

**BROAD SCALE RECHARGE CONCEPT**

- City/Town
- County
- Canal (Color Varies)
- River
- Associated Habitat Area

SHEET NO:

**1**

OF:

**3**

**DRAFT**

**Zone 1 - Wetland/Wet Meadows Sites:**

- Bermed wetland and wet meadow areas (double as habitat and recharge sites).
- Utilize existing properties and wetlands, as well as private lands with partnership potential.
- Direct deliveries via pipeline from Phelps County Canal.
- Estimated total recharge capacity of ~135 cfs.
- Assuming 90 day operations: 24,000 AF of recharge, with a 9,500 AF score.

**ZONE 3 - ESTIMATED COSTS:**

Item:	Unit Cost	Qty	Cost
Deliveries	\$100,000	LS	\$100,000
Earthwork	\$3.50/CY	35,000	\$122,500
Infrastructure	\$25,000/pond	3	\$75,000
<b>Total</b>			<b>\$297,500</b>
<b>Total w/ 25% Contingency</b>			<b>\$371,875</b>

**Zone 3 - Excavated Recharge Sites:**

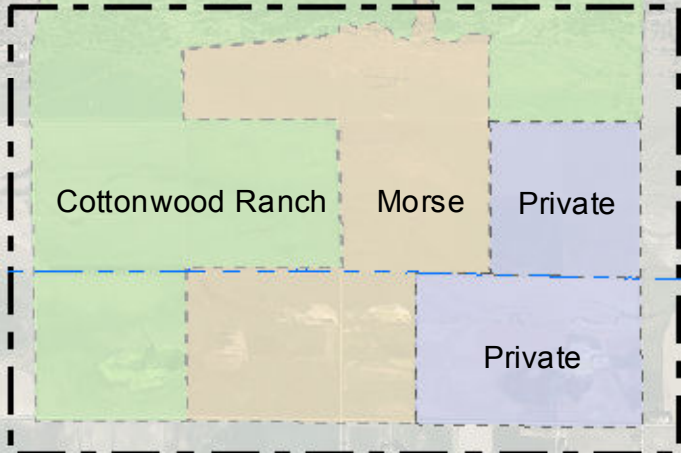
- Bermed and excavated recharge ponds.
- Utilize existing properties (Bartels/Blue Hole East/Sullwood).
- Potential to add capacity, recharge and score at Johns and McCormick.
- Direct deliveries via pipeline/ditch from Kearney Canal.
- Estimated total recharge capacity of ~24 cfs.
- Assuming 90 day operations: 4,200 AF of recharge, with a 1,600 AF score.

**ZONE 1 - ESTIMATED COSTS:**

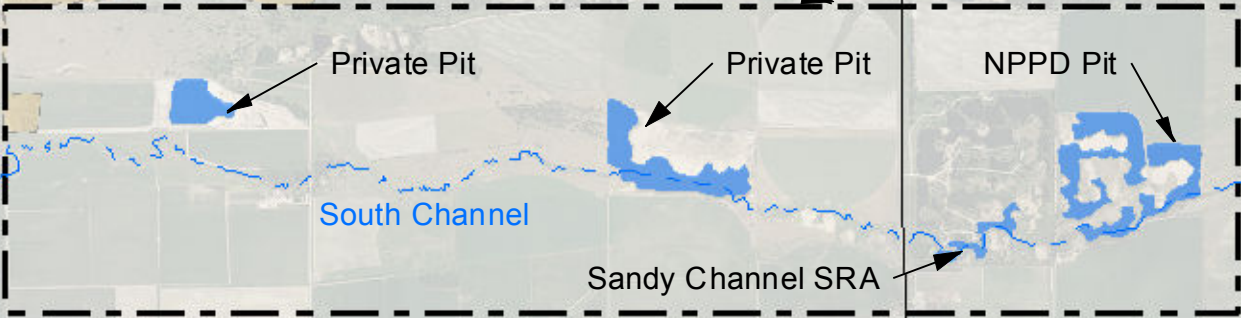
Item:	Unit Cost	Qty	Cost
Deliveries	\$3,000,000	LS	\$3,000,000
Earthwork	\$3.50/CY	170,000	\$595,000
Infrastructure	\$25,000/pond	12	\$300,000
<b>Total</b>			<b>\$3,895,000</b>
<b>Total w/ 25% Contingency</b>			<b>\$4,868,750</b>

**Zone 2 - Sand Pit Sites:**

- Existing and potentially new gravel mines and sand pits that will act as recharge sites.
- Predominately private lands with partnership potential.
- Direct deliveries via Peterson Ditch/South Channel.
- Estimated total recharge capacity of ~10 cfs per pond.
- Assuming 90 day operations: 1,800 AF of recharge per pond, with a 700 AF score per pond.



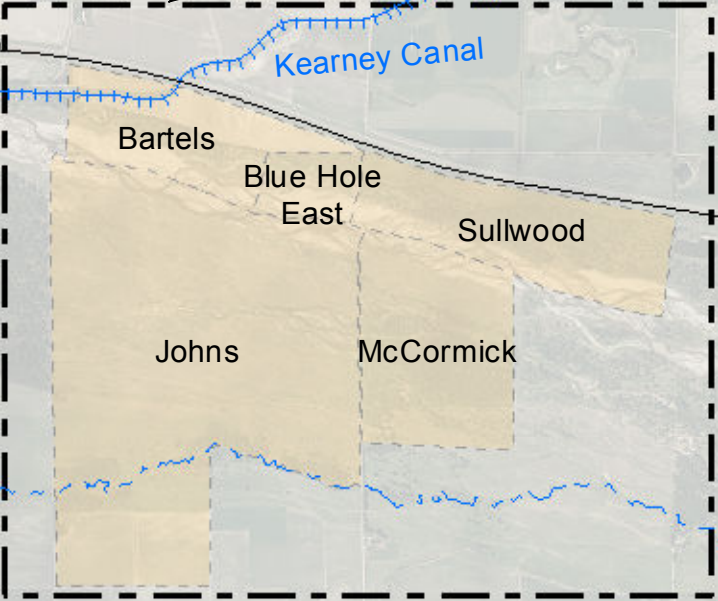
**Zone 1 - Wetland / Wet Meadows Recharge Sites**



**Zone 2 - Sand Pit Recharge Sites**

**ZONE 2 - ESTIMATED COSTS:**

Item:	Unit Cost	Qty	Cost
Deliveries	\$100,000	LS	\$100,000
Infrastructure	\$25,000/pond	1	\$25,000
<b>Total</b>			<b>\$125,000</b>
<b>Total w/ 25% Contingency</b>			<b>\$156,250</b>



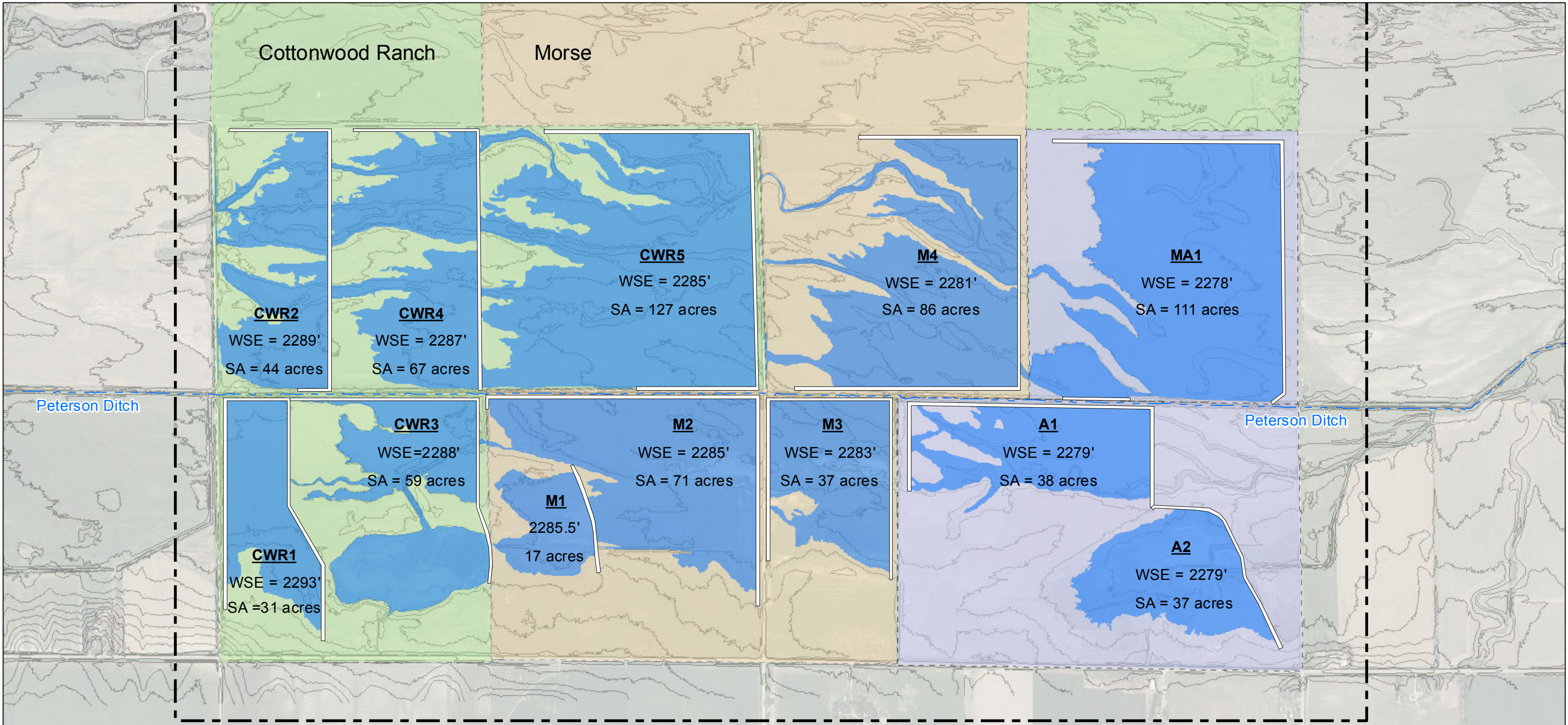
**Zone 3 - Excavated Recharge Sites**

Values and concepts subject to change.



**BROAD SCALE RECHARGE CONCEPT**

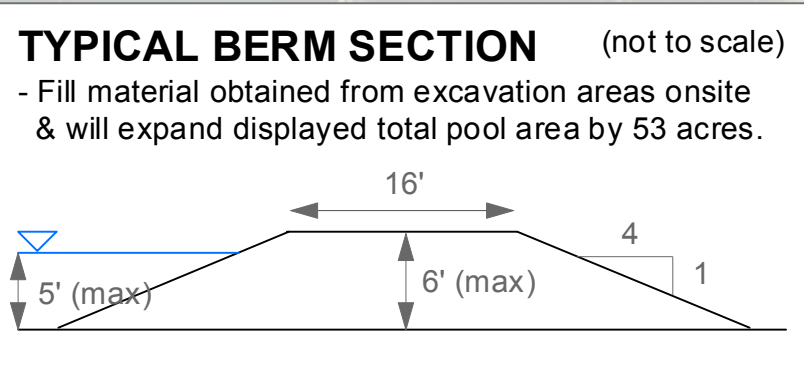
Ownership	
NPPD	Existing Pits
Program	Canal
Private	Waterway/Ditch/Drain



Zone 1 - Wetland / Wet Meadows Recharge Sites

Values and concepts subject to change.

ESTIMATED BERM FILL VOLUMES					
Cell #:	Fill Vol (CY):	Cell #:	Fill Vol (CY):	Cell #:	Fill Vol (CY):
CWR1	21,771	CWR5	48,203	M4	13,830
CWR2	7,137	M1	Existing	A1	8,655
CWR3	6,529	M2	17,953	A2	Existing
CWR4	13,232	M3	13,336	MA 1	18,766
Total Fill				169,412	



**BROAD SCALE RECHARGE CONCEPT**

**Ownership**

- NPPD
- Program
- Private

**Legend**

- Berm Footprint (Top)
- Pool
- Waterway/Ditch/Drain

SHEET NO: **3**

OF: **3**

**DRAFT**