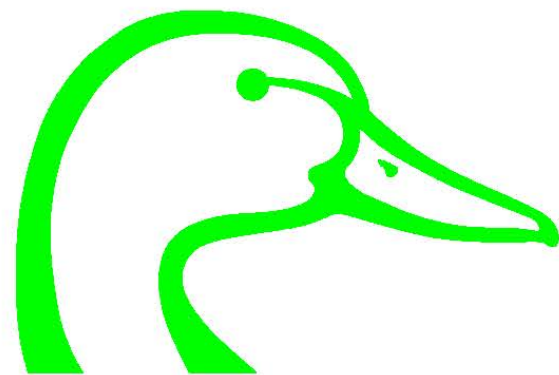


Upper Lightning Lake Water Level Management
Environmental Assessment Worksheet

Attachment A

Preliminary Design Plans for the Downstream Channel



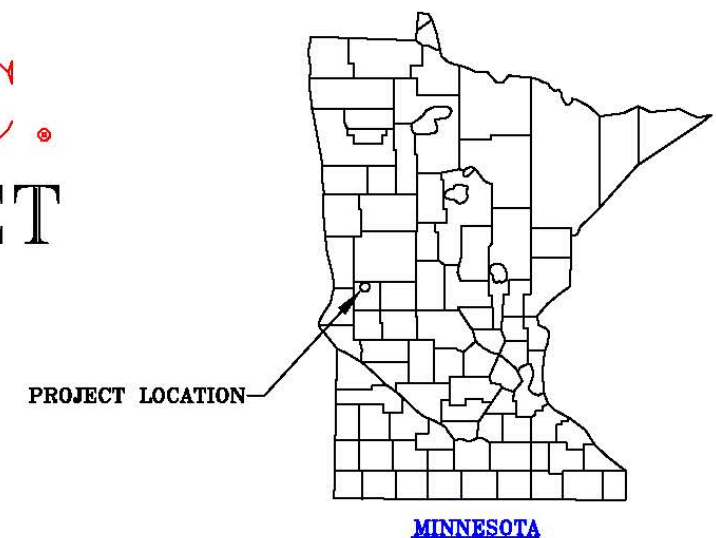
DUCKS UNLIMITED

DUCKS UNLIMITED, INC.

UPPER LIGHTNING LAKE OUTLET

SECTIONS 1,11,12 TOWNSHIP 130N, RANGE 44W
GRANT COUNTY, MN

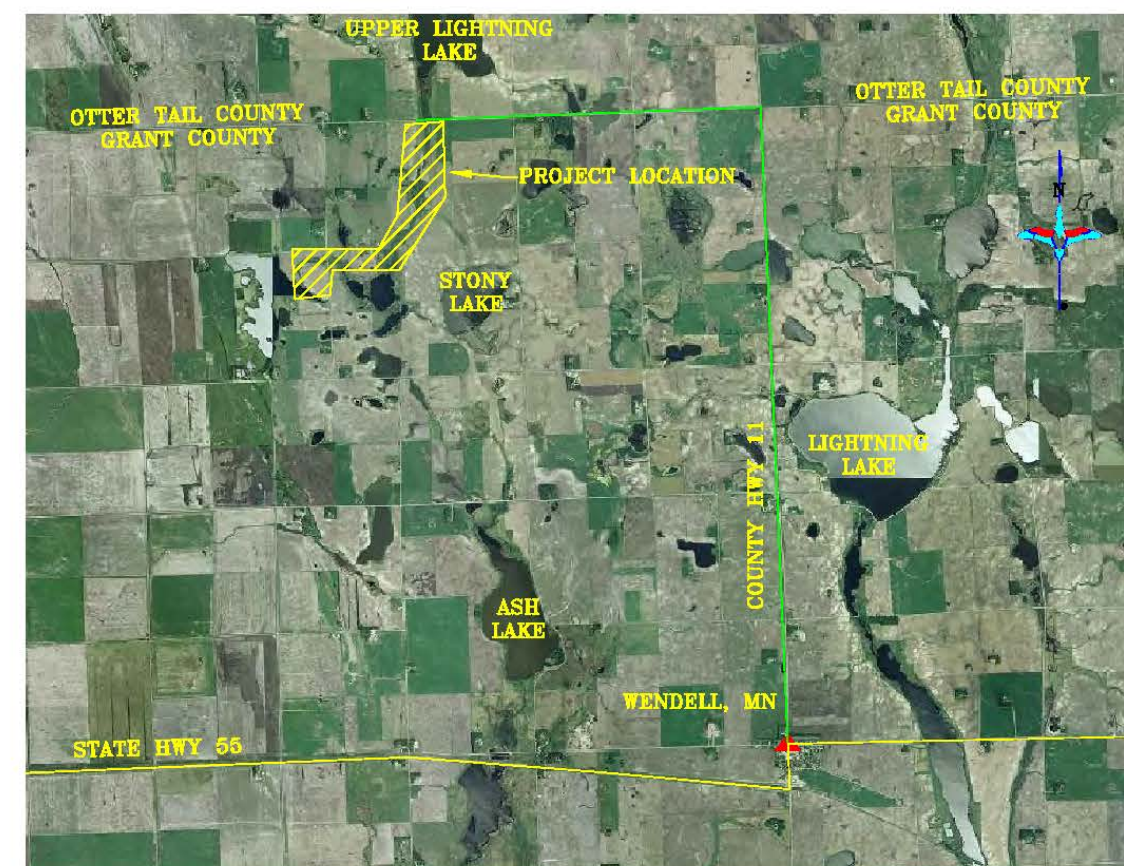
IN COOPERATION WITH
MINNESOTA DEPARTMENT OF NATURAL RESOURCES
& PRIVATE LANDOWNERS



MINNESOTA



MAP POINT "▲" IS LOCATED AT INTERSECTION OF STATE HWY 55 AND COUNTY HWY 11 LOCATED IN WENDELL, MN. TO SITE FROM MAP POINT, GO NORTH ON COUNTY HWY 11 ±5.0 MILES TO INTERSECTION OF COUNTY HWY 11 & COUNTY HWY 26. TURN WEST ON COUNTY HWY 26 ±3 MILES TO PROJECT SITE WHICH IS LOCATED ON SOUTH SIDE OF HWY.



PLAN INDEX

- 1 PROJECT LOCATION MAPS
- 2 ESTIMATED QUANTITIES AND CONSTRUCTION NOTES
- 3 PROJECT TOPOGRAPHY
- 4 CHANNEL CLEAN-OUT PHASE 1, DETAILS AND NOTES
- 5 CHANNEL CLEAN-OUT PHASE 2, DETAILS AND NOTES
- 6 CHANNEL CLEAN-OUT PHASE 3, DETAILS AND NOTES
- 7 CHANNEL CLEAN-OUT PHASE 4, DETAILS AND NOTES
- 8 CHANNEL CLEAN-OUT PHASE 5, DETAILS AND NOTES
- 9 PLAN & PROFILE CROSSING #1
- 10 PLAN & PROFILE CROSSING #2
- 11 STORM WATER POLLUTION PREVENTION PLAN

LOCATION MAP

NOT TO SCALE

PROJECT AGENCY/OWNER CONTACTS:

KEVIN KOTTS or TODD CALL DON SCHULTZ
MN DNR-GLENWOOD OFFICE MN DNR-FERGUS FALLS OFFICE
320-634-0342 218-739-7576 x228

PROJECT ENGINEER:
DOUG LIPETZKY, P.E.
FOR DUCKS UNLIMITED, INC.
BISMARCK, ND
701-355-3552

Revision Number	Sheet Number	Revisions	Date	By

PRELIMINARY

IF THESE PLANS ARE NOT PLOTTED AND/OR REPRODUCED AT THE ORIGINAL SIZE OF 24"x 36" ANY SCALE REFERENCED HEREIN SHOULD BE DISREGARDED AND THE PLANS SHOULD BE CONSIDERED "NOT TO SCALE."

VICINITY MAP

NOT TO SCALE

DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE DATE: 3-3-2014	PROJECT NO. MN-332-2 UPPER LIGHTNING LAKE COVER SHEET	DESIGNED BY: DJL DRAWN BY: MLO SURVEYED BY: GLJ CHECKED BY:
	APPROVED BY:	APPROVED BY:

ESTIMATED QUANTITIES:

NOTE	SPEC.#	ITEM	UNIT	QUANTITY
1	201	MOBILIZATION	LUMP SUM	1
2	202	SITE PREPARATION	LUMP SUM	1
2a	202	SITE PREPARATION – DISKING	ACRE	20
3	203	EXCAVATION–CHANNEL MAINTENANCE/CLEANOUT		
		PHASE 1	LINEAR FEET	2,122
		PHASE 2	LINEAR FEET	1,368
		PHASE 3	LINEAR FEET	2,132
		PHASE 4	LINEAR FEET	3,024
		PHASE 5	LINEAR FEET	2,035
	203	EXCAVATION–DOZER HOURLY RATE		
4		DOZER (ALL 5 PHASES)	HOURS	150
	303	CULVERT SUPPLY & INSTALLATION		
		6'x3' RCB CULVERT	LINEAR FEET	60
		RCB SLOPED ENDS	EACH	4
5	305	DU CLASS II RIPRAP (6"–18"ø)	TON	50
6	305	¾"–1½"ø CLEAR ROCK BEDDING	TON	180
7		REMOVAL OF EXISTING STRUCTURES	LUMP SUM	1
8	401	STORMWATER MANAGEMENT AND EROSION CONTROL		
9		DU CLASS I RIPRAP (3"–9"ø)	TON	20
10		STANDARD SILT FENCE	LINEAR FEET	3,900
		12" DIA. STRAW WATTLES/BIO–ROLLS	LINEAR FEET	80
		MnDOT CAT. 3 EROSION BLANKET	SQUARE YARD	730
11		FLOATING SILT FENCE	LINEAR FEET	150
12		TEMPORARY CONSTRUCTION ACCESS	EACH	4
		STORM WATER PERMIT	LUMP SUM	1
13	402	MULCHING (PROVIDE & PLACE)	ACRE	10
13	402	SEEDING (BUY & SEED MIX 350)	ACRE	2
13	402	SEEDING (BUY & SEED MIX 34–171)	ACRE	8

Mixture: 350			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	3.4	3.0	21.5
Indian grass	2.8	2.5	18.0
Bluestem, little	2.8	2.5	18.0
Gramma, sideoats	3.4	3.0	21.5
Wild-rye, Canadian	2.2	2.0	14.0
Switch grass	1.1	1.0	7.0
Grass Totals	15.7	14.0	100.0
Common Name	Bulk Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals	78.3	70.0	100.0
Mesic Forbs Mixture	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Application: Native mix for general roadside areas.			

34-171 Wetland Rehabilitation					
Common Name	Scientific Name	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Seeds/ sq ft
Virginia wild rye	<i>Elymus virginicus</i>	3.00	3.36	56.61%	4.63
fowl bluegrass	<i>Poa palustris</i>	1.00	1.12	18.89%	47.80
	Grasses Subtotal	4.00	4.48	75.50%	52.43
dark green bulrush	<i>Scirpus atrovirens</i>	0.36	0.40	6.70%	60.00
fox sedge	<i>Carex vulpinoidea</i>	0.20	0.22	3.85%	7.50
path rush	<i>Juncus tenuis</i>	0.16	0.18	3.03%	59.00
woolgrass	<i>Scirpus cyperinus</i>	0.08	0.09	1.51%	50.00
	Sedges & Rushes Subtotal	0.80	0.90	15.09%	175.50
Water Horehound	<i>Lycopus americanus</i>	0.33	0.37	6.29%	23.15
nodding bur marigold	<i>Bidens cornus</i>	0.13	0.15	2.46%	1.00
blue monkey flower	<i>Mimulus ringens</i>	0.04	0.04	0.67%	30.00
	Forbs Subtotal	0.50	0.56	9.41%	54.15
	Total	5.30	5.94	100.00%	283.08
Purpose:	Interseeding into establishing wetlands after weed control spraying. Also suitable for two to five year short term soil stabilization for areas with saturated soils.				
Planting Area:	Statewide				

CONSTRUCTION METHODOLOGY NOTE TO CONTRACTORS:

CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE OPTIMUM AND REASONABLE METHOD FOR CONSTRUCTION TO COMPLETE THE PROJECT AS SHOWN IN THESE PLANS. HOWEVER, SUCH METHOD SHALL MINIMIZE DISTURBANCE AREAS TO REDUCE THE POTENTIAL FOR SOIL EROSION AND INSURE COMPLIANCE WITH STORM WATER POLLUTION PREVENTION REQUIREMENTS.

DEPENDING ON SITE CONDITIONS, CONTRACTOR MAY NEED TO IMPLEMENT LOW GROUND PRESSURE TRACK–TRUCKS OR OFF–ROAD TRUCKS TO HAUL SPOIL FROM THE CHANNEL TO THE DESIGNATED WASTE AREAS. THE CONTRACTOR WILL NOT BE ALLOWED TO PUSH THE SPOIL WITH A DOZER OR OTHER EQUIPMENT ALL THE WAY FROM THE CHANNEL TO THE SPOIL AREA.

TRUCK TRAILS FROM THE CHANNEL TO THE SPOIL AREAS THROUGH THE EXISTING CATTAILS/GRASS/ CRP AREAS SHALL NOT BE CLOSER THAN APPROXIMATELY 400 FEET TO EACH OTHER UNLESS OTHERWISE APPROVED BY THE DU FIELD ENGINEER. EFFORTS SHALL BE MADE TO MINIMIZE THE FOOTPRINT OF TEMPORARY SPOIL PILES AND TRIALS FROM DRIVING EQUIPMENT.

CONSTRUCTION NOTES:

- BID ITEM FOR "MOBILIZATION" SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL AND EQUIPMENT TO AND FROM A PROJECT SITE TO SUCCESSFULLY COMPLETE THAT PROJECT AS SHOWN ON THE PLANS OR DESCRIBED BY THE ENGINEER. ANY COSTS FOR CLEANING EQUIPMENT PRIOR TO MOVING ON–SITE TO MEET ALL INVASIVE SPECIES REGULATIONS SHALL BE INCLUDED IN MOBILIZATION BID PRICE AS WELL.
- THE PAY QUANTITY FOR THE "SITE PREPARATION" SHALL INCLUDE (a) STRIPPING BENEATH CROSSINGS, (b) REPLACING MIN. 4–6" TOPSOIL OVER CROSSING SLOPES AS REQUIRED, (c) REGRADING/SMOOTHING OUT ALL CRP AND GRASS BUFFER DISTURBED AREAS ADJACENT TO THE CHANNEL EXCAVATION AND SPOIL TRANSPORT ROUTES, AS DETERMINED BY THE DU FIELD ENGINEER. THE CRP OR GRASS BUFFERS NEXT TO CHANNEL AND OTHER AREAS DISTURBED DUE TO TRANSPORTING SPOIL MATERIAL SHALL BE RE–LEVELED TO ALLOW DISKING AS DESCRIBED IN NOTE 2a. THE CONTRACTOR DOES NOT NEED TO SEED & MULCH CULTIVATED FIELD AREAS, BUT SHALL LEVEL THAT SPOIL SUITABLE ENOUGH FOR LANDOWNER TO DISC AS APPROVED BY LANDOWNER AND DU FIELD ENGINEER. THE SPOIL LEVELING WORK IN THE CULTIVATED FIELDS WILL BE PAID FOR BASED ON CONTRACTOR'S HOURLY EQUIPMENT RATE FOR A DOZER.
- THE PAY QUANTITY FOR THE "SITE PREPARATION – DISKING" SHALL INCLUDE DISKING THOSE AREAS IN CRP OR GRASS BUFFERS THAT ARE DISTURBED DUE TO TRANSPORTING SPOIL. THIS DOES NOT INCLUDE THE AREAS WHERE SPOIL IS DEPOSITED IN TILLED AREAS AS THOSE AREAS WILL BE DISKED BY THE LANDOWNER. THE AREA TO BE DISKED WILL BE DETERMINED AND MEASURED BY THE DU FIELD ENGINEER. THE DISK USED SHALL BE HEAVY–DUTY ENOUGH TO MAKE A POSITIVE CHANGE ON THE DISTURBED AREA WITH ONE PASS, HOWEVER, THE BID QUANTITY ASSUMES TWO PASSES OVER SUCH DISTURBED AREAS TO PROVIDE A SEEDBED SUITABLE FOR SEEDING AS DETERMINED BY THE DU FIELD ENGINEER. ONLY THE ACTUAL AREA DISKED AS MEASURED BY THE DU FIELD ENGINEER WILL BE PAID FOR.
- BID ITEM FOR "EXCAVATION–CHANNEL CLEANOUT/MAINTENANCE" FOR PHASES 1–5 IS FOR CLEANING OUT THE EXISTING CHANNEL FROM UPPER LIGHTNING TO DENTON SLOUGH AS INDICATED IN THESE PLANS. TYPICAL CLEANOUT/MAINTENANCE SHALL INCLUDE REMOVING 1.5' DEPTH OF SPOIL MATERIAL 6–8 FEET IN WIDTH AND HAULING TO DESIGNATED SPOIL AREAS INDICATED ON THE PLANS. CONTRACTOR WILL BE REQUIRED TO "CLEAN–UP" ANY RUTS/HOLES CREATED NEXT TO CHANNEL WITH THE EXCAVATOR EITHER BY LEVELING WITH EXCAVATOR OR DOZER. THIS WORK SHALL BE INCLUDED IN THIS LINE ITEM OR SITE PREPARATION BID PRICE. ANY RUTS CAUSED BY HAUL TRUCKS WILL ALSO BE LEVELED SUITABLE ENOUGH FOR RE–SEEING & MULCHING. PAYMENT FOR "CHANNEL CLEANOUT/MAINTENANCE" FOR PHASES 1–5 IS BASED ON LINEAR FEET. CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH SUCH INCLUDING EXCAVATION, REMOVAL OF SPOIL, HAULING SPOIL, AND DEPOSITING SPOIL IN THE DESIGNATED SPOIL AREAS. THE LEVELING OF SPOIL MATERIAL IN CULTIVATED FIELDS WILL BE PAID FOR BASED ON THE CONTRACTOR'S HOURLY EQUIPMENT RATE FOR DOZER (SEE NOTE 4).
- BID ITEM FOR "EXCAVATION–DOZER" INCLUDES AN ESTIMATE OF THE HOURS EXPECTED FOR LEVELING SPOIL MATERIAL IN THE CULTIVATED FIELDS FOR PHASES 1–5 AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL LEVEL SPOIL MATERIAL INTO THE EXISTING LANDSCAPE TO THE EXTENT POSSIBLE. SPOIL SHALL BE LEVELED SUITABLE ENOUGH (AS APPROVED BY DU FIELD ENGINEER AND LANDOWNER) SUCH THAT THE LANDOWNER IS ABLE TO DISK INTO FIELD. THE CONTRACTOR WILL BE PAID FOR THE EXACT AMOUNT OF HOURS AT EACH SITE BASED ON THE UNIT BID PRICE FOR THE DOZER, INCLUDING AN OPERATOR.
- BID ITEM FOR "DU CLASS II RIPRAP (6"–18"ø)" IS FOR PLACEMENT AT CROSSINGS #1 & #2. NON–WOVEN FILTER FABRIC SHALL BE LAID BENEATH ALL ROCK RIPRAP AND SHALL BE SECURED TO SLOPES AND BOTTOM USING PINS AS NOTED SPECIFICATION 305. QUANTITY IS BASED ON TONS. CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DELIVERED.
- RIPRAP SUPPLY SOURCE SHALL BE IDENTIFIED FOR INSPECTION BY THE DNR FOR INVASIVE SPECIES PRIOR TO TRANSPORTING ONSITE.
- BID ITEM FOR "¾"–1½"ø CLEAR ROCK" IS FOR FOUNDATION STABILIZATION AND CULVERT BEDDING AT CROSSINGS #1 & #2. THE QUANTITY IS BASED ON TONS. CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DELIVERED.
- BID ITEM FOR "REMOVAL OF EXISTING STRUCTURES" IS FOR REMOVING EXISTING PIPE AT CROSSING #1 & #2. CONTRACTOR SHALL REMOVE EXISTING PIPES AND ASSOCIATED HARDWARE AND SUCH MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL OFF–SITE. THE CONTRACTOR SHALL ALSO SALVAGE ANY EXISTING ROCK RIPRAP IN THOSE LOCATIONS AND RE–INSTALL. THE COST OF ROCK SALVAGE IS CONSIDERED INCIDENTAL TO LINE ITEM.
- THE BID ITEM FOR STORM WATER MANAGEMENT AND POLLUTION CONTROL SHALL INCLUDE THE SUPPLY, INSTALLATION AND MAINTENANCE OF STANDARD SILT FENCE, 12" BIO–ROLLS/STRAW WATTLES, MnDOT CATEGORY 3 EROSION CONTROL BLANKET, AND THE INSTALLATION OF ROCK CHECK DAMS. THE EXACT LOCATION AND QUANTITY WILL BE DETERMINED IN THE FIELD.

EROSION CONTROL MEASURES SHALL BE INSTALLED CURRENTLY OR WITHIN 24 HOURS AFTER THE START OF WORK AND WILL BE MAINTAINED FOR THE DURATION OF THE PROJECT.

CONTRACTOR WILL BE PAID AT THE UNIT PRICE BID FOR THE ACTUAL QUANTITY INSTALLED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL, INSPECT AND MAINTAIN THE BEST MANAGEMENT PRACTICE MEASURES REQUIRED TO PREVENT SILT AND POLLUTION RUNOFF. IF ADDITIONAL ITEMS NOT LISTED ON THE UNIT PRICE TABLE ARE REQUIRED AS DIRECTED BY THE DU FIELD ENGINEER, THOSE ITEMS SHALL BE CONSIDERED EXTRA WORK AND PAID FOR AS SUCH. THE CONTRACTOR WILL ALSO BE REQUIRED TO OBTAIN THE STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES PRIOR TO THE START OF THE CONSTRUCTION.

CONTRACTOR SHALL MINIMIZE DISTURBANCE AREAS AND NUMBER OF TRAILS THROUGH EXISTING CATTAILS/GRASS/CRP AREAS TO REDUCE THE POTENTIAL FOR EROSION. SEE CONSTRUCTION METHODOLOGY NOTE ON THIS SHEET.

- THE "DU CLASS I RIPRAP (3"–9"ø)" IS FOR CONSTRUCTION OF THREE ROCK CHECK DAMS LOCATED IN THE PHASE 1 SECTION BETWEEN DENTON SLOUGH AND COUNTY ROAD 3 (CR #3). THERE IS THREE FOOT OF DROP BETWEEN THE FULL POOL LEVEL ON DENTON SLOUGH & THE OUTLET CULVERT AT CR #3, THEREFORE, ADEQUATE DROP SHOULD EXIST TO INSTALL THREE CHECK DAMS TO CATCH SILT. THESE CHECK DAMS SHOULD BE INSTALLED, AS DIRECTED BY THE DU FIELD ENGINEER, IMMEDIATELY AFTER THE CHANNEL IS CLEANED IN THAT LOCATION. THE CHECK DAMS SHALL BE LEFT IN PLACE UNTIL THE UPSTREAM CHANNEL CLEANOUT EXCAVATION IS COMPLETED. THE CHECK DAMS SHALL THEN BE REMOVED BY THE CONTRACTOR WITH THE ROCK PLACED ON EITHER ROAD SLOPE BY THE CULVERT UPSTREAM IN CR #3. SEE NOTE ON SHEET 11.

THE COST OF ALL ITEMS ASSOCIATED WITH THE THREE CHECK DAM INSTALLATION AND REMOVAL, INCLUDING EQUIPMENT AND LABOR SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR "DU CLASS I RIPRAP." NO SEPARATE PAYMENT WILL BE MADE FOR EQUIPMENT OR LABOR FOR THIS WORK.

HOWEVER, SILT REMOVAL FROM THE CHECK DAMS WILL BE REQUIRED AFTER SILT DEPTH BUILDUP (SEE SHEET 11) DURING THE UPSTREAM CHANNEL CONSTRUCTION. SUCH WORK WILL BE CONSIDERED EXTRA WORK AND PAID FOR AS SUCH ON AN HOURLY BASIS.

- THE CONTRACTOR IS RESPONSIBLE FOR PLACING THE STANDARD SILT FENCE IN THE AREAS NOTED PRIOR TO ANY SPOIL PLACEMENT. IF SUCH SILT FENCE IS IN THE WAY OF CONSTRUCTION, A SMALL SECTION MAY BE TEMPORARILY REMOVED FOR ACCESS, BUT REINSTALLED AS SOON AS FEASIBLE THEREAFTER. THE CONTRACTOR SHALL MAINTAIN THE SILT FENCE IN ACCORDANCE WITH THE SWPPP NOTED ON SHEET 11. THE AGENCY (MNDNR) IS RESPONSIBLE FOR REMOVING THE SILT FENCE UPON FINAL STABILIZATION.
- THE CONTRACTOR IS RESPONSIBLE FOR PLACING THE FLOATING SILT FENCE IN TWO AREAS: (A) WHERE THE CHANNEL INLETS INTO SWIFT WMA, AND (B) WHERE THE CHANNEL INLETS INTO DENTON SLOUGH. IDEAL LOCATION IS AT THE MOUTH OF THE CHANNEL, HOWEVER, THE LOCATION MUST BE ACCESSIBLE TO REMOVE ANY SILT THAT MAY BE DEPOSITED DOWNSTREAM OF THE CURTAIN SO IT MAY REQUIRE THE CURTAINS TO BE INSTALLED UPSTREAM OF THE MOUTH.

THESE SILT CURTAINS SHALL REMAIN IN PLACE AT THE END OF THE PROJECT AS FLOWS FROM UPPER LIGHTNING LAKE UPSTREAM PASS THROUGH THE SYSTEM. FINAL REMOVAL OF THE CURTAINS WILL BE COMPLETED UNDER SEPARATE CONTRACT.

- TWO "TEMPORARY CONSTRUCTION ACCESS" LOCATIONS HAVE BEEN IDENTIFIED. SEE SHEETS 3, 4, 5 AND 11 FOR DETAILS. ANY CHANGE IN LOCATION SHALL BE APPROVED BY THE DU FIELD ENGINEER.
- BID ITEM FOR "SEEDING" SHALL INCLUDE THE EQUIPMENT AND LABOR REQUIRED TO LEVEL AND PREPARE TOPSOIL FOR SEEDING AND MULCHING IN DISTURBED AREAS ON THE PROPERTY AS IDENTIFIED BY THE DU FIELD ENGINEER. THE "SITE PREPARATION–DISKING" BID ITEM SHOULD COVER THE COST OF MOST OF THIS REQUIRED PREPARATION.

THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING THE SEED MIX NOTED ON THIS SHEET, AND PLACING THE SEED IN ACCORDANCE WITH THESE PLANS AND DU SPECIFICATION 402. ANY VARIANCE REQUESTED FROM THE SEED MIX SHOWN THAT RESULTS IN A COST INCREASE WILL BE CONSIDERED EXTRA WORK AND PAID FOR AS SUCH. PAYMENT FOR "SEEDING" SHALL BE BASED ON ACTUAL ACRES SEEDDED AFTER FINAL COMPLETION OF THE PROJECT AS DETERMINED BY THE DU FIELD ENGINEER.

WEED–FREE MnDOT TYPE 1 OR TYPE III MULCH SHALL BE APPLIED TO ALL AREAS SEEDDED, AS DIRECTED BY THE DU FIELD ENGINEER. MULCH SHALL BE EVENLY APPLIED AT A 2.0 TON/ACRE RATE. MULCH SHALL BE DISK ANCHORED OR TRACKED INTO PLACE WITH DOZER. PAYMENT WILL BE BASED ON ACTUAL ACRES MULCHED AFTER FINAL COMPLETION OF PROJECT. THE AREA WILL BE DETERMINED BY DU FIELD ENGINEER.

A NOTE CONCERNING INVASIVE SPECIES REQUIREMENTS

THE MINNESOTA DNR REQUIRES PREVENTING OR LIMITING THE INTRODUCTION, ESTABLISHMENT AND SPREAD OF INVASIVE SPECIES DURING ACTIVITIES ON PUBLIC WATER AND DNR ADMINISTERED LANDS. THE DNR LIST OF DESIGNATED INFESTED WATERS CAN BE FOUND AT http://www.dnr.state.mn.us/invasives/index_aquatic.html

THE CONTRACTOR SHALL PREVENT INVASIVE SPECIES FROM ENTERING INTO OR SPREADING WITHIN A PROJECT SITE BY CLEANING EQUIPMENT AND CLOTHING PRIOR TO ARRIVING AT THE PROJECT SITE. THE DNR SHALL INSPECT ALL EQUIPMENT AND CLOTHING AT THE STAGING AREA DETERMINED AT THE PRE–CONSTRUCTION MEETING.


IF EQUIPMENT OR CLOTHING ARRIVES AT THE PROJECT SITE WITH SOIL, AGGREGATE MATERIAL, MULCH, VEGETATION (INCLUDING SEEDS) OR ANIMALS, IT SHALL BE CLEANED BY CONTRACTOR FURNISHED TOOL OR EQUIPMENT (BRUSH/BROOM, COMPRESSED AIR, OR PRESSURE WASHER) AT THE STAGING AREA. THE CONTRACTOR SHALL DISPOSE OF MATERIAL CLEANED FROM EQUIPMENT AND CLOTHING AT A LOCATION DETERMINED BY THE OWNER. IF MATERIAL CANNOT BE DISPOSED OF ONSITE, SECURE MATERIAL PRIOR TO TRANSPORT (SEALED CONTAINER, COVERED TRUCK, OR WRAP WITH TARP) AND LEGALLY DISPOSE OF OFFSITE.

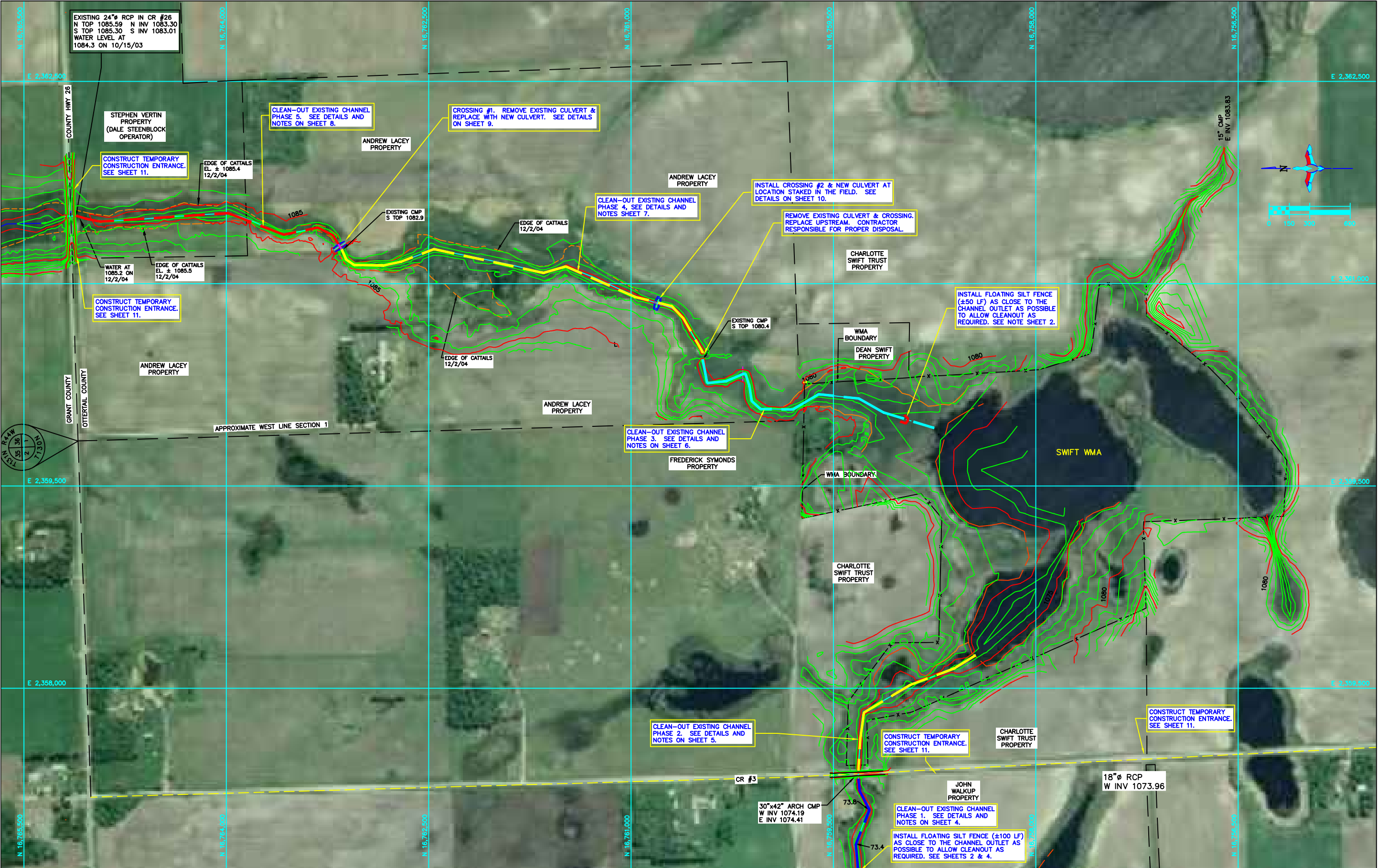
IF WORK IS PERFORMED WITHIN A WATER BODY, THE CONTRACTOR SHALL CLEAN EQUIPMENT AND CLOTHING AS NOTED ABOVE, PRIOR TO ENTERING AND LEAVING THE WATER BODY. DRAIN ALL WATER FROM EQUIPMENT WHERE WATER MIGHT BE TRAPPED, SUCH AS TANKS, PUMPS, HOSES, SILT CURTAINS, AND WATER RETAINING COMPONENTS OF BOATS/BARGES.

THE SOURCES OF ALL IMPORTED MATERIAL SHALL BE INSPECTED FOR INVASIVE SPECIES BY THE DNR PRIOR TO TRANSPORTING.

UTILITIES NOTE

BEFORE THE START OF CONSTRUCTION, THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "GOPHER STATE ONE–CALL" AT 800–252–1166 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.

Revision Number	Sheet Number	Revisions	Date	By	I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	 GREAT PLAINS REGIONAL OFFICE DATE: 3–3–2014 SHEET NO. 2 OF 11	PROJECT NO. MN–332–2	DESIGNED BY: DJL
							UPPER LIGHTNING LAKE	DRAWN BY: MLO
							ESTIMATED QUANTITIES	SURVEYED BY: GLJ
							CONSTRUCTION NOTES	CHECKED BY:
					Douglas J. Upelzky, P.E. for Ducks Unlimited, Inc. License No. 18843	Date	APPROVED BY:	APPROVED BY:



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HORIZONTAL CONTROL- COORDINATES ARE UTM ZONE 14 COORDINATES IN US FEET (NAD 83(1996)). THEY WERE ESTABLISHED FROM THE WGS84 ELLIPSOID WITH INFORMATION FROM TRIMBLE 5700 GPS RECEIVERS ON FEBRUARY 11, 2003 AND CALIBRATED TO MNDT STATION STAMPED "FAUNCE 1994" WHICH IS A HORIZONTAL ORDER "B" CONTROL STATION.

VERTICAL CONTROL- WAS ESTABLISHED FROM THE 99 GEOID CONUS AND CALIBRATED TO MNDT STATION STAMPED "FAUNCE 1994" WHICH IS AN ELLIPTICAL ORDER FOURTH CLASS I WITH A PUBLISHED ELEVATION OF 1103 FEET ON THE NAVD 88.

Revision Number	Sheet Number	Revisions	Date	By

PRELIMINARY

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

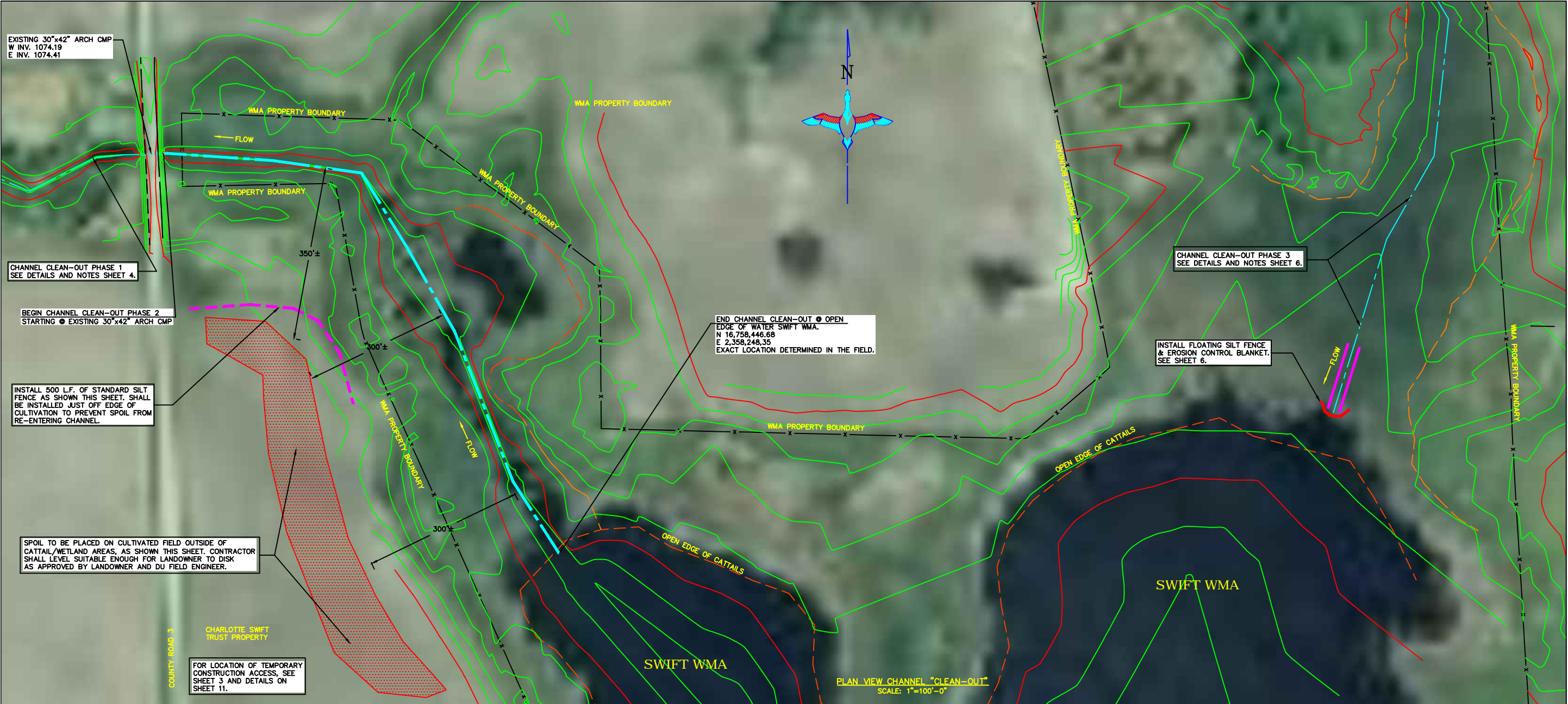
Douglas J. Lipetzky, P.E.
for Ducks Unlimited, Inc.
License No. 18843

Date _____

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
DATE: 3-3-2014
SHEET NO. 3 OF 11

PROJECT NO. MN-332-2
UPPER LIGHTNING LAKE
TOPOGRAPHY

DESIGNED BY: DJL
DRAWN BY: MLO
SURVEYED BY: GLJ
CHECKED BY: _____
APPROVED BY: _____
APPROVED BY: _____



ESTIMATED QUANTITIES:

PHASE 2 CHANNEL CLEAN-OUT:	
CR #3 CULVERT INTO SWIFT WMA	1,368 L.F.
STANDARD SILT FENCE	500 L.F.
DOZER LEVELING SPOIL	20 HOURS
TEMPORARY CONSTRUCTION ACCESS	1 EA.

CHANNEL CLEAN-OUT NOTES:

CONTRACTOR SHALL CLEAN-OUT EXISTING CHANNEL FROM COUNTY ROAD 3 INTO SWIFT WMA, AS SHOWN THIS SHEET. TOP WIDTH SHALL BE 6' WITH A 1.5' CUT AT CENTERLINE. NO SPOIL MATERIAL SHALL BE LEFT WITHIN WETLAND CORRIDOR. IT SHALL BE REMOVED AND HAULED TO PRIVATE LAND TO THE SOUTH-SOUTHEAST AND DEPOSITED IN CULTIVATED FIELD AS SHOWN ON THIS SHEET. CONTRACTOR SHALL LEAVE A 10' BUFFER BETWEEN ANY WETLAND TYPE PLANTS AND EDGE OF SPOIL.

PAYMENT FOR CHANNEL EXCAVATION, REMOVAL OF SPOIL, HAULING, AND DEPOSITING SPOIL WILL BE PAID FOR BASED ON LINEAR FEET. CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH SUCH. CONTRACTOR WILL BE PAID FOR THE EXACT AMOUNT OF LINEAR FEET OF CHANNEL CLEAN-OUT CONSTRUCTED IN THE FIELD.

SPOIL MATERIAL SHALL BE BLENDED INTO THE EXISTING LANDSCAPE TO THE EXTENT POSSIBLE AND LEVELED SUITABLE ENOUGH FOR LANDOWNER TO DISK INTO FIELD, AS DETERMINED BY LANDOWNER/DU FIELD ENGINEER. PAYMENT FOR LEVELING SPOIL MATERIAL IN CULTIVATED FIELD WILL BE PAID FOR BASED ON THE CONTRACTOR'S HOURLY EQUIPMENT RATE FOR DOZER.

(FOR LANDOWNER INFORMATION, 8'x 1.5' MAX. CUT x 1,368 LF/27 = 610 C.Y. OR SPOIL AN AREA ± 400' x 100' x 0.5' OR 1.0 ACRE. THIS IS AN ESTIMATE ONLY. ACTUAL EXCAVATED VOLUME AND SPOIL AREA MAY BE DIFFERENT THAN SHOWN.)

FENCE REMOVAL AND REPLACEMENT NOTES:

ANY WMA BOUNDARY FENCE THAT REQUIRES REMOVAL FOR ACCESS TO SPOIL AREA SHALL BE REMOVED AND REINSTALLED BY THE CONTRACTOR. THE REINSTALLED FENCE SHALL BE EQUAL IN QUALITY TO THE EXISTING FENCE. THE COST OF SUCH FENCING IS CONSIDERED INCIDENTAL TO "CHANNEL CLEAN-OUT FOR PHASE 2."

TYPICAL U-SHAPED CHANNEL CLEAN-OUT SECTION
SCALE: 1"=5'-0"

Revision Number	Sheet Number	Revisions	Date	By

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

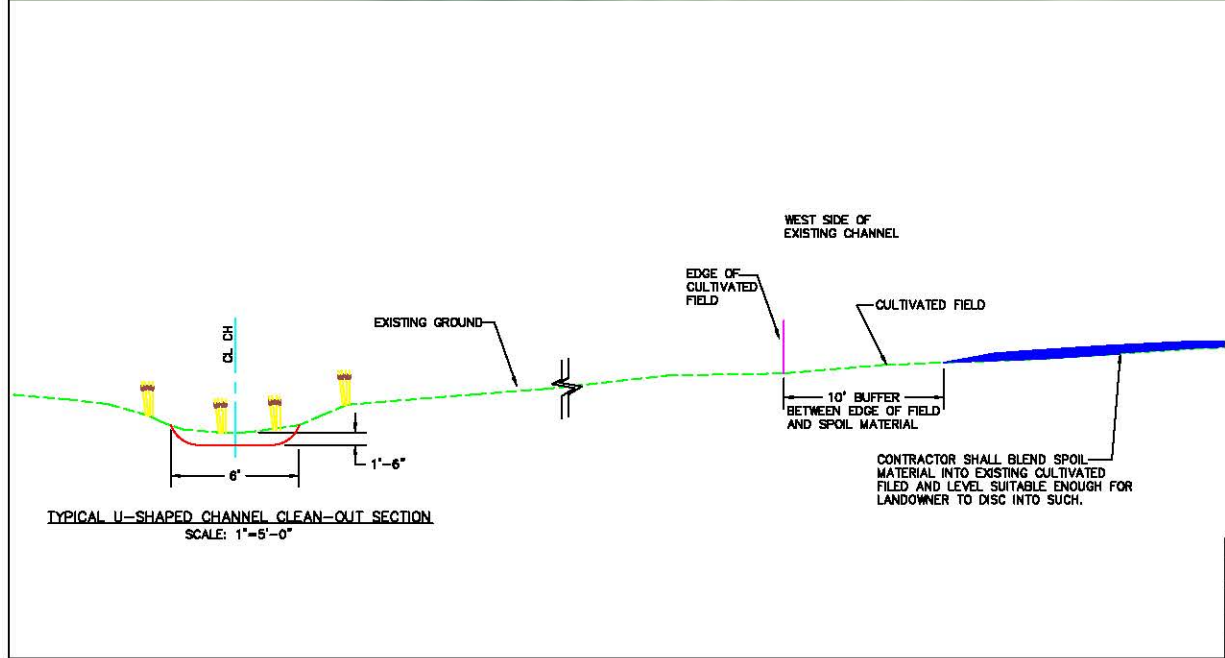
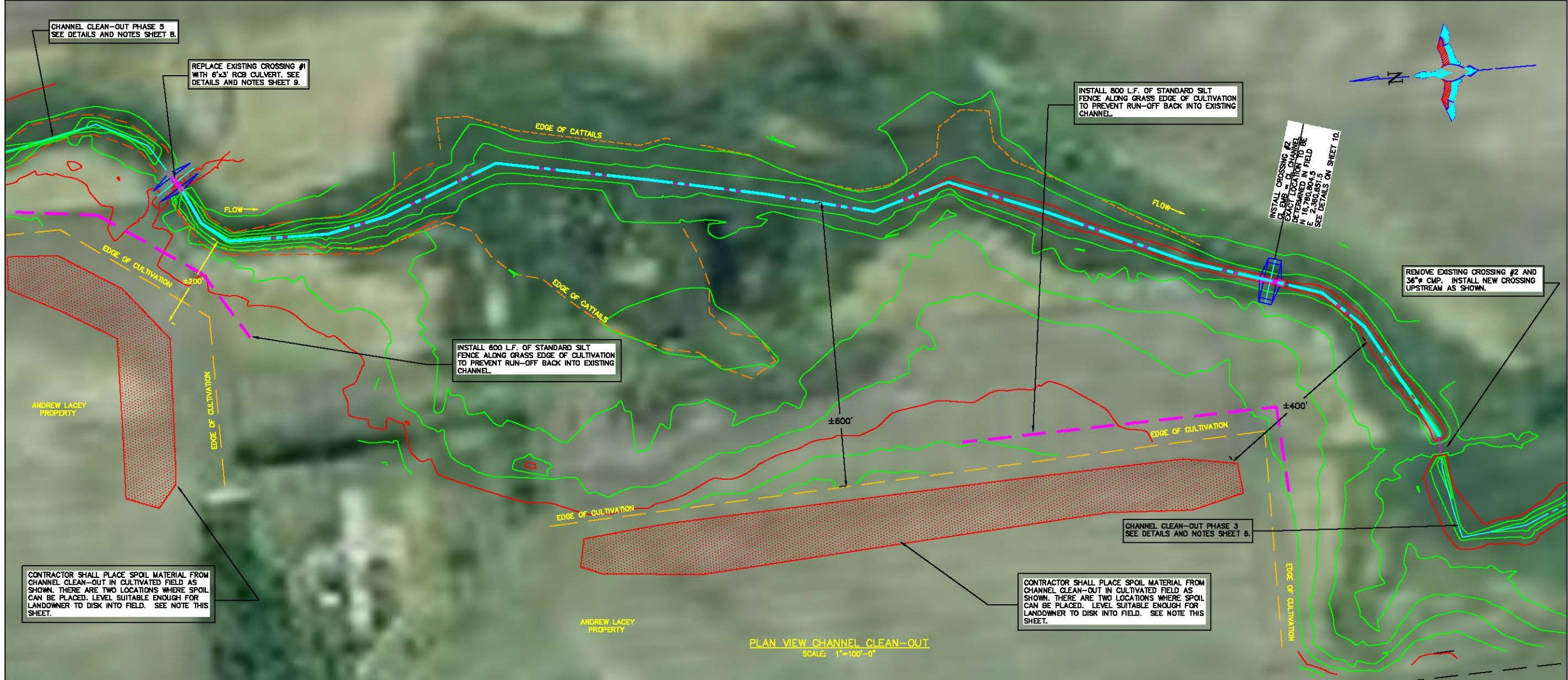
Douglas J. Lipetzky, P.E.
for Ducks Unlimited, Inc.
License No. 18843

Date

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
DATE: 3-3-2014
SHEET NO. 5 OF 11

PROJECT NO. MN-332-2
UPPER LIGHTNING LAKE
CHANNEL CLEAN-OUT PHASE 2
CTY RD 3 INTO SWIFT WMA

DESIGNED BY: DJL
DRAWN BY: MLO
SURVEYED BY: GLJ
CHECKED BY: .
APPROVED BY: .
APPROVED BY: .



ESTIMATED QUANTITIES:			
PHASE 4 CHANNEL CLEAN-OUT:			
CROSSING #1 THROUGH EXISTING CROSSING #2	3,024 L.F.		
STANDARD SILT FENCE	1,400 L.F.		
DOZER LEVELING SPOIL	40 HOURS		

CHANNEL CLEAN-OUT NOTES:

CONTRACTOR SHALL CLEAN-OUT EXISTING CHANNEL FROM EXISTING CROSSING #1 TO EXISTING CROSSING #2, AS SHOWN ON THIS SHEET. TOP WIDTH SHALL BE 6' WITH A 1.5' CUT AT CENTERLINE. NO SPOIL MATERIAL SHALL BE LEFT WITHIN WETLAND CORRIDOR. IT SHALL BE REMOVED AND HAULED TO PRIVATE LAND TO THE WEST AND DEPOSITED IN CULTIVATED FIELD AS SHOWN ON THIS SHEET. THERE ARE TWO AREAS SPOIL MATERIAL CAN BE PLACED. CONTRACTOR SHALL LEAVE A 10' BUFFER BETWEEN EDGE OF CULTIVATION AND EDGE OF SPOIL.

PAYMENT FOR CHANNEL EXCAVATION, REMOVAL OF SPOIL, HAULING, AND DEPOSITING SPOIL WILL BE PAID FOR BASED ON LINEAR FEET. CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH SUCH. CONTRACTOR WILL BE PAID FOR THE EXACT AMOUNT OF LINEAR FEET OF CHANNEL CLEAN-OUT CONSTRUCTED IN THE FIELD.

SPOIL MATERIAL SHALL BE BLENDED INTO THE EXISTING LANDSCAPE TO THE EXTENT POSSIBLE AND LEVELED SUITABLE ENOUGH FOR LANDOWNER TO DISK INTO FIELD, AS DETERMINED BY LANDOWNER/DU FIELD ENGINEER. PAYMENT FOR LEVELING SPOIL MATERIAL IN CULTIVATED FIELD WILL BE PAID FOR BASED ON THE CONTRACTOR'S HOURLY EQUIPMENT RATE FOR DOZER.

(FOR LANDOWNER INFORMATION, 6' x 1.5' MAX. CUT x 3,024 LF/27 = 1,345 C.Y. OR SPOIL AN AREA 500' x 150' x 0.5' OR 1.8 ACRES. THIS IS AN ESTIMATE ONLY. ACTUAL EXCAVATED VOLUME AND SPOIL AREA MAY BE DIFFERENT THAN SHOWN.)

FENCE REMOVAL AND REPLACEMENT NOTES:

ANY WMA BOUNDARY FENCE THAT REQUIRES REMOVAL FOR ACCESS TO SPOIL AREAS SHALL BE REMOVED AND REINSTALLED BY THE CONTRACTOR. THE REINSTALLED FENCE SHALL BE EQUAL IN QUALITY TO THE EXISTING FENCE. THE COST OF SUCH FENCING IS CONSIDERED INCIDENTAL TO CHANNEL CLEAN-OUT FOR PHASE 4.

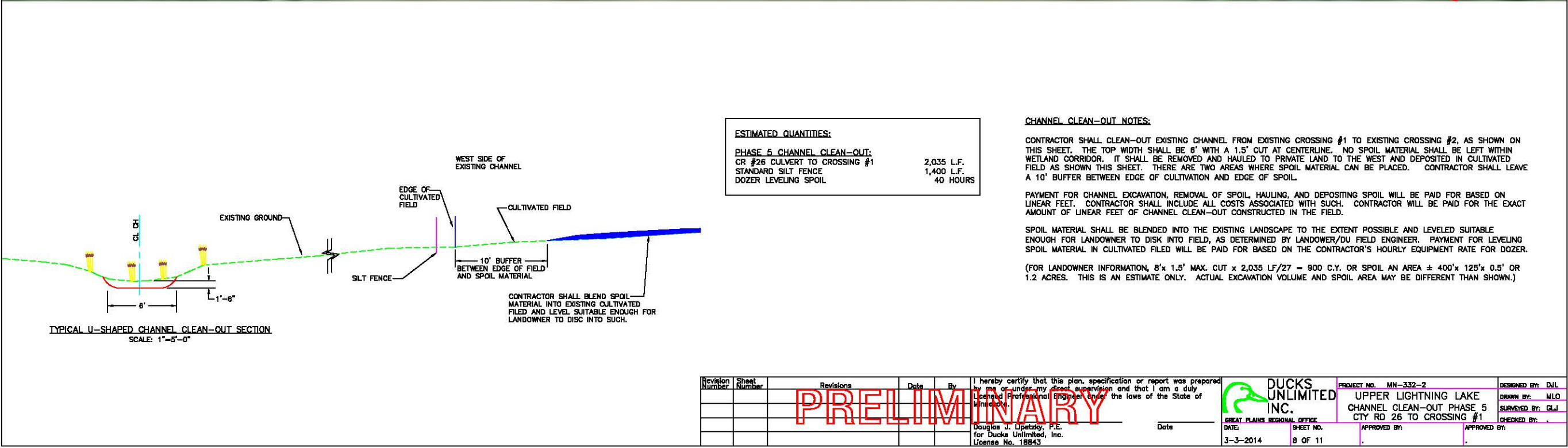
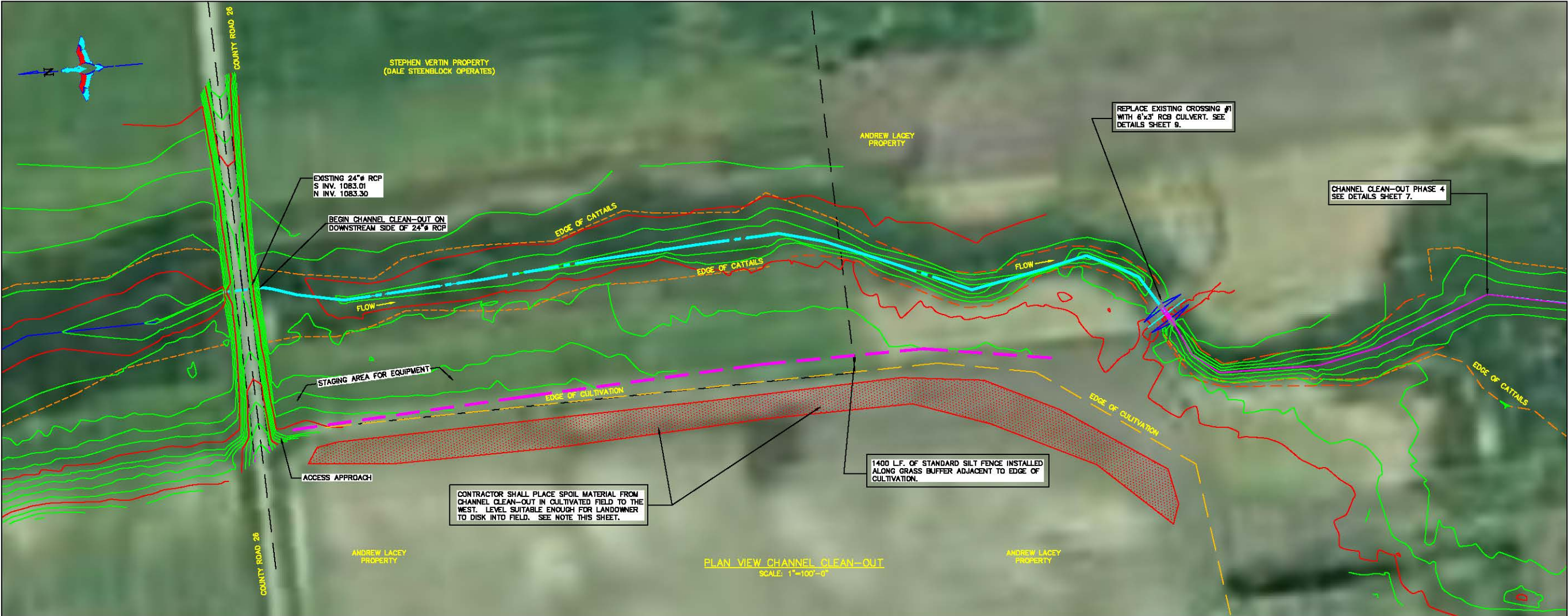
Revision Number	Sheet Number	Revisions	Date	By	I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	DATE	SHEET NO.	APPROVED BY:	APPROVED BY:
					Douglas J. Lipetzky, P.E. for Ducks Unlimited, Inc. License No. 18843	3-3-2014	7 OF 11		

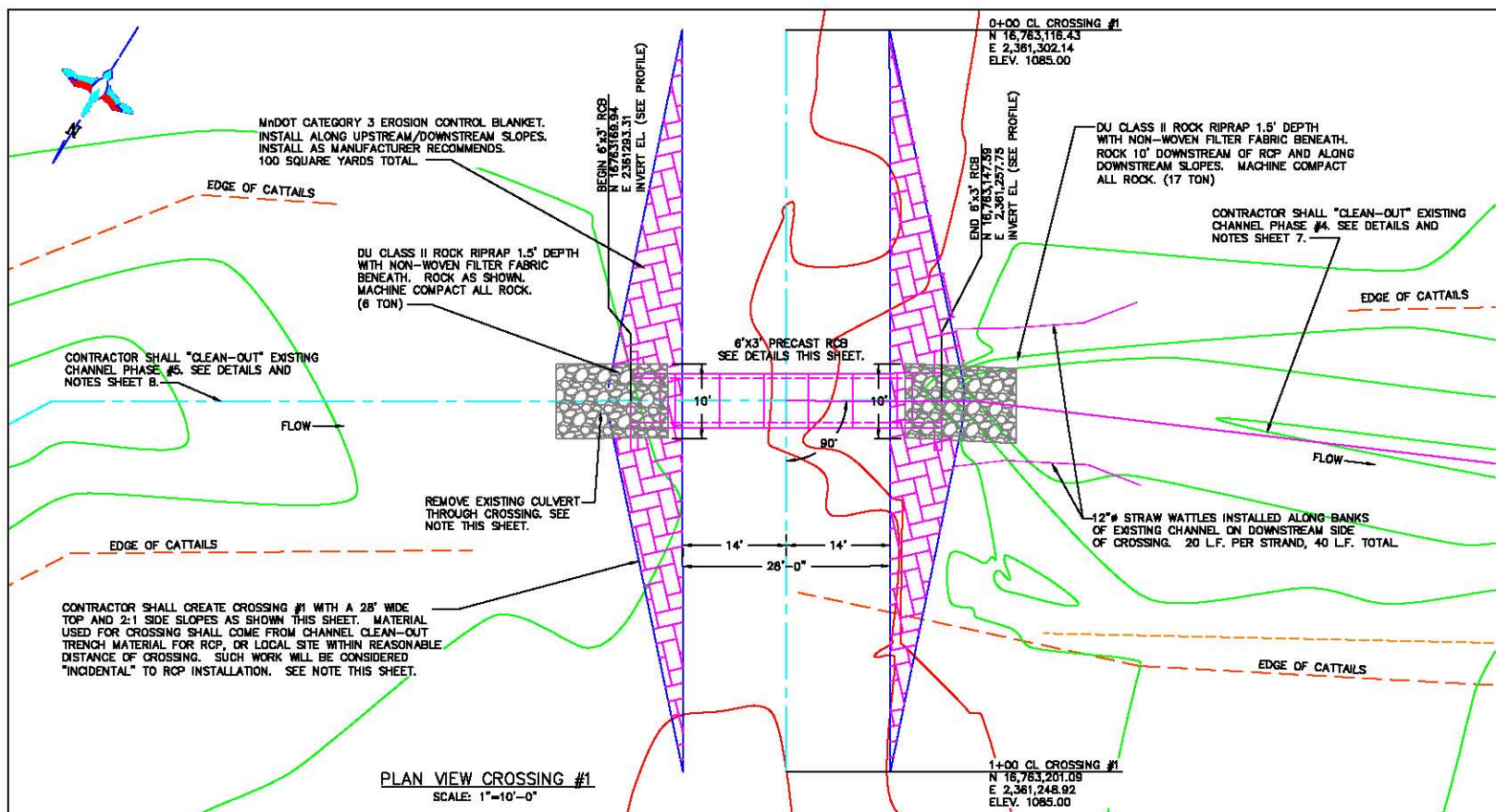
PRELIMINARY

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

PROJECT NO. MN-332-2
UPPER LIGHTNING LAKE
CHANNEL CLEAN-OUT PHASE 4
EXISTING CROSSING TO CROSSING

DESIGNED BY: DJL
DRAWN BY: MLO
SURVEYED BY: GLJ
CHECKED BY: .
APPROVED BY: .
APPROVED BY: .





REMOVAL OF EXISTING STRUCTURE NOTE:

CONTRACTOR SHALL REMOVE THE EXISTING CULVERT THROUGH CROSSING #1. SUCH MATERIAL AND ASSOCIATED HARDWARE SHALL BECOME PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL OFF-SITE. EXISTING RIPRAP SHALL BE SALVAGED AND RE-INSTALLED ALONG UPSTREAM/DOWNSTREAM SLOPES WITH NON-WOVEN FILTER FABRIC BENEATH. THE COST OF SALVAGING RIPRAP AND RE-INSTALLATION OF SUCH WILL BE CONSIDERED INCIDENTAL TO REMOVAL OF EXISTING STRUCTURE. SALVAGED ROCK DOES NOT DECREASE DU CLASS II RIPRAP TO BE DELIVERED TO SITE.

PAYMENT FOR REMOVAL OF EXISTING STRUCTURE, REMOVAL OFF-SITE, SALVAGING EXISTING ROCK RIPRAP, AND RE-INSTALLATION OF ROCK SHALL BE PAID FOR BASED ON THE CONTRACTOR'S UNIT BID PRICE FOR "REMOVAL OF EXISTING STRUCTURES."

CROSSING #1 BERM NOTE:

CONTRACTOR SHALL STRIP 6" DEPTH OF TOPSOIL OVER CROSSING #1 FOOTPRINT & STOCKPILE. UPON COMPLETION OF CROSSING #1, PLACE MIN. 4" DEPTH OF TOPSOIL OVER TOP AND SIDE SLOPES. ANY ADDITIONAL TOPSOIL SHALL BE PLACED ALONG DOWNSTREAM SLOPES TO FLATTEN AND THICKEN SUCH. PAYMENT FOR STRIPPING, STOCKPILING, AND LEVELING SUITABLE ENOUGH FOR SEEDING & MULCHING SHALL BE PAID FOR BASED ON THE CONTRACTOR'S UNIT BID PRICE FOR "SITE PREPARATION."

CONTRACTOR SHALL CREATE A 28' WIDE 2:1 SIDE SLOPE CROSSING AT ELEVATION 1085.0. MATERIAL NEEDED TO CONSTRUCT CROSSING SHALL COME FROM EITHER CHANNEL CLEAN-OUT SPOIL, TRENCH EXCAVATION FOR RCP, OR LOCAL BORROW AREA WITHIN REASONABLE DISTANCE FROM CROSSING #1. ANY SUCH BORROW AREA MUST BE APPROVED IN ADVANCE BY THE DU FIELD ENGINEER. CONTRACTOR SHALL PLACE AND COMPACT MATERIAL TO THE EXTENT POSSIBLE AND LEVEL SUITABLE ENOUGH FOR SEEDING & MULCHING. PAYMENT FOR CROSSING #1 EARTHEN WORK IS CONSIDERED INCIDENTAL TO RCP INSTALLATION.

PRE-CAST REINFORCED CONCRETE BOX CULVERT SPECIFICATIONS:

-NOTE THE FOLLOWING SPECIFICATIONS APPLIES TO THE ENTIRE LENGTH OF SINGLE 6'x4' PRECAST RCB CULVERT. MATERIALS LISTED BELOW ARE CONSIDERED "INCIDENTAL" TO RCB INSTALLATION.

-CONSEAL CS-231 CONTROLLED EXPANSION WATER STOP JOINT MASTIC 1/2" THICK SHALL BE USED BETWEEN EACH BOX CULVERT JOINT. 3/4" SHALL BE WRAPPED ALONG BOTTOM OF FEMALE JOINT AND REMAINING 3/4" WRAPPED ALONG MALE JOINT. *MASTIC SHALL BE INSTALLED IN MIDDLE OF MALE/FEMALE JOINT.

-CONSEAL CS-75 SURFACE PRIMER SHALL BE APPLIED TO EXTERIOR JOINTS BEFORE INSTALLING CONWRAP CS-212 EXTERIOR JOINT WRAP. PRIMER SHALL BE APPLIED FROM BOTTOM HAUNCH TO BOTTOM OF HAUNCH OPPOSITE SIDE. LIFTING HOLES ALONG TOP AND SIDES SHALL ALSO BE TOUCHED WITH PRIMER. CONTRACTOR SHALL GIVE PRIMER ADEQUATE TIME TO CURE BEFORE INSTALLING JOINT WRAP.

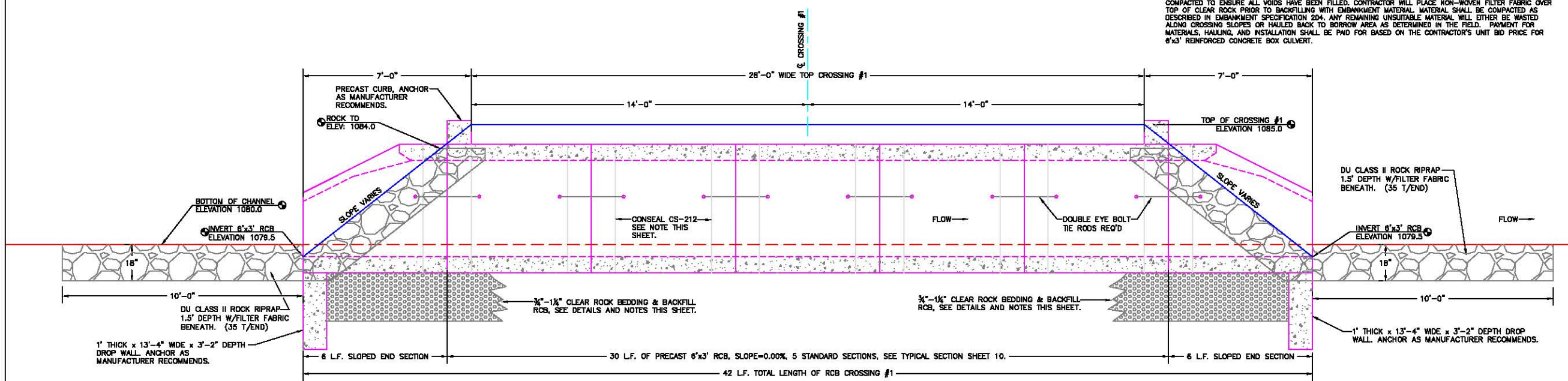
-CONWRAP CS-212 EXTERIOR JOINT WRAP @ 24" WIDTH SHALL BE USED ON ALL EXTERIOR JOINTS. WRAP SHALL BE INSTALLED AS ONE CONTINUOUS PIECE. CONTRACTOR SHALL WRAP EXTERIOR JOINTS STARTING AND ENDING AT BOTTOM HAUNCHES. LIFTING HOLES ALONG TOP AND SIDES SHALL BE COVERED WITH 12"x12" PIECES OF CS-212 AFTER GROUT FROGS HAVE BEEN INSTALLED. NOTE: CS-212 SHALL BE INSTALLED INSIDE OF THE RODS. CONTRACTOR WILL HAVE TO LOOSEN TIED RODS (AFTER INSTALLATION) TO ACHIEVE SUCH.

-ANY JOINTS EXCEEDING 1" WILL BE REQUIRED TO USE NON-SHRINK GROUT ALONG SIDES AND BOTTOM OF RCB. THIS WILL BE DETERMINED BY DU FIELD ENGINEER. UPSTREAM/DOWNSTREAM DROP END WALLS WILL BE REQUIRED TO HAVE REBAR AND NON-SHRINK GROUT CONNECTING DROPPED END WALL TO REINFORCED CONCRETE BOX CULVERTS.

-DOUBLE CONNECTION TIE RODS SHALL BE USED vs U-SHAPED TIE RODS. CONTRACTOR SHALL INSTALL PER EACH SECTION OF BOX CULVERT. TIE RODS SHALL BE TIGHTENED ACCORDING TO MANUFACTURE RECOMMENDS.

6'x3' RCB INSTALLATION NOTE:

CONTRACTOR SHALL INSTALL 42 LINEAL FEET OF 6'x3' SINGLE REINFORCED CONCRETE BOX CULVERT. TWO (2) 6'-0" SLOPED END SECTIONS AND FIVE (5) SECTIONS @ 6 LINEAL FEET. DROP WALL REQUIRED ON UPSTREAM & DOWNSTREAM ENDS. RCB SHALL BE INSTALLED @ A SLOPE OF 0.00%. RCB BEDDING: CONTRACTOR SHALL REMOVE 2' DEPTH OF EXISTING MATERIAL @ 13'-4" WIDTH (MIN.) ALONG RCB TRENCH AND REPLACE WITH 2' DEPTH OF 3/4"-1 1/2" CLEAR ROCK BEDDING. CONTRACTOR SHALL BUCKET PACK MATERIAL TO MAKE SURE ALL VOIDS HAVE BEEN FILLED. NON-WOVEN FILTER FABRIC (18" WIDE x 42' LONG) SHALL BE INSTALLED BENEATH CLEAR ROCK BEDDING AND ALONG SIDE WALL OF TRENCH PRIOR TO CLEAR ROCK INSTALLATION. NON-WOVEN FILTER FABRIC SHALL SEPARATE INSITU MATERIAL FROM CLEAR ROCK. CONSIDERED "INCIDENTAL" TO RCB INSTALLATION. AFTER RCB INSTALLATION CONTRACTOR SHALL BACKFILL 2'-0" DEPTH ALONG SIDES OF RCB AS SHOWN THIS SHEET. ROCK SHALL BE COMPACTED TO ENSURE ALL VOIDS HAVE BEEN FILLED. CONTRACTOR WILL PLACE NON-WOVEN FILTER FABRIC OVER TOP OF CLEAR ROCK PRIOR TO BACKFILLING WITH EMBANKMENT MATERIAL. MATERIAL SHALL BE COMPACTED AS DESCRIBED IN EMBANKMENT SPECIFICATION 204. ANY REMAINING UNSUITABLE MATERIAL WILL EITHER BE WASTED ALONG CROSSING SLOPES OR HAULED BACK TO BORROW AREA AS DETERMINED IN THE FIELD. PAYMENT FOR MATERIALS, HAULING, AND INSTALLATION SHALL BE PAID FOR BASED ON THE CONTRACTOR'S UNIT BID PRICE FOR 6'x3' REINFORCED CONCRETE BOX CULVERT.



NOTE: SEE SHEET 10 FOR TYPICAL RCB SECTION


ESTIMATED QUANTITIES:	
6'x3' PRE-CAST RCB 6 L.F. SECTIONS	5 E.A.
6'x3' PRE-CAST RCB SLOPED END SECTION 6 L.F.	2 E.A.
DOUBLE EYE BOLT TIE RODS	12 REQ'D
3'-2" DEPTH x 12" THICK x 13'-4" LONG DROP WALL	2 E.A.
PRECAST CURB	2 E.A.
3/4"-1 1/2" CLEAR ROCK BEDDING & BACKFILL	80 TON
NON-WOVEN FILTER FABRIC	INCIDENTAL
DU CLASS II RIPRAP (6"-16")	70 TON

Revision Number	Sheet Number	Revisions	Date	By

PRELIMINARY

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.

Douglas J. Lipetzky, P.E.
for Ducks Unlimited, Inc.
License No. 18843

	PROJECT NO. MN-332-2	DESIGNED BY: DJL
	UPPER LIGHTNING LAKE PLAN & PROFILE CROSSING #1 DETAILS AND NOTES	DRAWN BY: MLO
GREAT PLAINS REGIONAL OFFICE	CHECKED BY: GLJ	SURVEYED BY: GLJ
DATE: 3-3-2014	SHEET NO. 9 OF 11	APPROVED BY: .
		APPROVED BY: .

STORM WATER POLLUTION PREVENTION PLAN

THE Minnesota General Permit Authorization to Discharge Stormwater Associated with Construction Activity issued on August 1, 2013 shall apply for this project.

ABBREVIATIONS

MNDNR: Minnesota Department of Natural Resources
FWS: United States Fish & Wildlife Service
MPCA: Minnesota Pollution Control Agency

NARRATIVE

Project Limits: See Sheet 3 of these plans for the project limits. These sheets show the channel cleanout/maintenance limits, the two existing crossing replacement locations, spoil areas and areas to be seeded.

SITE DESCRIPTION

Project Description: The purpose of the project is to provide a means to allow the lowering of Upper Lightning Lake to original runoff levels, which may promote better water quality and clear water and plant growth in the shallow lake. This section of channel cleanout/maintenance is needed to remove silt and vegetative material from the channel bottom that has been deposited over several years and is causing high water levels upstream in Upper Lightning Lake. Water levels at the CR #26 culvert have routinely been above culvert inverts due to sedimentation and vegetation in this downstream channel section. Thus, the channel is not being improved, but only maintained/cleaned out to it's original design or construction. Two existing culverts in private landowner crossings will be replaced with new culverts. The spoil from the channel will all be removed from any wetland areas, hauled to existing tilled agricultural fields and blended into the field.

Site Map(s): See map on cover sheet of plans.

Major Soil Disturbing Activities (check all that apply):

- ☐ Clearing & Grubbing
- ☒ Grading & Shaping
- ☒ Cutting & Filling
- ☐ Other (describe):

Total Project Area: 9.2 Acres
Total Area to Be Disturbed: 9.2 Acres
Existing Impervious Area: 0.0 Acres
Proposed Impervious Area: 0.0 Acres

Name of Receiving Water Body/Bodies: The channel being cleaned/maintained is an intermittent stream that flows through Swift WMA and Kube WMA (also known as Denton Slough). Denton Slough is at the downstream end of this channel maintenance project. This intermittent stream continues south approximately 1.5 stream miles downstream from Denton Slough, then turns west and runs about four miles before joining the Rabbit River. The Rabbit River eventually flows into the Bois de Sioux River and onto the Red River. See map on Sheet 1 for wetlands within one mile downstream of the site. The existing channel downstream of Denton Slough is a well defined drainage channel.

Discharges to Special Or Impaired Waters: The project does not have a discharge point within 1 mile of a special water or a water that is impaired for sediment or a sediment related parameter of the permit.

Discharges to Calcareous Fen: The project does not have a discharge to a Calcareous fen.

Endangered or Threatened Species: The project area has not been identified for endangered or threatened species.

Historic Places or Archeological Sites: Historical places or archeological sites have been addressed by the MNDNR.

Quantities Tabulation for All BMPs: See estimated quantities and construction notes in plans.

PROJECT CONTACTS AND RESPONSIBILITIES

The Contractor is responsible for cosigning and being familiar with the MPCA General Permit for storm water discharges associated with a construction site. When a conflict arises between the permit and this plan sheet, the permit shall govern.

The Contractor is responsible for implementation of the SWPPP and installation, inspection and maintenance of the erosion prevention and sediment control BMP's before and during construction. The Contractor is responsible for removal of the rock check dams. See Maintenance and Inspection section on this page.

The Contractor is required to have a person designated and on the project site who has been trained and certified as either an Erosion/ Sediment Control Inspector/Installer or in Erosion/Sediment Control Site Management.

The Minnesota Department of Natural Resources (MNDNR), Glenwood Office, is responsible for long term operation and maintenance of the permanent storm water management system. The MNDNR is responsible for removal of the standard and floating silt fence after final stabilization is accomplished. Also, the MNDNR is responsible for filing a Notice of Termination with MPCA upon final stabilization.

The Contractor and MNDNR contact information is provided in the contract documents and on Sheet 1 of the project plans.

Douglas J. Lipetzky, P.E., Regional Engineering Supervisor for Ducks Unlimited, Inc. prepared the SWPPP. He successfully completed the "Design of Storm Water Pollution Prevention Plans" training course sponsored by the University of Minnesota (Nov. 16-17, 2009, Mankato, MN) and recertification course (Feb. 4, 2013, St. Cloud, MN). His certification expires May 31, 2016.

SPILL NOTIFICATION

In the event of a spill, the contractor's site superintendent will make the appropriate notificaton(s), consistent with the following procedures:

- A reportable spill is a quantity of more than 5 gallons of petroleum which must be reported immediately to the MPCA.
- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the MPCA.
- MPCA Contact for Environmental Emergencies: 24 Hour (651) 649-5451 or (800) 422-0798

CONSTRUCTION CHANGES

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SWPPP will be retained in a designated place for review over the course of the project.

ORDER OF CONSTRUCTION ACTIVITIES

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. However, at locations adjacent to surface water, such stabilization shall occur within 24 hours after construction activity has ceased.)

- Install erosion and sediment control measures.
- Proceed with channel maintenance construction activities.
- Stabilize areas disturbed by construction activities with temporary erosion and sediment control measures.
- Complete final grading.
- Complete permanent erosion and sediment control measures.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

See Sheets 2 and 4-8 for erosion control measures and notes.

EROSION AND SEDIMENT CONTROLS

(Check all that apply)

Stabilization Practices (See Erosion and Sediment Control Details in Plan Sheets)

- ☒ Temporary or Permanent Seeding
- ☐ Sod Placement
- ☐ Planting
- ☒ Mulching (Straw or Cellulose Fiber)
- ☒ Erosion Control Blankets or Mats
- ☒ Vegetation Buffer Strips
- ☒ Roughened Surface (e.g. tracking)
- ☐ Gabions-Gabion Mattress
- ☒ Other: Riprap

Structural Temporary Erosion and Sediment Controls

- ☒ Silt Fence
- ☐ Temporary Berm
- ☐ Temporary Slope Drain
- ☒ Straw Wattles or Rolls
- ☐ Diversion Channels/Swales
- ☐ Channel Liners (TRM)
- ☒ Stone Rip Rap Sheet
- ☒ Rock Check Dams
- ☐ Sediment Traps/Basins
- ☒ Inlet Protection
- ☒ Outlet Protection
- ☐ Surface Inlet Protection
- ☐ Curb Inlet Protection
- ☒ Stabilized Construction Entrances
- ☐ Other

Wetland Avoidance:

Will construction and/or erosion and sediment controls impinge on regulated wetlands? ☒ Yes ☐ No

If yes, the project and erosion and sediment control impacts have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

Storm Water Management: Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period.

Pollution Prevention Management Measures

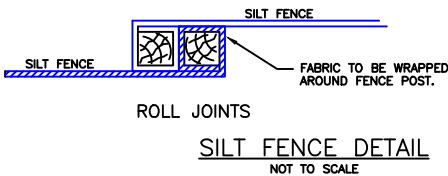
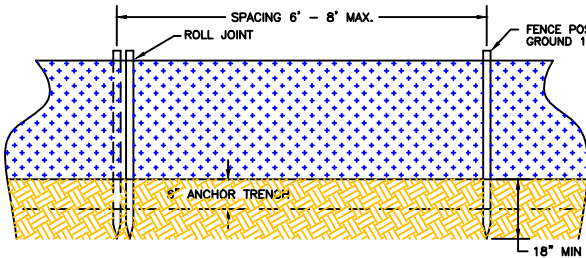
- Solid Wastes** - Collected sediment, asphalt, and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with the MPCA disposal requirements.
- Hazardous Materials** - Oil, gasoline, paint and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA regulations.
- Vehicle Washing** - External washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff must be contained and waste properly disposed of. No engine degreasing is allowed on site.
- Concrete Washout Onsite** - All liquid and solid wastes generated by concrete washout operation must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operation or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

MAINTENANCE AND INSPECTION

Maintenance and Inspection Practices

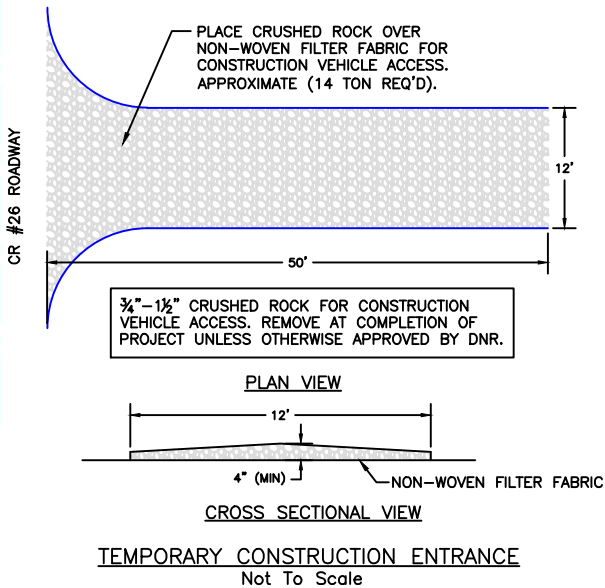
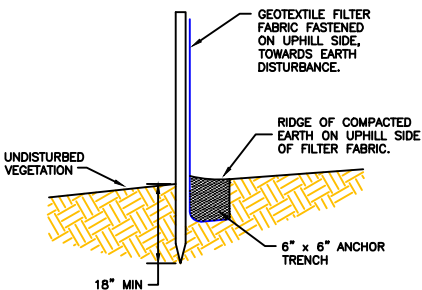
- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report or as soon as field conditions allow access.
- Where work has been suspended due to frozen ground conditions, the required inspections and maintenance must take place as soon as runoff occurs at the site or prior to resuming construction, whichever comes first.
- Where parts of the construction site have undergone final stabilization, but work remains on other parts of the site, inspections of the stabilized areas may be reduced to once per month.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely anchored. Sediment buildup will be removed from the silt fence when it reaches 1/2 of the height of the silt fence. All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/2 of the height of the fence.
- Sediment basins and traps will be checked. Sediment will be removed when the depth reaches approximately 50 percent of the structure's capacity.

- Check dams (rock dams - see plan sheet 4) will be inspected for stability. Sediment will be removed when the depth reaches 75% the height of the dam. Rock check dams shall be removed by the Contractor following completion of the channel cleanout excavation and hauled off-site or placed at the inlet or outlet of the culvert at CR #3 just upstream.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment being deposited by erosion.
- Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all off-site paved surfaces within 24 hours of discovery.
- Disturbed areas will be checked for stabilization. Stabilization measures shall be initiated as soon as construction activity in that portion of the site has temporarily or permanently ceased.
- The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connection to a surface water.
- Stabilization of the remaining portions of any temporary or permanent ditches or swales must be completed within 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.
- Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized. These areas must be stabilized within 24 hours after no longer being used as a sediment containment system.
- Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water.
- Discharge procedures for water control and dewatering operations will be inspected. If the water cannot be discharged to a sedimentation basin prior to entering the surface water, it must be treated with the appropriate BMPs, such that the discharge does not adversely affect the receiving water or downstream landowners.
- Inspection and maintenance reports will be completed for each site inspection, this form will also be used to document changes to the SWPPP. The report shall include the date and amount of rainfall events greater than 0.5 inch in 24 hours. A copy of the completed inspection form will be filed with the SWPPP documents.
- The Contractor's site superintendent is responsible for inspection. Maintenance and repair activities are the responsibility of the Contractor.



NRCS Soil Survey for Grant County, Minnesota					
NRCS Soils	Map Unit	Unified Soil	Percent Passing	Estimated Acres	Percent
Description (Surface)	Name	Classification (Surface)	200 Sieve	In AOI	of AOI
Azadshil	26	CL	75-90	2.6	28%
Langheil-Formdale	743C2	CL	85-90	2.6	28%
Formdale-Langheil	931B	CL	75-90	2.6	28%
Flom	36	CL	85-95	0.5	5%
Vallers	236	CLMLOL	85-95	0.5	5%
Oldham	276	MLCLMLH,CH	85-100	0.4	4%
Total for Area of Interest				9.2	100%

SILT FENCE NOTES:
WOOD POST SHALL BE A MINIMUM OF 1 1/2" x 1 1/2".
CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IS POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY, USE THE DETAIL SHOWN OR OTHER APPROVED METHOD.

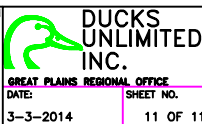


Revision Number	Sheet Number	Revisions	Date	By

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Douglas J. Lipetzky, P.E.
for Ducks Unlimited, Inc.
License No. 18843

Date



PROJECT NO. MN-332-2

UPPER LIGHTNING LAKE
STORM WATER POLLUTION
PREVENTION PLAN

APPROVED BY:

APPROVED BY:

DESIGNED BY: DJL

DRAWN BY: DJL

SURVEYED BY: GLJ

CHECKED BY:

CHECKED BY:

CHECKED BY: