

Information for File #MVP-2010-00359-JWD

Applicant: U.S. Army, Fort McCoy, Alan Balliett, Chief, Environmental Division

Corps Contact: John W. Derinzy

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La Crescent, Minnesota 55947

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Primary County: Monroe County, Wisconsin

Section: 30

Township: 19 North

Range: 2 West

Information Complete On: March 18, 2013

Posting Expires On: August 23, 2013

Authorization Type: Section 404 Clean Water Act

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 07-01. We have made a preliminary determination that the aquatic resources that would be impacted by the proposed project are regulated by the Corps of Engineers under Section 404 of the Clean Water Act. Our jurisdictional review and final jurisdictional determination could result in modifications to the scope of the project's regulated waterbody/wetland impacts and compensatory mitigation requirements identified above.

Project

The application is for a new project yet to be constructed. It is not an After-the-Fact application. The applicant's analysis found no evidence of threatened or endangered species within the project boundaries. The project area does not include any tribal trust lands. The project area is on federal land. There are no Listed State Impaired Waters within the project area. The entire project area is within the FEMA 100-year Floodplain.

Project Description and Purpose:

The applicant is proposing to reroute the existing 0.31 miles of paved East Range Road, in the area around Alderwood Lake, to a location 600 feet further upstream of the lake. The proposed road crossing Alderwood Lake is designed with an open bottom 48 foot wide culvert. The roadway slopes will be at 2.5:1 and guardrails will be installed. Currently, the road is within the surface danger zone of two rifle qualification ranges and crosses over the dam of Alderwood Lake, which has been deteriorating since it was built in 1932. As part of rerouting the road, the applicant is also proposing to remove the existing dam that impounds Alderwood Lake. The dam needs to be removed due to safety concerns. Removing the dam would effectively drain the 19 acres of lake, although this would restore 3 miles of the La Crosse River to Class 1 Trout habitat and would open up the floodplain. After draining the lake the stream would be allowed to find its natural pathway. The sediment load would be excavated from the lake and the edges of the lake would be sloped out to expand the floodplain.

The applicant is also proposing the construction of a 0.39 mile tank training trail crossing adjacent to the new East Range Road to allow heavy, tracked vehicles and tanks to cross the river for training realism. The crossing will be 26 feet wide constructed of heavy rip rap over geotextile fabric and anticipated to be utilized by 200-300 vehicles annually.

The proposed road will impact 1.01 acres of wetlands, floodplain expansion will impact 0.03 acres, and the tank trail crossing will impact 0.56 acres, for a total permanent loss of 1.60 acres of wetlands. Temporary impacts would result from removal of the lakebed sediment (4.8 acres) and grading necessary for the dam removal (0.13 acre) for a total of 4.93 acres.

Name, Area and Types of Waters (Including Wetlands) Subject To Loss:

Wetland 1: shallow marsh, shallow open water of 12.53 acres in size that is directly upstream of Alderwood Dam. The amount of loss of this wetland as a result of the proposed project is 1.60 acres. However, temporary impacts to this wetland will be 4.80 acres due to sediment removal.

Wetland 2: shallow open water, hardwood swamp of 0.33 acres in size located directly downstream of Alderwood Dam. The amount of loss of this wetland as a result of the proposed project is 0.0 acres. However, temporary impacts to this wetland will be 0.13 acre due to the removal of the dam.

Alternatives Considered:**Road Reroute:**

- a) No build alternative: this alternative involves not rerouting the road and leaving the current road in operation. This alternative would not address the safety concerns related to the firing ranges and thus was not carried forward in analysis by applicant.
- b) No build alternative-Berm Installation: this alternative involved leaving the current road in operation and building a berm along the northern edge

of Range 32. This alternative was not carried forward for further analysis because the Army regulations do not allow a berm to be left in place for longer than one year. This alternative was rejected because it was only a temporary solution.

- c) Alternative Layout-Upstream Crossing: this alternative involves locating the East Range Road approximately 800 feet farther upstream. This alternative would require the road to cross the La Crosse River and an unnamed tributary to the La Crosse. The applicant rejected carrying this alternative forward for further analysis because it would result in more impacts to waters of the U.S., approximately 1.70 acres.

Dam Removal:

- a) No build alternative: this alternative involves not removing the dam and leaving it in place. This alternative would allow the dam to remain within the danger zone of the firing ranges and would not address relieving the safety concerns and thus was not carried forward for further analysis by the applicant.
- b) No build alternative-Maintain Dam: this alternative involves maintaining current dam. The dam was built in 1932 and requires extensive repairs and upgrades. This alternative would increase construction costs and would not allow for the restoration of La Crosse River to its original flow and also continue to segregate the Class 1 trout stream upstream and downstream of the dam. The applicant did not carry forward this alternative for further analysis due to these concerns.

Tank Trail:

- a) No build alternative: this alternative would not build a new crossing and it would leave in place the existing crossing which is downstream of the dam and within the danger zone of Range 32. This stream crossing cannot be utilized when Range 32 is in use. This alternative would not resolve the safety issue and thus was not carried forward in further analysis by the applicant.
- b) Alternative Layout-Adjacent to Road: this alternative would build the tank trail directly adjacent the proposed relocated road, resulting one single crossing over the waterway. This alternative would decrease impacts to waters of the U.S., however, it would not allow for real-life training scenarios for water crossing and ambush exercises. This alternative was not carried forward for further analysis by the applicant because it would not meet the project purpose.
- c) Alternative Layout-Upstream Crossing: this alternative would align the tank trail an additional 100 feet upstream from the proposed road to increase the distance between the road and location where strategic exercises occur. This alignment would also provide extensive opportunities for low-water training scenarios as over 700 linear feet of the trail was located within wetlands and the waterway. Although this layout would take the trail outside of the range's danger zones, the impact

to wetlands were doubled and thus the applicant did not carry forward this alternative for further analysis.

Compensatory Mitigation:

The applicant is proposing to mitigate for the impacts to waters of the U.S. by creating wetlands on site near the existing dam, around the perimeter of the existing Alderwood Lake, and east of the proposed tank trail. The creation will be a little higher than at a previously agreed 1:1 ratio, for a total of 1.82 acres of created wetlands.

Wetland enhancement is also being proposed in the area between the existing dam and the proposed road location. This area will entail excavating lakebed sediments, creating new banks and opening up the floodplain terrace.

Drawings See attached (27 maps and diagrams).

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Sheet No.	37-40	Structure Plans
Sheet No.	41	Earthwork Tabulations
Sheet No.	42-64	Cross Sections

TOTAL SHEETS = 64

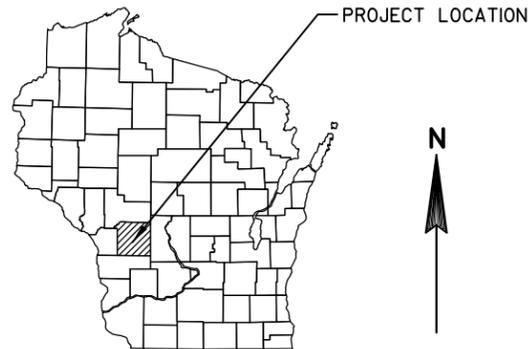
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FORT MCCOY, WI

PLAN OF PROPOSED IMPROVEMENT

REMOVE ALDERWOOD DAM AND REROUTE ROAD

17TH ROAD
 MONROE COUNTY
 WORK ORDER NUMBER GC 00390 13J

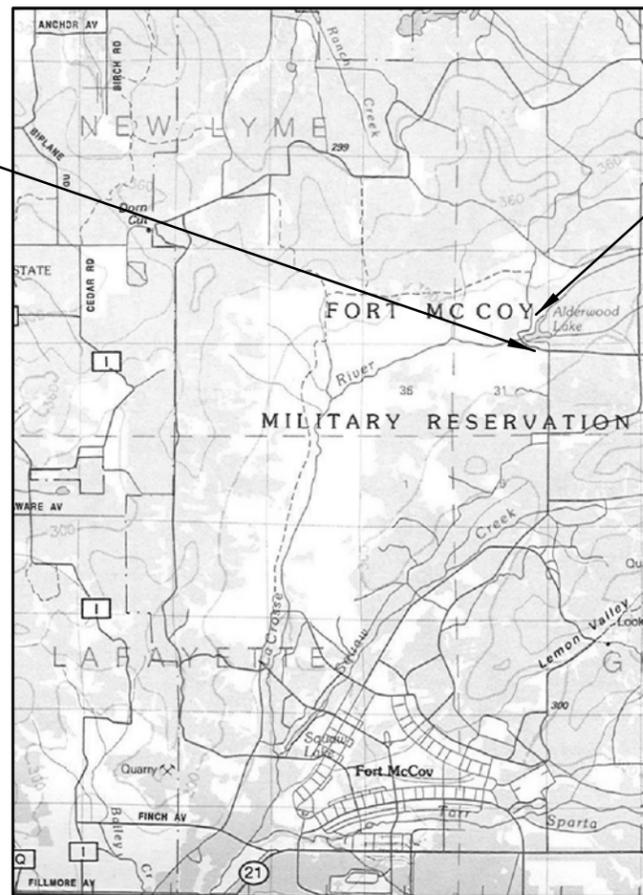


DRAWING NUMBER
47-018-7009

R 3 W | R 4 W

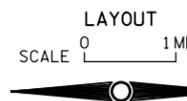
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 X = 667861.587

END PROJECT
 STA 124+00.00



CONVENTIONAL SYMBOLS

COUNTY LINE		COMBUSTIBLE FLUIDS	
CORPORATE LIMITS		UNDERGROUND UTILITIES	
PROPERTY LINE		GAS	
LOT LINE		ELECTRIC	
LIMITED EASEMENT		TELEPHONE OR TELEGRAPH	
EARTHWORK BALANCE POINT		TV/CABLE	
EXISTING RIGHT OF WAY		SERVICE PEDESTAL	
PROPOSED OR NEW R/W LINE		POWER POLE	
SURVEY LINE		TELEPHONE POLE	
SLOPE INTERCEPT		RAILROAD	
ORIGINAL GROUND		SANITARY SEWER	
MARSH OR ROCK PROFILE (To be noted as such)		STORM SEWER	
MARSH AREA		WATER	
WOODED OR SHRUB AREA		EXISTING CULVERT	
		PROPOSED CULVERT (Box or Pipe)	
		CULVERT (Profile View)	



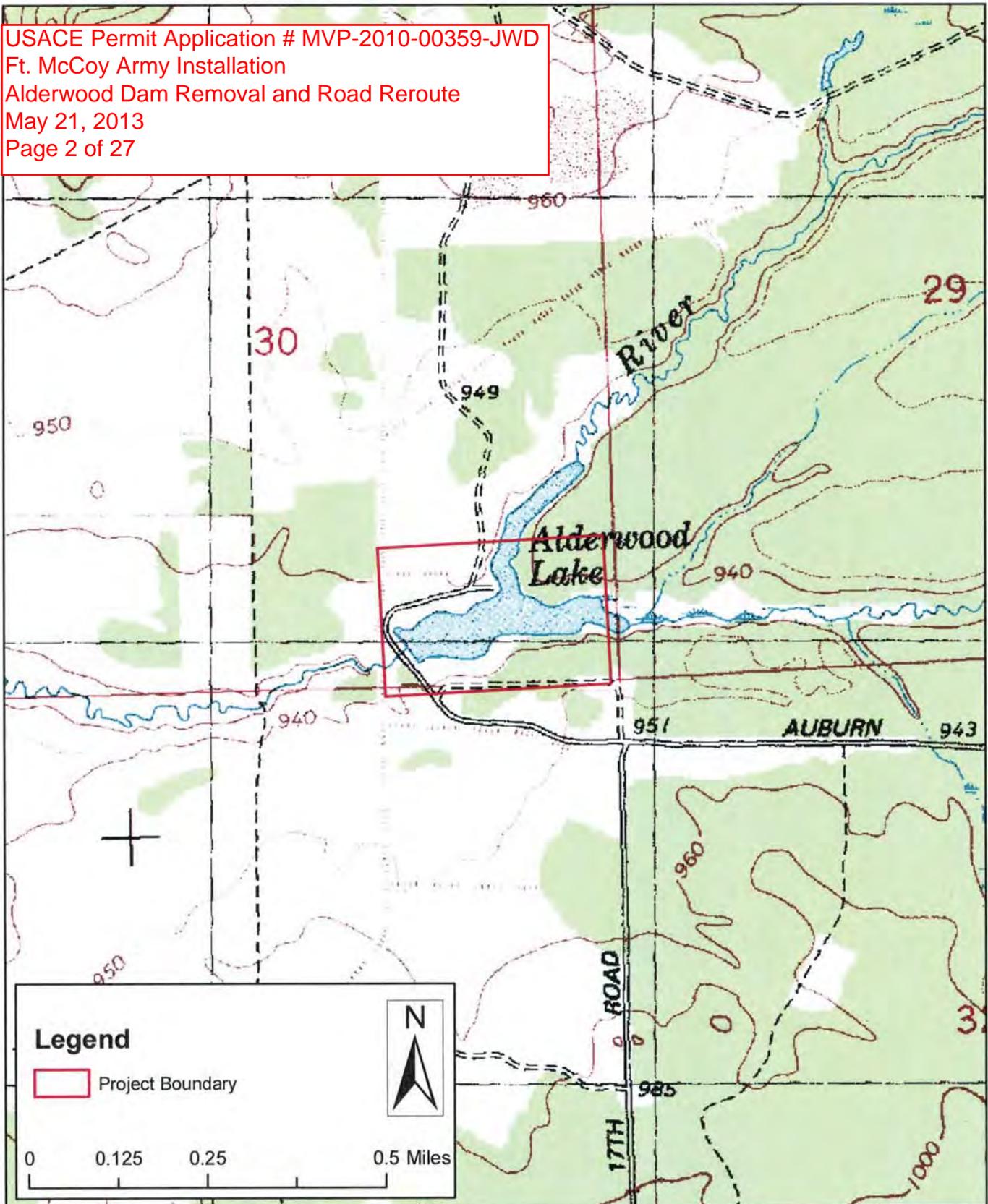
TOTAL NET LENGTH OF CENTERLINE = 0.313 MI

ACCEPTED FOR

 FORT MC COY

 DATE: _____

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312 SOUTH 3RD STREET
 LA CROSSE, WI 54601
 PHONE: (608) 782-3161
 FAX: (888) 908-8166
 www.sehinc.com

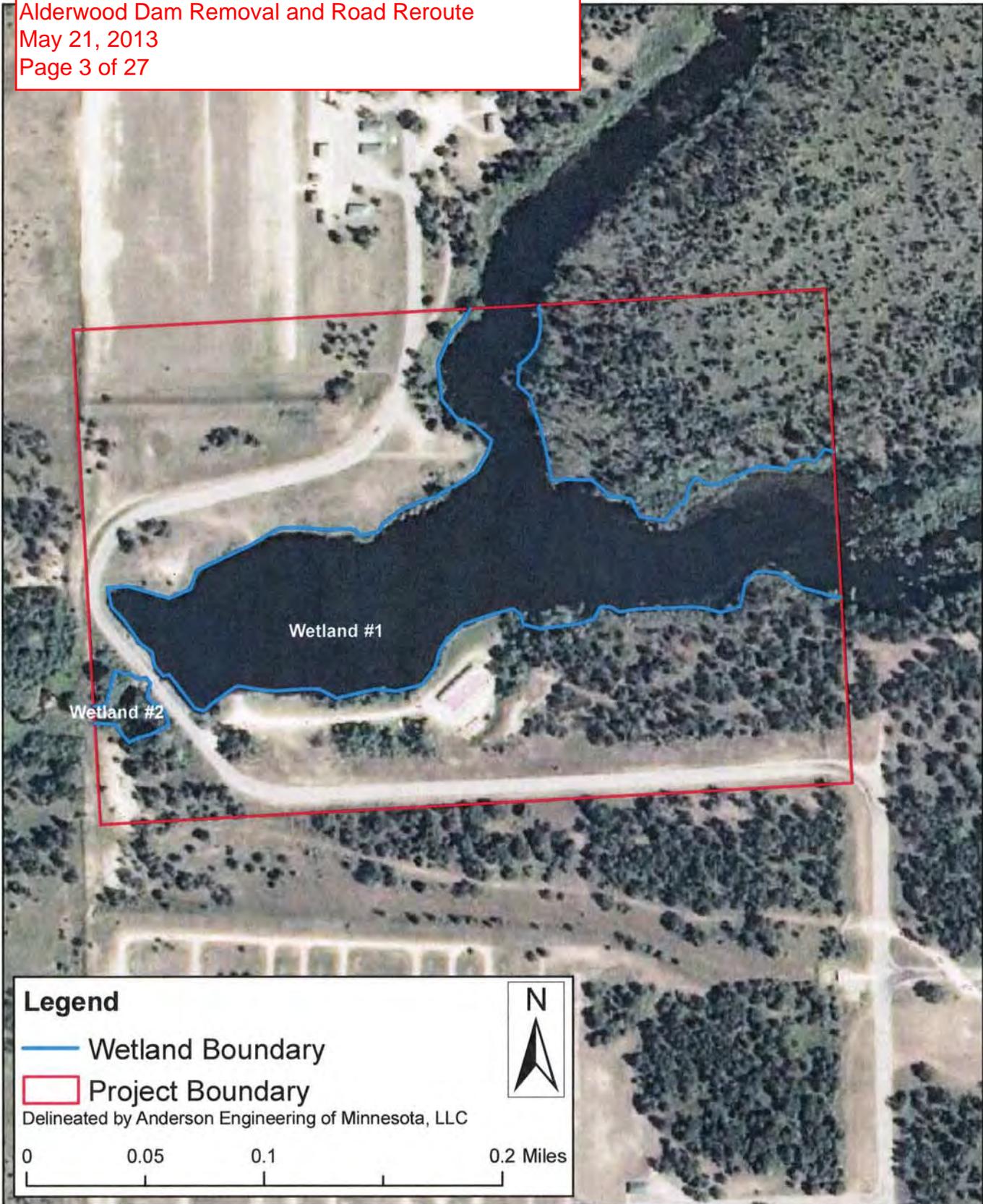
Project: AAAAA 11111
 Print Date: XX/XX

Map by: RB/bpt
 Projection: UTM NAD83
 Source: LMC, USGS

Site Location Map
 Alderwood Dam Removal and Road Reroute
 Fort McCoy, Monroe County, Wisconsin

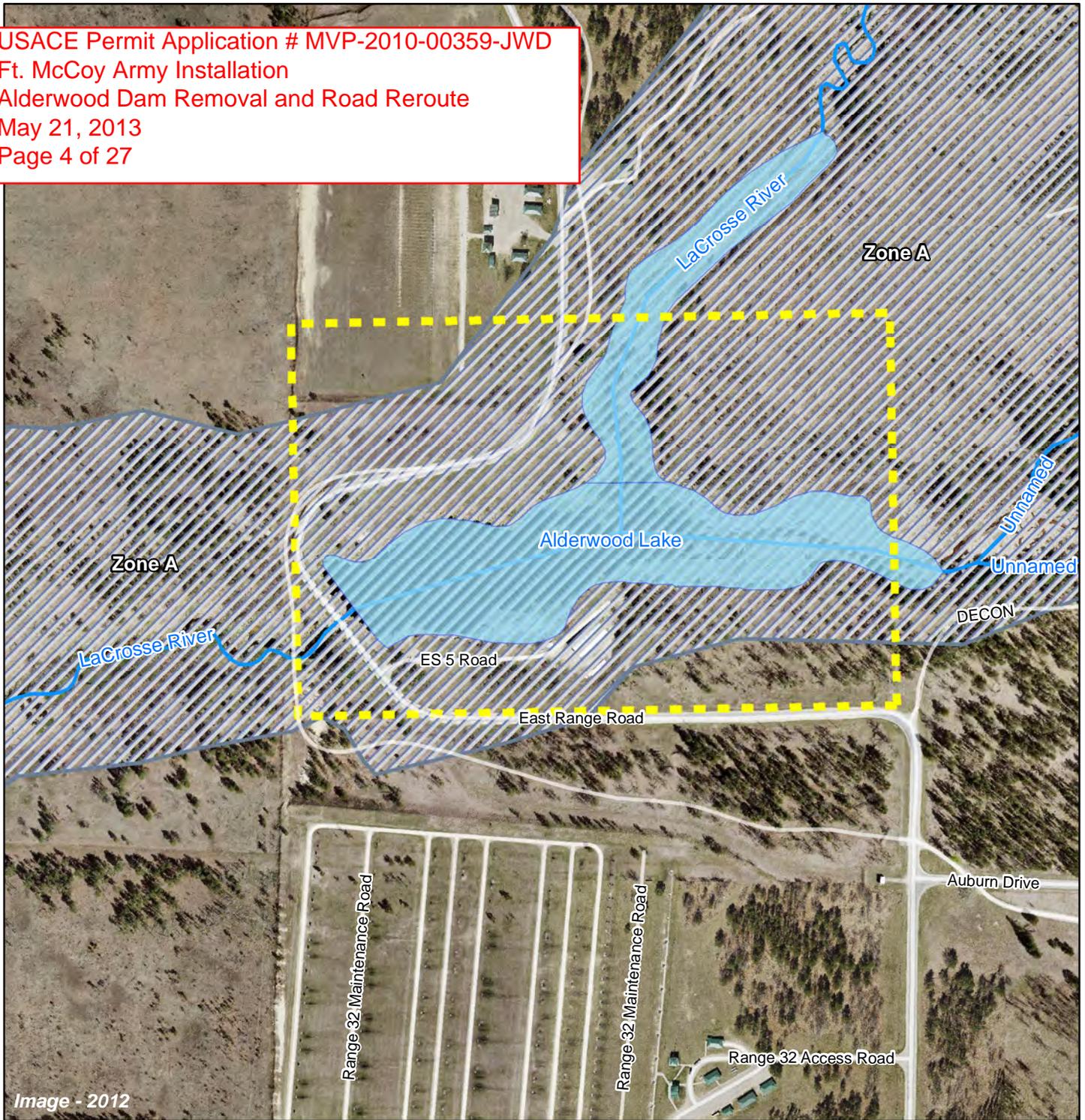
Figure
 1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.



	312 SOUTH 3RD STREET LA CROSSE, WI 54601 PHONE: (608) 782-3161 FAX: (888) 908-8166 www.sehinc.com	Project: USACE 122200 Print Date: 12/12/12	Wetland Boundary Map Alderwood Dam Removal and Road Reroute Fort McCoy, Monroe County, Wisconsin	Figure 2
		Map by: RB Projection: UTM NAD83 Source: LMIC, USGS, Anderson Engineering LLC		

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the use of access or use of data provided.



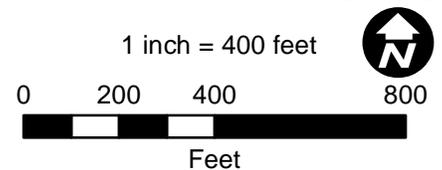
PROJECT LOCATION

SOURCE: Ft. McCoy, WDNr, Anderson Engineering



State of Wisconsin Monroe County

- Project Location
- Public Waterbasin
- Public Watercourse
- FEMA Floodplain



100 East Headquarters Road
 Ft. McCoy, Monroe County, WI

S.30 Twp.19 N R.2 W



Anderson Engineering of Minnesota, LLC
 13605 1st Avenue North
 Suite 100
 Plymouth, MN 55441
 763-412-4000 (o) 763-412-4090 (f)
 www.ae-mn.com

**WATERBODIES &
 FLOODPLAIN - FIGURE 4
 FT. MCCOY ALDERWOOD DAM
 REMOVAL & ROAD REROUTE**

AE Comm.# 13341 Date: 9/28/2012 By: JLA

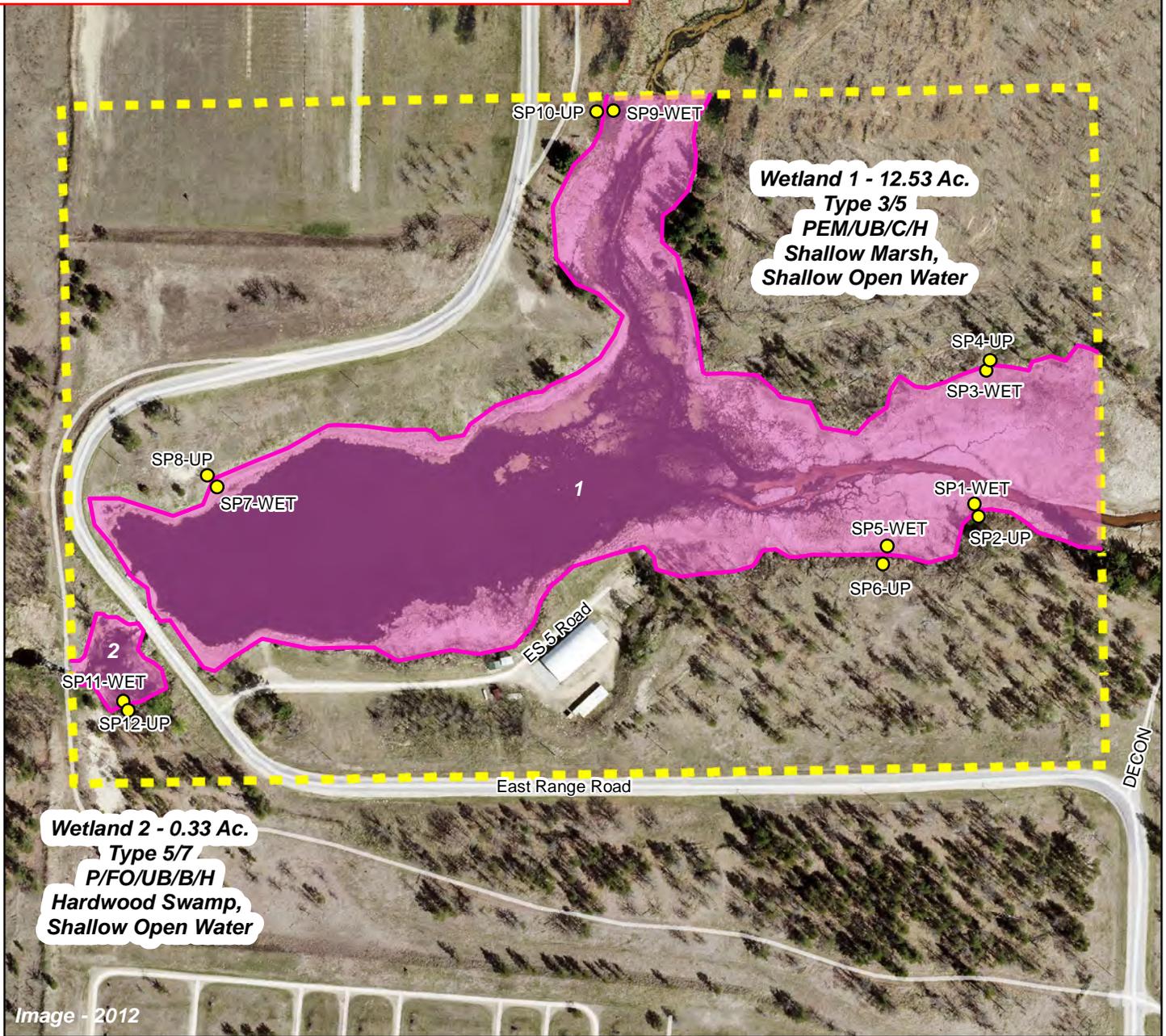


Image - 2012

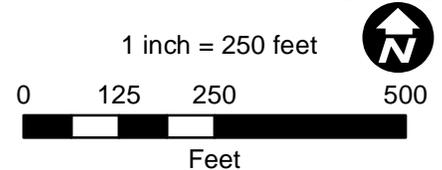
PROJECT LOCATION

SOURCE: Ft. McCoy, WDNR, Anderson Engineering



State of Wisconsin Monroe County

- Project Location
- Sample Point
- Wetland Field Delineated 9/27/2012



100 East Headquarters Road
 Ft. McCoy, Monroe County, WI
 S.30 Twp.19 N R.2 W

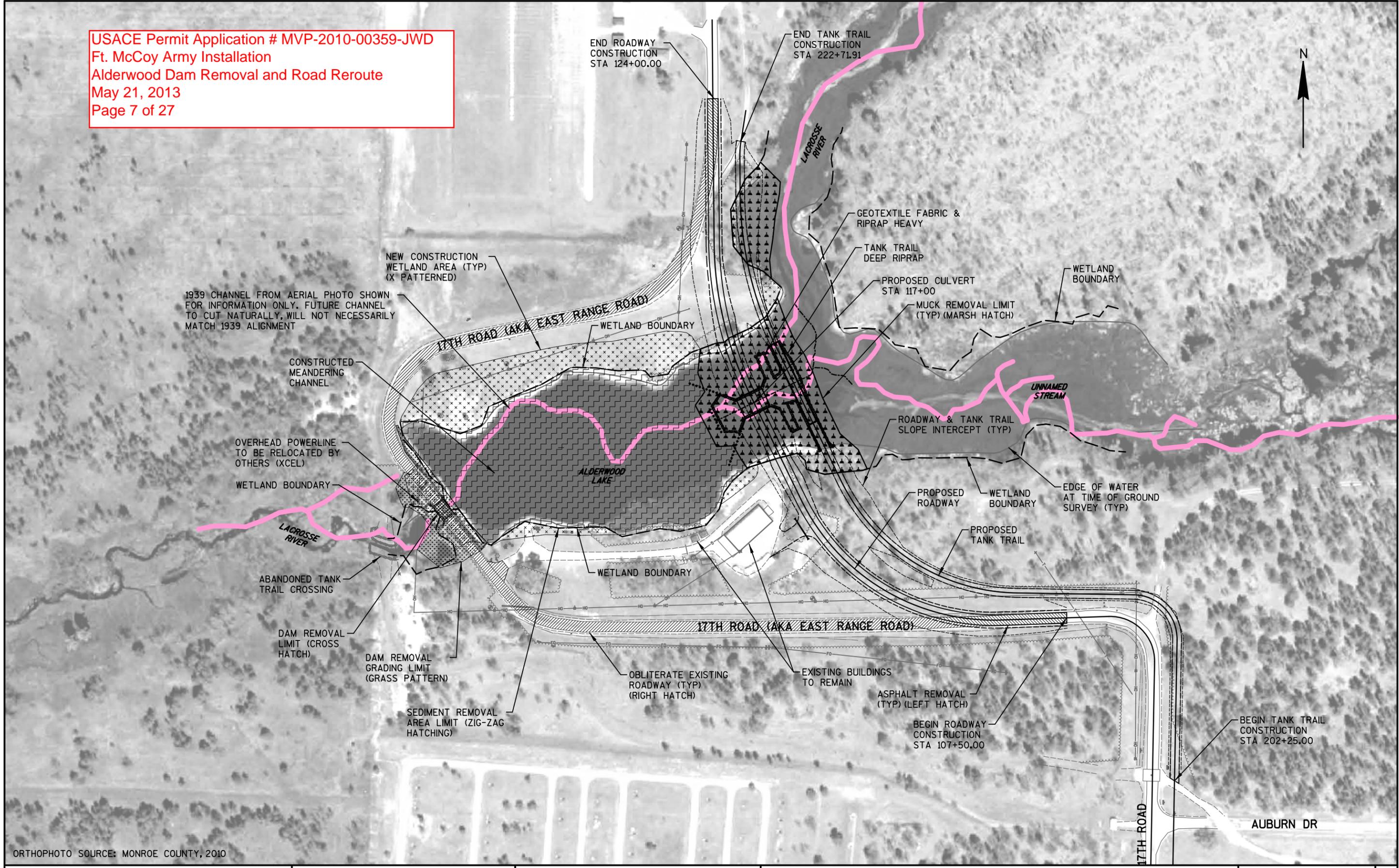


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**DELINEATION - FIGURE 5
 FT. MCCOY ALDERWOOD DAM
 REMOVAL & ROAD REROUTE**

AE Comm.# 13341 Date: 9/28/2012 By: JLA

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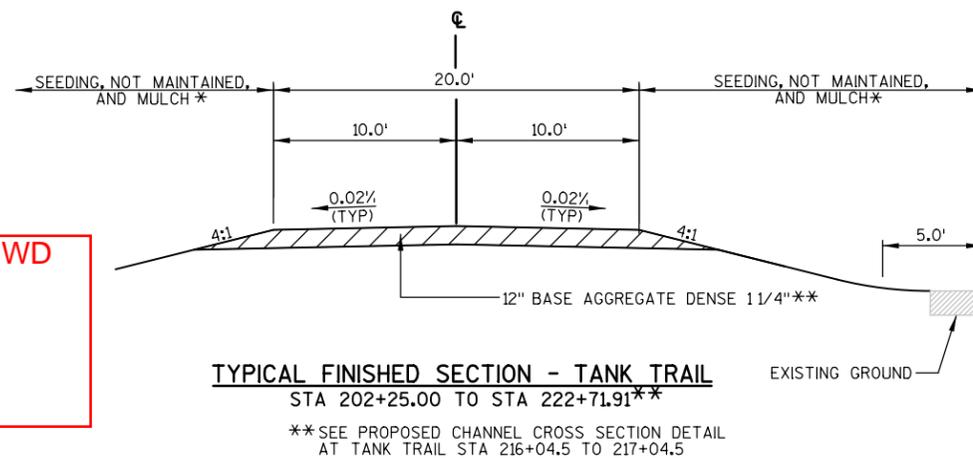
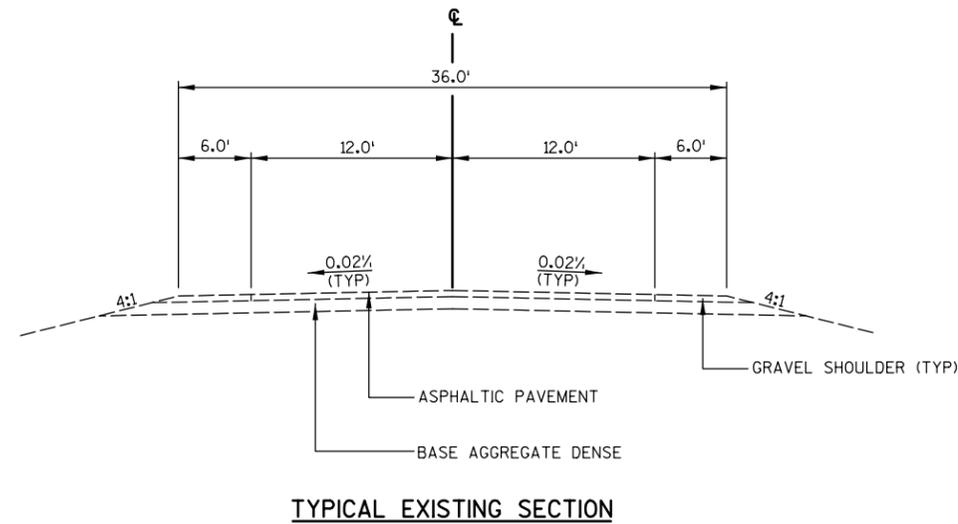


ORTHO PHOTO SOURCE: MONROE COUNTY, 2010

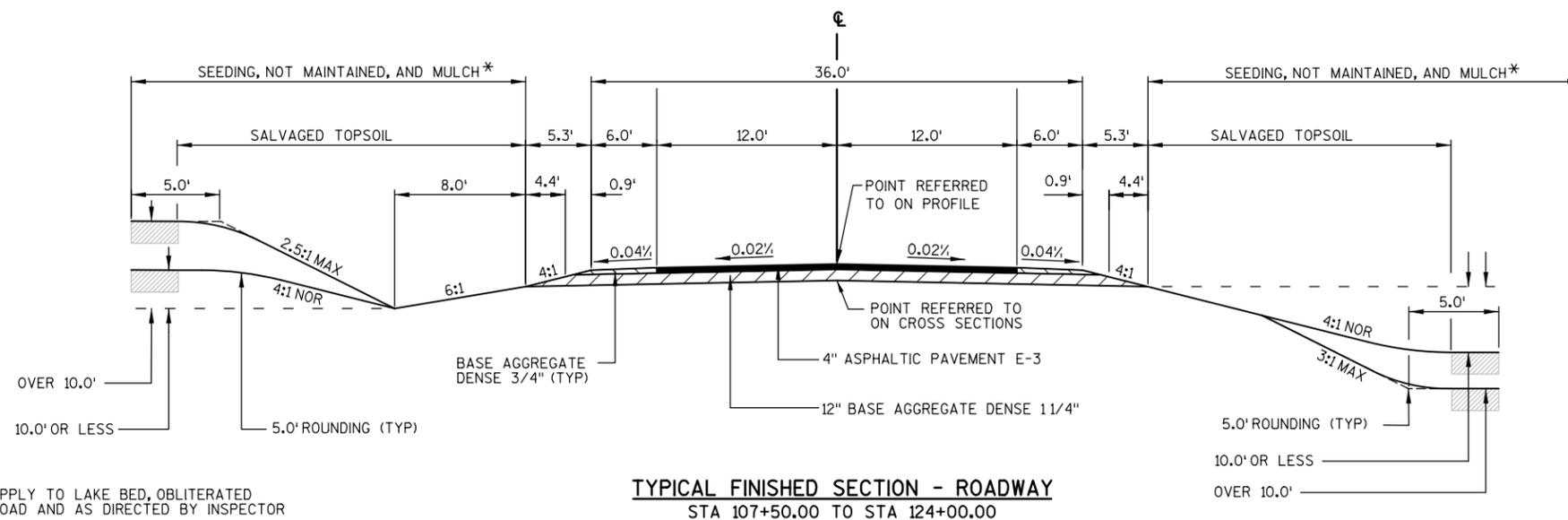
DRAWING NO: 47-018-7009	HWY: 17TH ROAD	COUNTY: MONROE	PROJECT OVERVIEW	SHEET 3 OF 54	E
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SUPERELEVATION TABLE				
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108+16.50	-0.020	-0.020	-0.020	-0.040
108+44.16	0.000	-0.020	0.000	-0.040
108+71.83	0.020	-0.020	0.020	-0.040
108+99.50	0.040	-0.040	0.040	-0.040
109+27.16	0.060	-0.060	0.060	-0.060
114+29.70	0.060	-0.060	0.060	-0.060
114+57.37	0.040	-0.040	0.040	-0.040
114+85.03	0.020	-0.020	0.020	-0.040
115+12.70	0.000	-0.020	0.000	-0.040
115+40.37	-0.020	-0.020	-0.020	-0.040
115+68.03	-0.020	-0.020	-0.040	-0.040
116+03.48	-0.020	-0.020	-0.040	-0.040
116+34.88	-0.020	-0.020	-0.020	-0.040
116+66.28	0.000	-0.020	0.000	-0.040
116+97.67	0.020	-0.020	0.020	-0.040
117+29.07	0.040	-0.040	0.040	-0.040
117+49.28	0.053	-0.053	0.053	-0.053
120+49.48	0.053	-0.053	0.053	-0.053
120+69.68	0.040	-0.040	0.040	-0.040
121+01.08	0.020	-0.020	0.020	-0.040
121+32.48	0.000	-0.020	0.000	-0.040
121+63.88	-0.020	-0.020	-0.020	-0.040
121+95.28	-0.020	-0.020	-0.040	-0.040



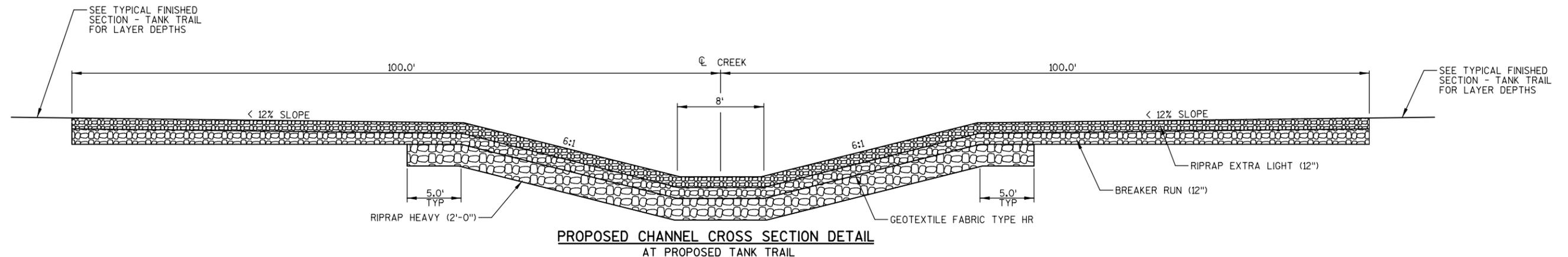
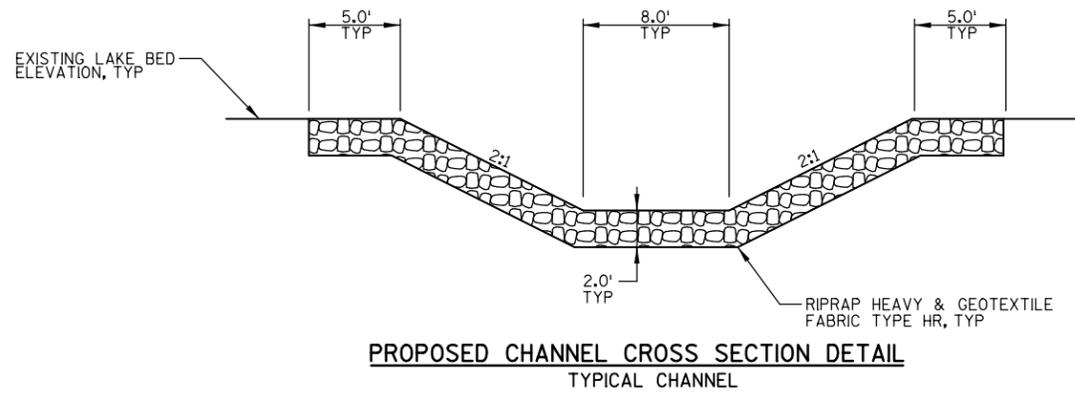
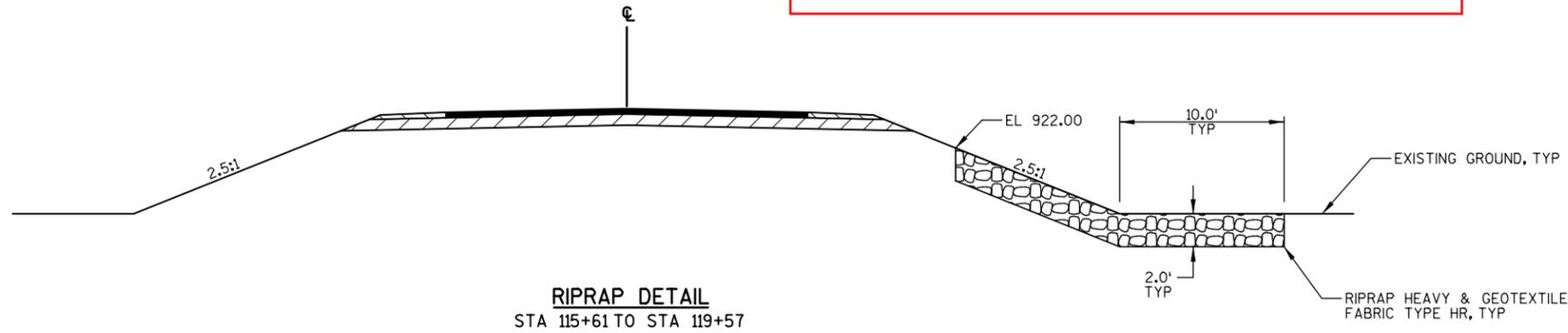
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34-261 RIPARIAN SOUTH & WEST (SEE SEEDING PLAN SHEET 9, FOR APPLICATION)

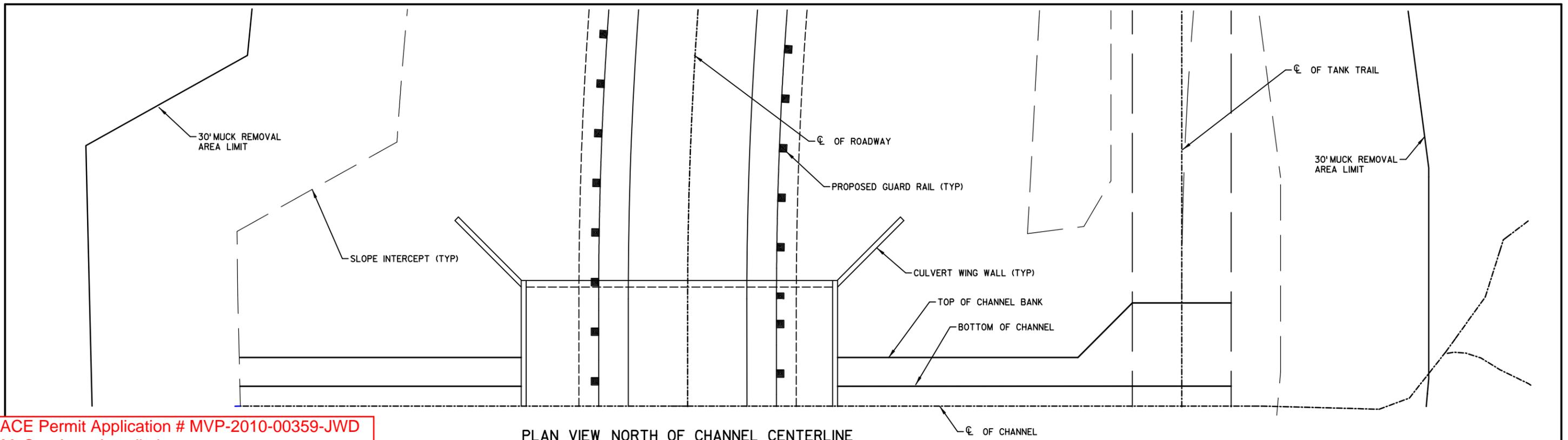
Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
American slough grass	Beckmannia syzigachne	1.5200	1.3600	4.30%	24.9000
riverbank wild rye	Elymus riparius	0.5600	0.5000	1.58%	0.5300
Virginia wild rye	Elymus virginicus	1.9600	1.7500	5.56%	2.7000
tall manna grass	Glyceria grandis	0.2800	0.2500	0.80%	6.5000
fowl manna grass	Glyceria striata	0.1000	0.0900	0.29%	3.0000
rice cut grass	Leersia oryzoides	0.1800	0.1600	0.51%	2.0000
fowl bluegrass	Poa palustris	0.9400	0.8400	2.66%	40.0000
prairie cordgrass	Spartina pectinata	0.3400	0.3000	0.96%	0.7400
	Total Grasses	5.8800	5.2500	16.66%	80.3700
tussock sedge	Carex stricta	0.0400	0.0400	0.13%	0.8000
pointed broom sedge	Carex scoparia	0.0700	0.0600	0.21%	2.0000
fox sedge	Carex vulpinoidea	0.2200	0.2000	0.65%	7.5000
path rush	Juncus tenuis	0.0300	0.0300	0.09%	10.0000
dark green bulrush	Scirpus atrovirens	0.1300	0.1200	0.38%	20.0000
woolgrass	Scirpus cyperinus	0.0600	0.0500	0.15%	30.0000
	Total Sedges and Rushes	0.5600	0.5000	1.61%	70.3000
marsh milkweed	Asclepias incarnata	0.1300	0.1200	0.38%	0.2100
common boneset	Eupatorium perfoliatum	0.0300	0.0300	0.11%	2.0000
spotted Joe pye weed	Eutrochium maculatum	0.0700	0.0600	0.18%	2.0000
autumn sneezeweed	Helenium autumnale	0.0600	0.0500	0.17%	2.5000
giant sunflower	Helianthus giganteus	0.0800	0.0700	0.22%	0.2500
spotted touch-me-not	Impatiens capensis	0.0600	0.0500	0.17%	0.0800
great lobelia	Lobelia siphilitica	0.0300	0.0300	0.09%	5.0000
blue monkey flower	Mimulus ringens	0.0100	0.0100	0.02%	5.0700
Virginia mountain mint	Pycnanthemum virginianum	0.0600	0.0500	0.16%	4.0000
tall coneflower	Rudbeckia laciniata	0.0600	0.0500	0.15%	0.2500
giant goldenrod	Solidago gigantea	0.0200	0.0200	0.07%	2.0000
blue vervain	Verbena hastata	0.1700	0.1500	0.46%	5.0000
bunched ironweed	Vernonia fasciculata	0.0700	0.0600	0.18%	0.5000
	Total Forbs	0.8400	0.7500	2.36%	28.8600
Oats or winter wheat (see note at beginning of list for recommended dates)		28.0200	25.0000	79.37%	11.1400
	Total Cover Crop	28.0200	25.0000	79.37%	11.1400
	Totals:	35.3100	31.5000	100.00%	190.6600
Purpose:	Native riparian and floodplain plantings for wetland mitigation, ecological restoration, or general permanent cover after culvert or bridge work. Tolerates partial shade.				
Planting Area:	Tallgrass Aspen Parklands, Prairie Parkland, and Eastern Broadleaf Forest Provinces. Mn/DOT Districts 2(west), 3B, 4, Metro, 6, 7 & 8.				

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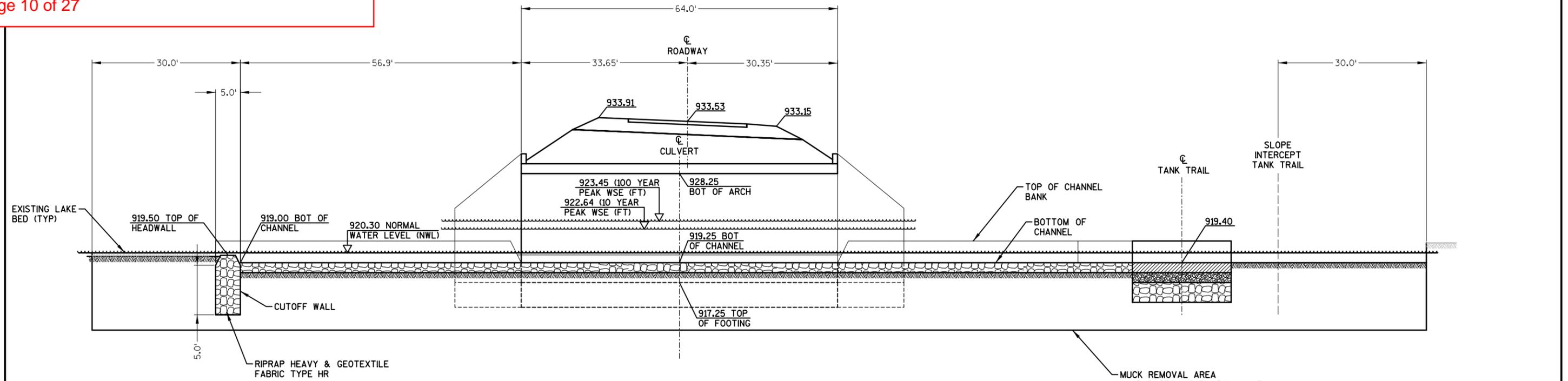
35-241 MESIC PRAIRIE GENERAL (SEE SEEDING PLAN SHEET 9, FOR APPLICATION)

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
big bluestem	Andropogon gerardii	2.2400	2.0000	5.48%	7.3500
side-oats grama	Bouteloua curtipendula	1.7900	1.6000	4.39%	3.5300
kalm's brome	Bromus kalmii	0.5600	0.5000	1.37%	1.4700
nodding wild rye	Elymus canadensis	1.3100	1.1700	3.20%	2.2300
slender wheatgrass	Elymus trachycaulus	1.1200	1.0000	2.73%	2.5300
switchgrass	Panicum virgatum	0.0700	0.0600	0.17%	0.3200
little bluestem	Schizachyrium scoparium	1.7900	1.6000	4.39%	8.8200
Indian grass	Sorghastrum nutans	2.2400	2.0000	5.48%	8.8200
prairie dropseed	Sporobolus heterolepis	0.0800	0.0700	0.18%	0.3900
Total Grasses		11.2100	10.0000	27.39%	35.4600
blue giant hyssop	Agastache foeniculum	0.0700	0.0600	0.15%	1.8200
lead plant	Amorpha canescens	0.0700	0.0600	0.15%	0.2500
common milkweed	Asclepias syriaca	0.0400	0.0400	0.10%	0.0600
butterfly milkweed	Asclepias tuberosa	0.0400	0.0400	0.10%	0.0600
Canada milk vetch	Astragalus canadensis	0.0700	0.0600	0.17%	0.3900
white prairie clover	Dalea candida	0.0700	0.0600	0.17%	0.4400
purple prairie clover	Dalea purpurea	0.2100	0.1900	0.51%	1.0300
Canada tick trefoil	Desmodium canadense	0.0700	0.0600	0.18%	0.1300
stiff sunflower	Helianthus pauciflorus	0.0700	0.0600	0.17%	0.0900
ox-eye	Heliopsis helianthoides	0.1500	0.1300	0.34%	0.2900
rough blazing star	Liatris aspera	0.0300	0.0300	0.08%	0.1800
great blazing star	Liatris pycnostachya	0.0300	0.0300	0.09%	0.1300
wild bergamot	Monarda fistulosa	0.0700	0.0600	0.17%	1.6100
stiff goldenrod	Oligoneuron rigidum	0.0700	0.0600	0.17%	0.9400
black-eyed susan	Rudbeckia hirta	0.3500	0.3100	0.86%	10.5600
heath aster	Symphotrichum ericoides	0.0300	0.0300	0.09%	2.3000
smooth aster	Symphotrichum laeve	0.0700	0.0600	0.17%	1.2600
blue vervain	Verbena hastata	0.0400	0.0400	0.12%	1.5000
hoary vervain	Verbena stricta	0.0700	0.0600	0.17%	0.6400
golden alexanders	Zizia aurea	0.0700	0.0600	0.15%	0.2300
Total Forbs		1.6800	1.5000	4.11%	23.8900
Oats or winter wheat (see note at beginning of list for recommended dates)		28.0200	25.0000	68.50%	11.1400
Total Cover Crop		28.0200	25.0000	68.50%	11.1400
Totals:		40.9100	36.5000	100.00%	70.4900
Purpose:	General mesic prairie mix for native roadsides, ecological restoration, or conservation program plantings.				
Planting Area:	Tallgrass Aspen Parklands, Prairie Parkland, and Eastern Broadleaf Forest Provinces. Mn/DOT Districts 2(west), 3B, 4, Metro, 6, 7 & 8.				



PLAN VIEW NORTH OF CHANNEL CENTERLINE

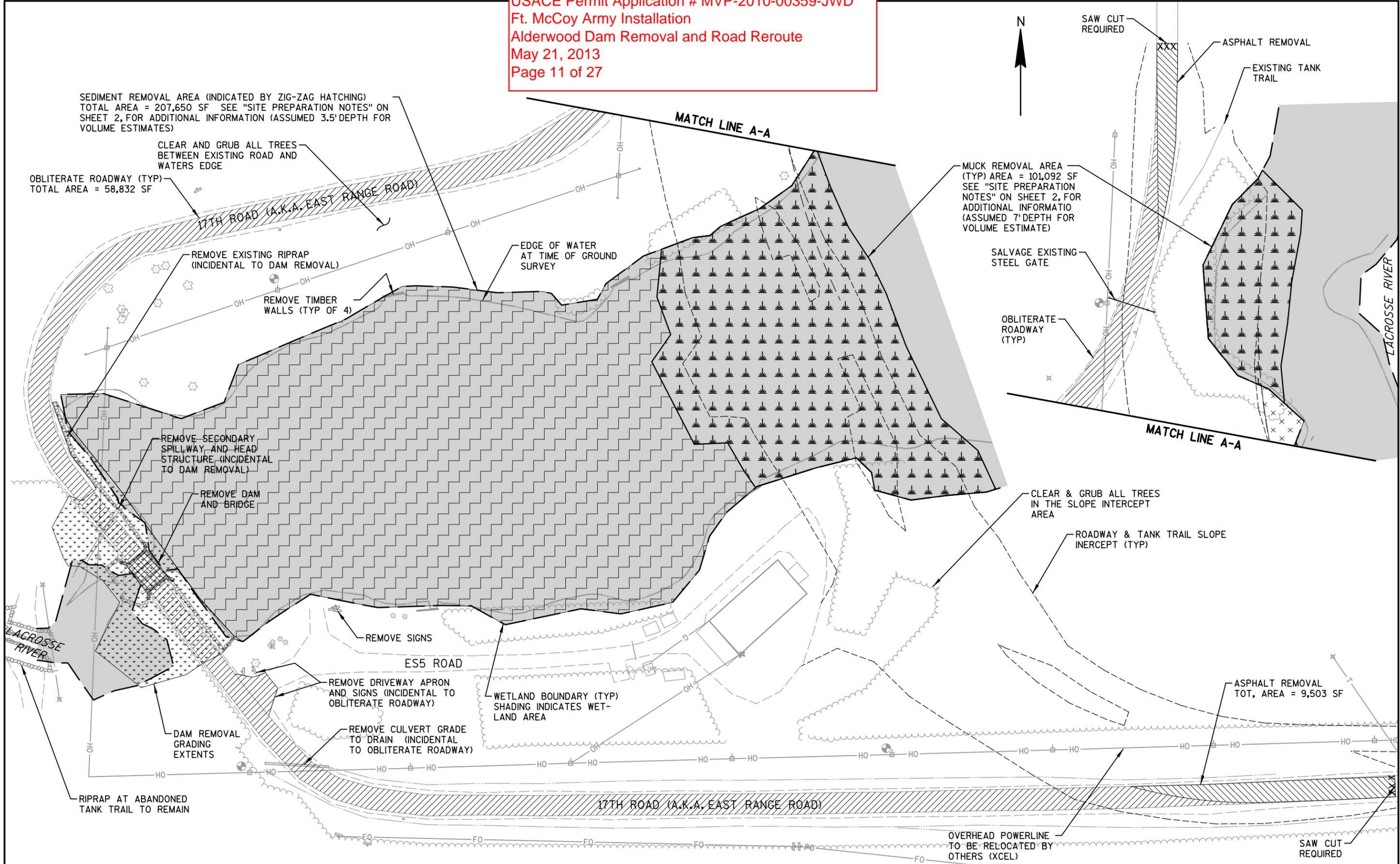
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SECTION THROUGH CHANNEL BENEATH PROPOSED CULVERT
 NOTE: VERTICAL SCALE EXAGGERATED 2:1

NOTE: CUTOFF WALL INSTALLED AS A PRECAUTIONARY MEASURE TO PREVENT HEAD CUTTING OF THE STREAM BOTTOM.

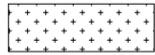
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LEGEND



RIPARIAN SOUTH & WEST SEED 6.72 ACRES



MESIC PRAIRIE GENERAL SEED 5.95 ACRES

NOTE: FOR SEED MIX SPECIFICATIONS, SEE SHEET 3 AND 4.

SEEDING NOTES:

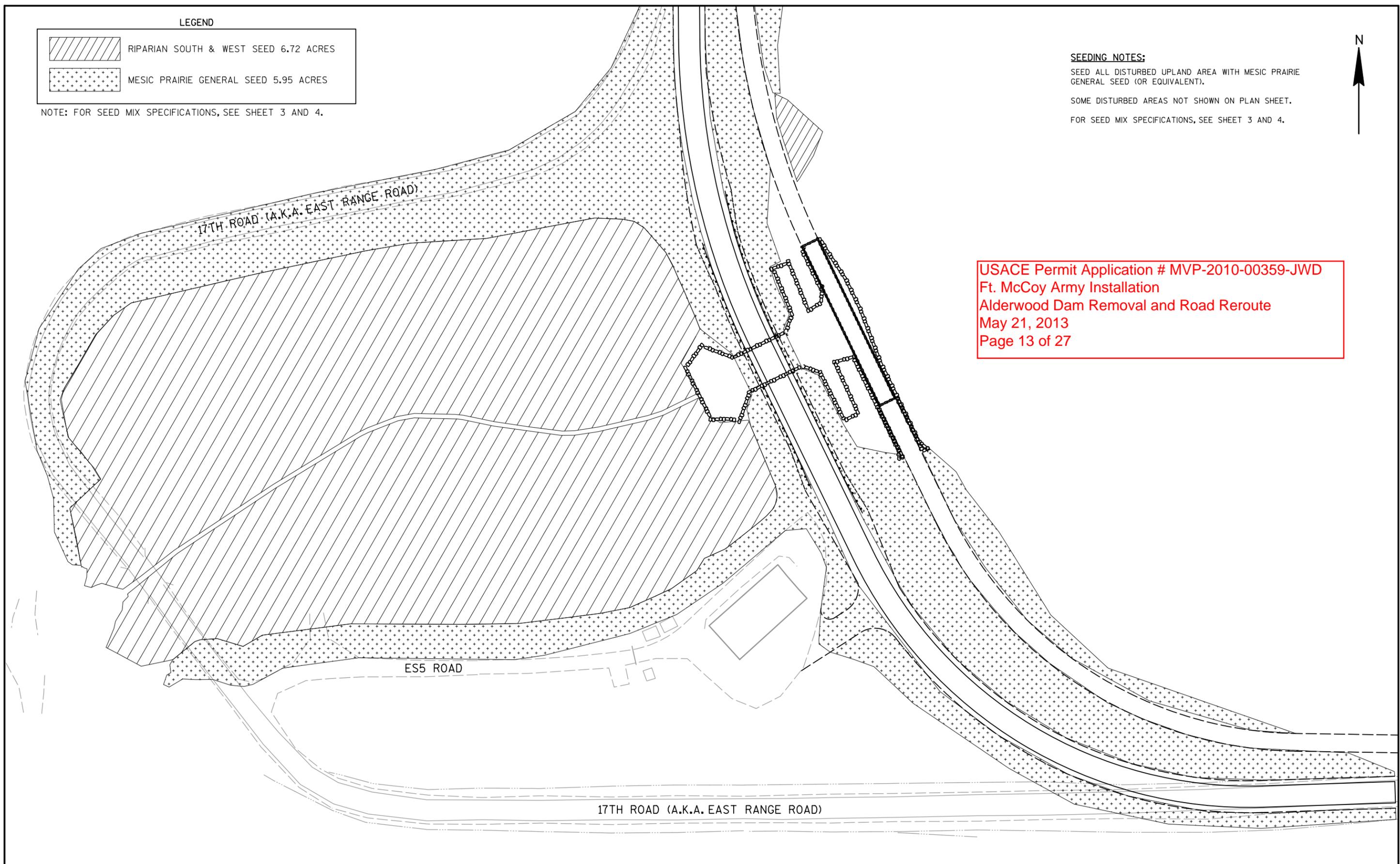
SEED ALL DISTURBED UPLAND AREA WITH MESIC PRAIRIE GENERAL SEED (OR EQUIVALENT).

SOME DISTURBED AREAS NOT SHOWN ON PLAN SHEET.

FOR SEED MIX SPECIFICATIONS, SEE SHEET 3 AND 4.



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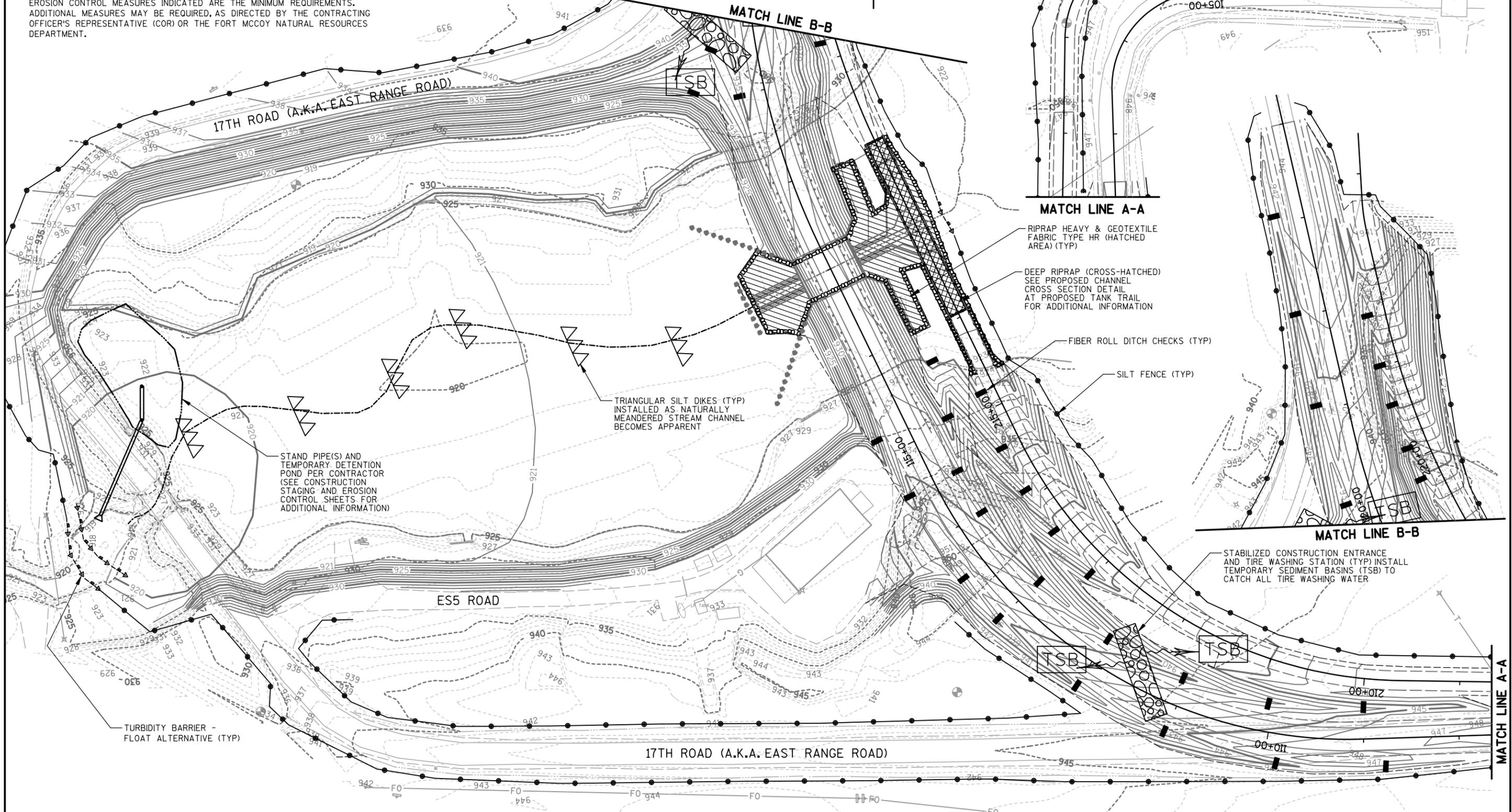
EROSION CONTROL NOTES:

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO GROUND DISTURBANCE.

DISTURBED AREAS THAT WILL NOT BE WORKED FOR 14 DAYS, SHALL BE STABILIZED WITH TEMPORARY SEED AND EROSION CONTROL BLANKET.

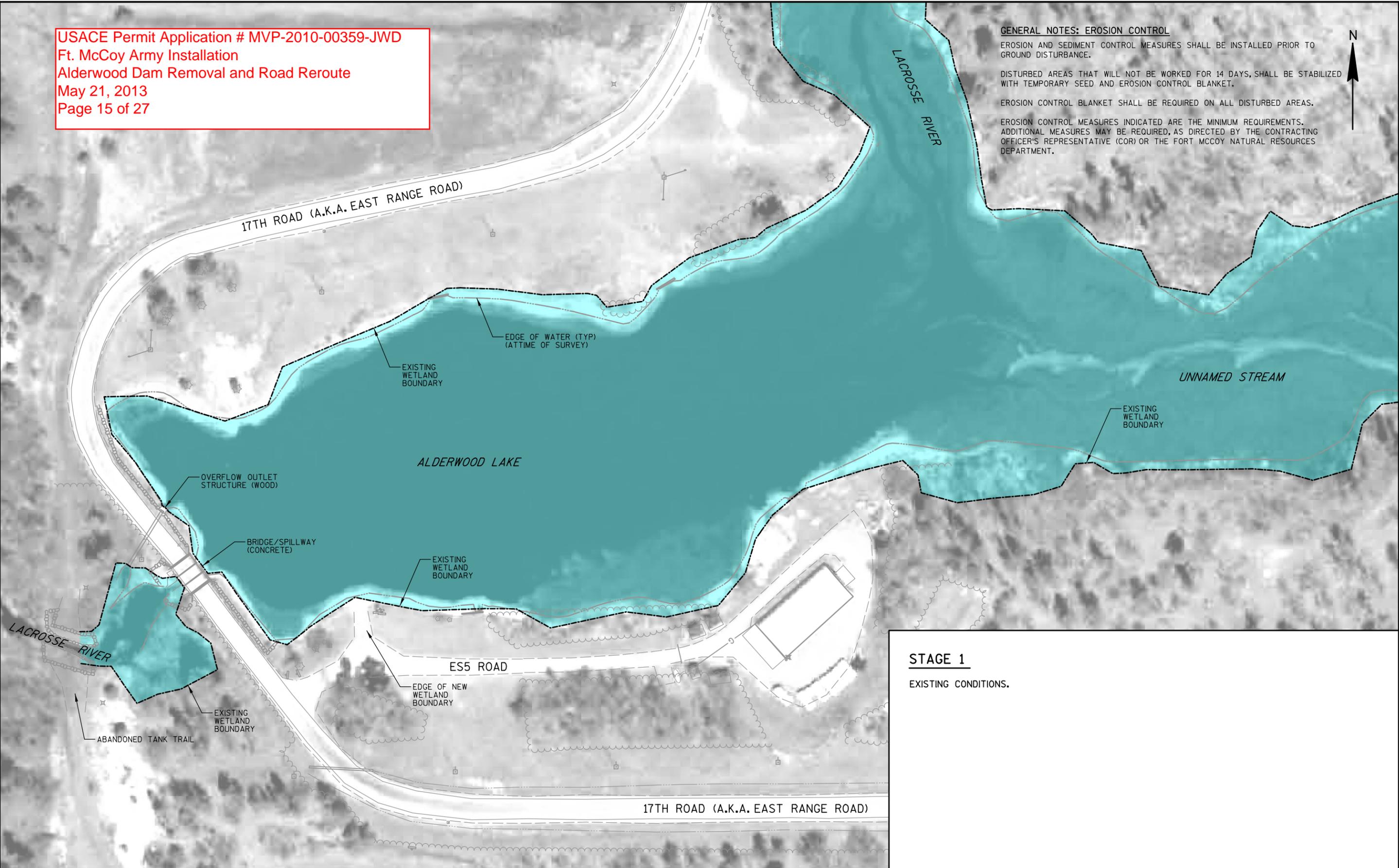
EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL DISTURBED AREAS.

EROSION CONTROL MEASURES INDICATED ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE (COR) OR THE FORT MCCOY NATURAL RESOURCES DEPARTMENT.



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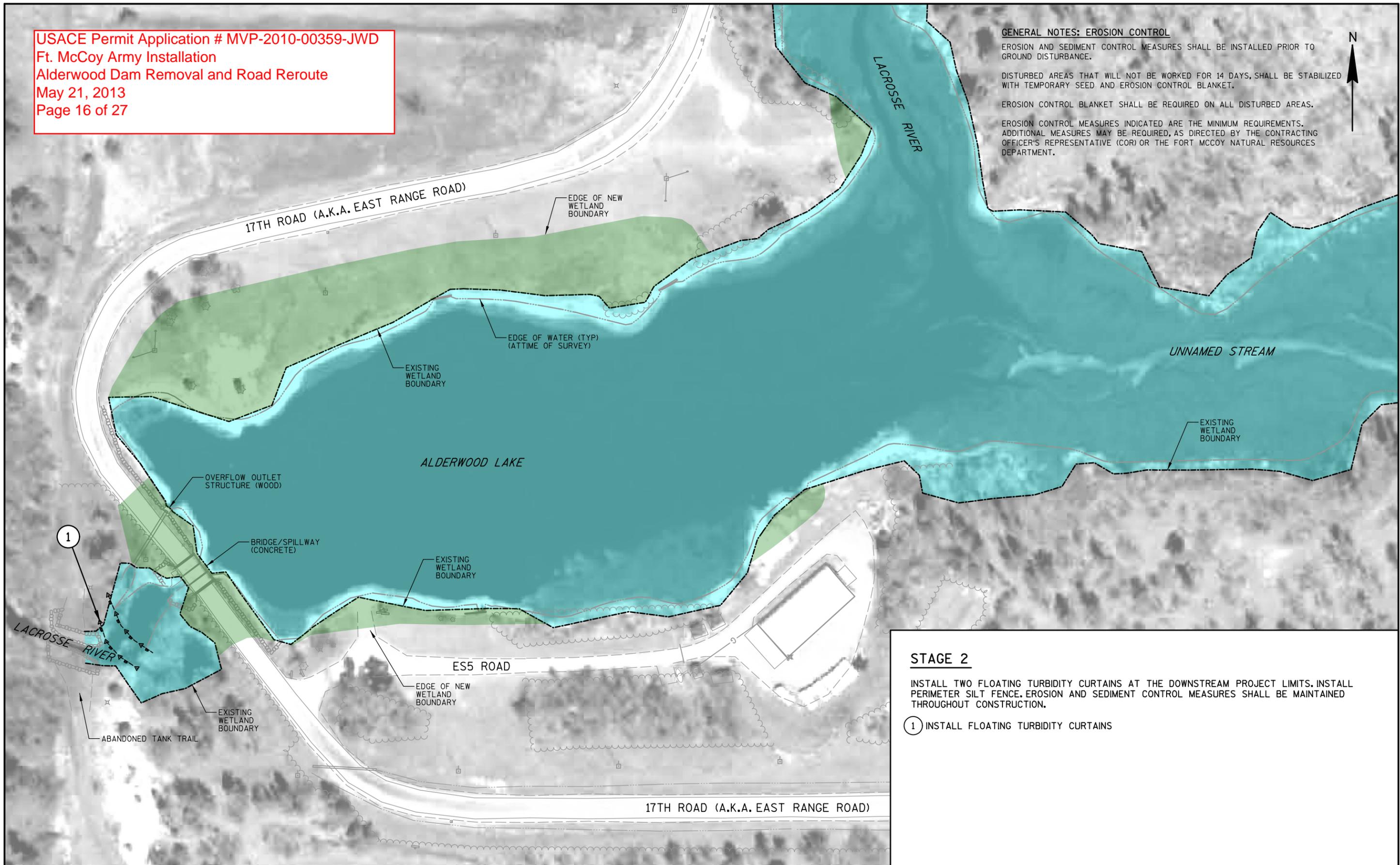
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STAGE 1
 EXISTING CONDITIONS.

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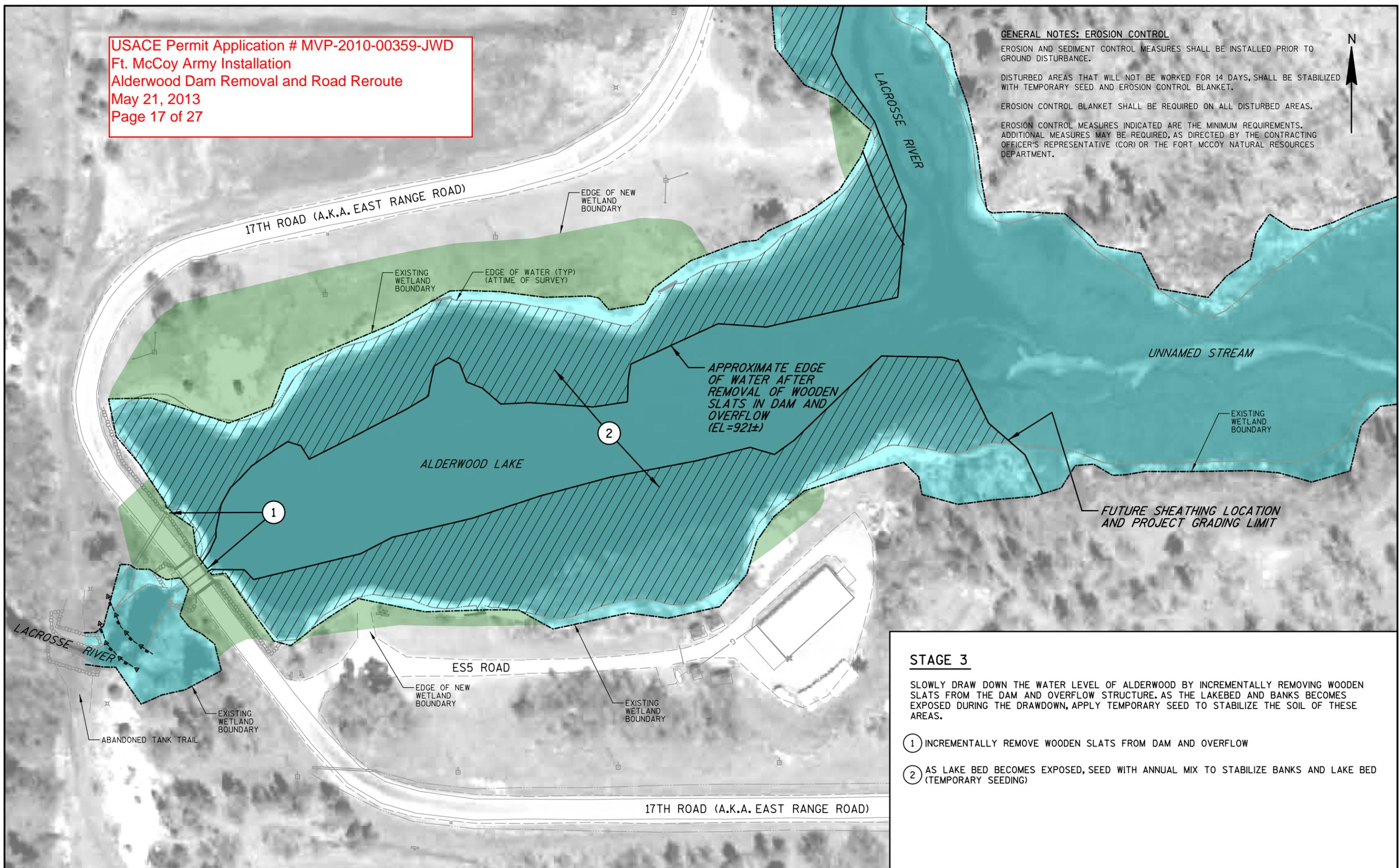


STAGE 2
 INSTALL TWO FLOATING TURBIDITY CURTAINS AT THE DOWNSTREAM PROJECT LIMITS. INSTALL PERIMETER SILT FENCE. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

① INSTALL FLOATING TURBIDITY CURTAINS

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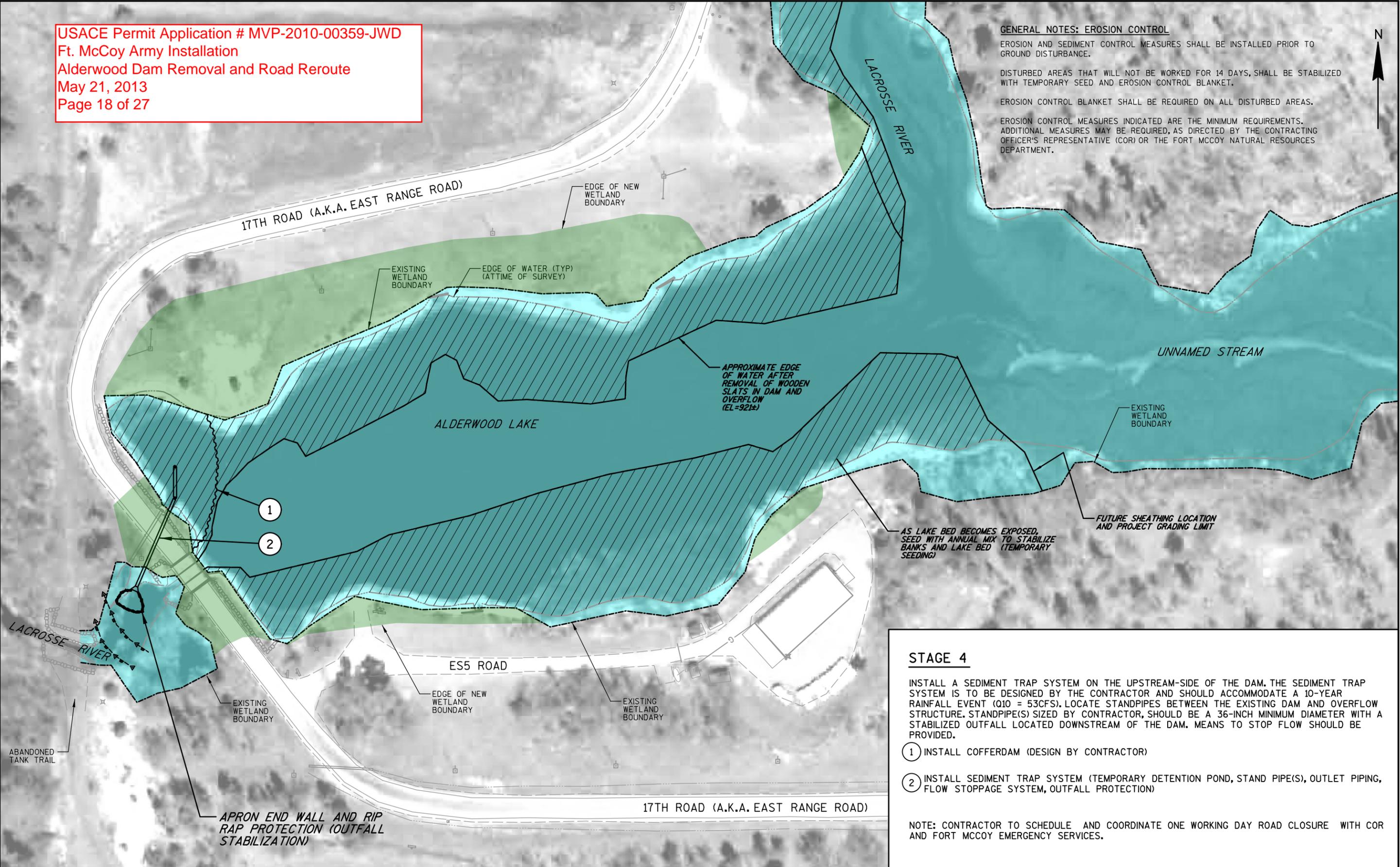


STAGE 3
 SLOWLY DRAW DOWN THE WATER LEVEL OF ALDERWOOD BY INCREMENTALLY REMOVING WOODEN SLATS FROM THE DAM AND OVERFLOW STRUCTURE. AS THE LAKEBED AND BANKS BECOMES EXPOSED DURING THE DRAWDOWN, APPLY TEMPORARY SEED TO STABILIZE THE SOIL OF THESE AREAS.

- ① INCREMENTALLY REMOVE WOODEN SLATS FROM DAM AND OVERFLOW
- ② AS LAKE BED BECOMES EXPOSED, SEED WITH ANNUAL MIX TO STABILIZE BANKS AND LAKE BED (TEMPORARY SEEDING)

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STAGE 4

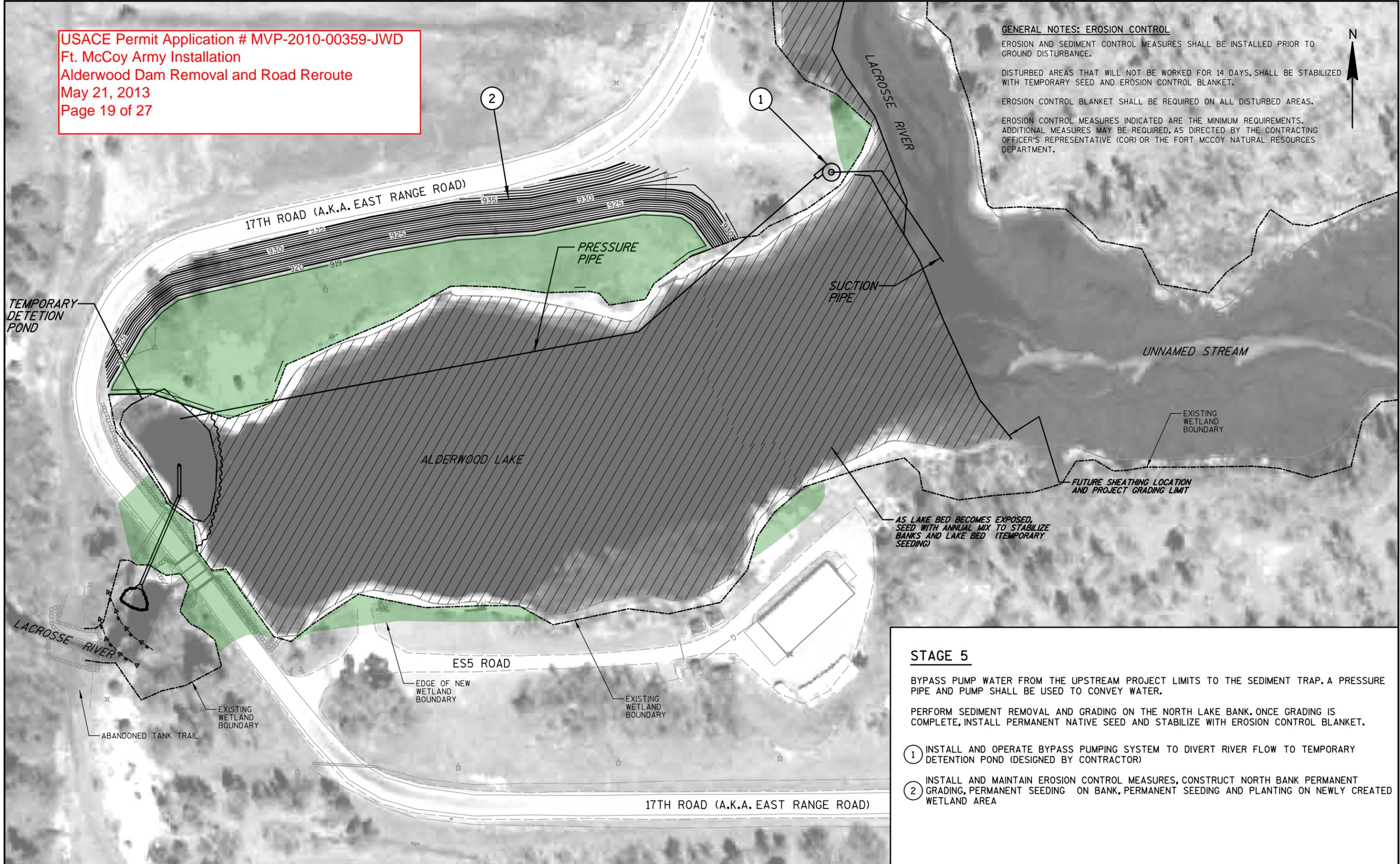
INSTALL A SEDIMENT TRAP SYSTEM ON THE UPSTREAM-SIDE OF THE DAM. THE SEDIMENT TRAP SYSTEM IS TO BE DESIGNED BY THE CONTRACTOR AND SHOULD ACCOMMODATE A 10-YEAR RAINFALL EVENT ($Q_{10} = 53\text{CFS}$). LOCATE STANDPIPES BETWEEN THE EXISTING DAM AND OVERFLOW STRUCTURE. STANDPIPE(S) SIZED BY CONTRACTOR, SHOULD BE A 36-INCH MINIMUM DIAMETER WITH A STABILIZED OUTFALL LOCATED DOWNSTREAM OF THE DAM. MEANS TO STOP FLOW SHOULD BE PROVIDED.

- ① INSTALL COFFERDAM (DESIGN BY CONTRACTOR)
- ② INSTALL SEDIMENT TRAP SYSTEM (TEMPORARY DETENTION POND, STAND PIPE(S), OUTLET PIPING, FLOW STOPPAGE SYSTEM, OUTFALL PROTECTION)

NOTE: CONTRACTOR TO SCHEDULE AND COORDINATE ONE WORKING DAY ROAD CLOSURE WITH COR AND FORT MCCOY EMERGENCY SERVICES.

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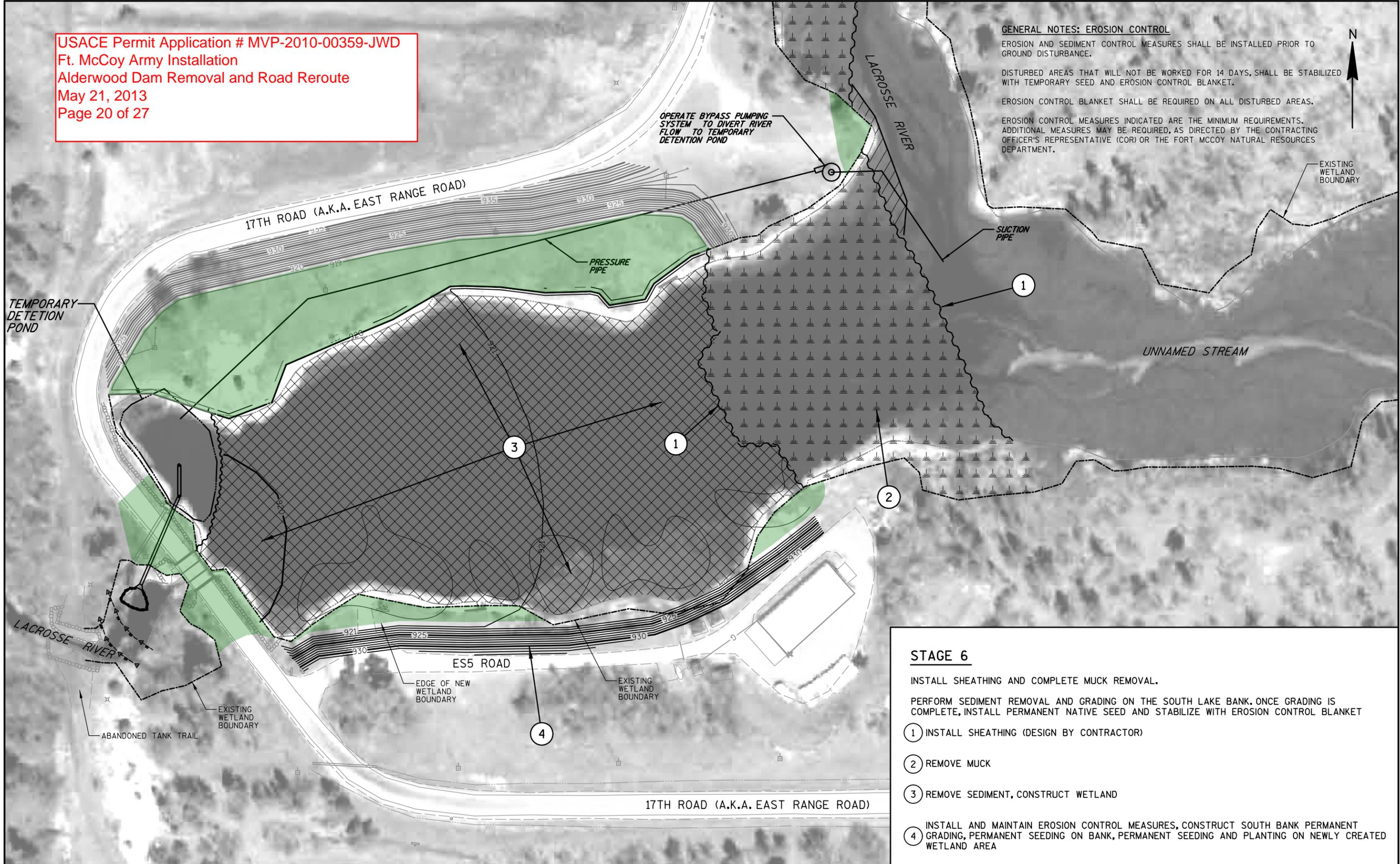
STAGE 5
 BYPASS PUMP WATER FROM THE UPSTREAM PROJECT LIMITS TO THE SEDIMENT TRAP. A PRESSURE PIPE AND PUMP SHALL BE USED TO CONVEY WATER.
 PERFORM SEDIMENT REMOVAL AND GRADING ON THE NORTH LAKE BANK. ONCE GRADING IS COMPLETE, INSTALL PERMANENT NATIVE SEED AND STABILIZE WITH EROSION CONTROL BLANKET.

① INSTALL AND OPERATE BYPASS PUMPING SYSTEM TO DIVERT RIVER FLOW TO TEMPORARY DETENTION POND (DESIGNED BY CONTRACTOR)

② INSTALL AND MAINTAIN EROSION CONTROL MEASURES, CONSTRUCT NORTH BANK PERMANENT GRADING, PERMANENT SEEDING ON BANK, PERMANENT SEEDING AND PLANTING ON NEWLY CREATED WETLAND AREA

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STAGE 6

- INSTALL SHEATHING AND COMPLETE MUCK REMOVAL.
- PERFORM SEDIMENT REMOVAL AND GRADING ON THE SOUTH LAKE BANK. ONCE GRADING IS COMPLETE, INSTALL PERMANENT NATIVE SEED AND STABILIZE WITH EROSION CONTROL BLANKET
- ① INSTALL SHEATHING (DESIGN BY CONTRACTOR)
- ② REMOVE MUCK
- ③ REMOVE SEDIMENT, CONSTRUCT WETLAND
- ④ INSTALL AND MAINTAIN EROSION CONTROL MEASURES, CONSTRUCT SOUTH BANK PERMANENT GRADING, PERMANENT SEEDING ON BANK, PERMANENT SEEDING AND PLANTING ON NEWLY CREATED WETLAND AREA

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OPERATE BYPASS PUMPING SYSTEM TO DIVERT RIVER FLOW TO TEMPORARY DETENTION POND

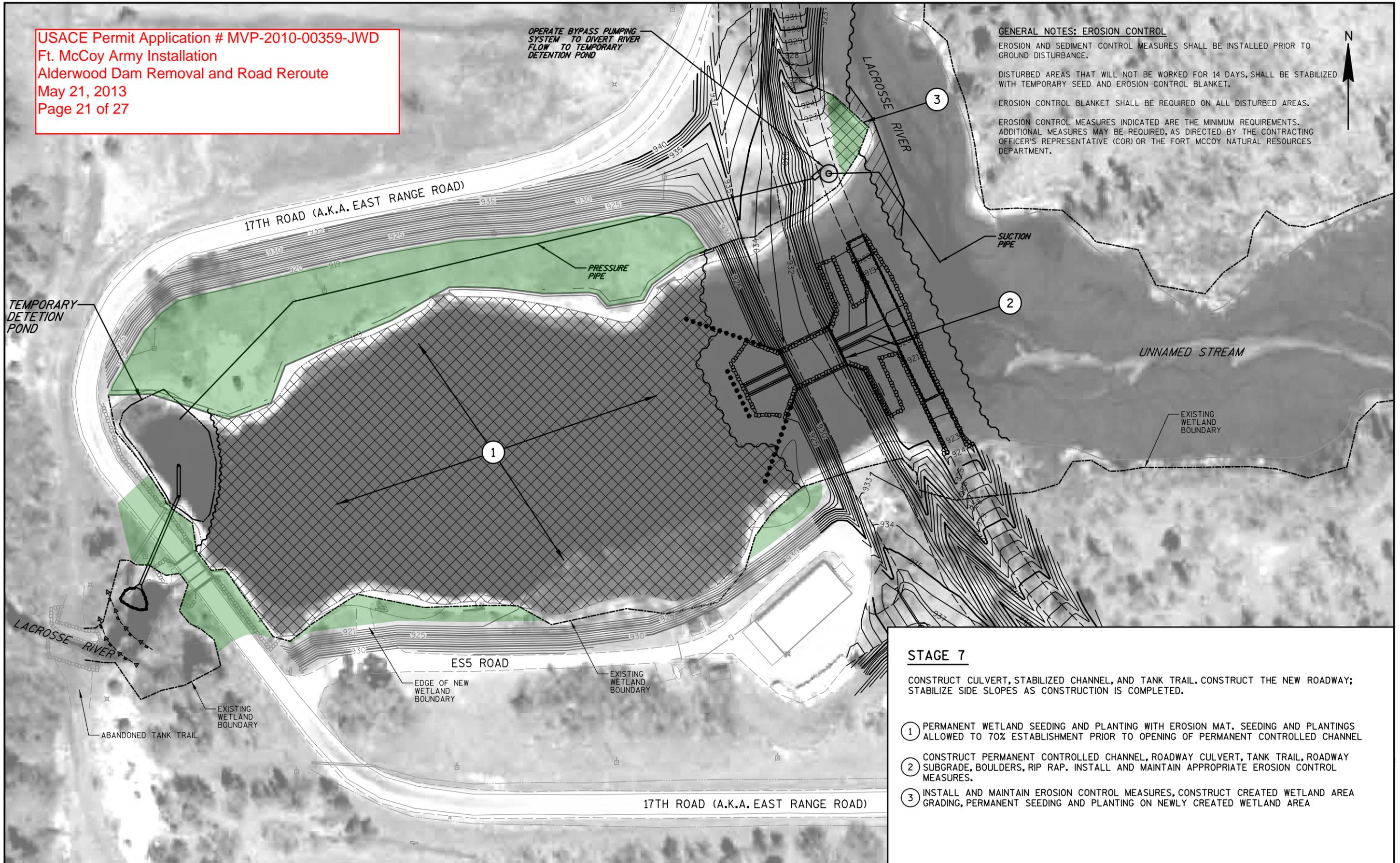
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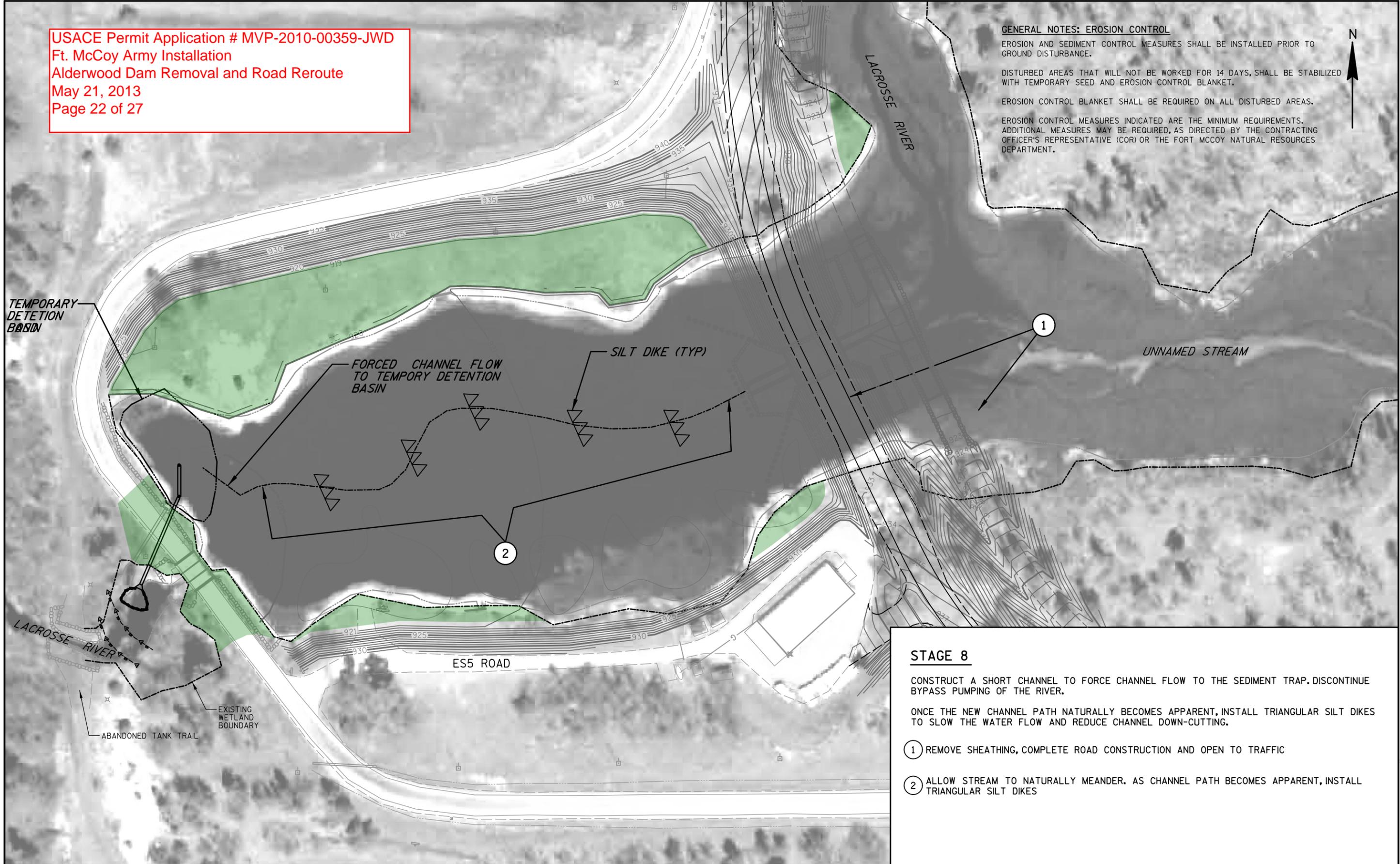
STAGE 7

CONSTRUCT CULVERT, STABILIZED CHANNEL, AND TANK TRAIL. CONSTRUCT THE NEW ROADWAY; STABILIZE SIDE SLOPES AS CONSTRUCTION IS COMPLETED.

- ① PERMANENT WETLAND SEEDING AND PLANTING WITH EROSION MAT. SEEDING AND PLANTINGS ALLOWED TO 70% ESTABLISHMENT PRIOR TO OPENING OF PERMANENT CONTROLLED CHANNEL
- ② CONSTRUCT PERMANENT CONTROLLED CHANNEL, ROADWAY CULVERT, TANK TRAIL, ROADWAY SUBGRADE, BOULDERS, RIP RAP. INSTALL AND MAINTAIN APPROPRIATE EROSION CONTROL MEASURES.
- ③ INSTALL AND MAINTAIN EROSION CONTROL MEASURES, CONSTRUCT CREATED WETLAND AREA GRADING, PERMANENT SEEDING AND PLANTING ON NEWLY CREATED WETLAND AREA

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STAGE 8

- CONSTRUCT A SHORT CHANNEL TO FORCE CHANNEL FLOW TO THE SEDIMENT TRAP. DISCONTINUE BYPASS PUMPING OF THE RIVER.
- ONCE THE NEW CHANNEL PATH NATURALLY BECOMES APPARENT, INSTALL TRIANGULAR SILT DIKES TO SLOW THE WATER FLOW AND REDUCE CHANNEL DOWN-CUTTING.
- ① REMOVE SHEATHING, COMPLETE ROAD CONSTRUCTION AND OPEN TO TRAFFIC
 - ② ALLOW STREAM TO NATURALLY MEANDER. AS CHANNEL PATH BECOMES APPARENT, INSTALL TRIANGULAR SILT DIKES

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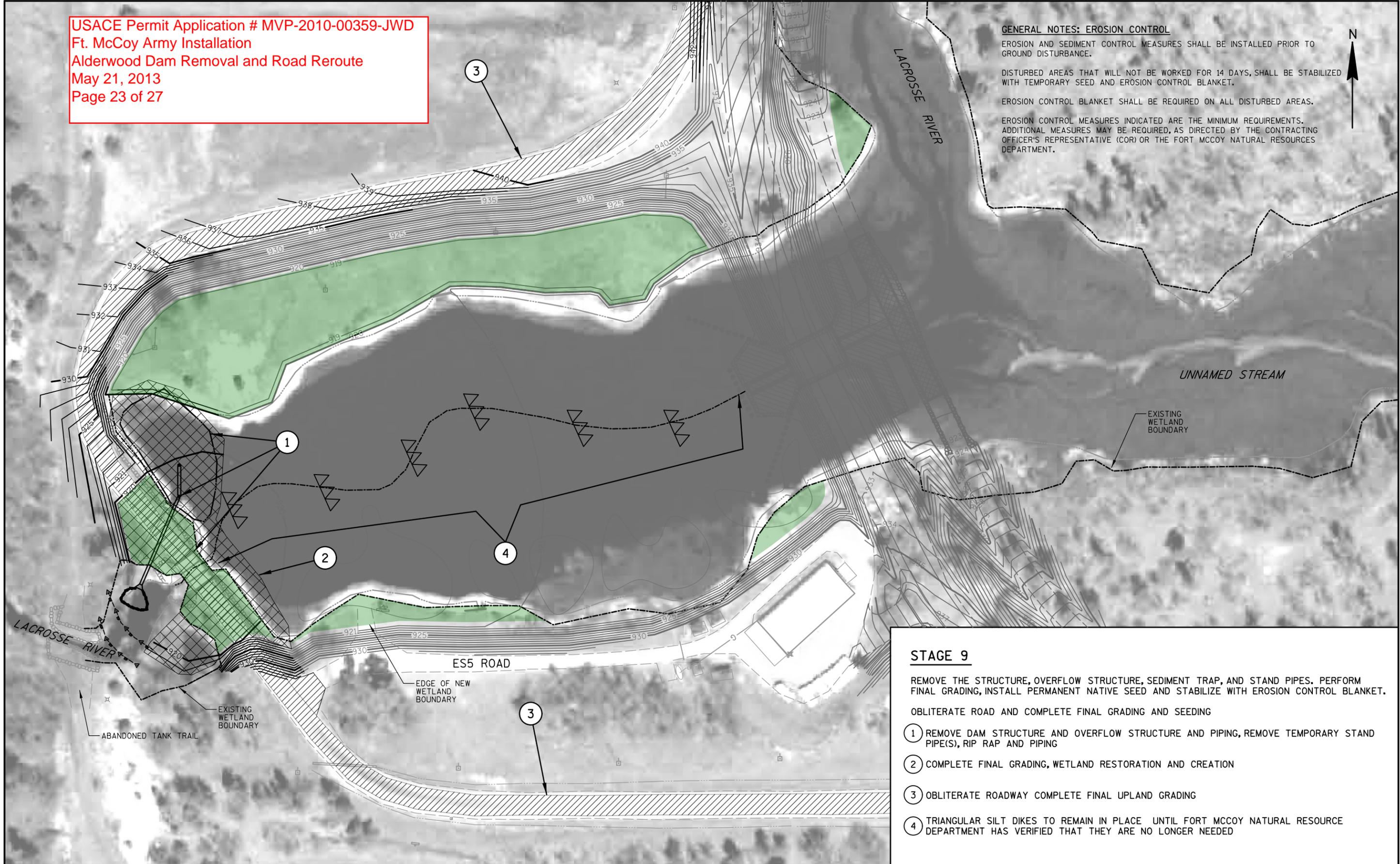
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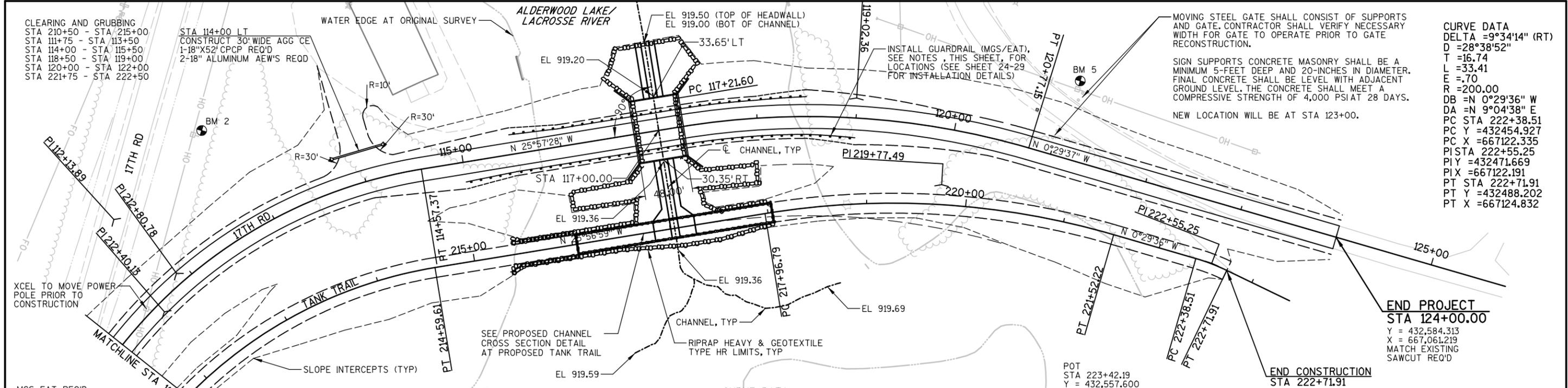


STAGE 9

REMOVE THE STRUCTURE, OVERFLOW STRUCTURE, SEDIMENT TRAP, AND STAND PIPES. PERFORM FINAL GRADING, INSTALL PERMANENT NATIVE SEED AND STABILIZE WITH EROSION CONTROL BLANKET.

OBLITERATE ROAD AND COMPLETE FINAL GRADING AND SEEDING

- ① REMOVE DAM STRUCTURE AND OVERFLOW STRUCTURE AND PIPING, REMOVE TEMPORARY STAND PIPE(S), RIP RAP AND PIPING
- ② COMPLETE FINAL GRADING, WETLAND RESTORATION AND CREATION
- ③ OBLITERATE ROADWAY COMPLETE FINAL UPLAND GRADING
- ④ TRIANGULAR SILT DIKES TO REMAIN IN PLACE UNTIL FORT MCCOY NATURAL RESOURCE DEPARTMENT HAS VERIFIED THAT THEY ARE NO LONGER NEEDED



CURVE DATA
 DELTA = 9°34'14" (RT)
 D = 28°38'52"
 T = 16.74
 L = 33.41
 E = .70
 R = 200.00
 DB = N 0°29'36" W
 DA = N 9°04'38" E
 PC STA 222+38.51
 PC Y = 432454.927
 PC X = 667122.335
 PISTA 222+55.25
 PIY = 432471.669
 PIX = 667122.191
 PT STA 222+71.91
 PT Y = 432488.202
 PT X = 667124.832

CLEARING AND GRUBBING
 STA 210+50 - STA 215+00
 STA 114+75 - STA 113+50
 STA 114+00 - STA 115+50
 STA 118+50 - STA 119+00
 STA 120+00 - STA 122+00
 STA 221+75 - STA 222+50

CONSTRUCT 30' WIDE AGG CE
 1-18"X52' CPCP REQ'D
 2-18" ALUMINUM AEW'S REQ'D

MOVING STEEL GATE SHALL CONSIST OF SUPPORTS AND GATE. CONTRACTOR SHALL VERIFY NECESSARY WIDTH FOR GATE TO OPERATE PRIOR TO GATE RECONSTRUCTION.
 SIGN SUPPORTS CONCRETE MASONRY SHALL BE A MINIMUM 5-FEET DEEP AND 20-INCHES IN DIAMETER. FINAL CONCRETE SHALL BE LEVEL WITH ADJACENT GROUND LEVEL. THE CONCRETE SHALL MEET A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
 NEW LOCATION WILL BE AT STA 123+00.

MGS EAT REQ'D

STA 115+00.00, RT
 STA 115+50.00, LT
 STA 118+50.00, RT
 STA 119+00.00, RT

MGS REQ'D

STA 115+53.13 TO STA 118+46.87, RT
 STA 116+03.13 TO STA 117+96.87, LT

CURVE DATA
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 D = 11°48'49"
 T = 314.39
 L = 557.88
 E = 92.99
 R = 485.00
 DB = S 88°08'13" W
 DA = N 25°57'28" W
 PC STA 108+99.49
 PC Y = 431408.178
 PC X = 667712.173
 PISTA 112+13.89
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 PT Y = 431680.633
 PT X = 667260.333
 SE = 6.0

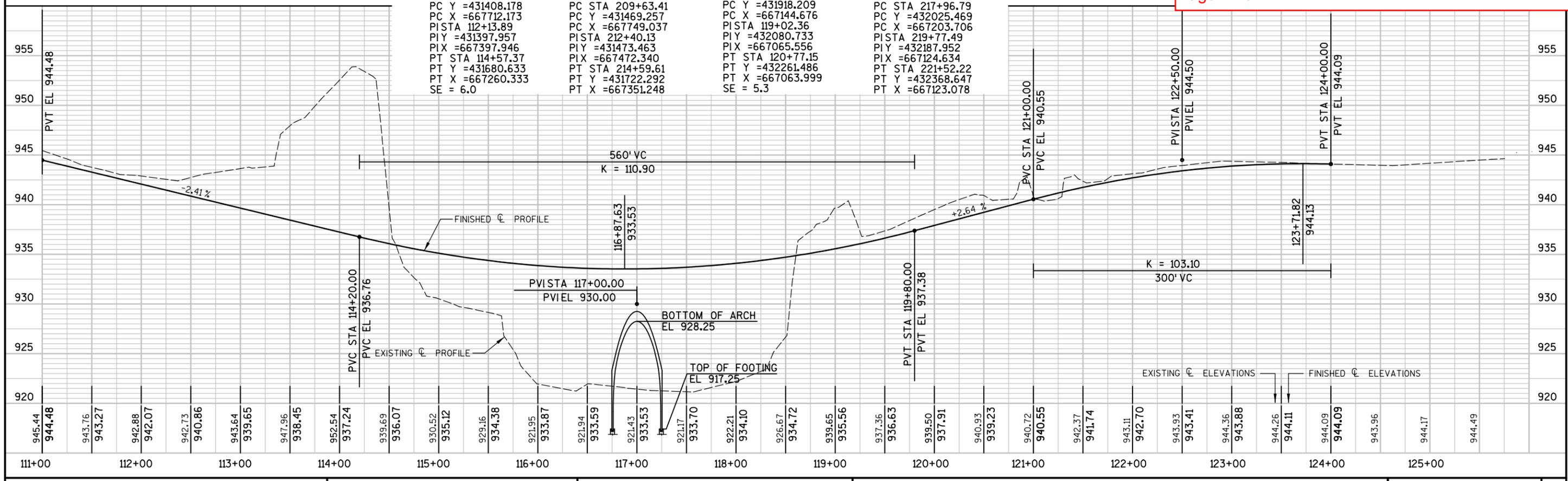
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 R = 450.00
 DB = N 89°07'44" W
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 PC STA 209+63.41
 PC Y = 431469.257
 PC X = 667749.037
 PISTA 212+40.13
 PIY = 431473.463
 PIX = 667472.340
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CURVE DATA
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 DA = N 0°29'37" W
 PC STA 117+21.60
 PC Y = 431918.209
 PC X = 667144.676
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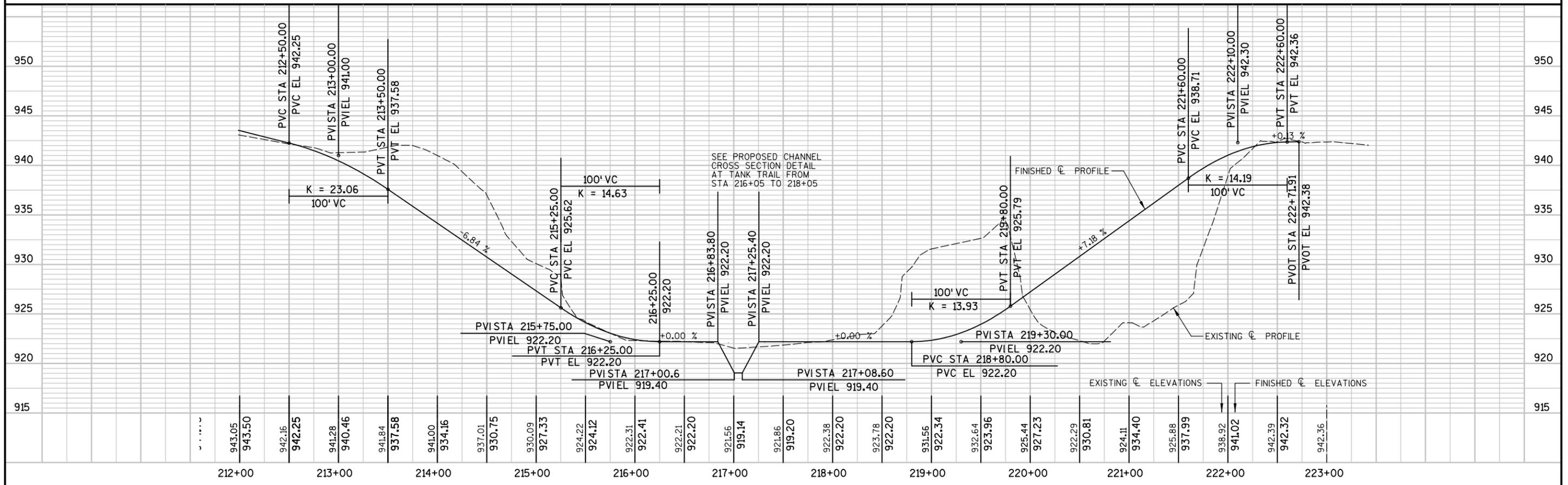
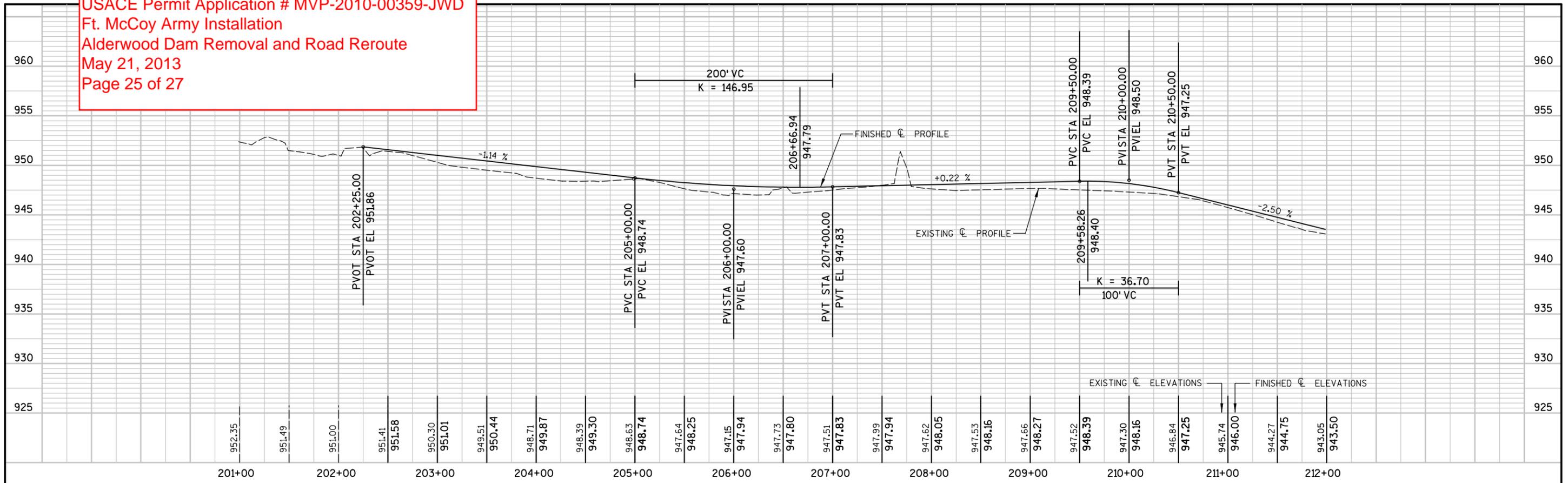
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 PISTA 219+77.49
 PIY = 432187.952
 PIX = 667124.634
 PT STA 221+52.22
 PT Y = 432368.647
 PT X = 667123.078

POT
 STA 223+42.19
 Y = 432,557.600
 X = 667,135.921

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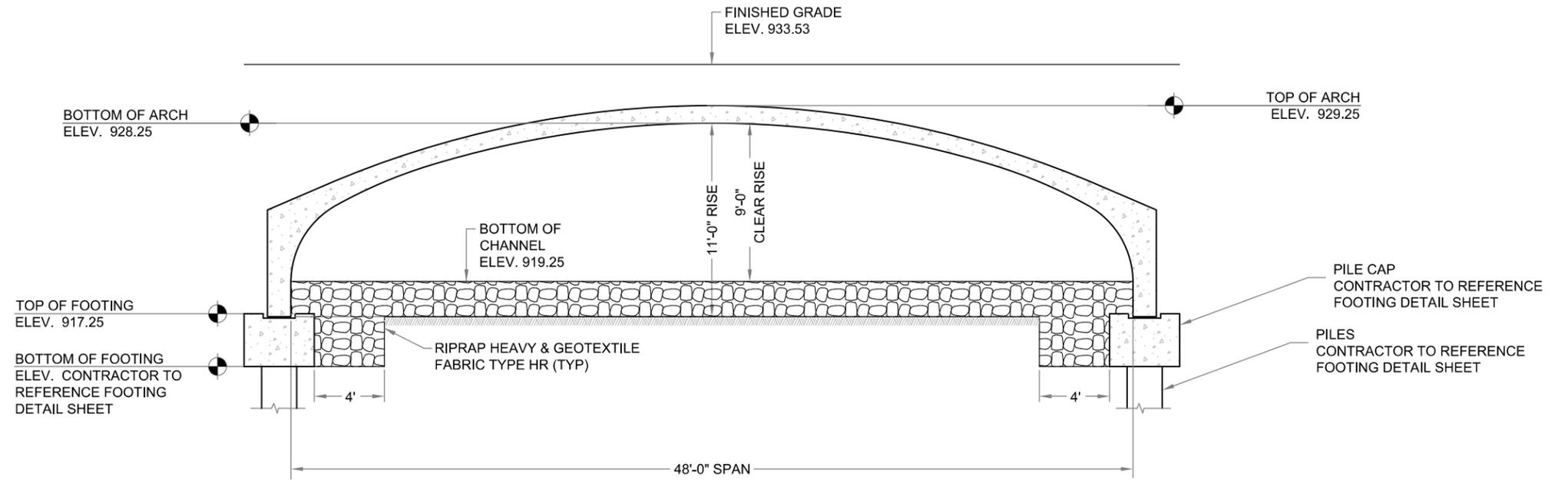


DESIGN DATA

DESIGN LOADING:
 BRIDGE UNITS: HL-93 / MLC 116
 HEADWALLS: EARTH PRESSURE
 WINGWALLS: EARTH PRESSURE
 DESIGN FILL HEIGHT: 4'-6" MAX.
 FROM TOP OF CROWN TO TOP OF PAVEMENT.
 DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN
 PER AASHTO LRFD SPECIFICATION
 ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE:
 ASSUMED GROSS ALLOWABLE SOIL BEARING PRESSURE:

MATERIALS

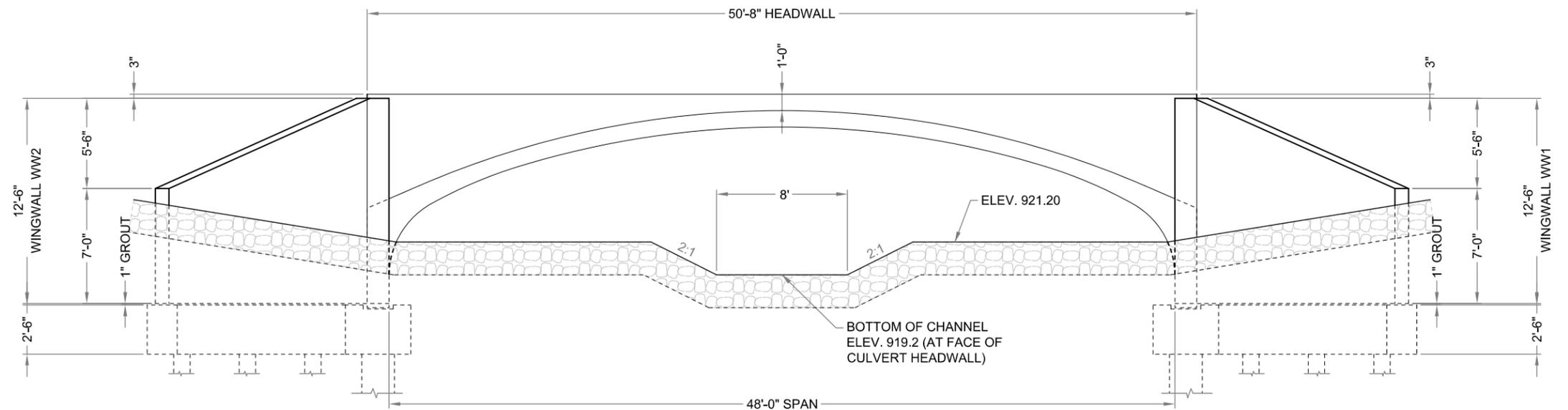
PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED
 IN ACCORDANCE WITH 3-SIDED ARCH SPECIFICATIONS.



SECTION "A - A"

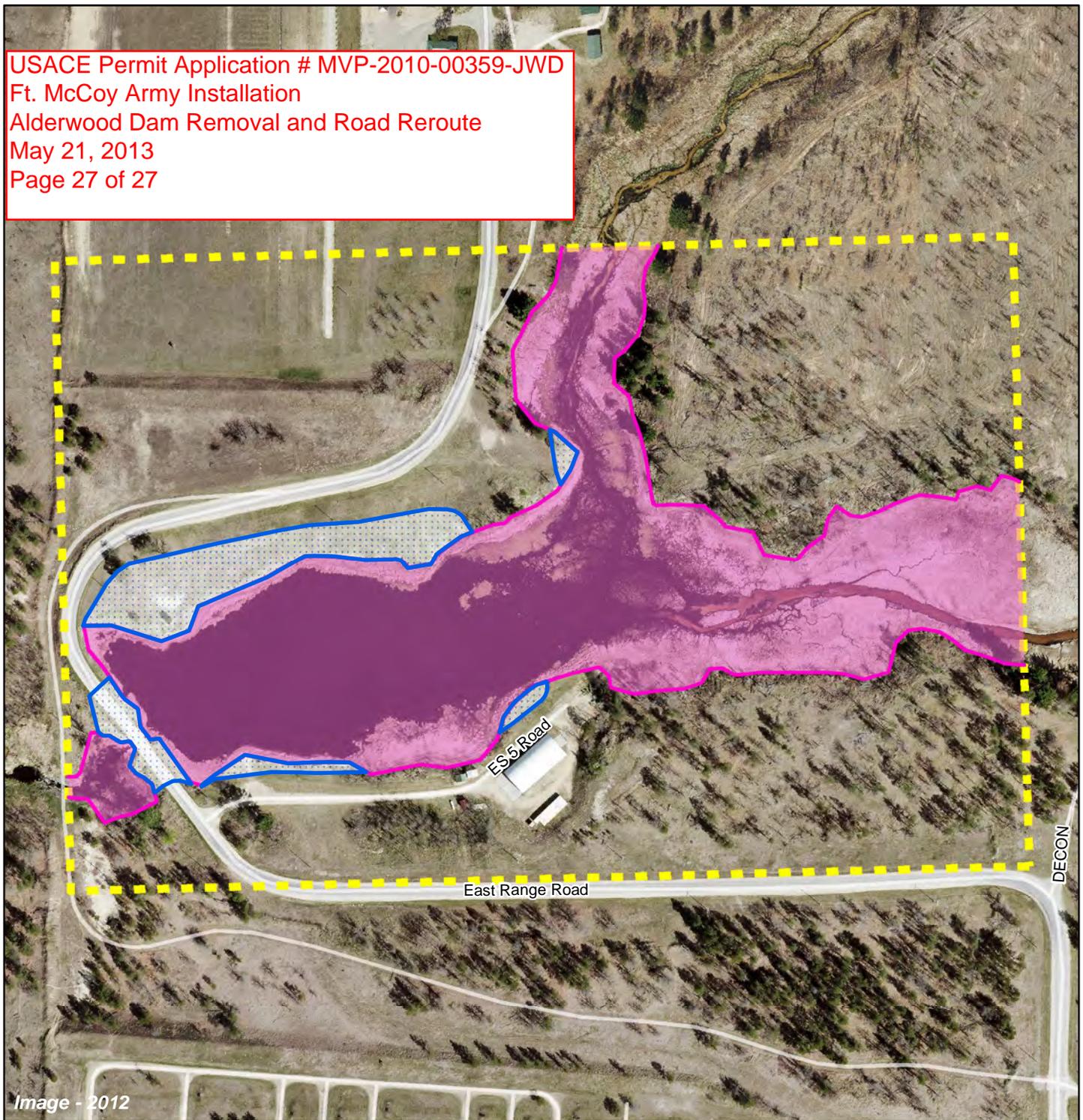
(AT CENTERLINE OF ROADWAY)

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UPSTREAM VIEW ELEVATION

(DOWNSTREAM VIEW ELEVATION SIMILAR)

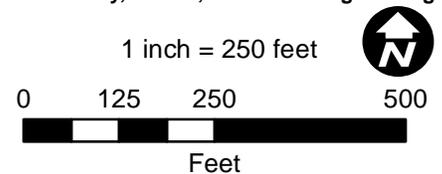


PROJECT LOCATION

SOURCE: Ft. McCoy, WDNR, Anderson Engineering



-  Project Location
-  Wetland Field Delineated 9/27/2012
-  Wetland Mitigation Areas



100 East Headquarters Road
 Ft. McCoy, Monroe County, WI
 S.30 Twp.19 N R.2 W

State of Wisconsin Monroe County



Anderson Engineering of Minnesota, LLC
 13605 1st Avenue North
 Suite 100
 Plymouth, MN 55441
 763-412-4000 (o) 763-412-4090 (f)
 www.ae-mn.com

**WETLAND MITIGATION - FIGURE 3
 FT. MCCOY ALDERWOOD DAM
 REMOVAL & ROAD REROUTE**