

Sheridan West Side Corridor Report

for

City of Sheridan
Sheridan, Wyoming

January 30, 2008



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West Corridor Draft Report

January 2008

The City of Sheridan hired Vista West Engineering to determine a profile and alignment for the West Corridor from Loucks Street (Big Goose Highway) northerly toward Interstate 90. The purpose of this project is to begin establishing a corridor for a new roadway.

The criteria for the alignment was established by the City of Sheridan. The alignment was also determined by conducting meetings and visiting with the existing landowners. This section of roadway passes through private property for the entire length, so it was very important to visit with these property owners to help determine the best location that would also cause the least disruption. In some cases, where there was a conflict between landowners, engineering judgment was used to determine the best route.

Design Criteria:

- Design Speed 55 mph
- Posted Speed 45 mph
- Roadway Classification Arterial
- Type of Terrain Rolling/Level
- Number of Lanes 2
- Lane Width 12 feet
- Shoulder Width 8 feet
- Right of Way Width 120 feet
- Access Control limited, ¼ mile
- Pathway Detached

For discussion purposes, the roadway was broken into three schedules, starting on the south end and proceeding north. The schedules are not shown to determine the order of construction sequencing. This will need to be determined by the City of Sheridan in conjunction with the development occurring within each schedule. The limits can also be changed to accommodate a particular need by the developer and/or the City of Sheridan.

- Schedule I (Loucks Street to 5th Street)
- Schedule II (5th Street to 17th Street)
- Schedule III (17th Street to I-90)

Schedule I (Loucks Street to 5th Street)

This area begins by tying into Loucks Street and proceeding north. The designated area for tying into Loucks Street was determined by property ownership as well as continuation of the roadway to the south. The property owners, John and Erin Quarterman, notified us that they have divided up a portion of their land into 2 acre parcels. This area is directly east of the tie-in point and was specifically avoided due to having a significant increase in landowners to deal with in purchasing the land. Depending on the specific alignment, the area may not be completely eliminated but should be minimized.

The option that we looked at was a flat grade at this intersection with some room for stopping. This, along with a 6% roadway profile, creates a very deep cut through the first portion of this area going to Gillespie Draw. This could cause some snow drifting potential and should be addressed during the design. One other option may be to elevate the new roadway at Loucks Street and create an overpass with one structure spanning the roadway and the creek. This may be more costly, but would significantly decrease the amount of cut needed through the hill going to the north.

Depending on the amount of cut throughout this first portion of the roadway, construction permits will be needed, as well as right-of-way acquisition. Additional land outside of the right-of-way may need to be purchased if the cut slopes leave the land unusable.

The Gillespie Draw will require a significant drainage structure. There are a few options that range from a large box culvert in the bottom of the draw (then placing embankment/fill up to the roadway elevation) to a 700' bridge spanning across the draw. After consulting with our structural consultant, it would appear that the best option is a 3-span structure, which would be a good fit in this area. It will keep the costs down compared to a longer span and also allow for wildlife crossings in the bottom of the draw and provide adequate hydraulic capacity.

North of the draw is relatively flat/rolling terrain and is easily traversed with a number of roadway options. After working with the property owner, we have incorporated an alignment that fits within the masterplan developed for this area. Two box culverts have been incorporated into the roadway for drainage purposes as well as crossings under the beltway.

The tie-in point for 5th street is fairly easy as the grades are relatively flat in this area.

Schedule II (5th Street to 17th Street)

The southern portion of this area is very flat and will be easy to establish an alignment. As the roadway proceeds north and drops off the hill toward Soldier Creek, the alignment and profile are very challenging. A large cut is needed to achieve a 7% grade and maintain the design speed. This will also create snow drifting potential. To achieve the design speed, the curve in the bottom of the draw creates some fill throughout the bottom. To lower the fill would require more cut. This will need to be looked at in more detail once the design is underway. This will also lead to some challenging access points throughout this area. This area is being developed, but nothing has been finalized at this point to determine the exact locations of the accesses.

Schedule III (17th Street to I-90)

As stated above, there is some fill required across Soldier Creek, as the current profile shows. As the roadway proceeds north, the property owners would like the roadway to stay along the property lines without proceeding too far to the east. This presents challenges with the existing terrain along this area. The roadway needs to stay along the western half of the section at the top of the hill, but needs to be looked at in more detail during the design process. As the roadway proceeds north toward I-90, it will follow the layout already completed by the current property owner. This alignment will terminate at the intersection proposed by the landowner. This schedule will not include an intersection for Interstate 90.

Extending the Project both North and South

A meeting was held with the City of Sheridan and Sheridan County. Vista West Engineering was asked to extend the limits of this project to the south to determine if the roadway could be extended. As the profile and alignment were extended, the roadway would need to cross Big Goose Creek, requiring a structure. Once across the creek, the roadway would then cross a large open area and then traverse up a large hillside to a point where it could tie into Upper Road. Enough work was completed to verify that this would be possible. Depending on the criteria used for this hillside, three different options utilizing different design speeds were reviewed and determined to be feasible. Once on top of the hillside, the connection with Upper Road is easily achieved. Houses are being constructed on the south side of Goose Creek and will need to be looked at during the design process to select an appropriate alignment.

The limit of the project on the north end is Interstate 90. A discussion was held with WYDOT regarding an interchange. The comments received stated that an interchange could be built in this area as long as it was at least one mile from the current north Sheridan interchange. Although this interchange is not in the current STIP, the continued planning of the new roadway needs to be coordinated with WYDOT to assist them in their planning for a new interchange. The plan may not need a second interchange and the roadway could continue parallel with Interstate 90 to the east and tie into the new interchange planned on the Decker Highway.

Surveying , Geotechnical Investigations and Environmental

No surveying was completed as part of the report. The surveying will need to be done to define the current property owners as well as the limits of the acquisition needed for this project to construct the roadway.

No geotechnical investigations were completed as part of this report. The large draws/ravines that we are crossing have signs of significant slides very close to the areas where we are proposing the new alignment. The geotechnical recommendations could have a significant impact on the overall design and cost of this project but this will not be known until the design has begun.

No environmental considerations were taken into account for this report. This would also be done during the design and may impact the alignment that is currently shown.

Earthwork

There is a substantial amount of earthwork in schedules I and II with the preliminary layout. This is a substantial portion of the cost. During the design, a very detailed look at the grade requirements, intersection elevations and other alternatives need to be evaluated to minimize this excavation quantity. This would also be a task assigned to the geotechnical engineer to help determine options to minimize the earthwork. The backslopes have been set at a 2:1, as requested by the City of Sheridan for this preliminary layout. During the design, the geotechnical report will give the guidelines for backslope requirements in the cut and fill areas.

The large cut volume in both schedules is mostly waste material. With the preliminary profile and alignment, we are generating approximately 1.15 million cubic yards of excavation while only needing 230,000 cubic yards of fill. A location for the waste material has not been determined but would need to be done during the design.

Construction Permits

Construction permits will be needed once the project proceeds into design. The large cuts and fills that we are showing with the preliminary alignment will fall outside the 120' ROW. The design speeds and grades could be changed to minimize the limits of the construction permits during the design process.

Snow Drifting

The large cuts within the project limits have definite snow drifting potential. It would be crucial during the design process that this be looked at and minimized as much as possible with some design changes or possibly some snow fence on the upwind sides of the cuts.

Cost Estimates

The preliminary cost estimates for each schedule are shown below. The costs reflect our preliminary alignment and profile. Each schedule has a 20% contingency added as well as 15% design and construction administration. No land acquisition is included.

Schedule I -	\$10,509,100
Schedule II-	\$ 6,907,000
Schedule III-	\$ 5,383,300
Total	\$22,799,400

Utilities

There was no utility design or recommendations included as a part of this report. Utilities will be dependent on the development that is proceeding within that particular area or requirements by the City of Sheridan or Sheridan County. This will need to be developed further during the design process. Utility companies should also be contacted regarding gas, electric, phone and television so they can make the determination if they would like a utility corridor established within the new roadway.

Future Widening

The possibility of widening the roadway in the future needs to be taken into account during the design process. As the earthwork is being completed, especially in the deep cut areas, the decision needs to be made if widening the cut area needs to be done to allow for future roadway widening. The structures should also be looked at so they will function with a possible wider roadway section. The current roadway could be built offset of center to allow widening to occur and plan for the widening in the correct direction.

Conclusion

The roadway can be built within the limits shown. It can also be extended both north and south to the limits identified within the report. The challenges presented for this roadway will be land acquisition, roadway profile to minimize snow drifting, structures, possible geotechnical limitations and coordination with adjacent landowners regarding access points.

The schedules are shown as an initial way to divide up the project and not meant to determine the order in which the roadway is to be built.

Timing will also be very critical as the first portion of the project crosses land owned by the Quartermans and this property is for sale. It is unknown what would happen if the land was sold and the new owner objected to the project. Development is also occurring throughout the entire length of the project and defining the corridor is very important to assist the developers and also work with them during their development.

Property Owners

John A & Erin E Quarterman,
Co-Trustees
940 Beckton Ave
Sheridan, WY 82801

Don Roberts
System Land, LLC
940 Beckton Avenue
Sheridan, WY 82801

North Piney Group
W5, L L C
547 Kailua Pl
Sheridan, WY 82801

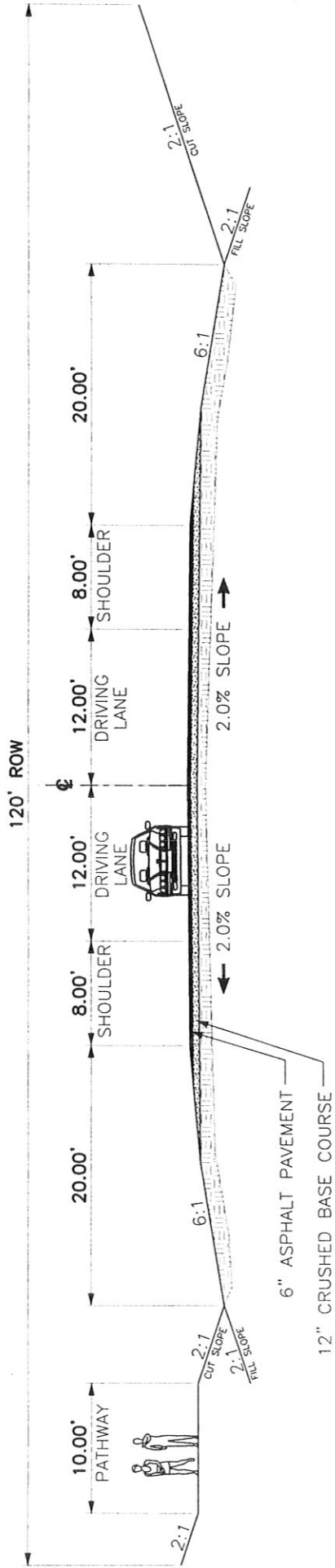
W J Pilch Family, LLC
PO Box 6498
Sheridan, WY 82801

Ron Patterson
Holly Ponds LLC
PO Box 6793
Sheridan, WY 82801

Elmer Milton Mydland
Mervin Jordan Mydland
9514 Powderhouse Rd
Cheyenne, WY 82009-8615

Leatha M Traphagan
2809 W 17th St
Sheridan, WY 82801

John E Rice & Sons, Inc.
247 Decker Rd
Sheridan, WY 82801



WEST SIDE CORRIDOR TYPICAL SECTION

NOTE: UTILITIES ARE NOT CONSIDERED AT THIS TIME AND ARE ALSO NOT INCLUDED IN THE COST ESTIMATE.

January 28, 2008
West Side Corridor
Schedule I (Loucks St. to 5th St.)
Opinion of Probable Cost

Bid Item	Description	Est. Quantity	Unit	Unit Price	Total Price
01400-10100	Quality Control Testing	1	LS	\$132,400.00	\$132,400.00
02000-10100	Mobilization and Bonding	1	LS	\$662,200.00	\$662,200.00
02060-10100	Temporary Traffic Control	1	LS	\$198,700.00	\$198,700.00
02450-10200	Unclassified Excavation	410000	CY	\$4.00	\$1,640,000.00
02450-20110	Subgrade Preparation - 10" (Roadway)	55274	SY	\$4.00	\$221,095.00
02450-20110	Subgrade Preparation - 10" (Bike Path)	8774	SY	\$4.00	\$35,094.44
02450-30100	Excavation Below Subgrade	2764	CY	\$25.00	\$69,092.19
02480-20200	Seeding and Mulching	15	AC	\$3,000.00	\$45,000.00
02519-10100	Crushed Aggregate Base Course (Roadway)	15178	CY	\$50.00	\$758,898.15
02519-10100	Crushed Aggregate Base Course (Bike Path)	1462	CY	\$50.00	\$73,113.43
02525-10100	Plant Mix Bituminous Pavement (Roadway)	12385	TON	\$55.00	\$681,193.36
02525-10100	Plant Mix Bituminous Pavement (Bike Path)	1461	TON	\$55.00	\$80,344.34
	Asphalt Approach	1507	SY	\$40.00	\$60,288.00
02605-10200	Sign Post Anchor Installation	6	EA	\$175.00	\$1,050.00
02800-00018	18" CMP	264	LF	\$50.00	\$13,200.00
02895-10100	Geotextile Separation Fabric (Roadway)	50887	SY	\$2.00	\$101,773.89
02895-10100	Geotextile Separation Fabric (Bike Path)	8774	SY	\$2.00	\$17,547.22
03030-20230	Concrete Curb Turn Fillet - 30' Radius	4	EA	\$1,850.00	\$7,400.00
03040-10108	Concrete Pavement - 8"	533	SY	\$50.00	\$26,666.67
	Major Drainage Structure - Bridge	1	LS	\$2,250,000.00	\$2,250,000.00
	Major Drainage Structure - Box Culvert	1	LS	\$225,000.00	\$225,000.00
	Minor Drainage Structure - Box Culvert	2	EA	\$150,000.00	\$300,000.00
16010-02000	Roadway Lighting System	1	LS	\$15,000.00	\$15,000.00
SUB-TOTAL SCHEDULE I					\$7,615,056.68
20% contingency					\$1,523,000.00
Subtotal					\$9,138,056.68
15% Engineering (Design and CA)					\$1,371,000.00
Total					\$10,509,100.00

Assumptions:

- 1) Unclassified Excavation quantity obtained from cross-sections.
- 2) Excavation Below Subgrade - assumed 15% of Subgrade Preparation area at 1' deep.
- 3) Seeding and Mulching - assumed 40' wide on both sides of roadway.
- 4) Crushed Aggregate Base Course (Roadway) - assumed 12" thickness under asphalt pavement and 10" thickness under concrete pavement.
- 5) Crushed Aggregate Base Course (Bike Path) - assumed 6" thickness under bike path.
- 6) Plant Mix Bituminous Pavement (Roadway) - assumed 6" thick and 148.0 lb/CF. Assumed two 12' driving lanes and two 8' shoulders. Assumed 8' wide asphalt shoulders through concrete pavement areas, also.
- 7) Plant Mix Bituminous Pavement (Bike Path) - assumed 3" thick and 148.0 lb/CF.
- 8) Asphalt Approach - With drainage pipe (18" CMP). See plan for locations.
- 9) 18" CMP - assumed 44' long per approach.
- 10) Concrete Curb Turn Fillet - 30' Radius - assumed four at each intersection.
- 11) Concrete Pavement - 8" - assumed 100' length on both sides of each intersection.

January 28, 2008
West Side Corridor
Schedule II (5th St. to 17th St.)
Opinion of Probable Cost

Bid Item	Description	Est. Quantity	Unit	Unit Price	Total Price
01400-10100	Quality Control Testing	1	LS	\$87,000.00	\$87,000.00
02000-10100	Mobilization and Bonding	1	LS	\$435,200.00	\$435,200.00
02060-10100	Temporary Traffic Control	1	LS	\$130,600.00	\$130,600.00
02450-10200	Unclassified Excavation	685000	CY	\$4.00	\$2,740,000.00
02450-20110	Subgrade Preparation - 10" (Roadway)	40257	SY	\$4.00	\$161,028.00
02450-20110	Subgrade Preparation - 10" (Bike Path)	6390	SY	\$4.00	\$25,560.00
02450-30100	Excavation Below Subgrade	2013	CY	\$25.00	\$50,321.25
02480-20200	Seeding and Mulching	11	AC	\$3,000.00	\$31,685.95
02519-10100	Crushed Aggregate Base Course (Roadway)	11046	CY	\$50.00	\$552,318.52
02519-10100	Crushed Aggregate Base Course (Bike Path)	1065	CY	\$50.00	\$53,250.00
02525-10100	Plant Mix Bituminous Pavement (Roadway)	8972	TON	\$55.00	\$493,473.26
02525-10100	Plant Mix Bituminous Pavement (Bike Path)	1064	TON	\$55.00	\$58,516.43
	Asphalt Approach	1005	SY	\$40.00	\$40,192.00
02605-10200	Sign Post Anchor Installation	6	EA	\$175.00	\$1,050.00
02800-00018	18" CMP	176	LF	\$50.00	\$8,800.00
02895-10100	Geotextile Separation Fabric (Roadway)	37062	SY	\$2.00	\$74,124.00
02895-10100	Geotextile Separation Fabric (Bike Path)	6390	SY	\$2.00	\$12,780.00
03030-20230	Concrete Curb Turn Fillet - 30' Radius	4	EA	\$1,850.00	\$7,400.00
3040-10108	Concrete Pavement - 8"	533	SY	\$50.00	\$26,666.67
16010-02000	Roadway Lighting System	1	LS	\$15,000.00	\$15,000.00

SUB-TOTAL SCHEDULE II \$5,004,966.07

20% contingency \$1,001,000.00

Subtotal \$6,005,966.07

15% Engineering (Design and CA) \$901,000.00

Total **\$6,907,000.00**

Assumptions:

- 1) Unclassified Excavation quantity obtained from cross-sections.
- 2) Excavation Below Subgrade - assumed 15% of Subgrade Preparation area at 1' deep.
- 3) Seeding and Mulching - assumed 40' wide on both sides of roadway.
- 4) Crushed Aggregate Base Course (Roadway) - assumed 12" thickness under asphalt pavement and 10" thickness under concrete pavement.
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- 8) Asphalt Approach - With drainage pipe (18" CMP). See plan for locations.
- 9) 18" CMP - assumed 44' long per approach.
- 10) Concrete Curb Turn Fillet - 30' Radius - assumed four at each intersection.
- 11) Concrete Pavement - 8" - assumed 100' length on both sides of each intersection.

January 28, 2008
West Side Corridor
Schedule III (17th St. to Intersection before I-90)
Opinion of Probable Cost

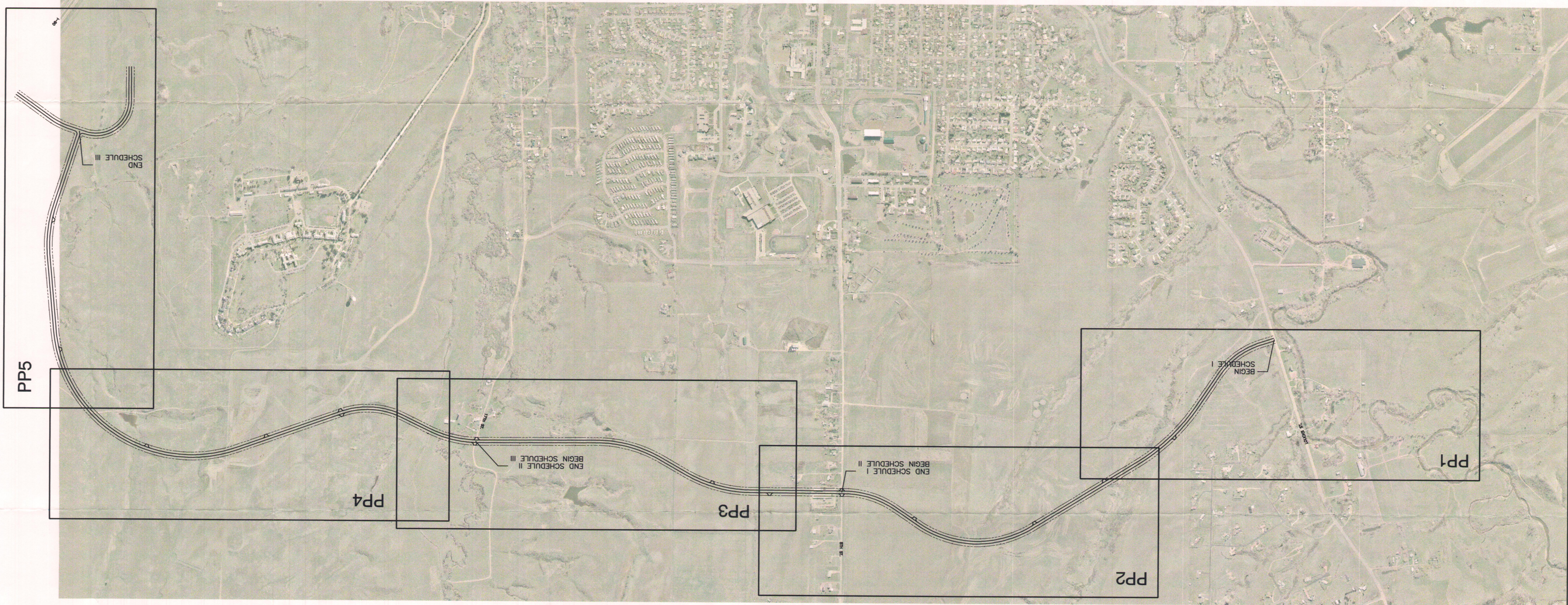
Bid Item	Description	Est. Quantity	Unit	Unit Price	Total Price
01400-10100	Quality Control Testing	1	LS	\$67,800.00	\$67,800.00
02000-10100	Mobilization and Bonding	1	LS	\$339,200.00	\$339,200.00
02060-10100	Temporary Traffic Control	1	LS	\$101,800.00	\$101,800.00
02450-10200	Unclassified Excavation	50000	CY	\$4.00	\$200,000.00
02450-20110	Subgrade Preparation - 10" (Roadway)	75404	SY	\$4.00	\$301,616.00
02450-20110	Subgrade Preparation - 10" (Bike Path)	11969	SY	\$4.00	\$47,875.56
02450-30100	Excavation Below Subgrade	3770	CY	\$25.00	\$94,255.00
02480-20200	Seeding and Mulching	20	AC	\$3,000.00	\$59,349.86
02519-10100	Crushed Aggregate Base Course (Roadway)	20716	CY	\$50.00	\$1,035,822.22
02519-10100	Crushed Aggregate Base Course (Bike Path)	1995	CY	\$50.00	\$99,740.74
02525-10100	Plant Mix Bituminous Pavement (Roadway)	16961	TON	\$55.00	\$932,835.86
02525-10100	Plant Mix Bituminous Pavement (Bike Path)	1993	TON	\$55.00	\$109,605.10
	Asphalt Approach	1507	SY	\$40.00	\$60,288.00
02605-10200	Sign Post Anchor Installation	6	EA	\$175.00	\$1,050.00
02800-00018	18" CMP	264	LF	\$50.00	\$13,200.00
02895-10100	Geotextile Separation Fabric (Roadway)	69420	SY	\$2.00	\$138,839.11
02895-10100	Geotextile Separation Fabric (Bike Path)	11969	SY	\$2.00	\$23,937.78
03030-20230	Concrete Curb Turn Fillet - 30' Radius	4	EA	\$1,850.00	\$7,400.00
3040-10108	Concrete Pavement - 8"	533	SY	\$50.00	\$26,666.67
	Major Drainage Structure - Box Culvert	1	LS	\$225,000.00	\$225,000.00
16010-02000	Roadway Lighting System	1	LS	\$15,000.00	\$15,000.00
SUB-TOTAL SCHEDULE III					\$3,901,281.90
20% contingency					\$780,000.00
Subtotal					\$4,681,281.90
15% Engineering (Design and CA)					\$702,000.00
Total					\$5,383,300.00

Assumptions:

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January 28, 2008
West Side Corridor
Schedules I, II and III

SCHEDULE	DESCRIPTION	PRICE
I	LOUCKS ST. TO 5TH ST.	\$10,509,100.00
II	5TH ST. TO 17TH ST.	\$6,907,000.00
III	17TH ST. TO INTERSECTION BEFORE I-90	\$5,383,300.00
GRAND TOTAL:		\$22,799,400.00



RPK



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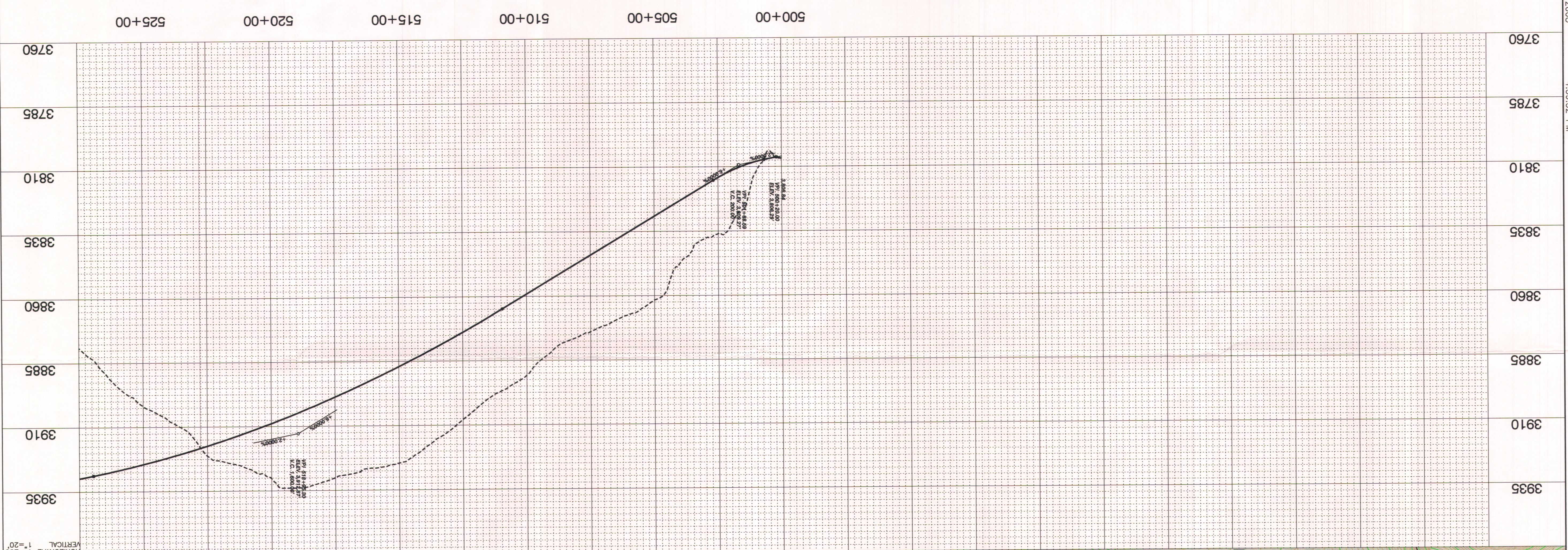
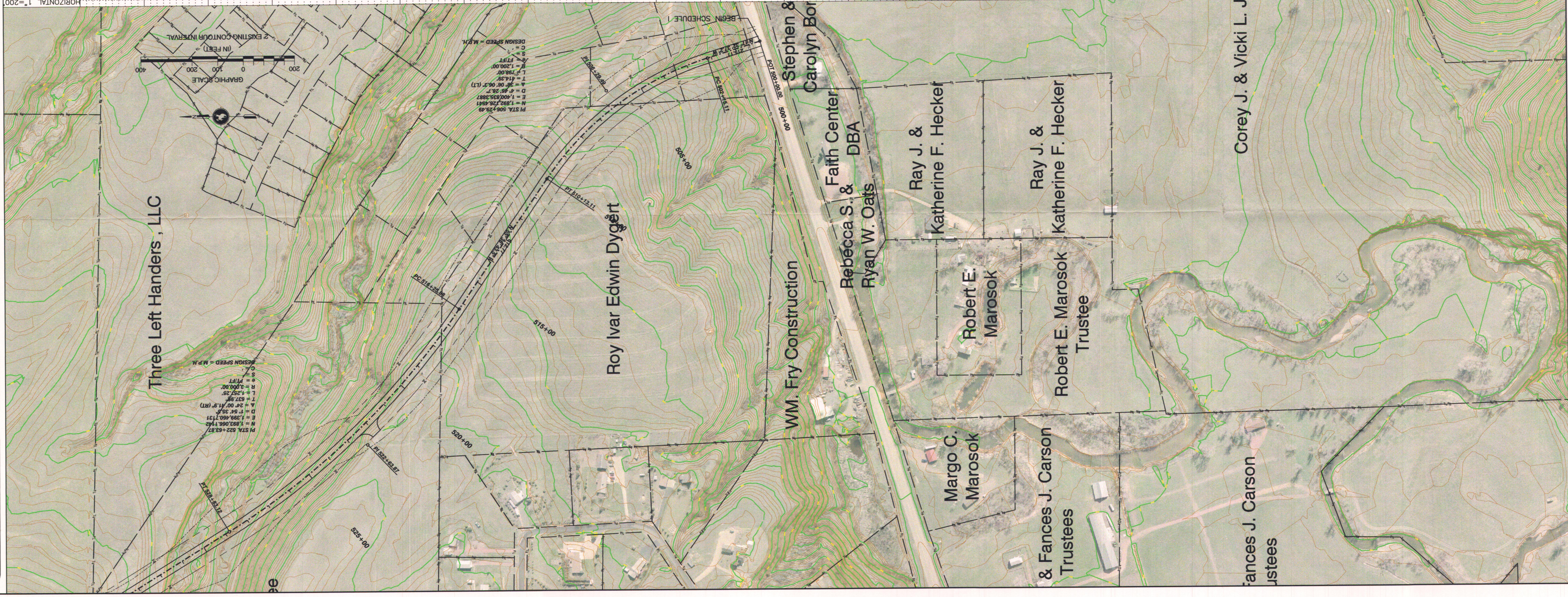
WEST SIDE
 CORRIDOR
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ROADWAY KEY PLAN

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ROADWAY PLAN AND PROFILE

WEST SIDE CORRIDOR SHERIDAN, WYOMING

PP1

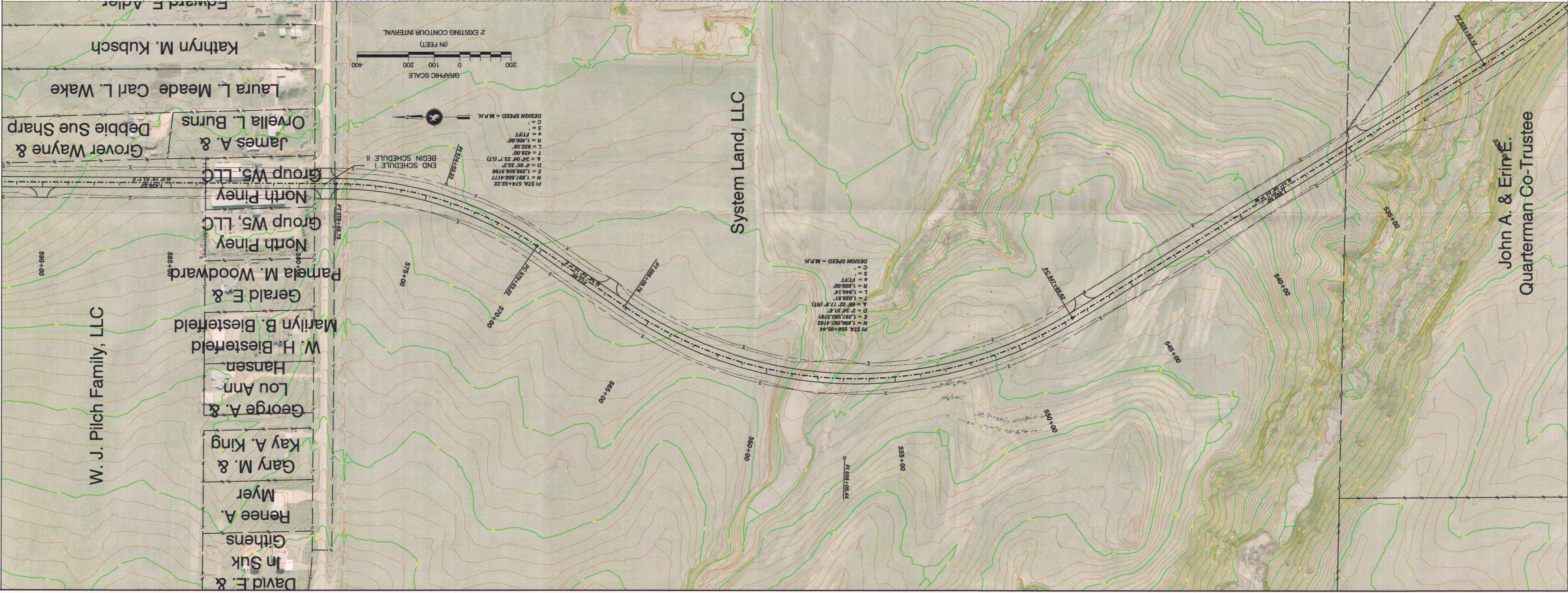
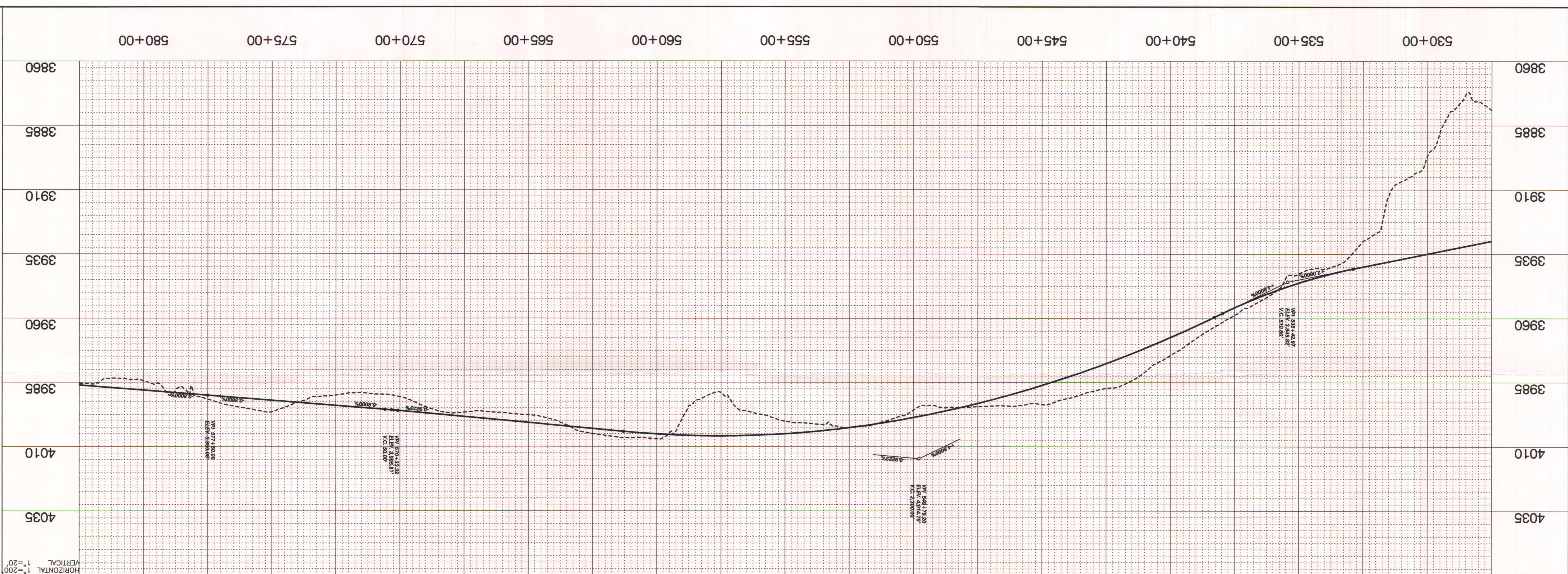


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PP2

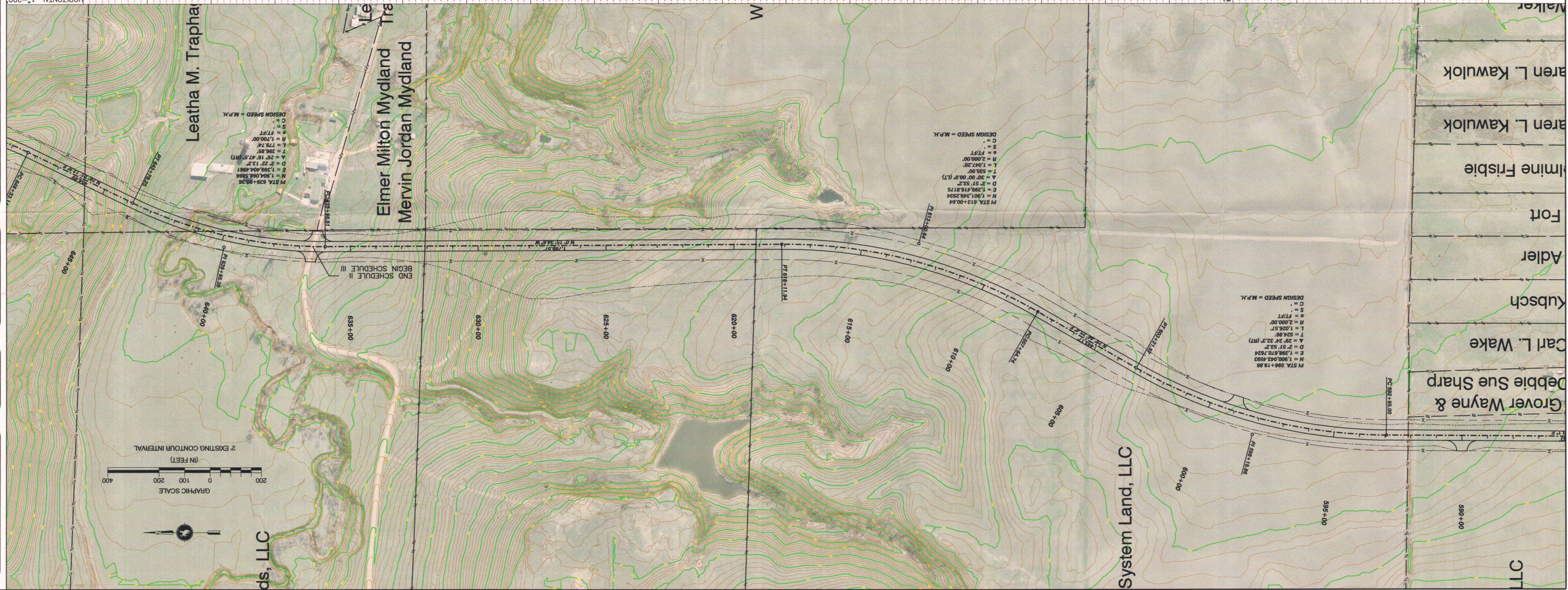
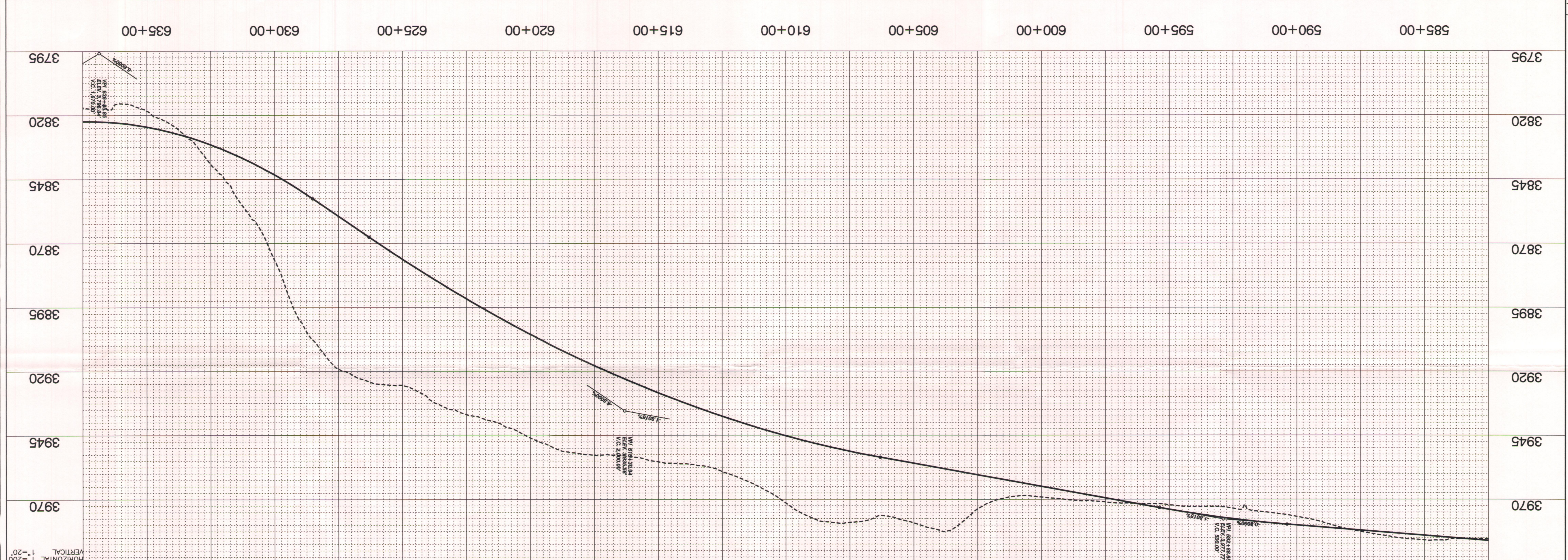
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WEST SIDE CORRIDOR
SHERIDAN, WYOMING

ROADWAY PLAN AND PROFILE

**John A. & Erin E.
Quarterman Co-Trustee**

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PP3



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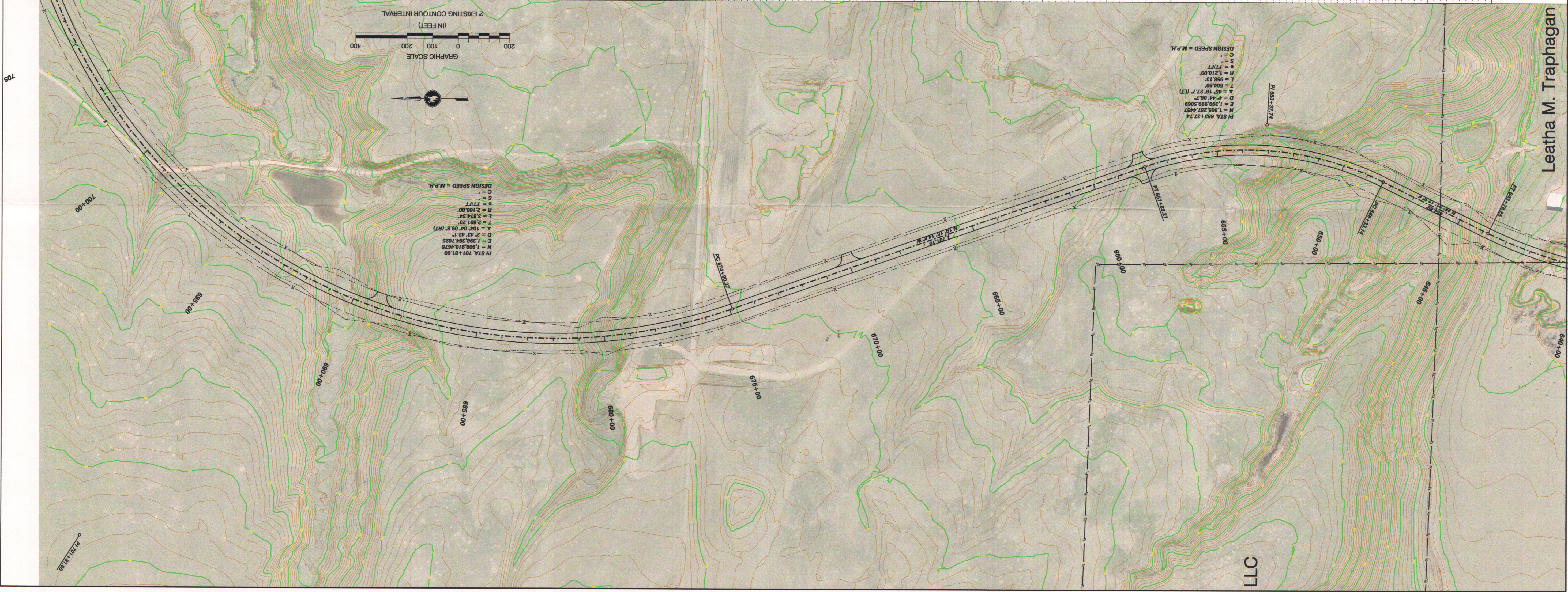
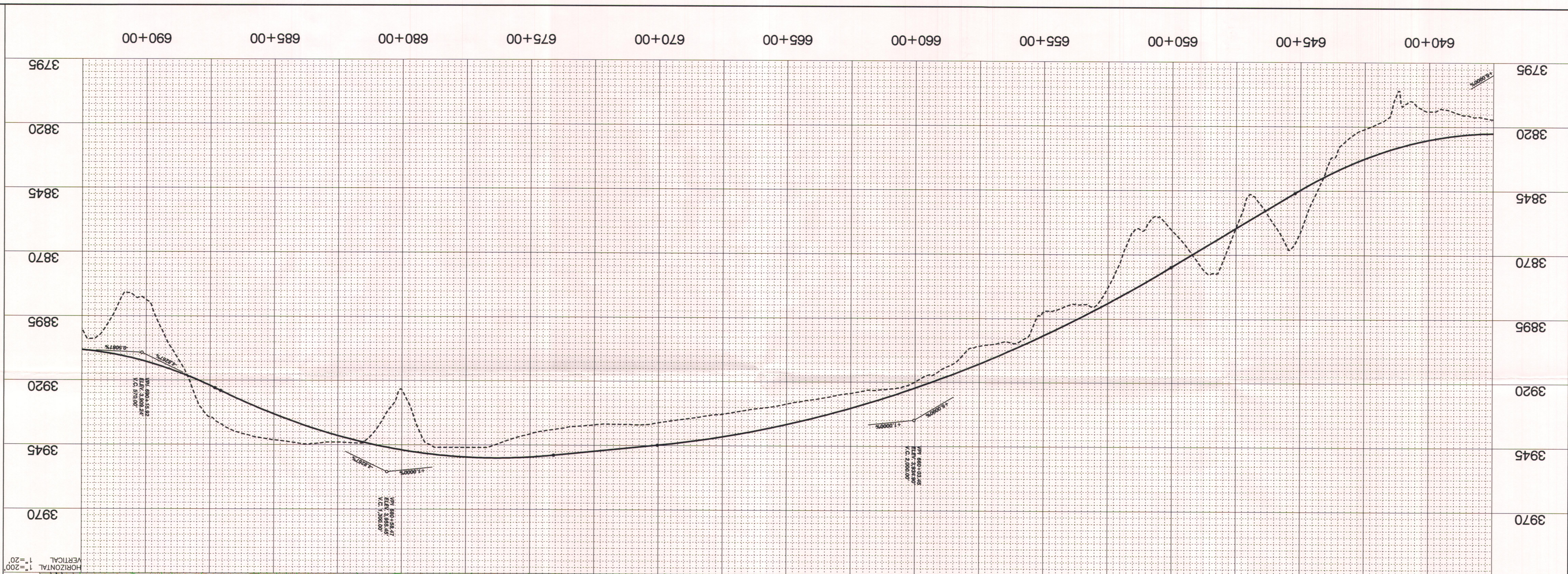
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ROADWAY PLAN
 AND PROFILE

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PP4



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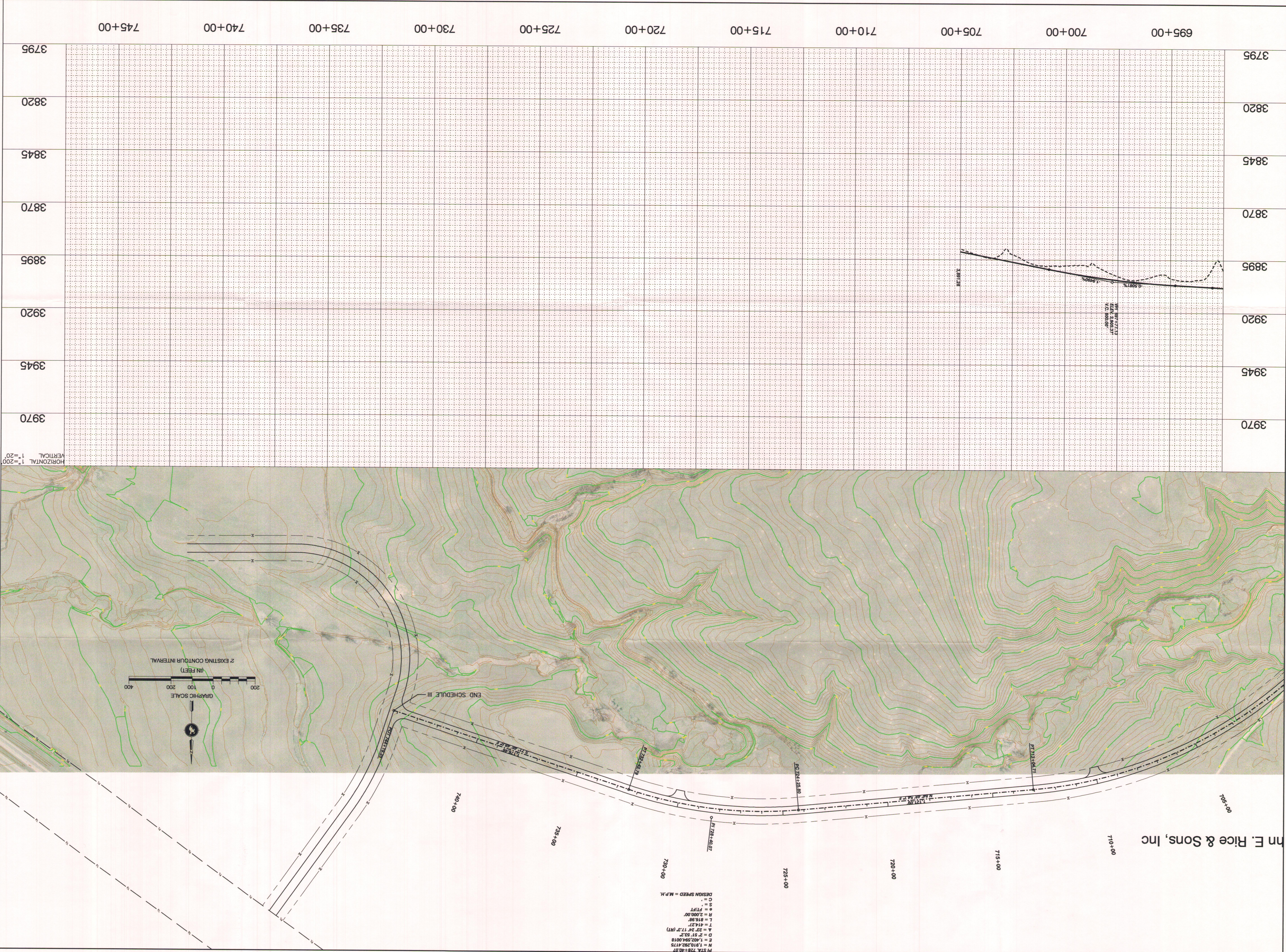
WEST SIDE
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 SHERIDAN, WYOMING

ROADWAY PLAN
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John E. Rice & Sons, Inc

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