

**WETLANDS AND OTHER WATERS OF THE U.S. REPORT
FOR
SHERIDAN MARGINAL
NORTH SHERIDAN INTERCHANGE
PROJECT NO. 0901091
SHERIDAN COUNTY, WYOMING**

February 26, 2010

Prepared For:

Wyoming Department of Transportation
5300 Bishop Boulevard
Cheyenne, Wyoming 82009-3340

Prepared By:



P.O. Box 96
Laramie, WY 82073

WETLANDS AND OTHER SURFACE WATERS REPORT

This report was prepared by Hydro Logic, LLC of Laramie, Wyoming, for the Wyoming Department of Transportation (WYDOT). The project is located in Sheridan at the north interchange to I-90 (Exit 20) and begins about one mile northwest of the interchange and proceeds southeasterly toward the east interchange area (Exit 23). It is located in the Mesic Dissected Plains Ecoregion (Chapman, et al., 2004) within the Powder/Tongue River drainage basin (Wyoming State Water Plan, 2005). The primary objective is to bring the highway up to current design and safety standards.

The U.S. Army Corps of Engineers (Corps) is authorized under Section 404 of the Clean Water Act (33 U.S.C. 1344) to regulate the placement of dredged and fill material into wetlands and other waters of the United States. The term 'waters of the United States' includes all waters that were, are, or could be used in interstate commerce such as rivers, streams (including ephemeral streams), reservoirs, lakes, and wetlands adjacent to those areas.

METHODS

This report is based on information collected from both a review of existing documentation and a field survey conducted by Hydro Logic, LLC on August 26, 2009. The documentation review included internet searches of the Wyoming GIS Coordination Structure's (WGCS) website (Figures 1 – 2), and Google Earth for the U.S. Fish and Wildlife Service's (FWS) National Wetlands Inventory Map (Figure 3).

The field survey follows the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (U.S Army Corps of Engineers, 2008). Wetland areas are described using the WYDOT Surface Water (wetland) Classification Codes (WYDOT, 1993). Attachments include wetland delineation forms, color photos and WYDOT plan sheets outlining the delineated areas. Mapping for the delineation is with US standard stationing.

SITE-SPECIFIC INVESTIGATION RESULTS

The project is in both an agricultural and urban setting. Much of the area northwest of the interchange is irrigated hayland and much of the area east of the interchange is open rangeland; commercial land is near the interchange. With the exception of Big Goose Creek no other natural water sources exist but several irrigation ditches and return flow ditches do exist in the project area.

The locations of all potentially jurisdictional wetlands and waters of the U.S. investigated along the project corridor are shown on the accompanying plan sheets. The water surface site number, alignment stationing and wetland type classifications within the project area are summarized in the following table. All

sites delineated are within the project right-of-way corridor. Final wetland impacts will be determined once the Corps has verified this report and final roadway design impacts are calculated by WYDOT.

Table 1. Summary of Wetland Classifications for Project No. 0901091.

SURFACE WATER SITE	ALIGNMENT STATIONING	TYPE/REMARKS*
Site 1	1054+00-1072+00, lt	Dense grassy area in borrow pit right-of-way. Associated with return flow from irrigated cropland (P1-P2)
Site 2 Data Points DP1-DP2	1072+10-1074+50, lt 1074+00-1075+50, rt	<i>Type 2 – (WTWM) – Wet Meadow.</i> Wetland exists within the banks of an unnamed tributary to Big Goose Creek. This area is also influenced by irrigation return flow. NDBB. (P3-P6)
Site 3 Data Points DP3-DP4	1076+40-1092+00, lt	<i>Type 3 – Shallow Marsh.</i> Wetland exists in ditch bottom; source is irrigation return flow from adjacent field. (P7-P11) <i>Type 6 – Scrub-Shrub.</i> Willow area in isolated areas throughout.
Site 4 Data Points DP5-DP6	1083+80-1085+50, rt 1085+65-1095+80, rt	<i>Type 2 – (WTWM) – Wet Meadow.</i> Area is influenced by irrigation return flow and roadside drainage. Site is also associated with the Grinnell Livestock Co. Ditch. (P12-P17)
Site 5	1097+90-2038+00, rt	<i>WUSW – Water of the US.</i> Big Goose Creek. Creek averages 50 feet wide and 3+ feet deep. OHWM width is about 80 feet. <i>Type 2 – Wet Meadow and Type 6 – Scrub-Shrub.</i> Fringe wetlands along banks of creek. (P18-P19, P27-P28)
Site 6	1100+00-1105+50, rt	Riparian area beyond fence.
Site 7 Data Points DP7-DP8	1117+00, lt 1119+60-1123+50, lt	<i>Type 2 – (WTWM) – Wet Meadow.</i> Wetland exists within topographic low spot at roadway toe of fill and is influenced by roadside drainage. (P20-P22)
Site 8	1123+70-1125+75, rt	<i>Type 3 – Shallow Marsh.</i> Wetland exists in topographic low spot; most likely constructed depression for pavement runoff from Kmart store. <i>Type 6 – Scrub-Shrub.</i> Willow area. (P23)
Site 9 Data Points DP9-DP10	1159+25-1162+50, rt	<i>Type 2 – (WTWM) – Wet Meadow.</i> Wetland exists within topographic low spot at roadway toe and hillside. (P24)
Site 10	1177+00-1178+00, rt	Shown as PEMCh on wetland map. This is a small pond with no wetland vegetation observed. Beyond R/W fence.
Site 11	1180+60, lt	<i>No Defined Bed and Bank.</i> Swale with no wetland characteristics. (P25)
Site 12 Data Points DP11-DP12	1198+05, rt	<i>Type 3 – Shallow Marsh.</i> Wetland exists in topographic low spot just below culvert end. (P26)
Site 13	3022+80-3027+80, lt	<i>Type 3 – Shallow Marsh.</i> Wetland exists in topographic low spot between the Grinnell Livestock Company Ditch and the roadway. This area is beyond the fence. (P29)
Site 14 Data Points DP13-DP14	3031+00-3031+85, rt	<i>Type 2 – (WTWM) – Wet Meadow.</i> Wetland exists in bottom of irrigation ditch. (P30)
Site 15	3054+50-3055+25, lt	Riparian area beyond fence (willows)

* P refers to Photo Number(s); NDBB refers to No Defined Bed and Bank

SUMMARY

A total of 15 sites were surveyed to determine their potential to be wetlands, a water of the U.S. or wetlands associated with a water of the U.S. Ten sites (Sites 2-4, 7-9 and 12-14), displayed characteristics common to wetlands but these areas are associated with irrigation ditches or roadside drainages. Sites 1, 10, and 11 are areas with non-wetland and/or No Defined Bed and Bank (NDBB) features. Site 5 encompasses Big Goose Creek and associated wet meadow, scrub-shrub and riparian vegetation types. These areas were beyond the right-of-way fences and were not precisely delineated. Sites 6 and 15 were riparian areas beyond the fences.

FUNCTIONS AND QUALITY

The water surfaces investigated within the project area are associated with irrigation channels and Big Goose Creek. Surface water areas are capable of aiding in groundwater recharge, dissipation of erosive forces from surrounding uplands, sediment trapping and nutrient retention and removal within the channel corridors. Wildlife habitat within the area exists, however is limited due to proximity to the roadway.

MITIGATION ALTERNATIVES

Mitigation for impacts to wetlands would be most successful on site potentially near Big Goose Creek due to its perennial nature. The final design will be completed by WYDOT.

REFERENCES

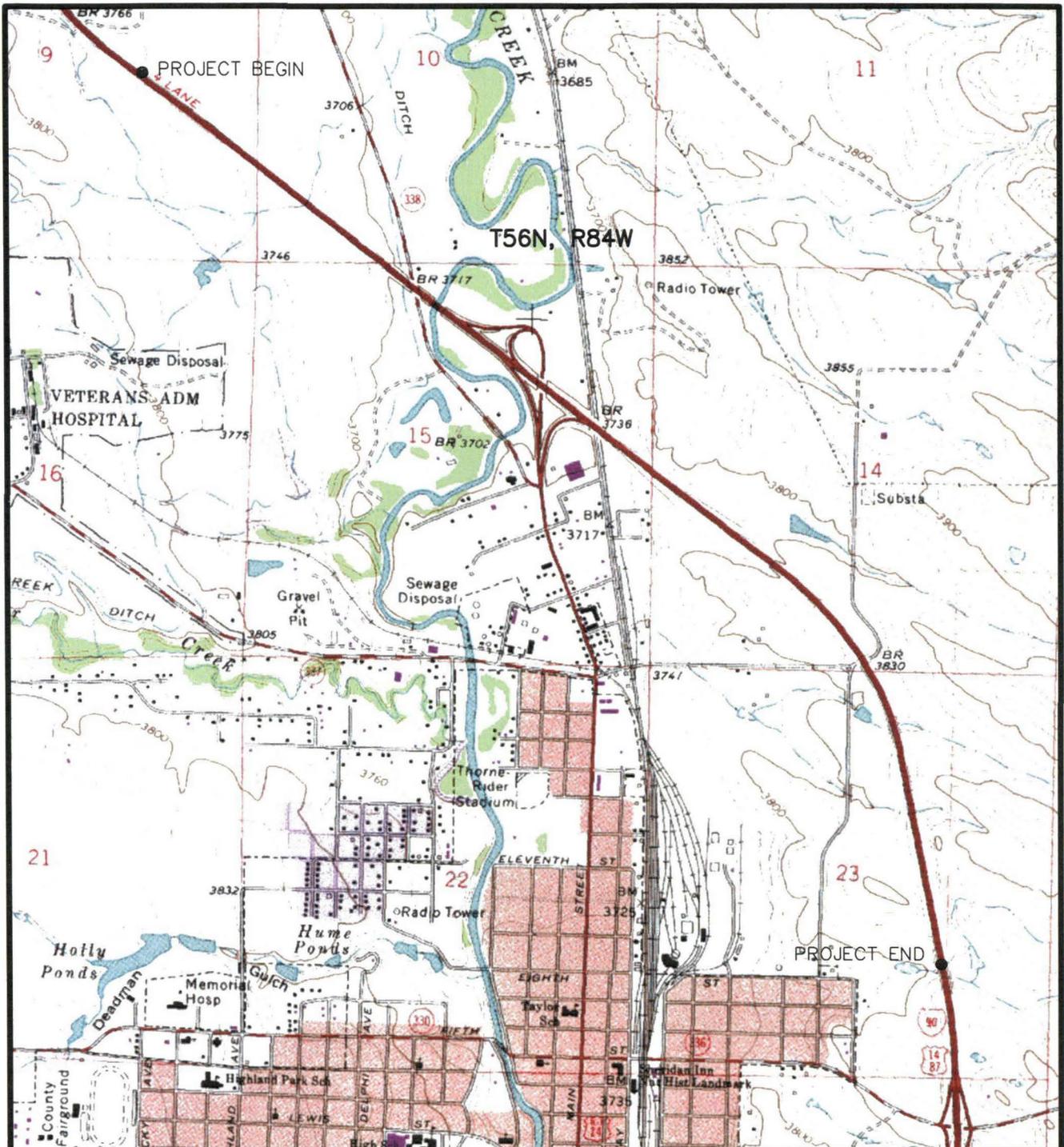
- Chapman, S.S., Bruce, S.A., Omernik, J.M., Despain, D.G., ZumBerge, J., and Conrad, M. 2004. Ecoregions of Wyoming: Reston, VA, U.S. Geological Survey.
- GretagMacbeth. 2000. Munsell Soil Color Charts.
- U.S. Army Corps of Engineers. 2008. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-12. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 27 February 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- U.S.D.A. Natural Resources Conservation Service. 2010. Web Soil Survey website: <http://websoilsurvey.nrcs.usda.gov/app/>
- U.S.D.I. US Fish and Wildlife National Wetlands Inventory. Internet search using: <http://wetlandsfws.er.usgs.gov/NWI/index.html>

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Wyoming Department of Transportation. 1993. Local Procedures for Implementing the MOU for the Protection and Mitigation of Wetlands and Other Surface Waters.

Wyoming Geographic Information Science Center's website, 2010.
<http://alkali.wygisc.uwyo.edu/MyWyGISC/login.aspx>

Wyoming State Water Plan. 2005. Wyoming State Water Plan website:
<http://waterplan.state.wy.us/basins/7basins.html>.

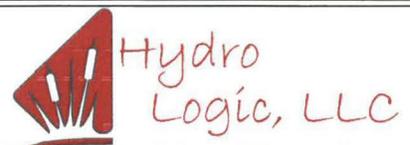
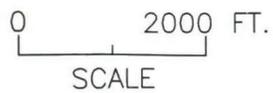


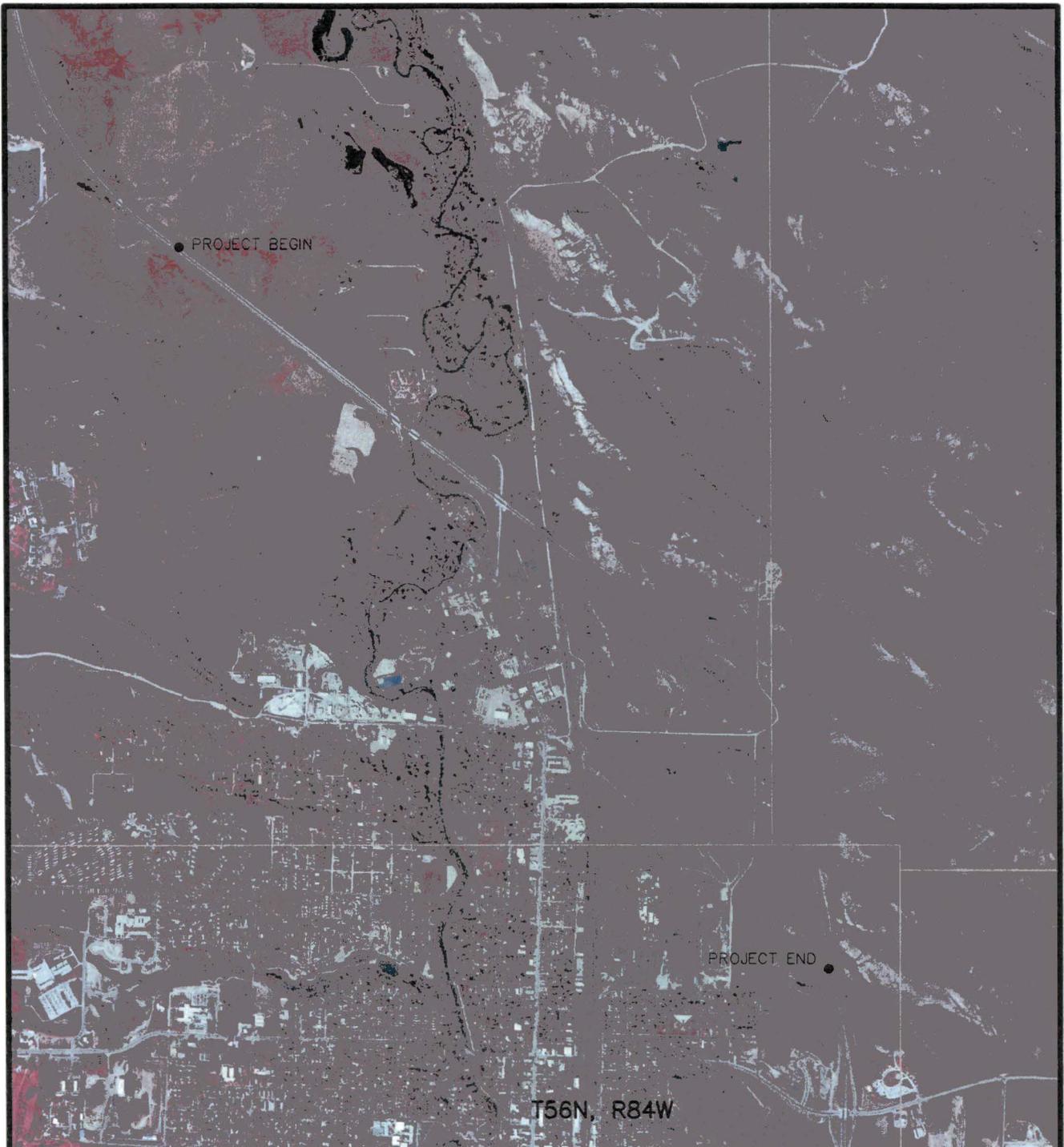
SOURCE: USGS QUADRANGLE:
SHERIDAN, WYO

FIGURE 1

GENERAL LOCATION MAP
SHERIDAN MARGINAL

NORTH SHERIDAN INTERCHANGE
WYDOT PROJECT NO. 0901091





SOURCE: USGS QUADRANGLE:
SHERIDAN, WYO

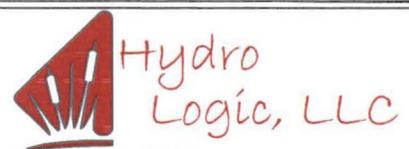
0 2000 FT.
SCALE



FIGURE 2

2001 COLOR INFRARED MAP
SHERIDAN MARGINAL

NORTH SHERIDAN INTERCHANGE
WYDOT PROJECT NO. 0901091



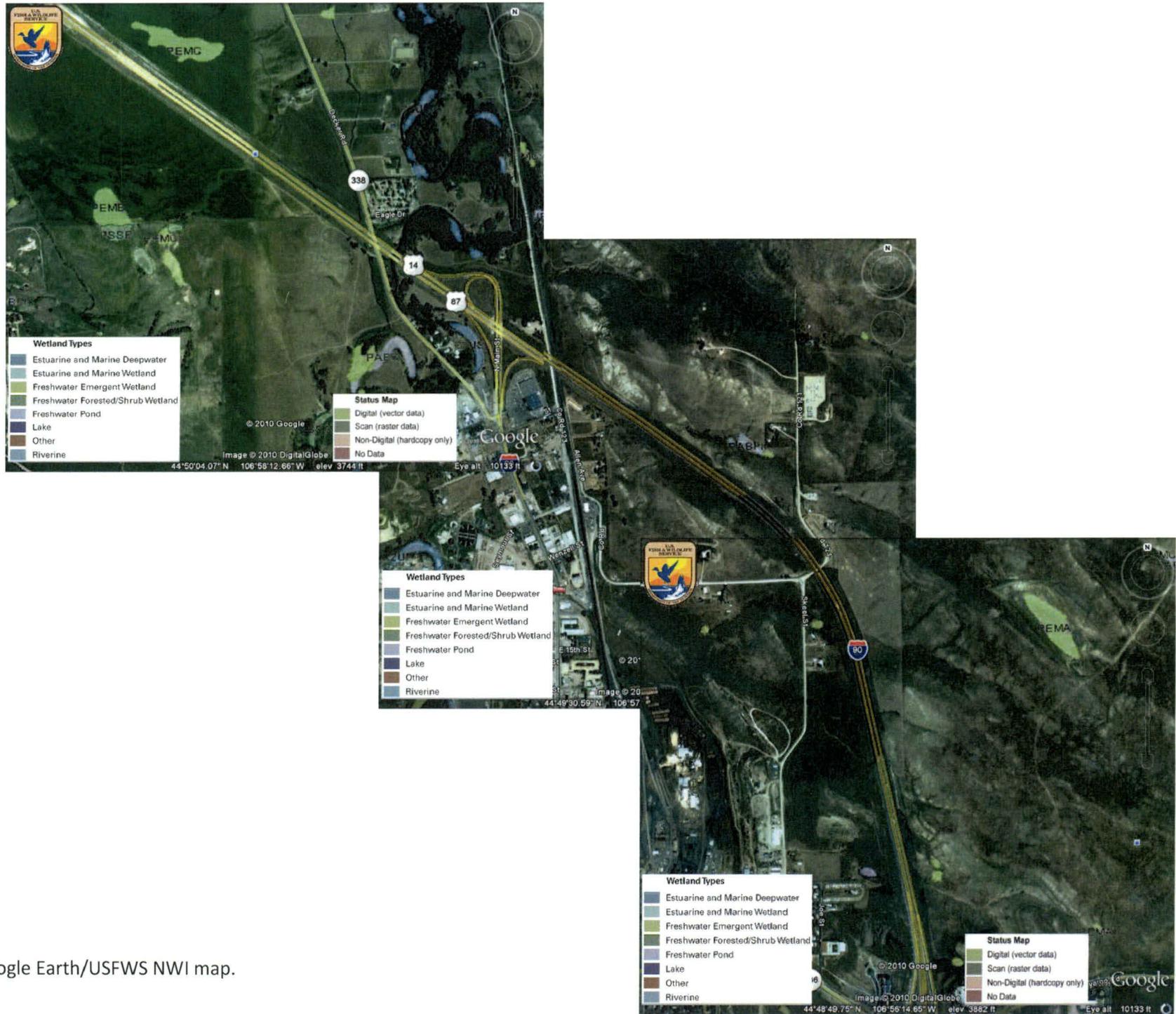


Figure 3– Google Earth/USFWS NWI map.

ATTACHMENTS

WETLAND DELINEATION DATA FORMS

COLOR PHOTOS

WETLAND MAPPING

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DPI
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 10, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'15" Long: 106°58'14" Datum: NAD83
 Soil Map Unit Name: Platsher clay, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Carex, nebraskensis</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Eleocharis palustris</u>	<u>15</u>	<u>No</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
_____ = Total Cover				
Remarks: <u>Wetland defined by steep banks.</u>				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT -- Project No. 0901091 State: WY Sampling Point: DP2
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 10, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'15" Long: 106°58'14" Datum: NAD83
 Soil Map Unit Name: Platsher clay, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>95</u> x 5 = <u>475</u> Column Totals: <u>95</u> (A) <u>475</u> (B) Prevalence Index = B/A = <u>5.0</u>
Sapling/Shrub Stratum (Plot size: _____) 1. <u>None Present</u> 2. _____ 3. _____ 4. _____ 5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____) 1. <u>Bromus inermis</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____				
95 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP3
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'05" Long: -106°57'55" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Carex nebraskensis</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Eleocharis palustris</u>	<u>15</u>	<u>No</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: <u>Steep banks define wetland depression.</u>				

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc ²		
0-18	10YR 2/1	85	10YR 4/4	15	RM	M	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>0-8+</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
In roadside drainage and associated with irrigation return flow and irrigation ditch.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP4
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 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'05" Long: 106°57'55" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.0</u>
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Agropyron cristatum</u>	<u>75</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Bromus inermis</u>	<u>25</u>	<u>No</u>	<u>UPL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>0</u> _____ = Total Cover				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP5
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 10, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'03" Long: 106°57'55" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Typha latifolia</u>	<u>85</u>	<u>Yes</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Eleocharis palustris</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3. <u>Carex nebraskensis</u>	<u>5</u>	<u>No</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
_____ = Total Cover				
<u>% Bare Ground in Herb Stratum</u> <u>0</u>				
Remarks: <u>Wetland defined by steep banks.</u>				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP6
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'03" Long: 106°57'55" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Total Number of Dominant Species Across All Strata: _____ (B)
Sapling/Shrub Stratum (Plot size: _____)				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. <u>None Present</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.0</u>
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: _____)				
1. <u>Agropyron cristatum</u>	<u>75</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Bromus inermis</u>	<u>25</u>	<u>No</u>	<u>UPL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP7
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°49'48" Long: 106°57'23" Datum: NAD83
 Soil Map Unit Name: Zigweid-Kishona-Cambria complex, moist, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)																
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
4. _____				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>None Present</u>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
_____ = Total Cover																				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Carex nebraskensis</u>	<u>100</u>	<u>Yes</u>	<u>OBL</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
_____ = Total Cover																				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____																				
_____ = Total Cover																				
% Bare Ground in Herb Stratum <u>0</u>																				
Remarks:																				

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	85	10YR 4/4	15	RM	M	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Water-Stained Leaves (B9)		

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>0-12+</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP8
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°49'48" Long: 106°57'23" Datum: NAD83
 Soil Map Unit Name: Zigweid-Kishona-Cambria complex, moist, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Agropyron cristatum</u>	<u>75</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Bromus inermis</u>	<u>25</u>	<u>No</u>	<u>UPL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
_____ = Total Cover				
Remarks:				

Hydrophytic Vegetation Indicators:
 ___ Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2						loamy sand	
5+	10YR 5/3						loamy sand	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)						
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)						
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)						
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)						
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)						
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)						
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)						
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)						
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and						
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	wetland hydrology must be present,						
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	unless disturbed or problematic.						
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes _____ No <u>X</u>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
Field Observations:			
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP9
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 14, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°49'22" Long: 106°56'39" Datum: NAD83
 Soil Map Unit Name: Cushman-Forkwood Assoc., moist, 0 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>None Present</u>				
2. _____				
3. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Juncus balticus</u>	<u>90</u>	<u>Yes</u>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <u>Vegetation present due to roadside drainage.</u>				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP10
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 14, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0.001
 Subregion (LRR): G Lat: 44°49'22" Long: 106°56'39" Datum: NAD83
 Soil Map Unit Name: Cushman-Forkwood Assoc., moist, 0 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)																
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
4. _____				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species <u>90</u></td> <td>x 5 = <u>450</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>460</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.6</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species <u>90</u>	x 5 = <u>450</u>	Column Totals: <u>100</u> (A)	<u>460</u> (B)	Prevalence Index = B/A = <u>4.6</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>10</u>	x 1 = <u>10</u>																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species <u>90</u>	x 5 = <u>450</u>																			
Column Totals: <u>100</u> (A)	<u>460</u> (B)																			
Prevalence Index = B/A = <u>4.6</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: _____) 1. <u>None Present</u> 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover																				
Herb Stratum (Plot size: _____) 1. <u>Bromus inermis</u> 90 Yes UPL 2. <u>Juncus balticus</u> 10 Yes OBL 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover																				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover																				
% Bare Ground in Herb Stratum _____																				
Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)																				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																				
Remarks:																				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP11
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 23, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°48'51" Long: 106°56'20" Datum: NAD83
 Soil Map Unit Name: Shingle-Thecdle-Kishona Assoc., moist, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Typha latifolia</u>	<u>85</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Eleocharis palustris</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3. <u>Carex nebraskensis</u>	<u>5</u>	<u>No</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
_____ = Total Cover				
Remarks: <u>Wetland defined at culvert end.</u>				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP12
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 23, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°48'51" Long: 106°56'20" Datum: NAD83
 Soil Map Unit Name: Shingle-Theedle-Kishona Assoc., moist, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.0</u>
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None Present</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Agropyron cristatum</u>	<u>70</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Bromus inermis</u>	<u>30</u>	<u>No</u>	<u>UPL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

Sampling Point: DP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2						loamy sand	
5+	10YR 5/3						loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	
	(where tilled)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DP13
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'06" Long: 106°57'54" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				Prevalence Index worksheet:
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				OBL species _____ x 1 = _____
1. <u>None Present</u>				FACW species _____ x 2 = _____
2. _____				FAC species _____ x 3 = _____
3. _____				FACU species _____ x 4 = _____
4. _____				UPL species _____ x 5 = _____
5. _____				Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Carex nebraskensis</u>	<u>100</u>	<u>Yes</u>	<u>OBL</u>	<u>X</u> Dominance Test is >50%
2. _____				___ Prevalence Index is ≤3.0 ¹
3. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____				
7. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
8. _____				
9. _____				Remarks:
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

SOIL

Sampling Point: DP13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	85	10YR 4/4	15	RM	M	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	wetland hydrology must be present,
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>0-12+</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sheridan Marginal, No. Sheridan Interchange City/County: Sheridan Sampling Date: 8/26/09
 Applicant/Owner: WYDOT – Project No. 0901091 State: WY Sampling Point: DPI4
 Investigator(s): Hydro Logic, LLC (Rumsey) Section, Township, Range: Sec. 15, T56N, R84W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): .001
 Subregion (LRR): G Lat: 44°50'06" Long: 106°57'54" Datum: NAD83
 Soil Map Unit Name: Wyarno clay loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None Present</u>				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>90</u> x 5 = <u>450</u> Column Totals: <u>90</u> (A) <u>450</u> (B) Prevalence Index = B/A = <u>4.5</u>
Sapling/Shrub Stratum (Plot size: _____) 1. <u>None Present</u> 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: _____) 1. <u>Bromus inermis</u> <u>90</u> <u>Yes</u> <u>UPL</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u> _____ = Total Cover				
Remarks:				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

SOIL

Sampling Point: DP14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2						loamy sand	
5+	10YR 5/3						loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u>	Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 1 – Site 1 - Sta. 1054+50, left. Southeasterly view downslope of 36" CMP.



Photo 2 – Site 1- Sta. 1056+75, left. Southeasterly view of drainage along road toe of slope.



Photo 3 – Site 2- Sta. 1073+00, left. Northeasterly view down drainage.



Photo 4 – Site 2- Sta. 1072+00, left. Southeasterly view of drainage along road toe of slope.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 5 – Site 2 - Sta. 1072+00, left. Southeasterly view of drainage along road toe of slope.



Photo 6 – Site 2 - Sta. 1074+25, right (Data Points DP1-DP2). Southeasterly view of wet meadow wetland associated with irrigation return flow.

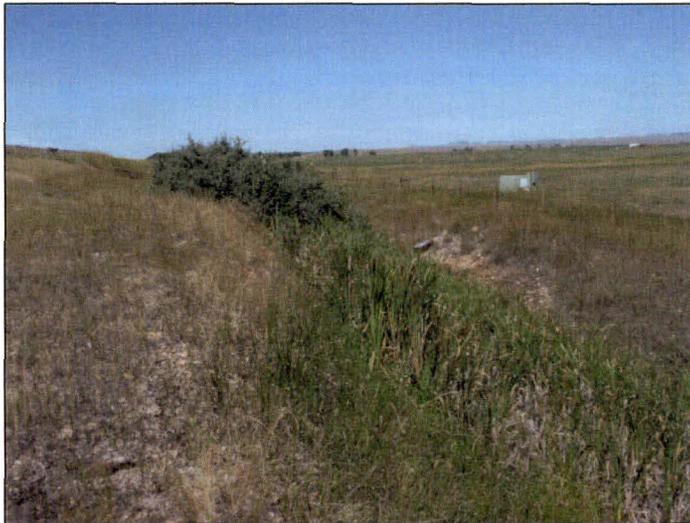


Photo 7 – Site 3 - Sta. 1079+00, left. Northwesterly view up drainage along roadside toe of slope.



Photo 8 – Site 3 - Sta. 1079+00, left. Southeasterly view down drainage along roadside toe of slope.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 9 – Site 3 - Sta. 1088+00, left. Northwesterly view up drainage along roadside toe of slope.



Photo 10 – Site 3 - Sta. 1088+00, left. Easterly view down drainage along roadside toe of slope.



Photo 11 – Site 3 - Sta. 1088+00, left. (Data Points DP3-DP4) Southeasterly view toward culvert.



Photo 12 – Site 4 - Sta. 1089+50, right. Westerly view of shallow marsh in roadside toe of slope.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 13 – Site 4 - Sta. 1089+50, right. Southeasterly view of shallow in roadside toe of slope.



Photo 14 – Site 4: Panoramic view 1 of 4 at Sta. 1093+00, right (Data Points DP5-DP6). Southeasterly view of shallow marsh in irrigation ditch.



Photo 15 – Site 4: Panoramic view 2 of 4 at Sta. 1093+00, right. Southeasterly view of shallow marsh in irrigation ditch and drain channel.



Photo 16 – Site 4: Panoramic view 3 of 4 at Sta. 1093+00, right. Southwesterly view of shallow marsh in irrigation drain channel.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 17 – Site 4: Panoramic view 4 of 4 at Sta. 1093+00, right. Northwesterly view of shallow marsh in irrigation drain channel.



Photo 18 – Site 5 - Sta. 1098+00, right. Southerly view of Goose Creek (upstream).



Photo 19 – Site 5 - Sta. 1098+00, left. Northeastern view of Goose Creek (downstream).



Photo 20 – Site 7 - Sta. 1117+00, left. Northwestern view (downstream) of shallow marsh at culvert end.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091

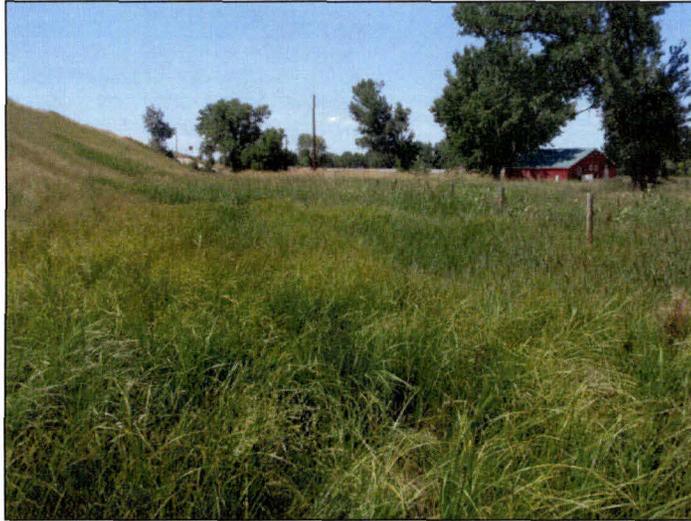


Photo 21 – Site 7 - Sta. 1122+50, left (Data Points DP7-DP8).
Northwesterly view of shallow marsh in roadside toe of slope.



Photo 22 – Site 7 - Sta. 1122+50, left. Northwesterly view
of shallow marsh downslope of culvert.



Photo 23 – Site 8 - Sta. 1123+50, right. Southeasterly view
of shallow marsh/scrub-shrub depression.



Photo 24 – Site 9 - Sta. 1162+25, right (Data Points DP9 and DP10).
Northwesterly view of wet meadow along roadside depression.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 25 – Site 11 - Sta. 1180+60, left. Easterly view of draw.

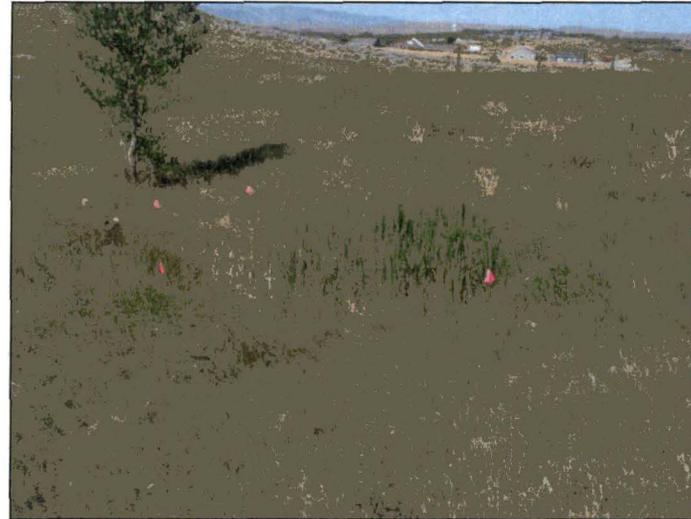


Photo 26 – Site 12 - Sta. 1198+05, right (Data Points DP 11/DP12). Westerly view of small shallow marsh/wet meadow at culvert.



Photo 27 – Site 5 - Sta. 3007+25, right. Northeasterly view of Goose Creek from bridge. Scrub-shrub wetland along banks.



Photo 28 – Site 5 - Sta. 3007+25, left. Southerly view of Goose Creek from bridge.

Sheridan Marginal (North Sheridan Interchange) Project No. 0901091



Photo 29 – Site 13 - Sta. 3023+00, left. Northerly view of isolated wet meadow wetland in depression, downslope of irrigation ditch.



Photo 30 – Site 14 - Sta. 3032+00, right (Data Points DP13/DP14). Southeasterly view of shallow marsh wetland confined to ditch bottom.



Photo 31 – Site 3 - Sta. 3041+90, left. Southerly view of shallow marsh wetland confined to ditch bottom.

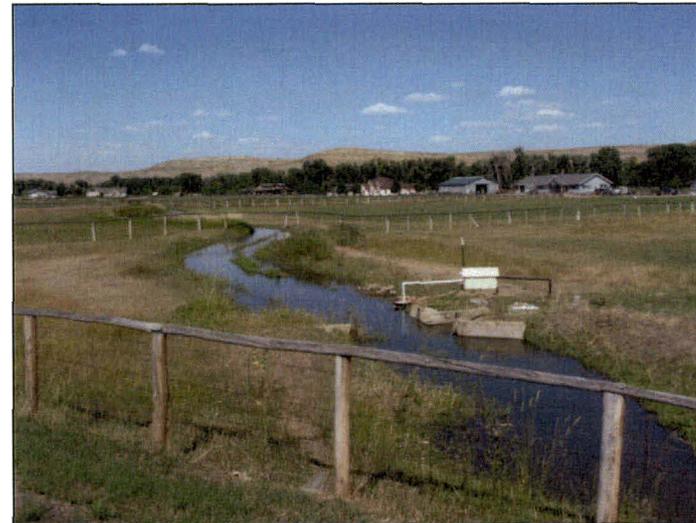
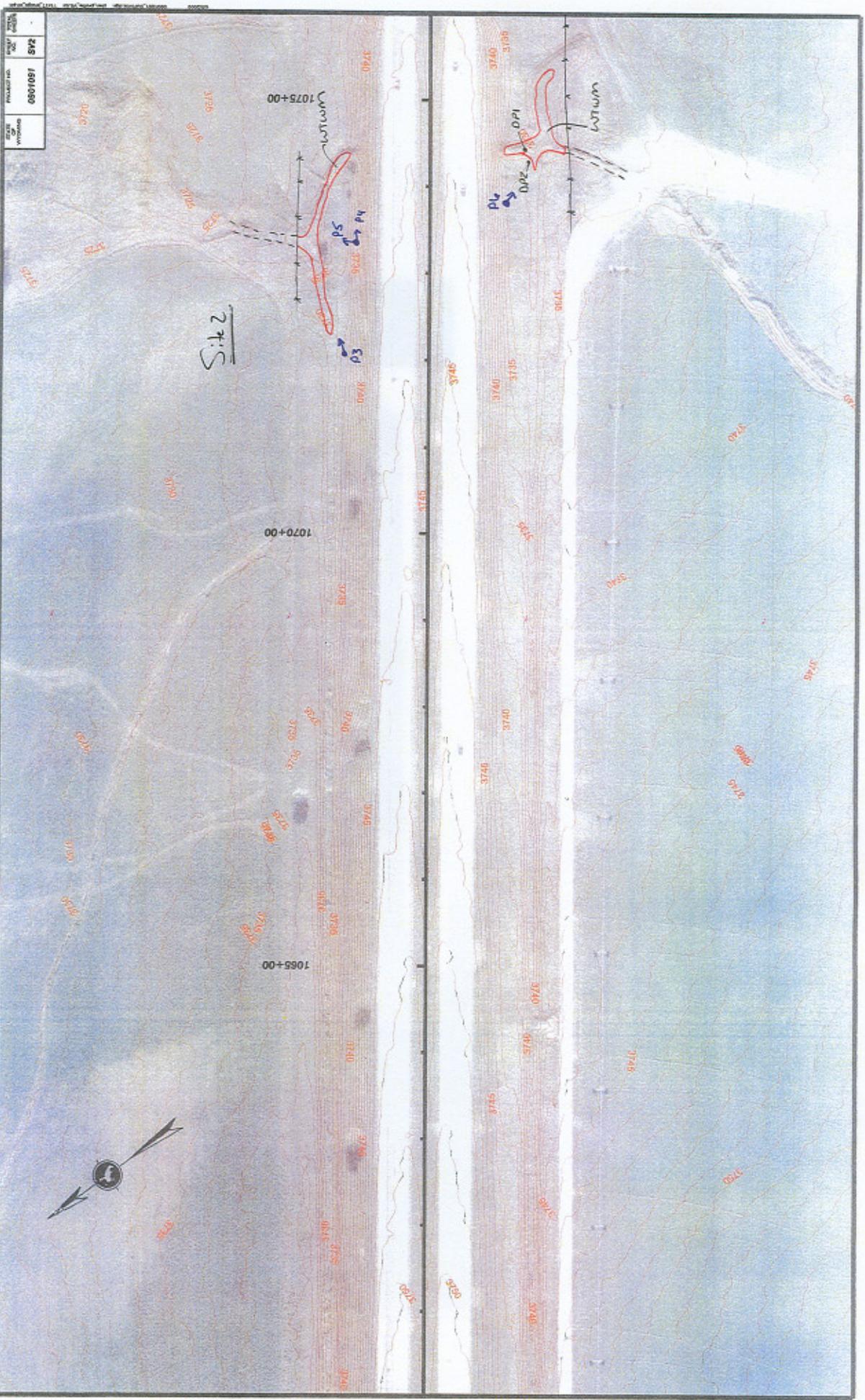


Photo 32 – Site 3 - Sta. 3042+60, right. Northeasterly view of Grinnell Livestock Company Ditch.

PROJECT NO.	6901091	DATE	SV0
DATE		BY	
BY		DATE	

**SHERIDAN MARGINAL
(NORTH SHERIDAN INTERCHANGE)
NO. 0901091**





PROJECT NO.	0001051
DATE	04/20/05
SCALE	1" = 100'
SHEET NO.	512

Sikz

1075+00

1070+00

1065+00

Watum

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DPI

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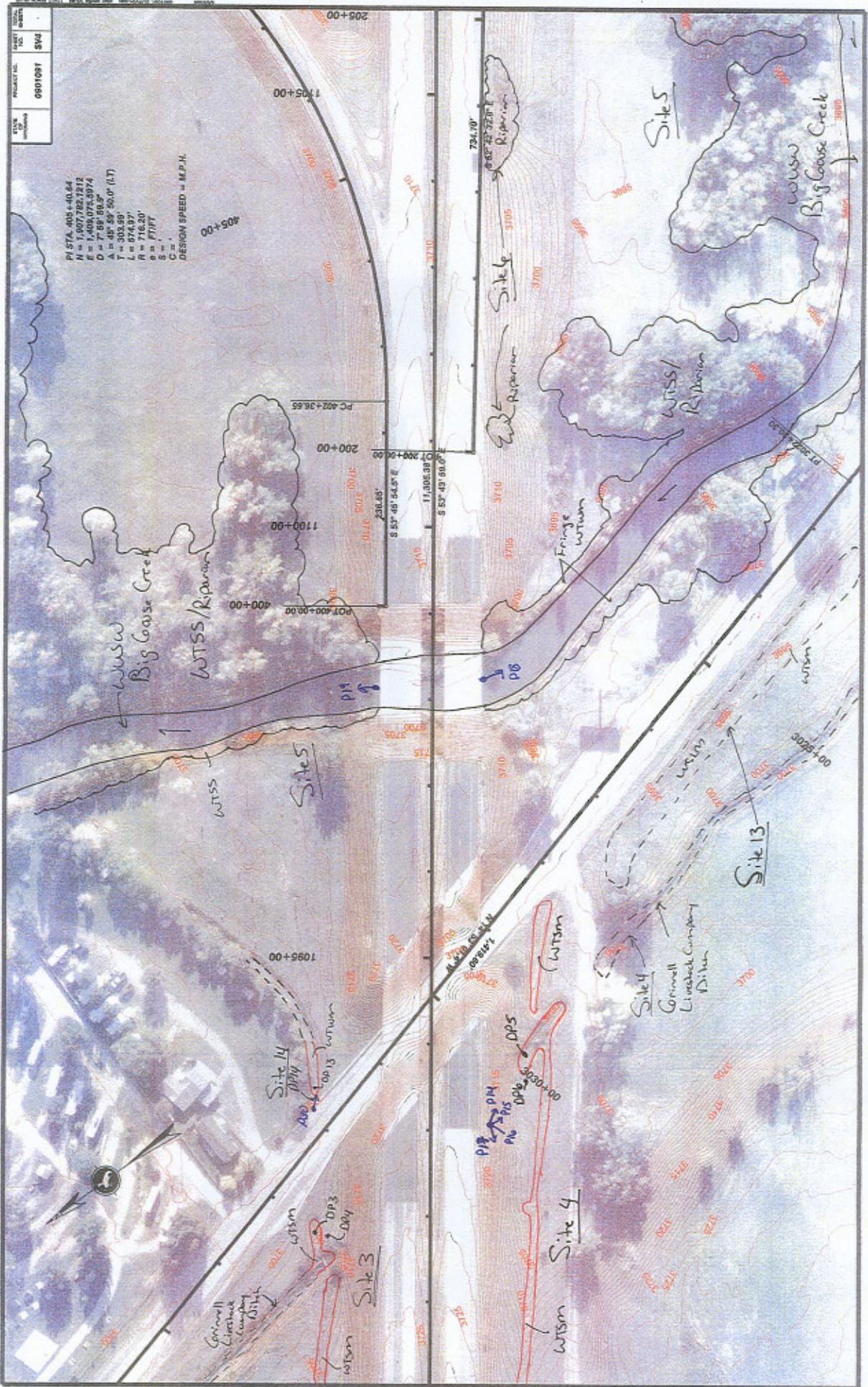
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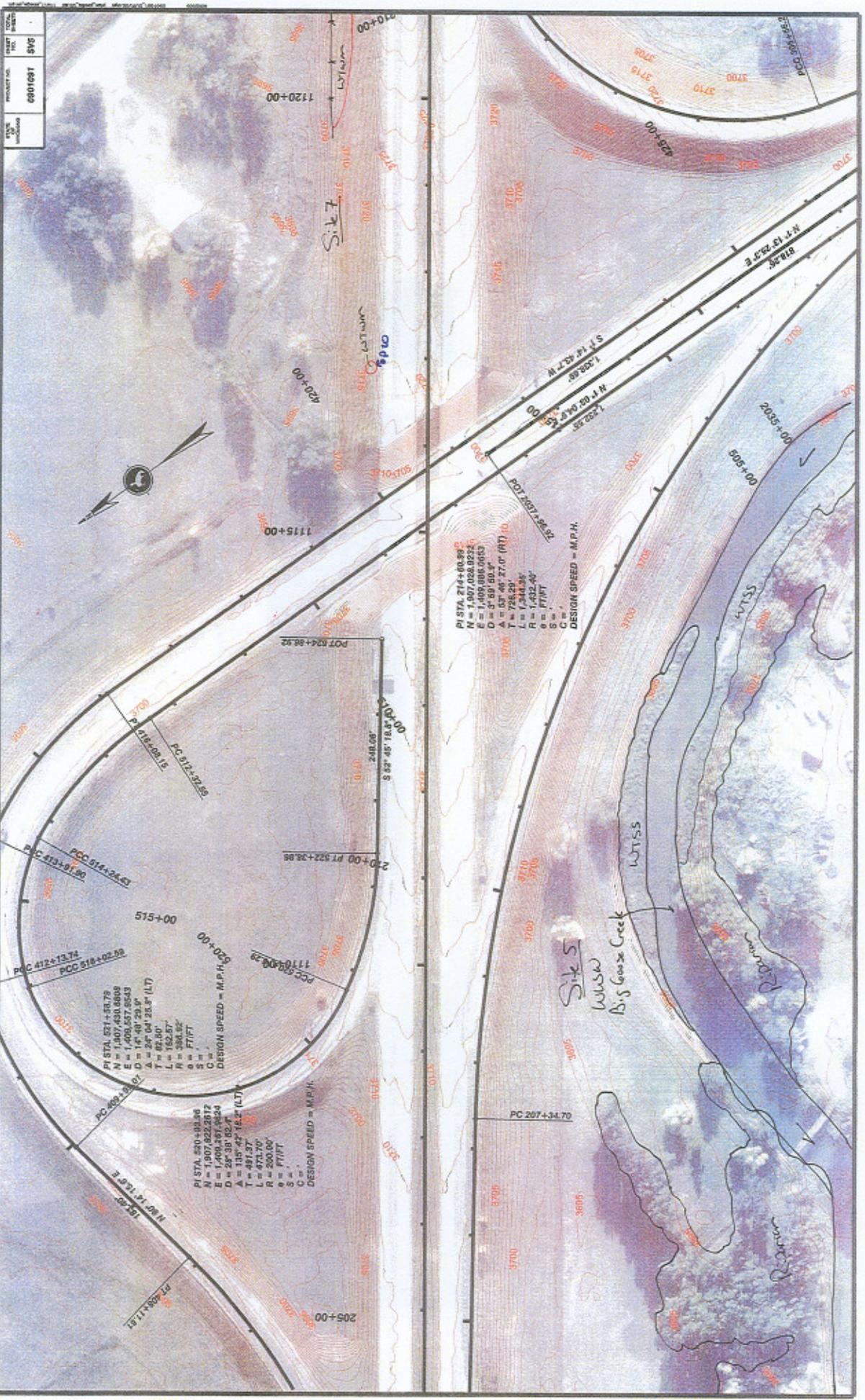
P49

P50

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 E = 1.40849753974
 D = 7° 09' 00.0"
 T = 126.89
 L = 874.87
 R = 716.30
 O = P/TWT
 S =
 C =
 DESIGN SPEED = M.P.H.





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09/16/21	600	



PI STA 520+00.00
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 R = 394.52'
 S = 1:11.71
 C = 1:11.71
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 A = 25° 04' 28.3" (LT)
 T = 62.80'
 L = 394.52'
 R = 394.52'
 S = 1:11.71
 C = 1:11.71
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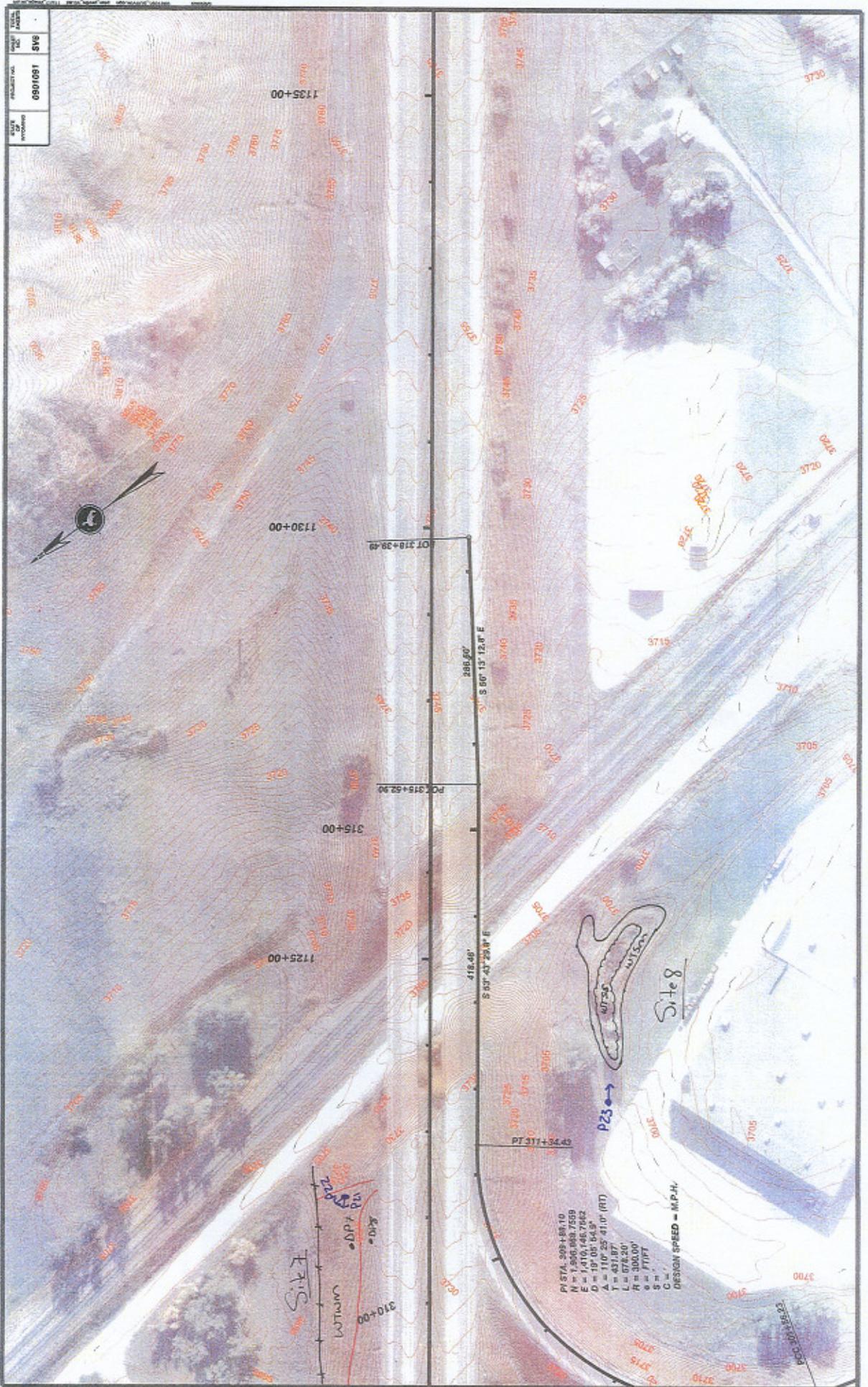
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 L = 394.52'
 R = 394.52'
 S = 1:11.71
 C = 1:11.71
 DESIGN SPEED = M.P.H. 40

PI STA 520+00.00
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 E = 1,403,531.5223
 D = 14° 04' 28.3" (LT)
 A = 25° 04' 28.3" (LT)
 T = 62.80'
 L = 394.52'
 R = 394.52'
 S = 1:11.71
 C = 1:11.71
 DESIGN SPEED = M.P.H. 40

PI STA 520+00.00
 N = 1,407,453.0889
 E = 1,403,531.5223
 D = 14° 04' 28.3" (LT)
 A = 25° 04' 28.3" (LT)
 T = 62.80'
 L = 394.52'
 R = 394.52'
 S = 1:11.71
 C = 1:11.71
 DESIGN SPEED = M.P.H. 40

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 E = 1,403,531.5223
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 A = 25° 04' 28.3" (LT)
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 C = 1:11.71
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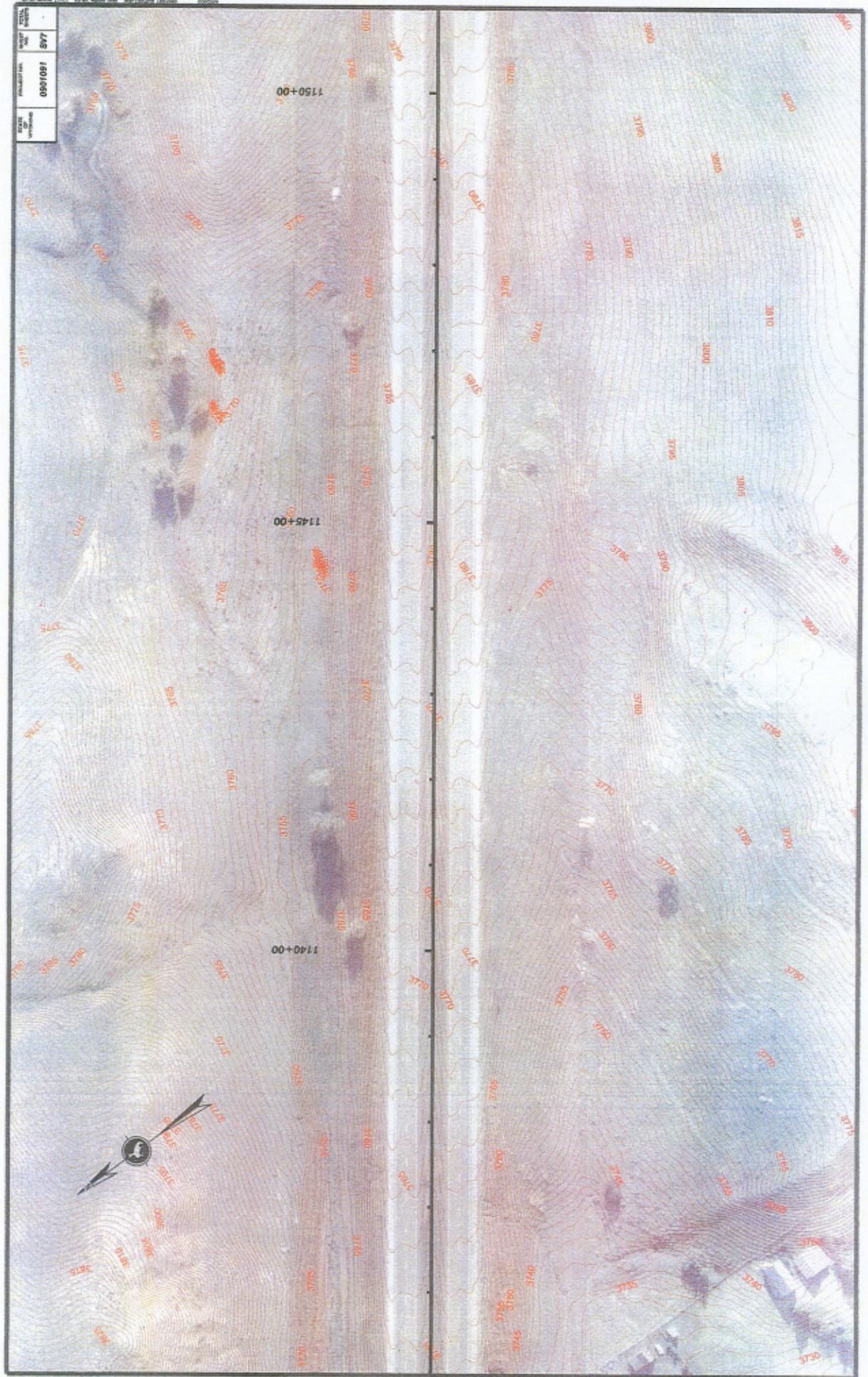
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DATE	8/18/10
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BY	SVS



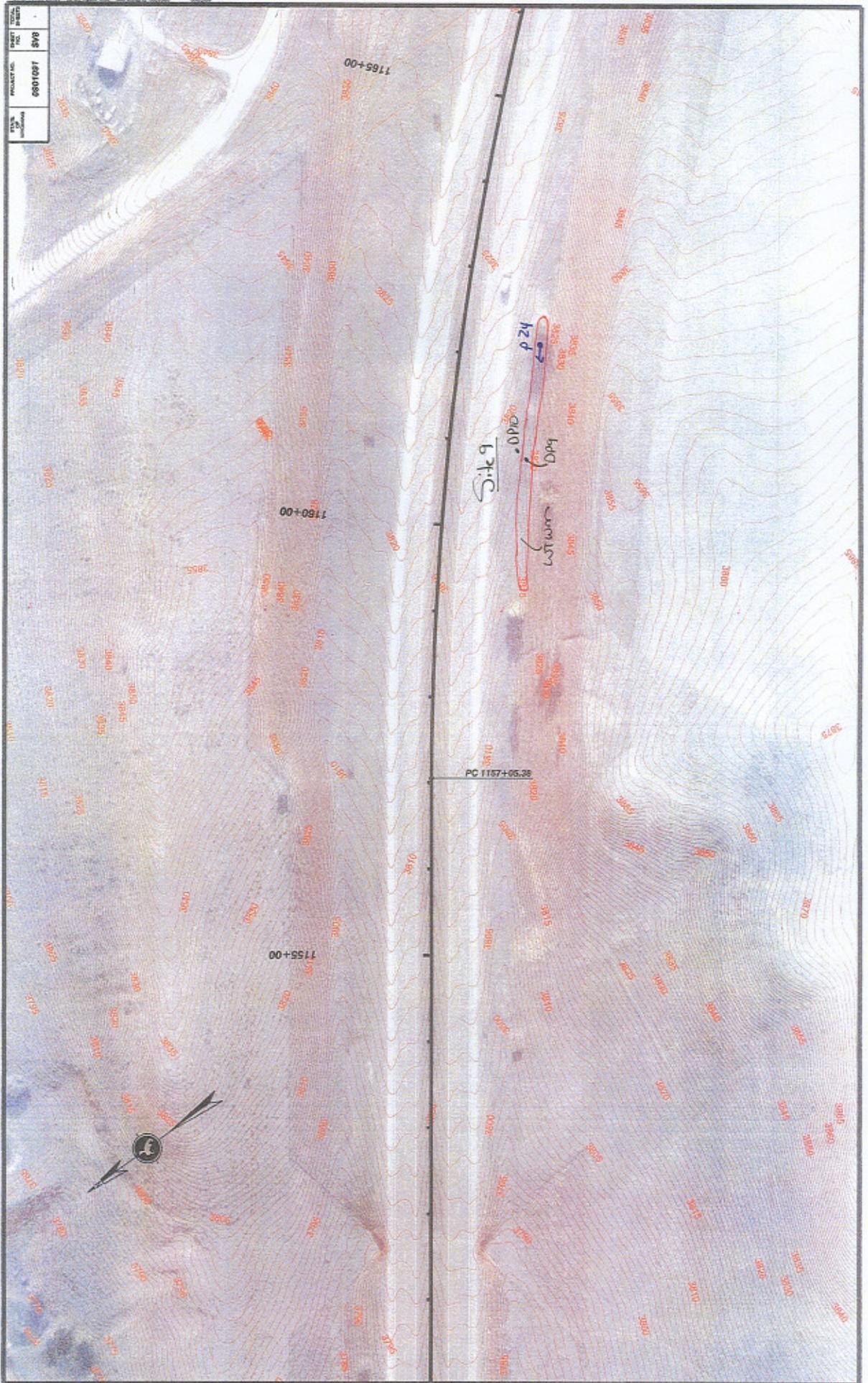
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 DESIGN SPEED = M.P.H.

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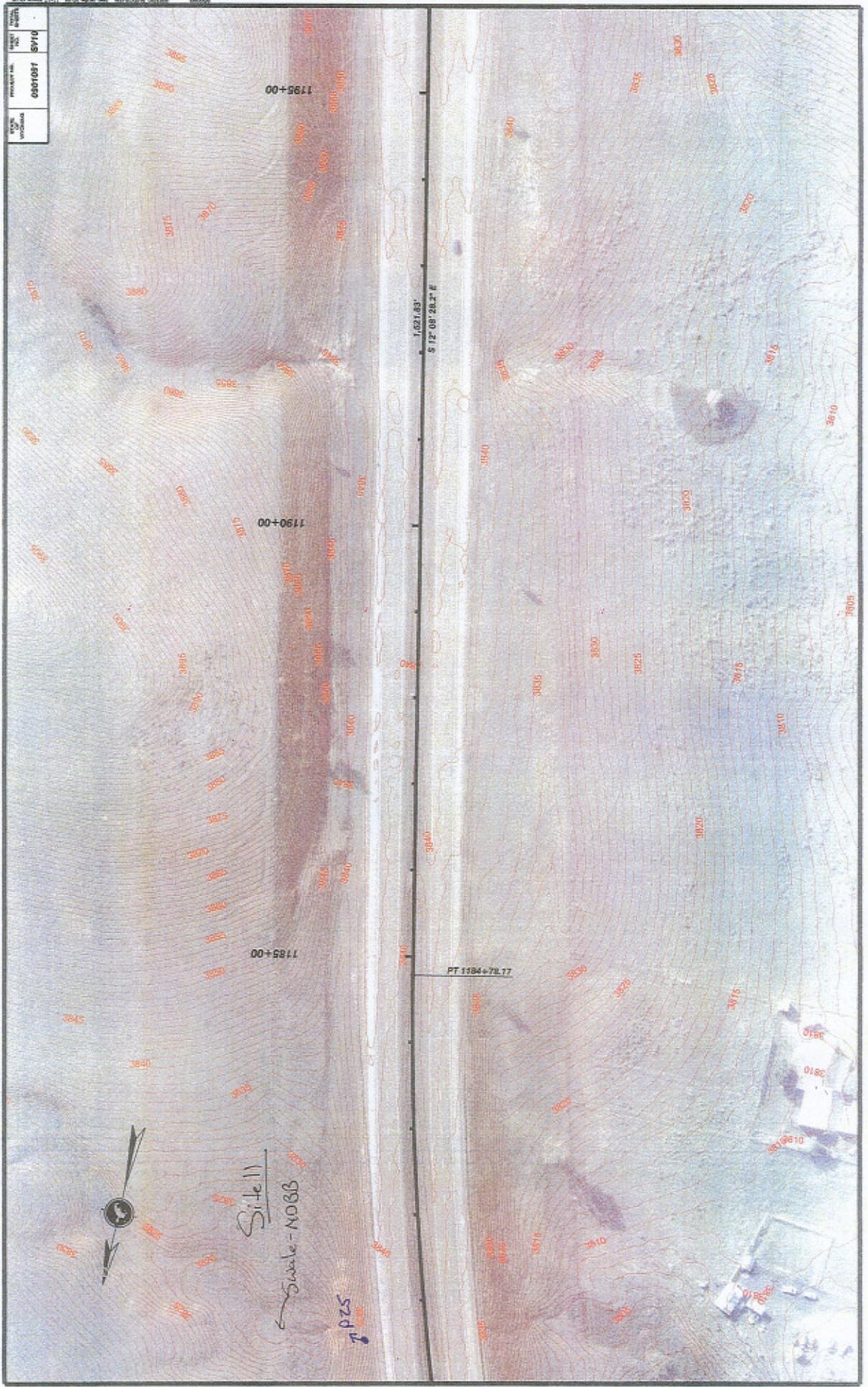
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SHEET NO. 1



PROJECT NO. 0801001
SHEET NO. 5/9
TOTAL SHEETS 9



PROJECT NO. 0001087
SHEET NO. 5/10



DATE: 08/10/07
PROJECT: SW11



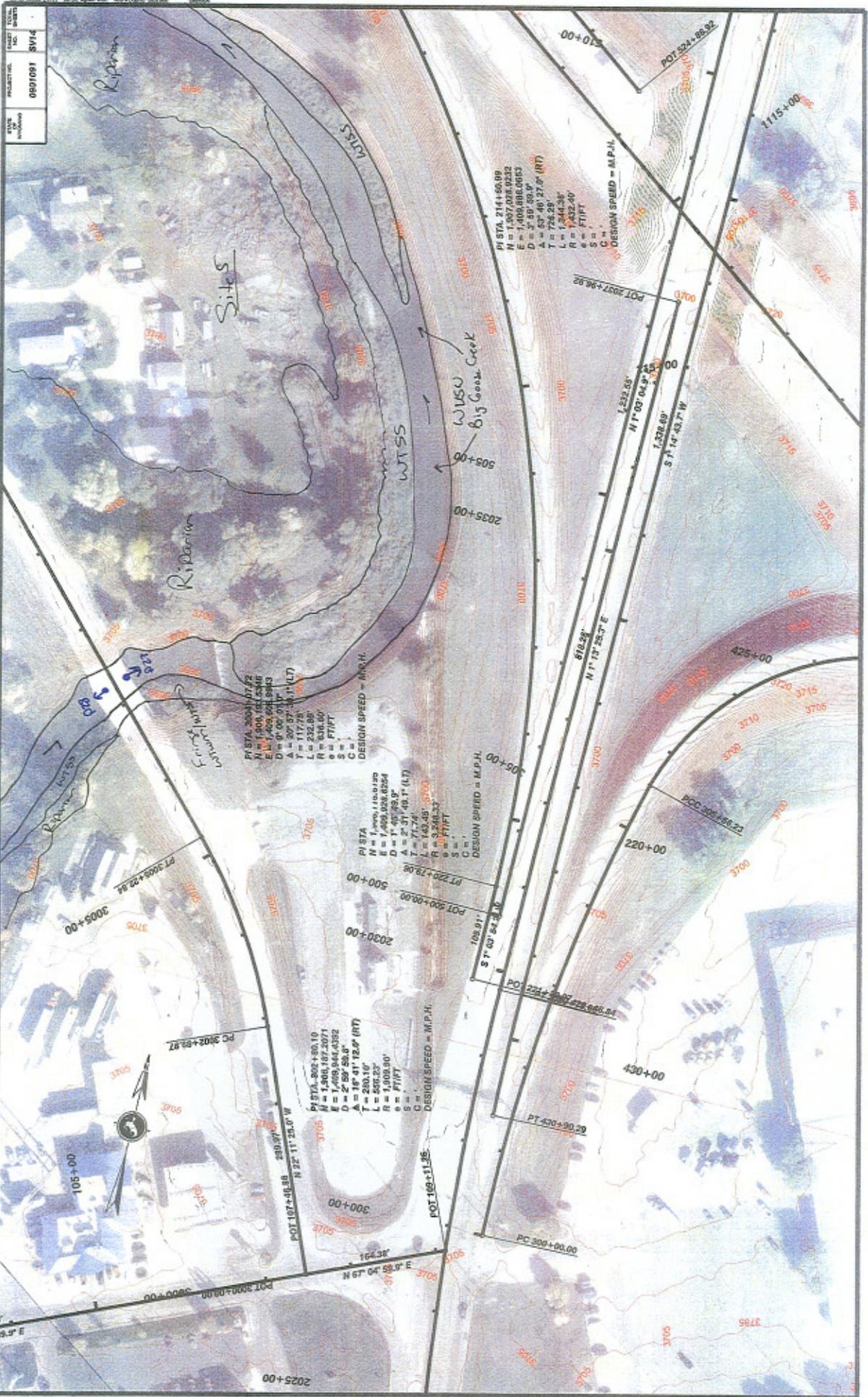
Site 12

p20
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POT 1200+00.00

DATE	2/14/25
PROJECT NO.	14801089
DATE	01/20/2024
SCALE	AS SHOWN





DATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
08/10/18	0801001	31/42	

Riparian

Riparian

WISU Big Goose Creek

PI STA 3004+07.72
 N = 1,909,161.2346
 E = 1,409,801.0943
 D = 6° 00' 01.11"
 A = 87° 57' 30.11" (LT)
 L = 232.88'
 R = 836.80'
 S = FT/PT
 C =

PI STA 3002+30.10
 N = 1,909,167.2071
 E = 1,409,826.8254
 D = 1° 00' 03.9"
 A = 75° 31' 49.1" (LT)
 L = 143.80'
 R = 324.32'
 S = FT/PT
 C =

PI STA 3002+30.10
 N = 1,909,167.2071
 E = 1,409,826.8254
 D = 1° 00' 03.9"
 A = 75° 31' 49.1" (LT)
 L = 143.80'
 R = 324.32'
 S = FT/PT
 C =

PI STA 214+56.89
 N = 1,307,008.0232
 E = 1,400,000.0000
 D = 57° 46' 27.0" (RT)
 T = 726.28'
 L = 1,244.35'
 R = 1,432.40'
 S = FT/PT
 C =

PI STA 214+56.89
 N = 1,307,008.0232
 E = 1,400,000.0000
 D = 57° 46' 27.0" (RT)
 T = 726.28'
 L = 1,244.35'
 R = 1,432.40'
 S = FT/PT
 C =

PI STA 214+56.89
 N = 1,307,008.0232
 E = 1,400,000.0000
 D = 57° 46' 27.0" (RT)
 T = 726.28'
 L = 1,244.35'
 R = 1,432.40'
 S = FT/PT
 C =



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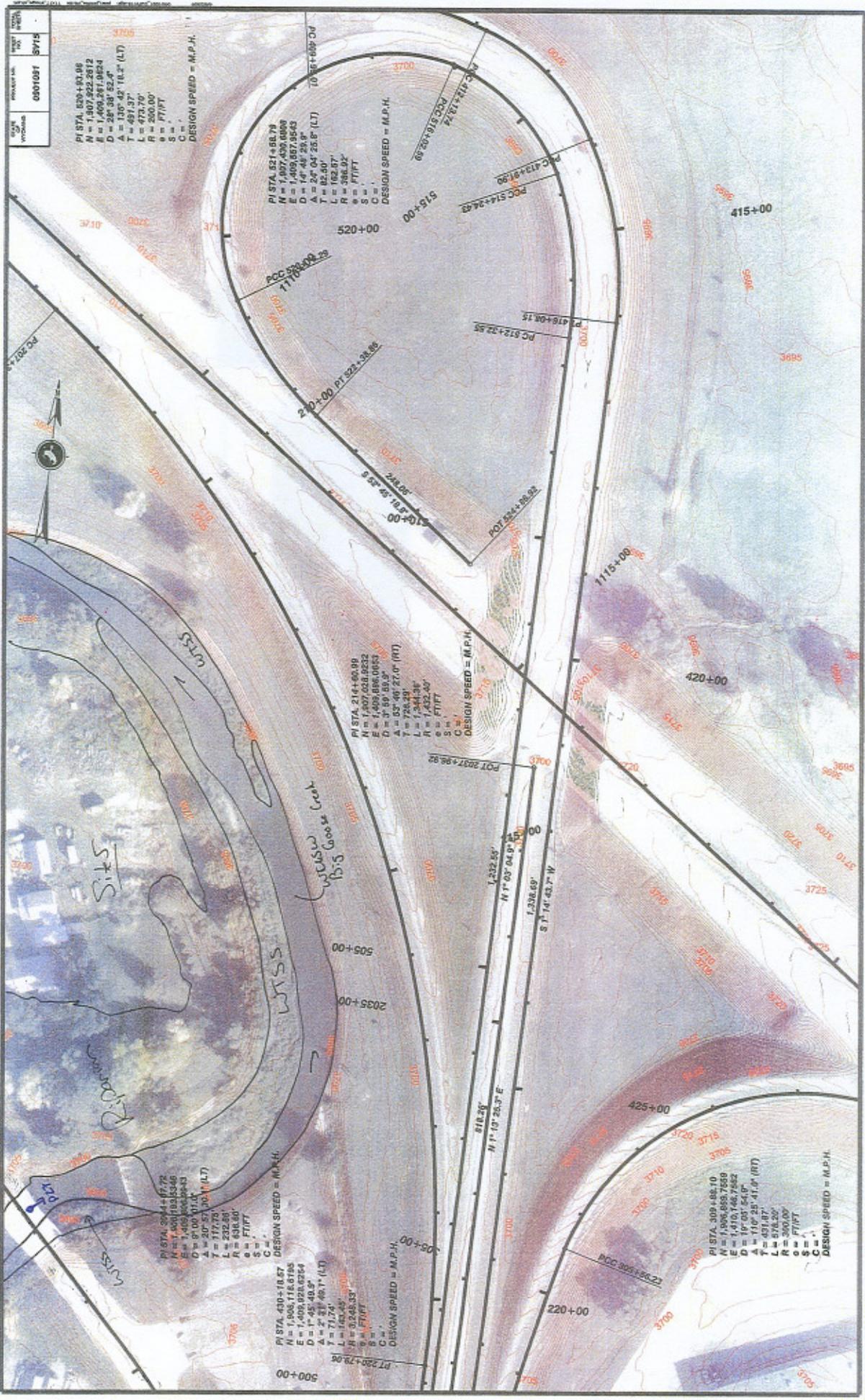
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SHEET NO. 0001081
 PROJECT NO. 0001081
 DATE 07/15

PI STA. 626+81.06
 N = 1,907,222.2612
 E = 1,409,297.9824
 D = 130° 02' 16.2" (LT)
 T = 491.37'
 L = 473.70'
 R = 200.00'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.

PI STA. 521+58.79
 N = 1,907,409.0699
 E = 1,409,297.9824
 D = 14° 45' 23.8" (LT)
 T = 24° 04' 23.8" (LT)
 L = 162.00'
 R = 388.92'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.

PI STA. 214+60.99
 N = 1,907,023.0232
 E = 1,409,896.0693
 D = 10° 49' 12.3" (RT)
 T = 238.20'
 L = 1,341.38'
 R = 1,432.40'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.

PI STA. 304+87.72
 N = 1,909,193.5346
 E = 1,409,896.0693
 D = 8° 00' 07.0"
 T = 20° 57' 00.0" (LT)
 L = 177.73'
 R = 232.00'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.

PI STA. 410+10.57
 N = 1,906,116.6785
 E = 1,409,925.9254
 D = 1° 45' 48.9"
 T = 71.74'
 L = 162.00'
 R = 326.53'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.

PI STA. 309+48.10
 N = 1,906,893.7559
 E = 1,410,746.7552
 D = 10° 03' 54.0"
 T = 110° 25' 41.9" (RT)
 L = 651.00'
 R = 300.00'
 S = PT/PT
 C = S
 DESIGN SPEED = M.P.H.



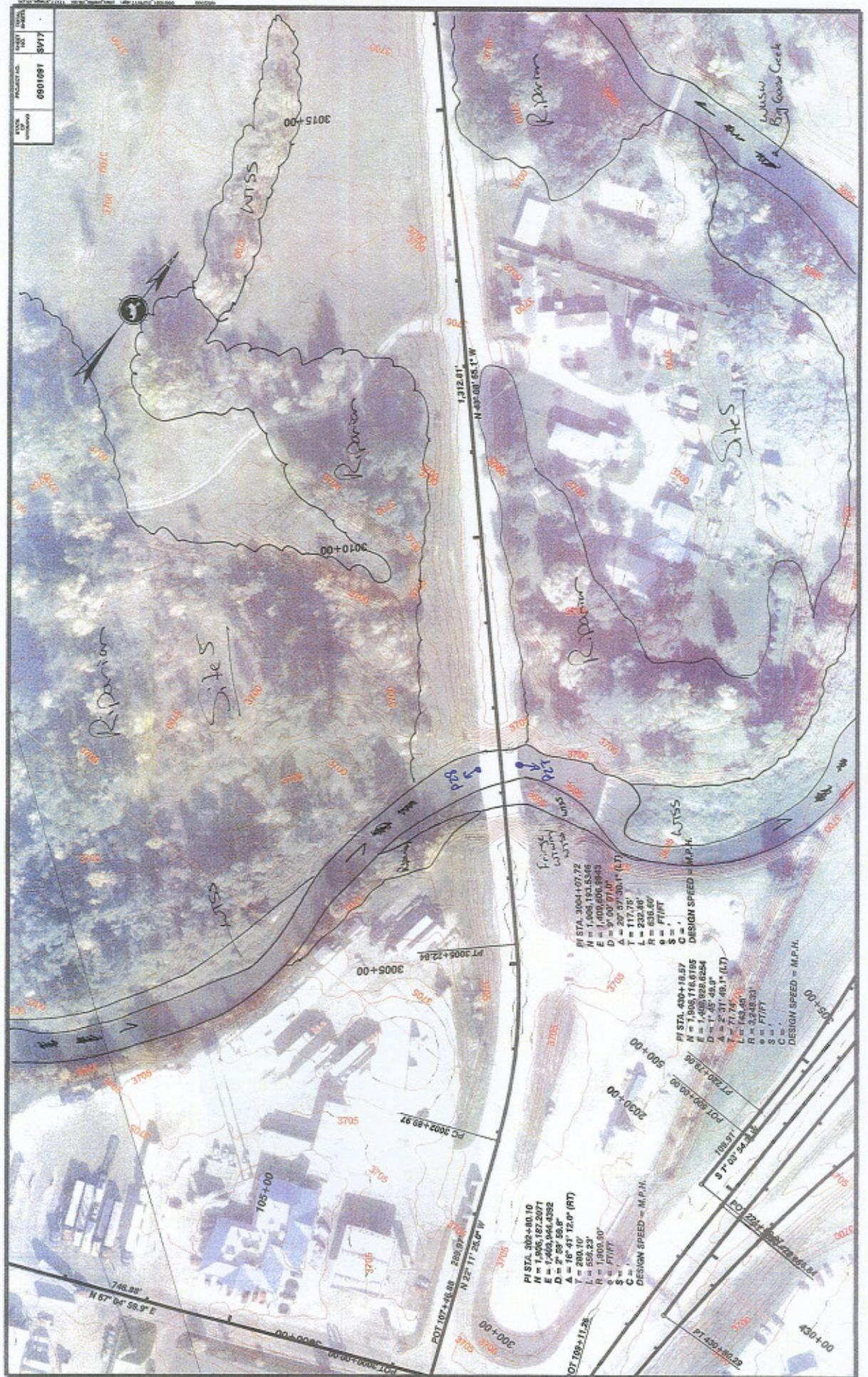
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WSS

155 Goose Lake

WSS

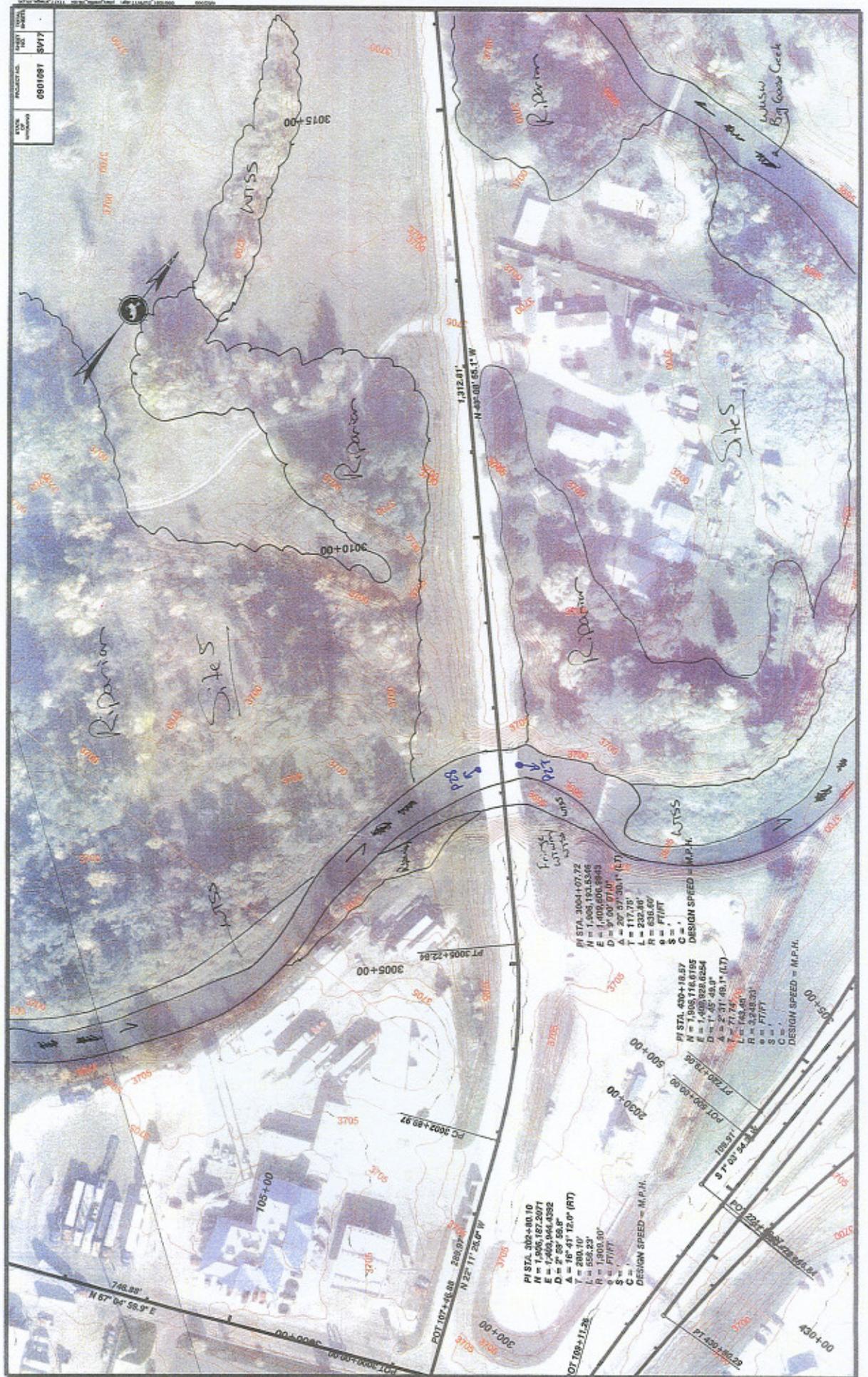
PROJECT NO. 0801081
 SHEET NO. 3417

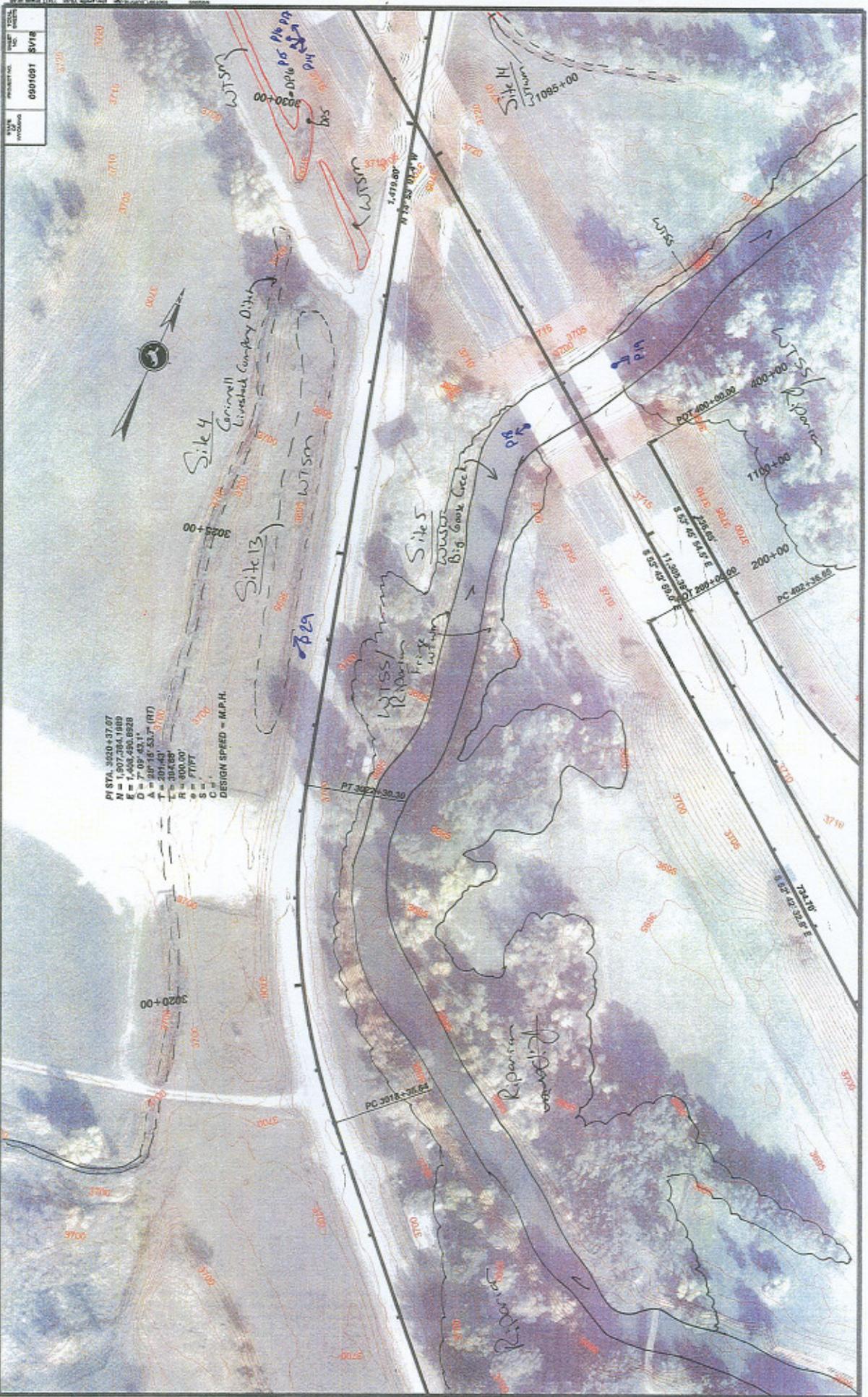


PI STA. 304+07.72
 N = 1,408,183.5346
 E = 1,409,806.9945
 D = 9° 00' 07.10"
 T = 20° 57' 30.1" (L.T.)
 L = 117.76'
 R = 638.86'
 S = PVIPT
 C = ,
 DESIGN SPEED = M.P.H.

PI STA. 430+18.87
 N = 1,908,118.0108
 E = 1,409,828.6254
 D = 1° 45' 48.9"
 T = 2° 31' 48.1" (L.T.)
 L = 71.74'
 R = 163.48'
 S = PVIPT
 C = ,
 DESIGN SPEED = M.P.H.

PI STA. 308+80.10
 N = 1,906,187.2071
 E = 1,409,946.4382
 D = 8° 59' 55.8"
 T = 17° 12.0" (RT)
 L = 180.10'
 R = 1,900.30'
 S = PVIPT
 C = ,
 DESIGN SPEED = M.P.H.





PROJECT NO.	0901091	DATE	5/17/20
ISSUE NO.		SCALE	

PI STA. 3020+37.07
 N = 1,907,384.1885
 E = 7,466,490.0828
 D = 7.09 45.17 (RT)
 A = 201.43 53.7 (RT)
 L = 302.89
 R = 600.00'
 S = TTFT
 C =
 DESIGN SPEED = M.P.H.



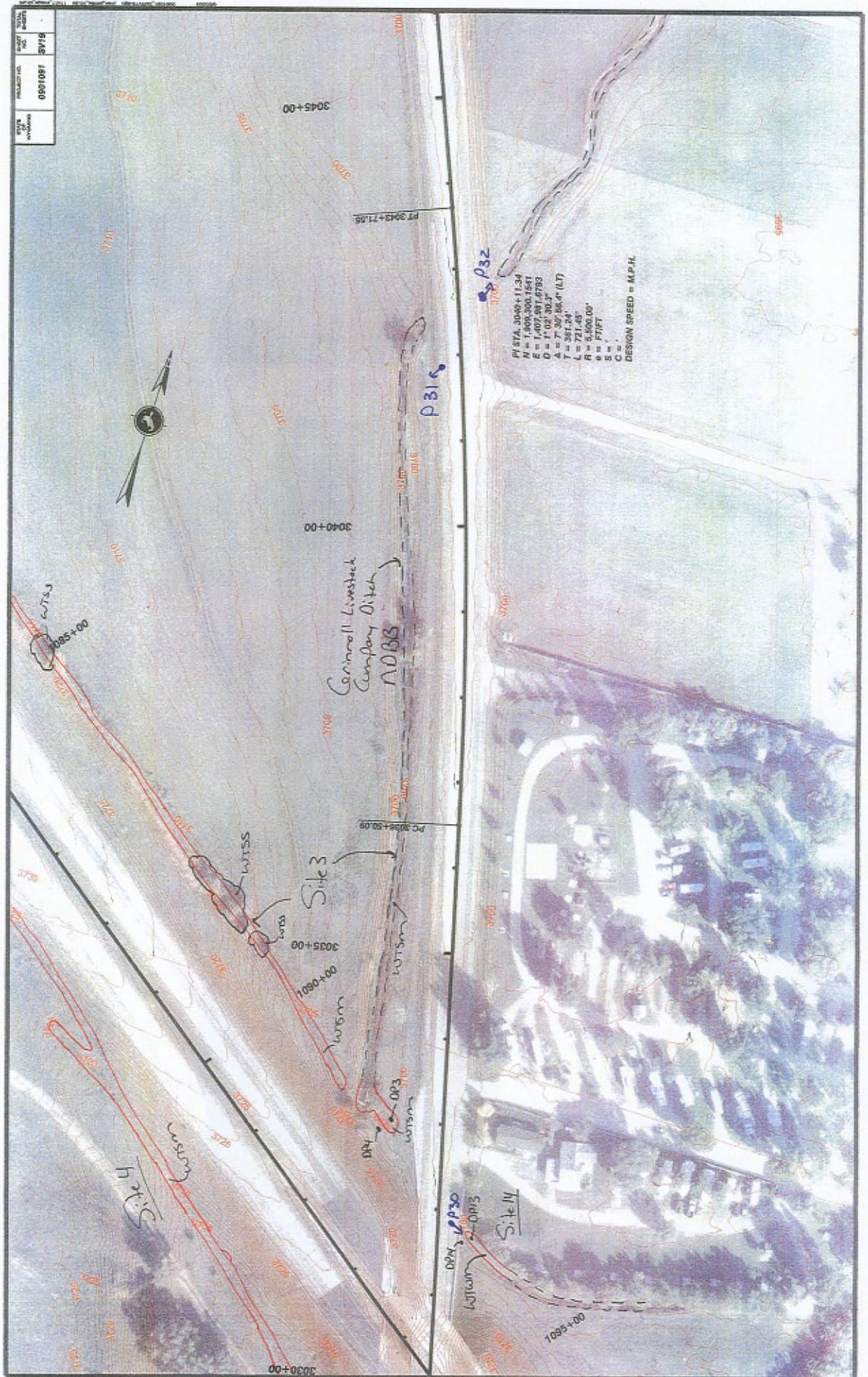
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Site 3
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PT 3022+30.20
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Site 5
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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
INDIANA	0801081	5175	5175

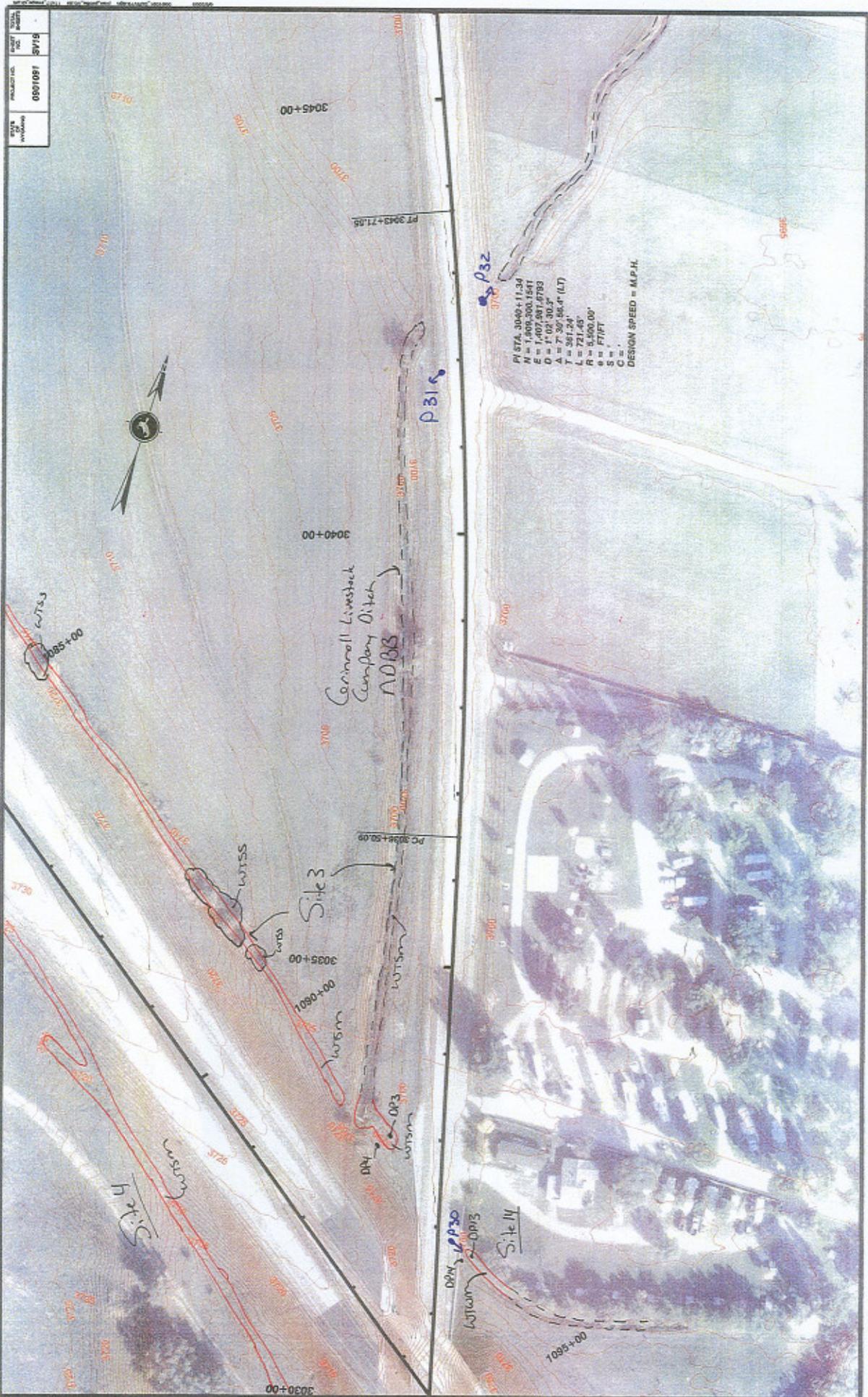


PI STA. 3040+11.34
 R = 1,909.200,1541
 C = 1,407.587,0793
 A = 71.02, 30.3°
 T = 361.24, 166.4 (LT)
 L = 721.48'
 R = 9,500.00'
 S = 11.11%
 E = 11.11%
 C = 1
 DESIGN SPEED = M.P.H.

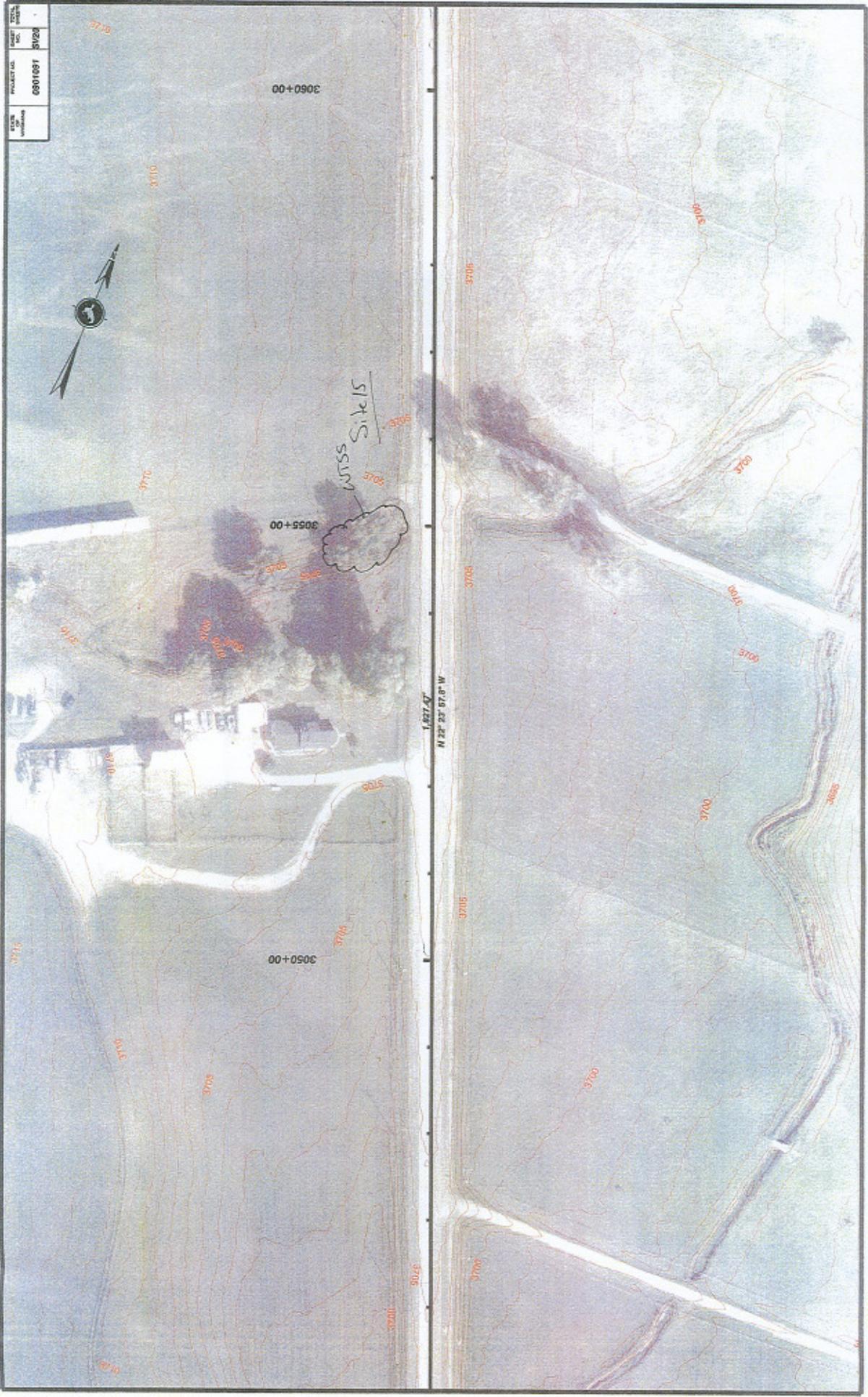
Carnoll Livestock
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Site 3

Site 4



PROJECT NO. 0801091
DATE 5/20
SHEET NO. 1



00+090C

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WSS Sinks

1,877.47
N 23° 25' 07.0" W