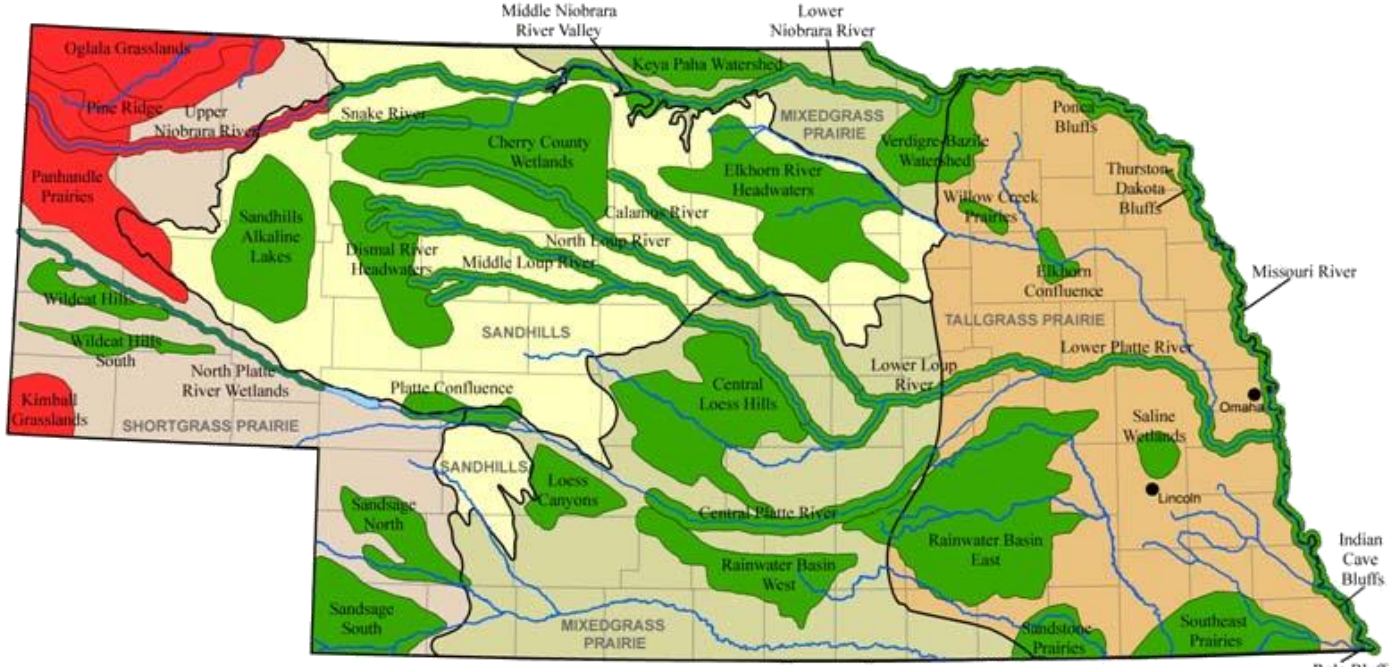
NRCS

Integrated Planning - Engineering

NRCS Engineers

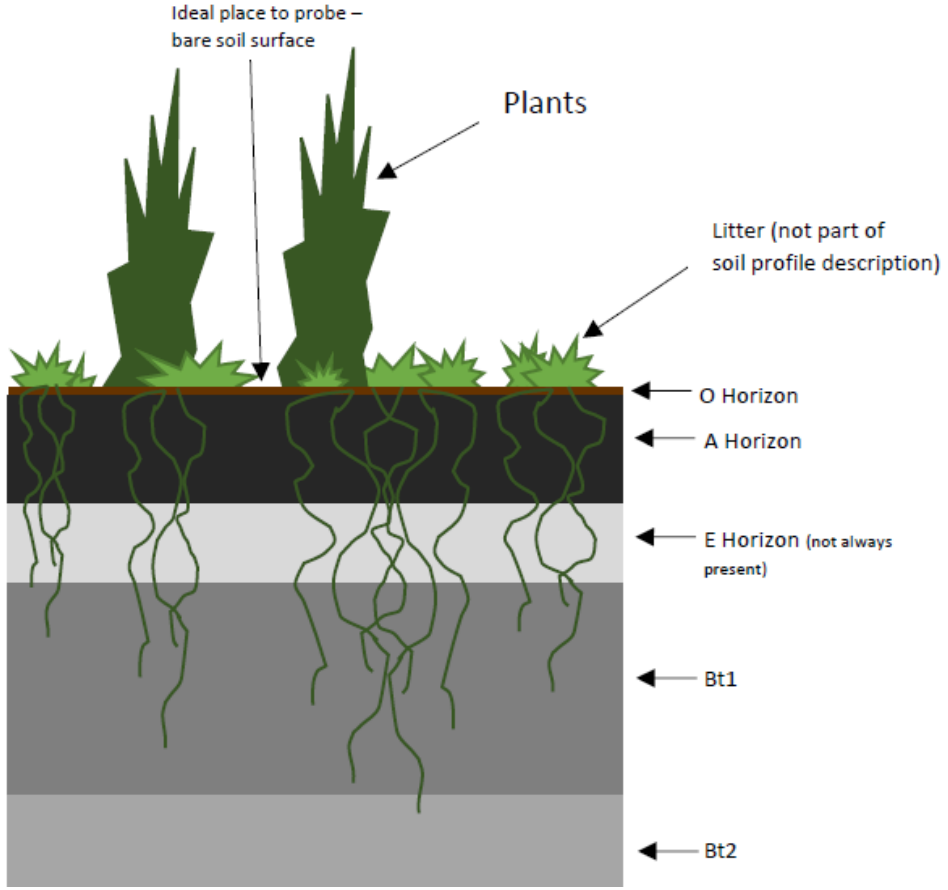
Planning Information needed

- Biological goals (NRCS Easement Team Lead, Ducks Unlimited, FWS, NGPC)
  - Wetland Complex / Type / Historical Function
    - Restoring Vegetation
    - Tree & brush removal
  - Inundation depths, hydroperiods, saturated vs inundated areas
    - Restoring Hydrology



Planning Information needed

- Soils investigation (Soil Scientist)
  - Sedimentation depths / Depth to Bt
  - Depth to sand
  - Depth to ground water
  - Wetland delineation

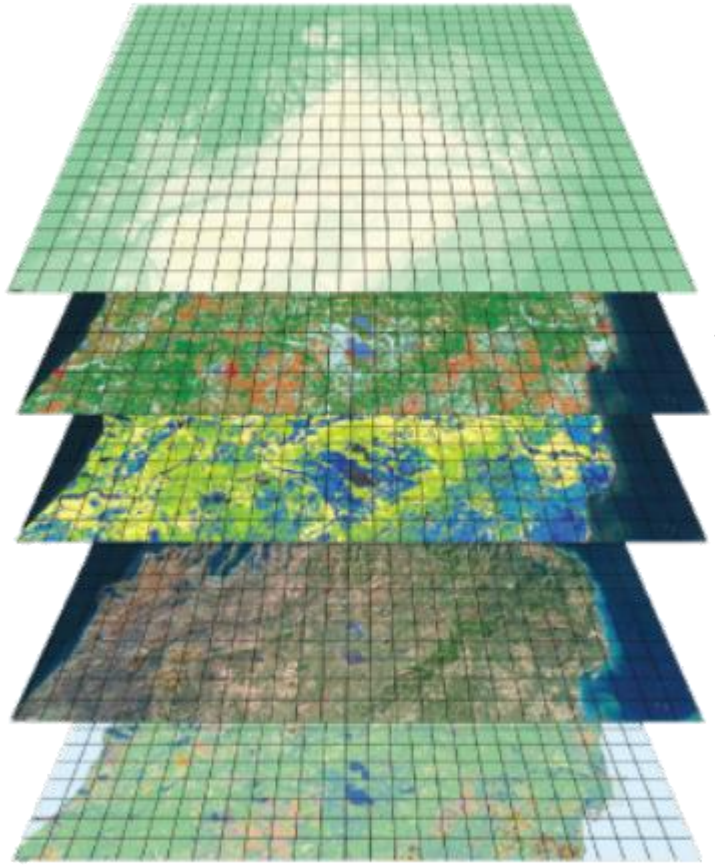


Planning Information needed

- Engineering Evaluation
  - GIS
    - Aerials & LiDAR + Soils
  - Hydrologic data
    - Water budgets (spreadsheets, SPAW, EFH-2, WETS Tables)
  - Hydraulic analysis
    - USGS stream gauge data, HEC-RAS, Mannings Eqn

Preliminary Design Phase

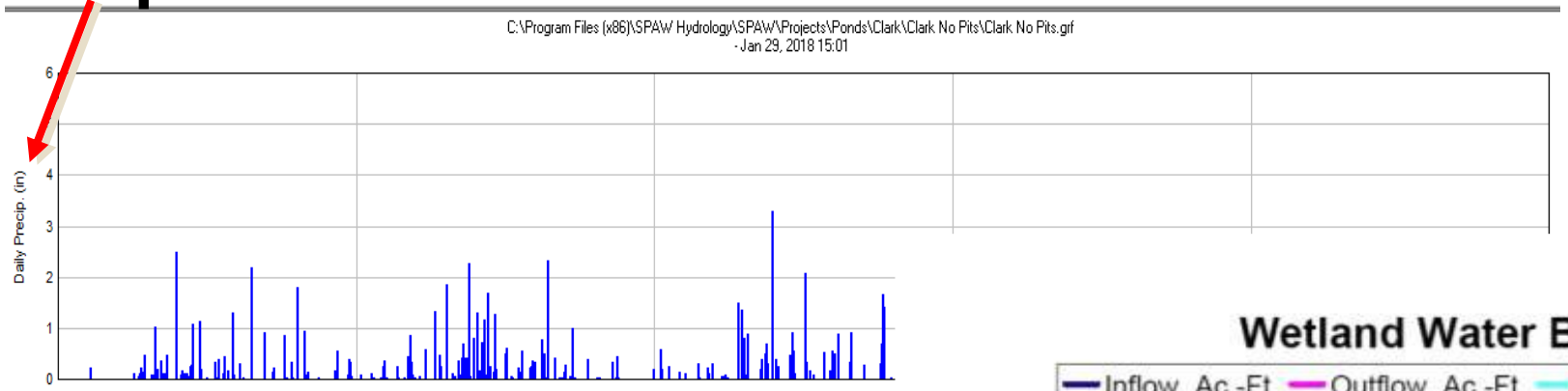
- Engineering Evaluation
  - Layer stack

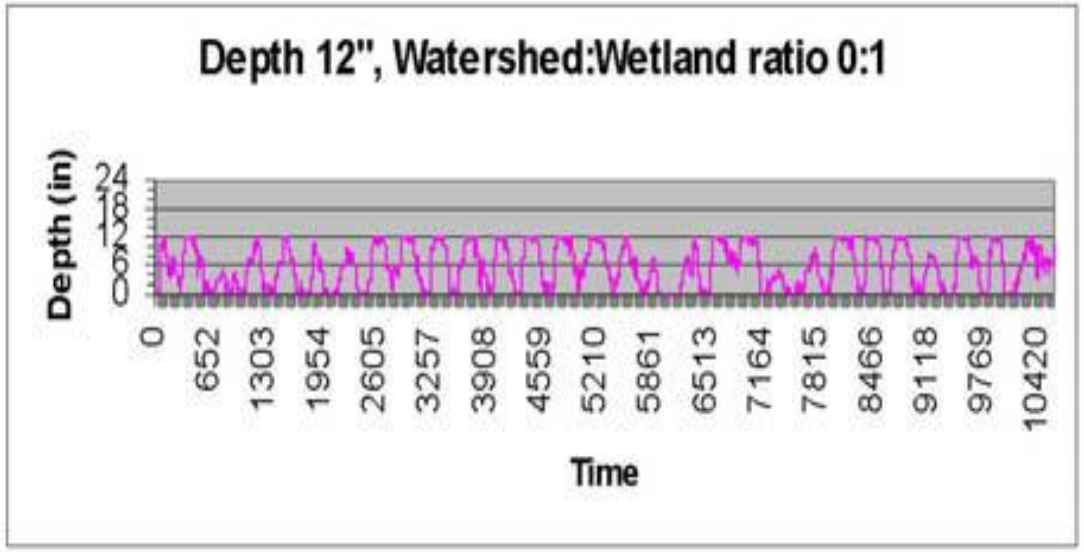


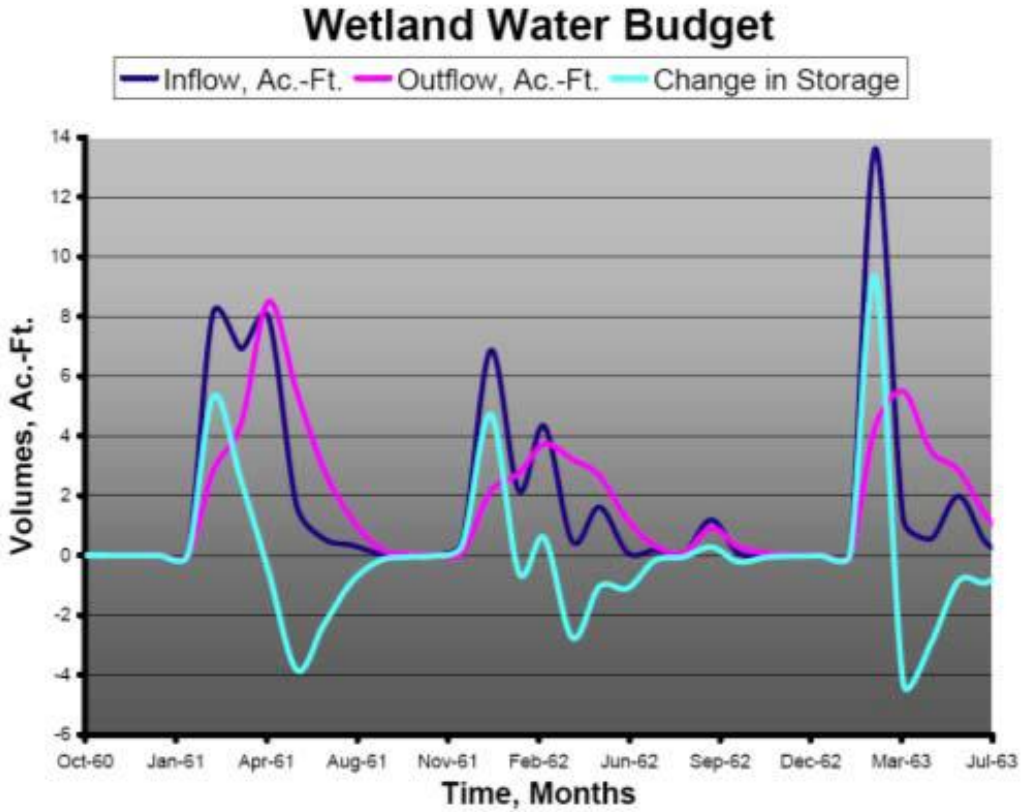
Elevation
↓
Vegetation
↓
Slope
↓
Soils
↓
Result

Hydrologic Data - SPAW

Precipitation

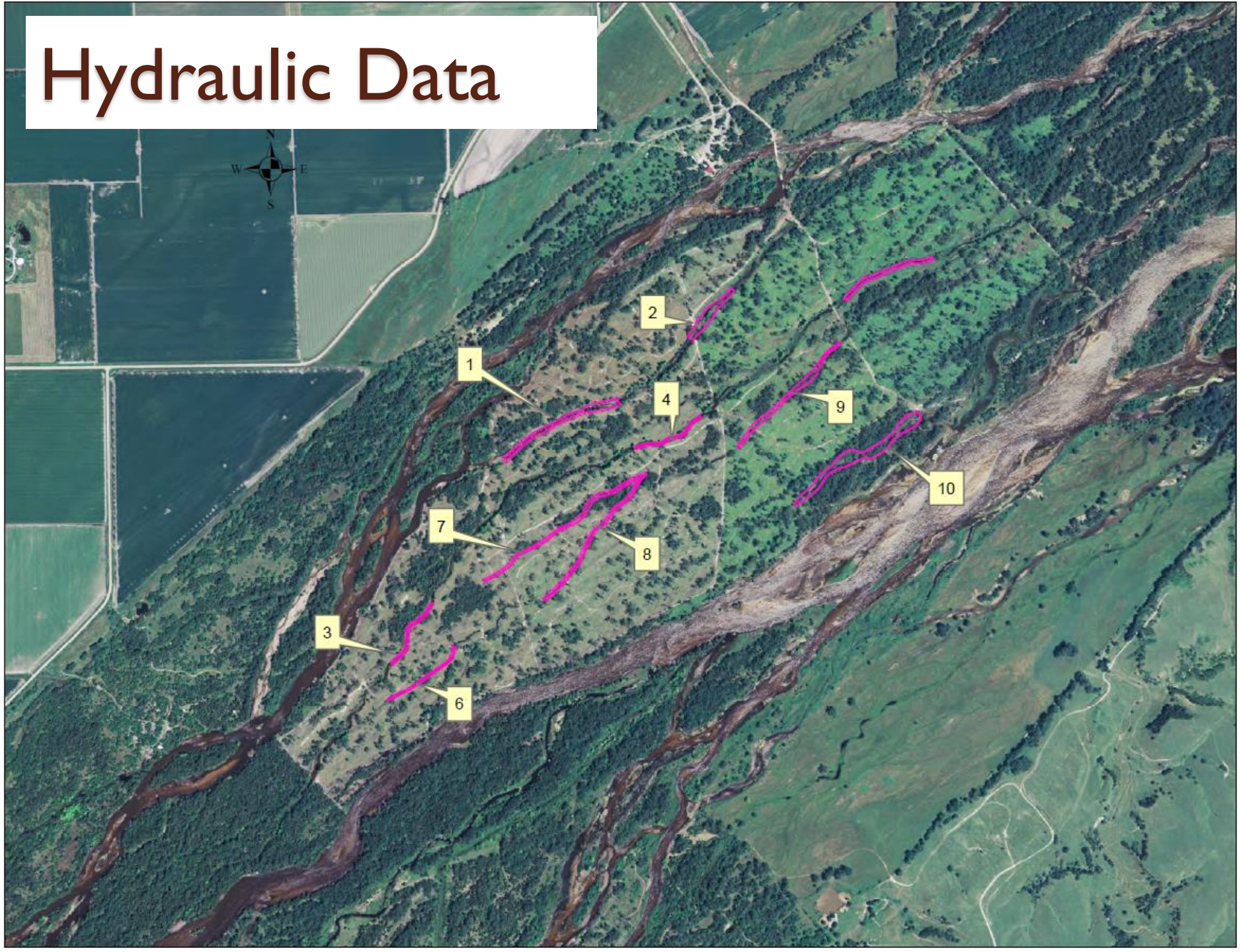




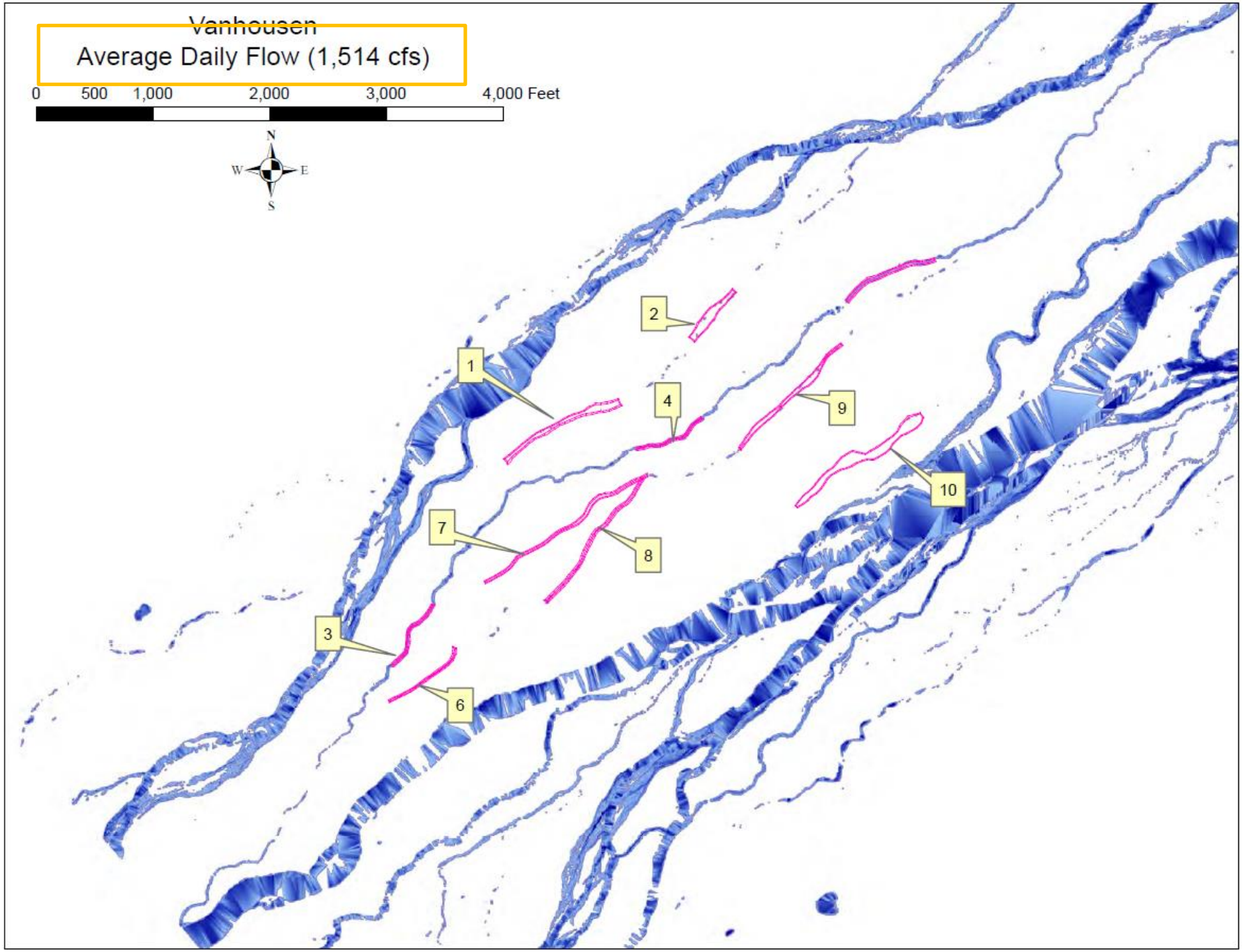


NRCS

Hydraulic Data



NRCS


Vanhousen
Average Daily Flow (1,514 cfs)
0 500 1,000 2,000 3,000 4,000 Feet
N
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6
7
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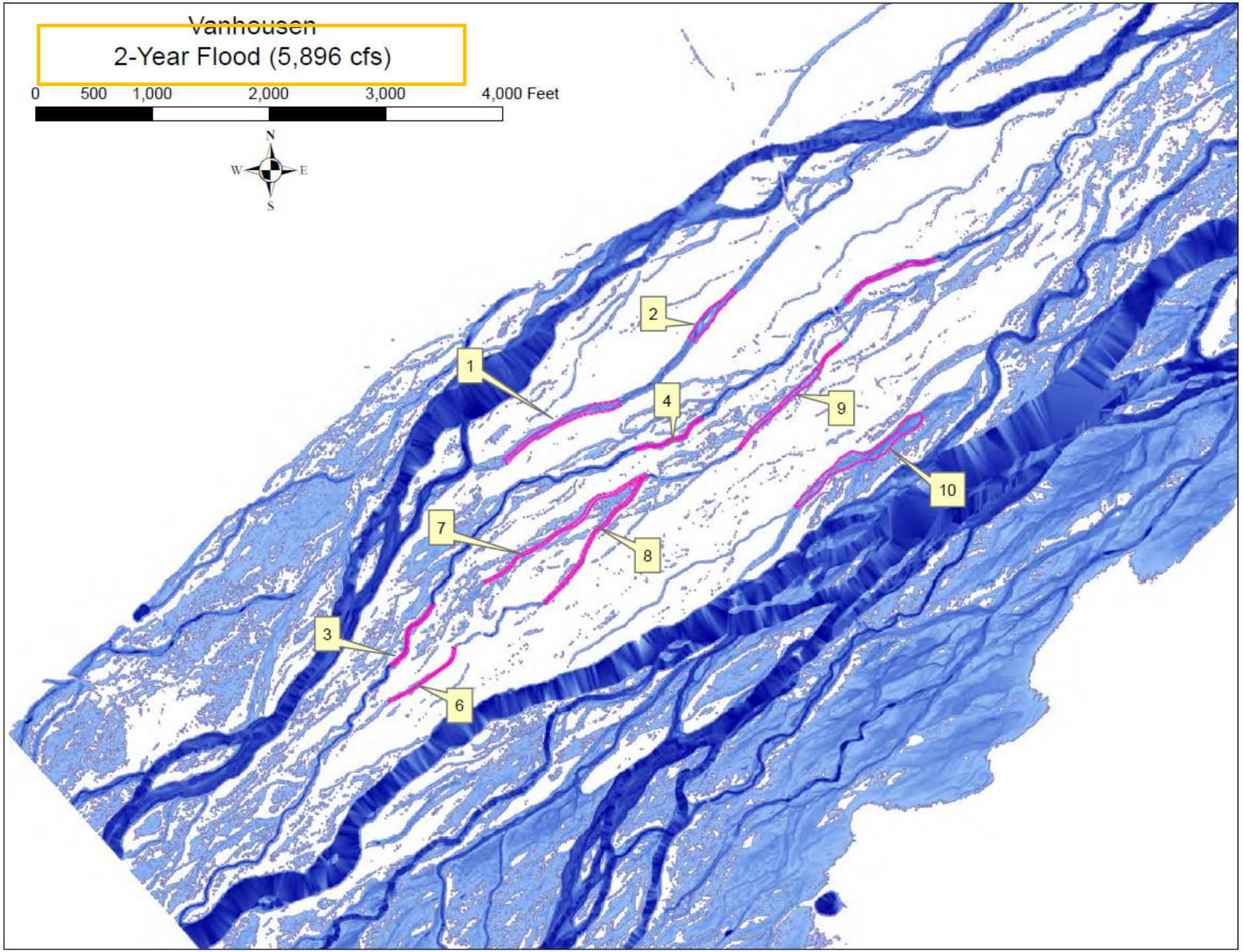
NRCS


Vanhousen
2-Year Flood (5,896 cfs)
0 500 1,000 2,000 3,000 4,000 Feet
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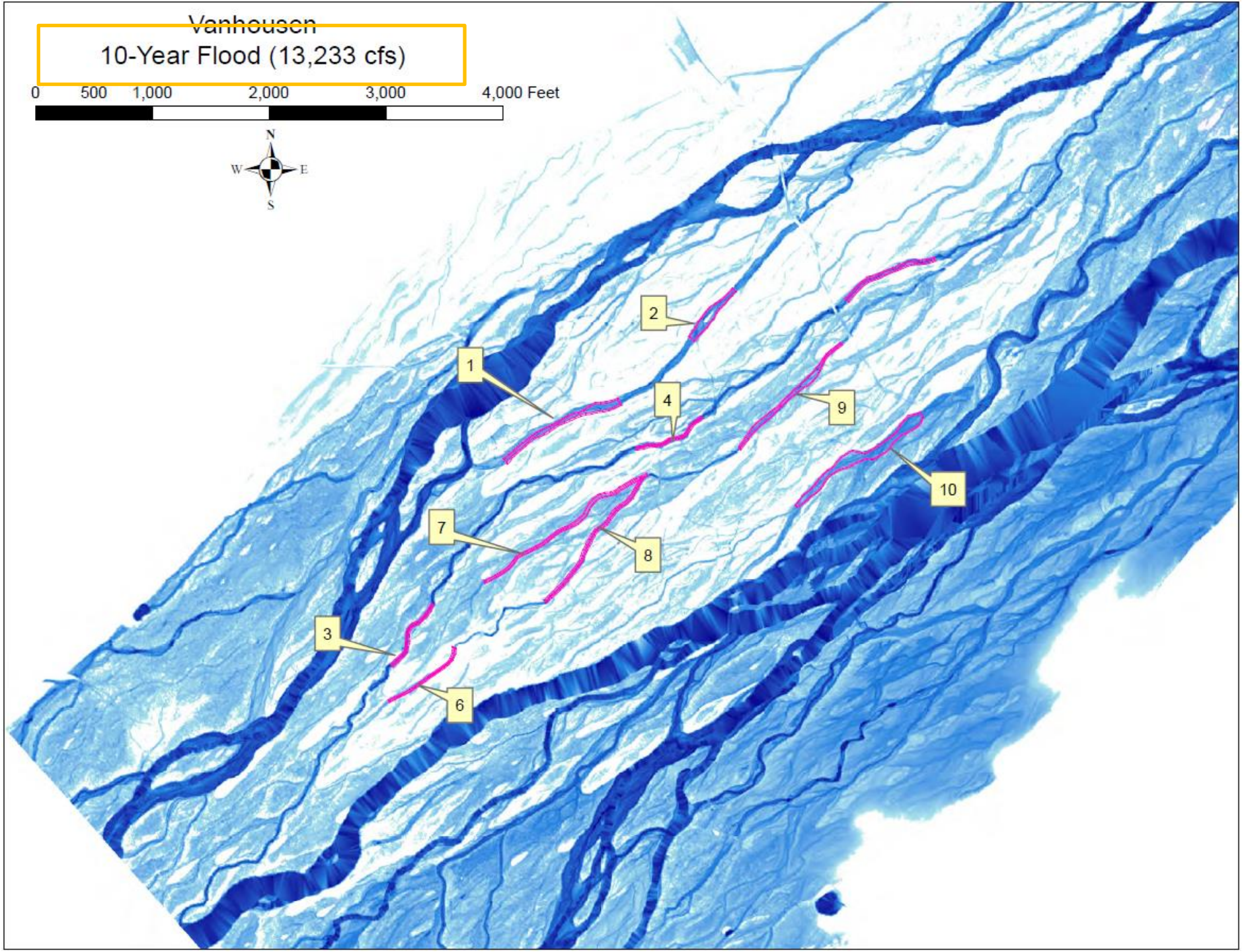
NRCS


Vanhousen
10-Year Flood (13,233 cfs)
0 500 1,000 2,000 3,000 4,000 Feet
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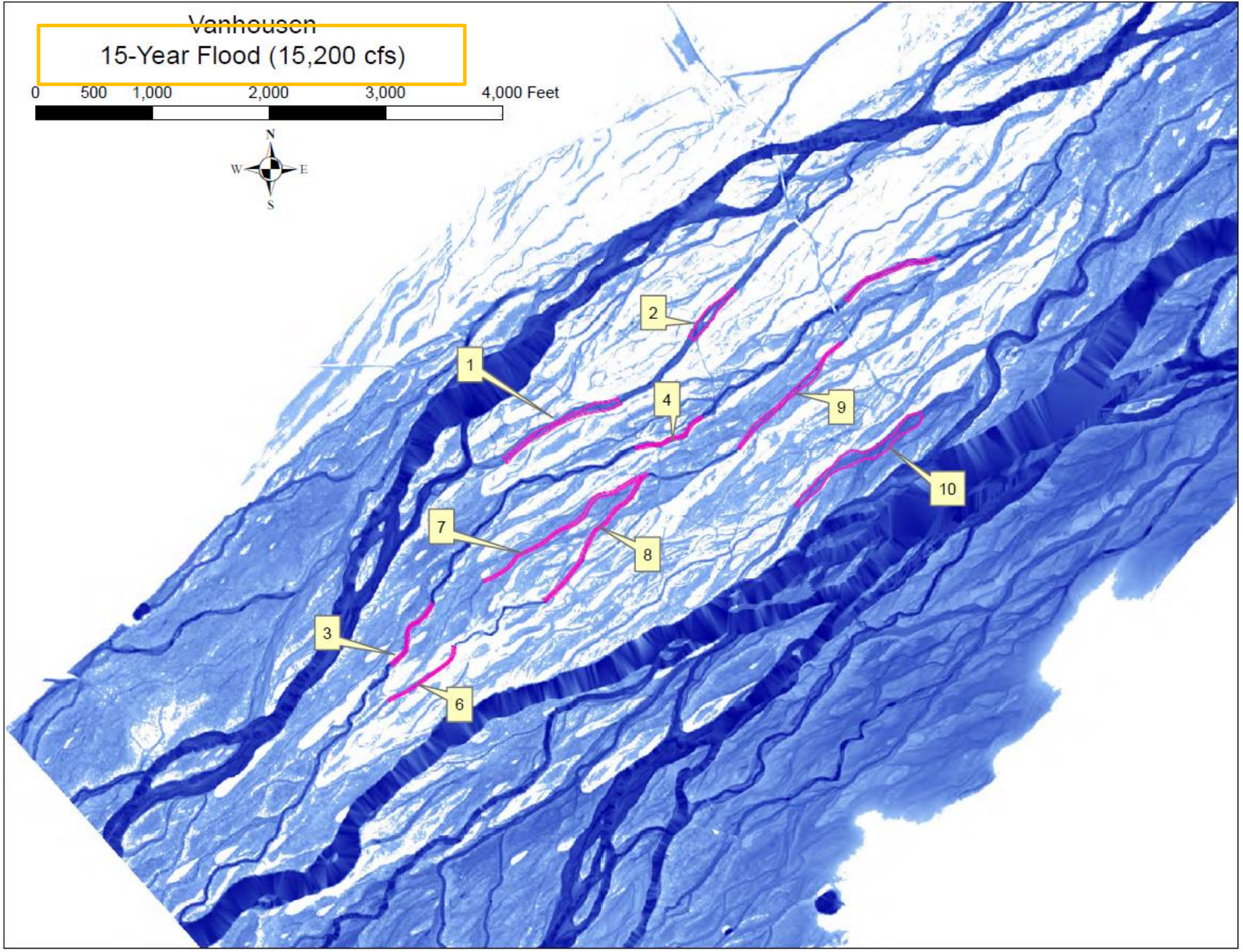
NRCS


Vanhousen
15-Year Flood (15,200 cfs)
0 500 1,000 2,000 3,000 4,000 Feet
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Hydraulic Data – Wet Meadows, Ditch Plugs

Hydraulic Data – Wet Meadows, Ditch Plugs

https://sandhillstaskforce.org/project/awesome-project-1/

Hydraulic Data – Wet Meadows, Ditch Plugs

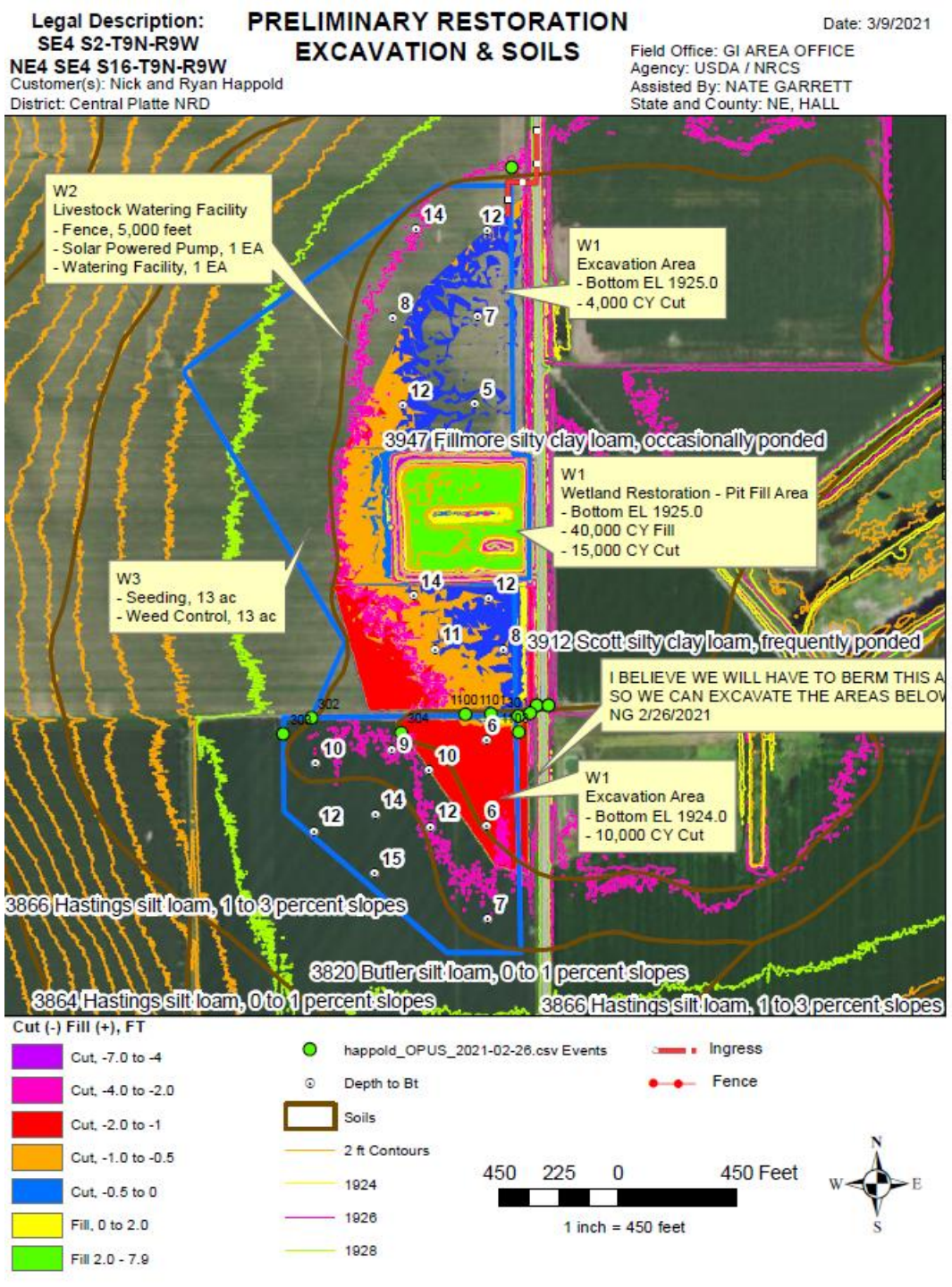
https://sandhillstaskforce.org/project/awesome-project-1/

Preliminary Design Phase

- Evaluating Alternatives (Feasibility)
  - Impacts to neighbors
    - Flooding (overland) or Lateral Effects (groundwater)
    - 3rd Party Conversion (compensatory storage on pit fills)
  - Stakeholder Objectives vs Program vs Cost $ for full restoration
  - Permitting
  - Constructability

Preliminary Design Phase

- Engineering Deliverables
  - Preliminary plans and cost estimate



Preliminary Design Phase

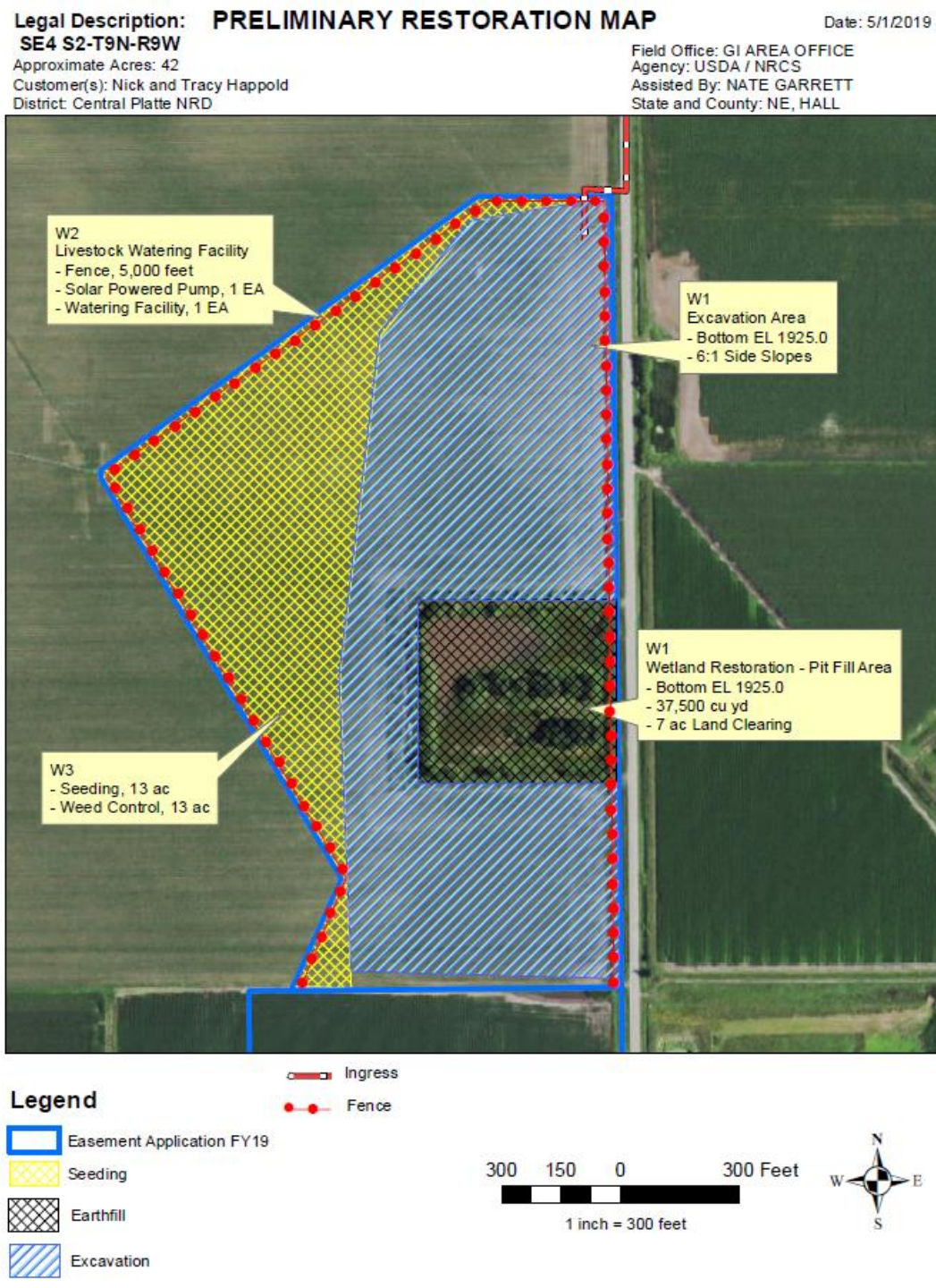
- Engineering Deliverables
  - Preliminary plans and cost estimate

LANDOWNER OBJECTIVES:
Restore native grasslands, native wildlife habitat and wetlands to the fullest extent possible
TEAM OBJECTIVES:
Restore native grasslands, native wildlife habitat and wetlands to the fullest extent possible

FIELD #	PRACTICE	QNT	UNIT $	EST. COST
W1	(644/645) Wetland and Upland Wildlife Habitat	42	ac	---
W1	(657) Wetland Restoration	29	ac	---
W1	(657) Earthfill - Pit Fill (yd3)	38000	$4.00	$152,000
W1	(460) Land Clearing - Tree removal, burn/bury	7	$3,400.00	$23,800
W2	(642) Well (ft)	200	$50.00	$10,000
W2	(533) Pumping Plant (Each)	1	$10,000	$10,000
W2	(614) Tank (Ea)	1	$5,000	$5,000
W2	(382) Fence (Ft)	5000	$2.00	$10,000
W2	RWBJV Financing Grazing Infrastructure	1	$35,000.00	($35,000)
W3	(315) Herbaceous Weed Control (acres)	13	$50.00	$650
W3	(550) Range Seeding - seed, site prep (acres)	13	$400.00	$5,200
	TOTAL ESTIMATED RESTORATION COST			$181,650

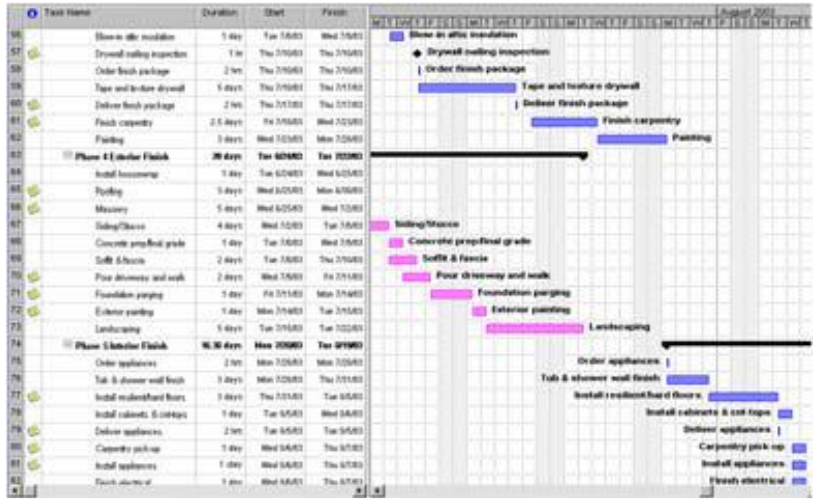
NOTES: 181650 / 42 = 4325 $/ac
Please note that the Preliminary Restoration Plan has been completed in the absent of necessary information
needed to finalize restoration plans such as topographic surveys, biological surveys and sediment investigations.
This can lead to changes in planned activities, estimated quantities and actual cost.

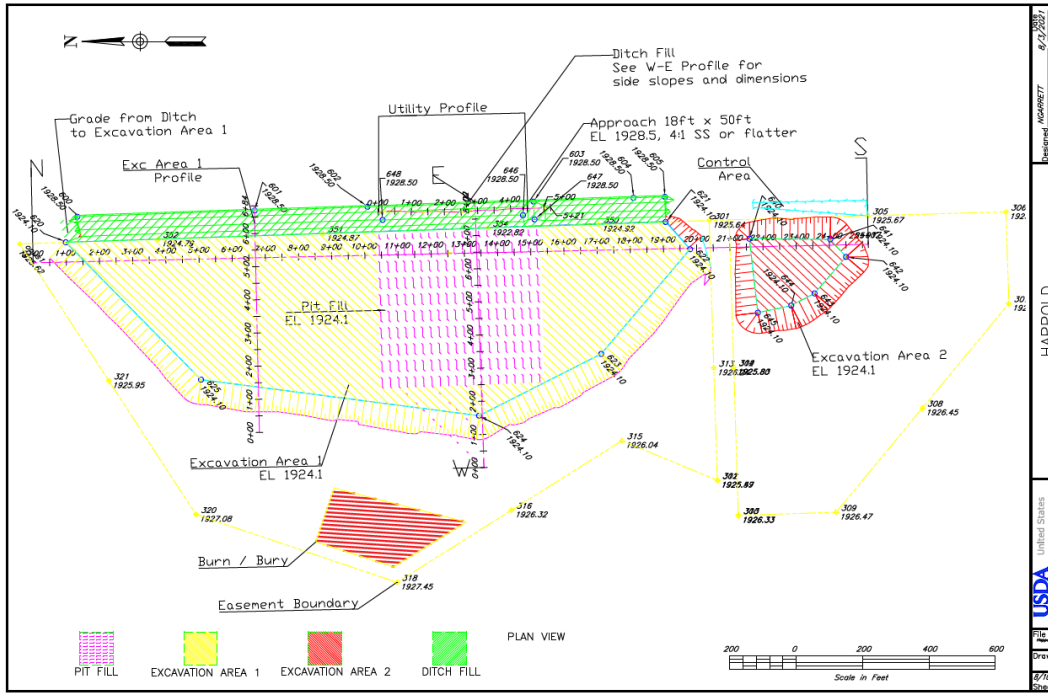
INITIAL & DATE - LANDOWNER: _____ NRCS: _____ FWS/NG&P: _____



Final Design Phase

- Construction Plans & Specs
  - What you want (Plan)
  - When you want it (Sequence)
  - How you want it (Specs)
  - How much of it (Quantities)





Final Design Phase

- Final Deliverables
  - Construction Plans
  - Construction Specifications
  - Bid Packet

BID SCHEDULE
EXAMPLE WETLAND RESTORATION

BID ITEM	SPEC NO.	QUANTITY	UNITS	UNIT PRICE	TOTAL COST
Site Prep and Strct Removal, Pit Area	1, 8, 11	1	EA		
Land Clearing and Grubbing, Pit Area	2A	5.8	AC		
Site Preparation, Disking Exc Area 1	21, 23	11	AC		
Site Preparation, Disking Exc Area 2	21, 23	2.6	AC		
Excavation, Stripping Pit Area	21	2,900	CY		
Excavation, Stripping Ditch Fill	21	1,800	CY		
Excavation, Ditch Fill	21	1,000	CY	----	----
Excavation Area 1	21	33,300	CY	----	----
Excavation Area 2	21	3,300	CY	----	----
Earthfill, Stripping, Pit Area	23	3,600	CY		
Earthfill, Pit	23	29,000	CY		
Earthfill, Stripping, Ditch Fill	23	2,300	CY		
Earthfill, Ditch Fill	23	8,900	CY		
Seed / Seeding (Ditch Fill)	6, cpa8	3.4	AC		
				LUMP SUM Total Bid * =	

* Project will be bid as lump sum and shall be based off of these planned quantities. Project construction must be completed by October 30, 2021.

** Site Preparation includes Mobilization / Demobilization, removal and disposal of culverts and debris in excavation or earthfill areas, and site dewatering.

*** Earthfill cubic yards are figured with 25% compaction. Borrow sources are shown as excavation on plan map. Excavation is subsidiary to earthfill where "zeroed" in bid schedule above.

EARTHWORK ACTIVITIES NOTED ON PLANS AS "DITCH FILL" MUST BE COMPLETED BY OCTOBER 31, 2021.

Company Name	Address	City	State

Signature	Phone Number	Date

Return completed, signed bid to nathan.garrett@usda.gov

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
2550 North Diers, Suite L
Grand Island, NE 68803
(308) 395-8586, ext. 3

http://www.ne.nrcs.usda.gov

September 28, 2017

INVITATION FOR BIDS
<< Project Name >>
NameOf County, NE

Sealed proposals will be received at the Upper Big Blue NRD office, 319 E 25th Street York NE 68467, until **3:00 p.m., Tuesday, May 9, 2017**. The project construction plans and specifications are included with this invitation and generally consist of a pond restoration consisting of site preparation / structure removal, excavation, earthfill, installation of principal spillway riser / pipe / trash rack, and critical area seeding.

The proposals shall be made on the enclosed bid schedule. The bid must be received by the deadline above and submitted in a sealed envelope with the structure name "<< Project Name >>".

The Upper Big Blue NRD reserves the right to accept or reject any and all bids submitted. The NRD cost share rate will be 75% of the low-bid lump sum total. The contractor's lump sum total bid is calculated by summing eligible line items. Line item costs are based on contractor's unit costs multiplied by planned quantities in the bid schedule. The landowner is required to obtain bids from three contractors to establish the maximum cost-share.

Any quantity adjustment above those in the bid schedule must receive approval from the Upper Big Blue NRD. The contractor is obligated to immediately notify the NRD or NRCS and owner/operator of construction problems in order to facilitate practical, functional, and cost-effective project modifications. These problems may be associated with differing site conditions, construction staking and measurements, conflicts between plan drawings and specifications, defective materials, or other issues.

Final payment will be authorized by the NRD and issued to the landowner as soon as the structure has received final inspection and certification from the NRCS. Landowner is responsible for paying contractor.

Submit bid to:
<< Project Name >>
Attn: Jack Wergin
Upper Big Blue NRD
319 E 25th Street
York, NE 68467

If you have any questions, please contact the NRD or NRCS office at the number listed above.

Sincerely,
Nate Garrett, P.E.
NRCS Area Engineer

Enclosures

Helping People Help the Land

An Equal Opportunity Provider and Employer

Bid Acceptance

- Contracting
  - Low bid higher than the allocated funding / prelim cost estimate
    - Unit cost of component(s) higher than ACEP cost docket?
  - Low bid higher than the easement acquisition cost (Rejection)

NRCS

Questions?

LEMBURG RESTORATION, 2021