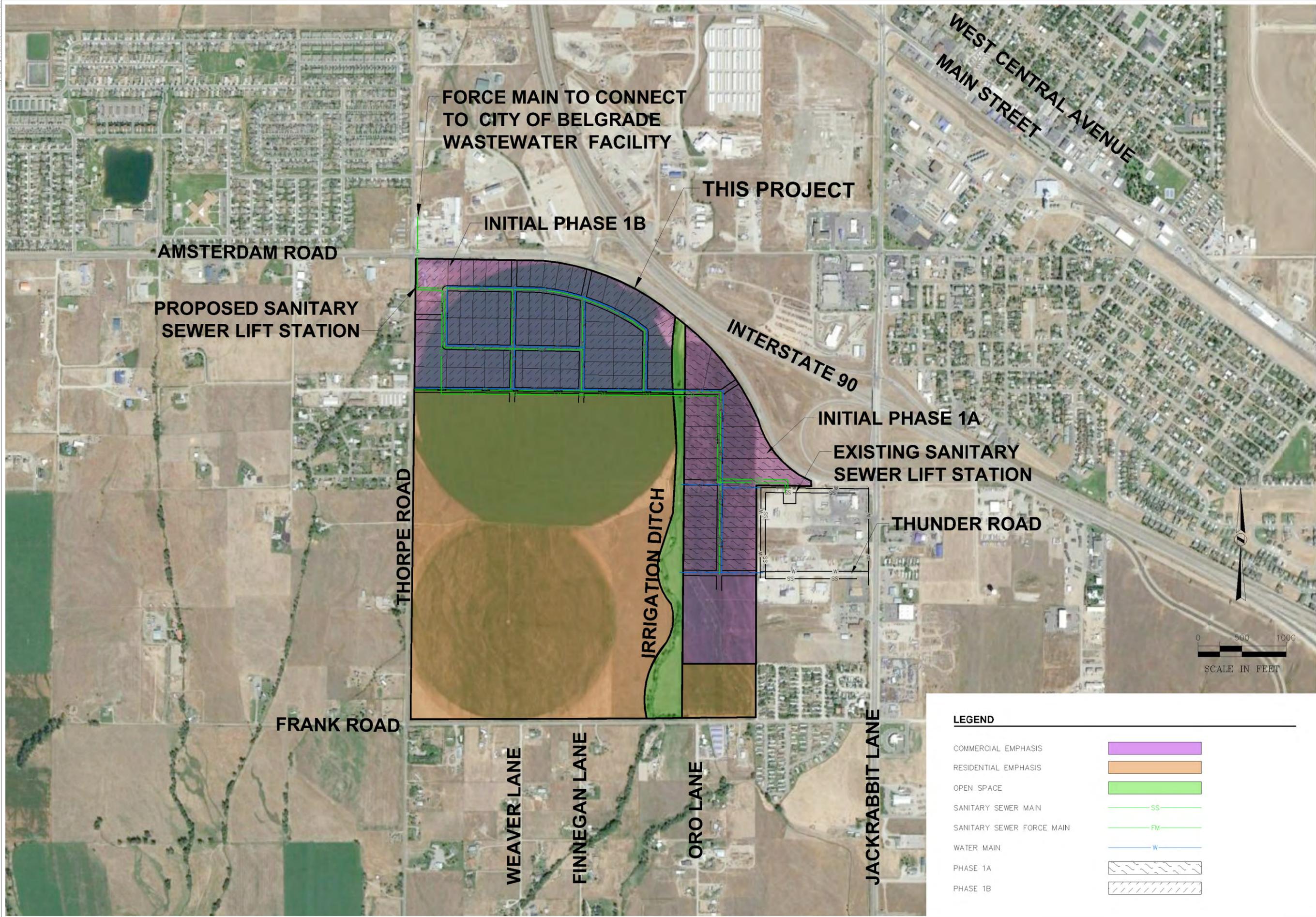
SHEET

APPENDIX D

LEGEND

- ACCESS POINT
- COMMERCIAL EMPHASIS
- RESIDENTIAL EMPHASIS
- OPEN SPACE





LEGEND

COMMERCIAL EMPHASIS	
RESIDENTIAL EMPHASIS	
OPEN SPACE	
SANITARY SEWER MAIN	
SANITARY SEWER FORCE MAIN	
WATER MAIN	
PHASE 1A	
PHASE 1B	



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ISSUE/REVISION

No.	DATE	BY
1	12-20-17	ALS

FEASIBILITY STUDY

No.	DATE	BY
2		

DESCRIPTION

No.	DATE	BY
3		

DESCRIPTION

No.	DATE	BY
4		

DESCRIPTION

No.	DATE	BY
5		

DESCRIPTION

PRELIMINARY
 NOT FOR CONSTRUCTION

INITIAL PHASE DEVELOPMENT PLAN

AMSTERDAM ROAD PROPERTY

BELGRADE, MT

DESIGNED: GDW
 DRAWN: ALS
 CHECKED: GDW
 DATE: 12/20/2017

SHEET
APPENDIX E



APPENDIX F

OPINION OF PROBABLE CONSTRUCTION COST

PROJECT: DNRC - Amsterdam Road Property - Initial Phase 1A
 SEA PROJECT No: 0492-01417
 DATE: December 2017

STREET IMPROVEMENTS

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Internal Streets	Linear Feet	4,000	\$250	\$1,000,000
SUBTOTAL					\$1,000,000

WATER MAIN

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Water Main	Linear Feet	4,500	\$100	\$450,000
SUBTOTAL					\$450,000

SANITARY SEWER MAIN

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Gravity Main	Linear Feet	3,500	\$100	\$350,000
SUBTOTAL					\$350,000

STORM

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Storm Drain Inlet	Each	15	\$5,000	\$75,000
SUBTOTAL					\$75,000

Total Construction Cost	\$1,875,000
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General Requirements (Contingency, Insurance, Etc.)	25% Total Construction Cost	\$468,750
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Total Cost	\$2,343,750
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APPENDIX G

OPINION OF PROBABLE CONSTRUCTION COST

PROJECT: DNRC - Amsterdam Road Property - Initial Phase 1B
SEA PROJECT No: 0492-01417
DATE: December 2017

STREET IMPROVEMENTS

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Signal Modification	Each	2	\$250,000	\$500,000
2	Internal Streets	Linear Feet	11,000	\$250	\$2,750,000
3	Thorpe Road with Turn Lane	Linear Feet	300	\$100	\$30,000
SUBTOTAL					\$3,280,000

WATER MAIN

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Water Main	Linear Feet	10,500	\$100	\$1,050,000
SUBTOTAL					\$1,050,000

SANITARY SEWER MAIN

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Gravity Main	Linear Feet	10,500	\$100	\$1,050,000
2	Force Main	Linear Feet	7,000	\$50	\$350,000
3	Lift Station	Lump Sum	1	\$300,000	\$300,000
SUBTOTAL					\$1,700,000

STORM

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	Storm Drain Inlet	Each	50	\$5,000	\$250,000
2	Irrigation Ditch Crossing	Linear Feet	150	\$120	\$18,000
SUBTOTAL					\$268,000

Total Construction Cost	\$6,298,000
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General Requirements (Contingency, Insurance, Etc.)	25% Total Construction Cost	\$1,574,500
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Total Cost	\$7,872,500
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