

DUCKS UNLIMITED

SPECIFICATIONS

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402 SEEDING AND MULCHING

ESTIMATED QUANTITIES

MOBILIZATION	1 LS
SITE PREPARATION	1 LS
EMBANKMENT REPAIR	
EMBANKMENT A	230 CY-P*
EMBANKMENT B	680 CY-P*
EMBANKMENT C	50 CY-P*
EMBANKMENT D	20 CY-P*
EMBANKMENT E NORTH	30 CY-P*
EMBANKMENT E SOUTH	80 CY-P*
EMBANKMENT F NORTH	130 CY-P*
EMBANKMENT F SOUTH	70 CY-P*
EMBANKMENT G NORTH	120 CY-P*
EMBANKMENT G SOUTH	470 CY-P*
EMBANKMENT H	270 CY-P*
TOTAL	2,150 CY-P*
WATER CONTROL STRUCTURE B	1 LS
WATER CONTROL STRUCTURE C	1 LS
WATER CONTROL STRUCTURE F	1 LS
WATER CONTROL STRUCTURE G	1 LS
WATER CONTROL STRUCTURE H	1 LS
WATER CONTROL STRUCTURE I	1 LS
NORTH CROSSING	
DU CLASS II RIPRAP	45 CY-P*
DU CLASS I RIPRAP	5 CY-P*
SOUTH CROSSING	
DU CLASS II RIPRAP	45 CY-P*
DU CLASS I RIPRAP	5 CY-P*
WATER	1 M-GAL
SEEDING AND MULCHING	4 AC-P

\*THE UNIT CY-P (CUBIC YARDS-PLAN) AND AC-P (ACRE-PLAN) MEANS PAYMENT WILL BE BASED ON THE PLAN QUANTITY LISTED ABOVE.

DUCKS UNLIMITED

PROJECT

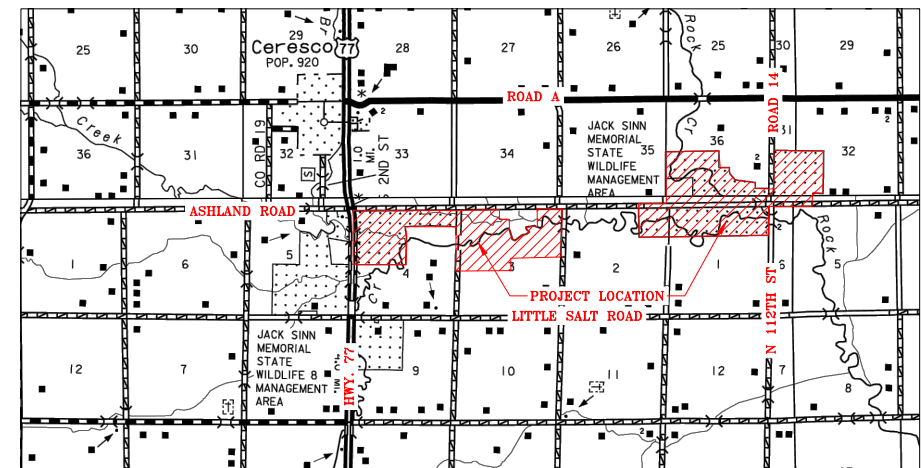
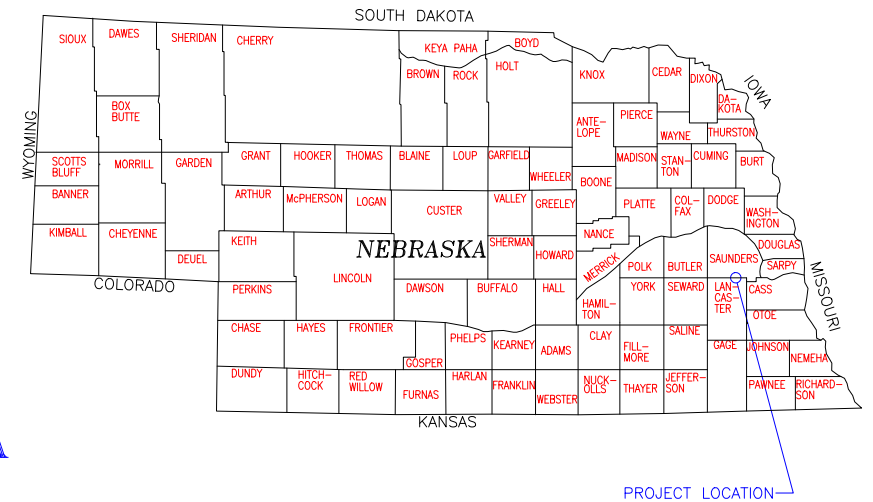
JACK SINN WMA

LOCATED IN SECTIONS 1,2,3,&4-12N-7E  
36-13N-7E AND 31-13N-8E, 6TH P.M.  
LANCASTER/SAUNDERS COUNTY, NEBRASKA

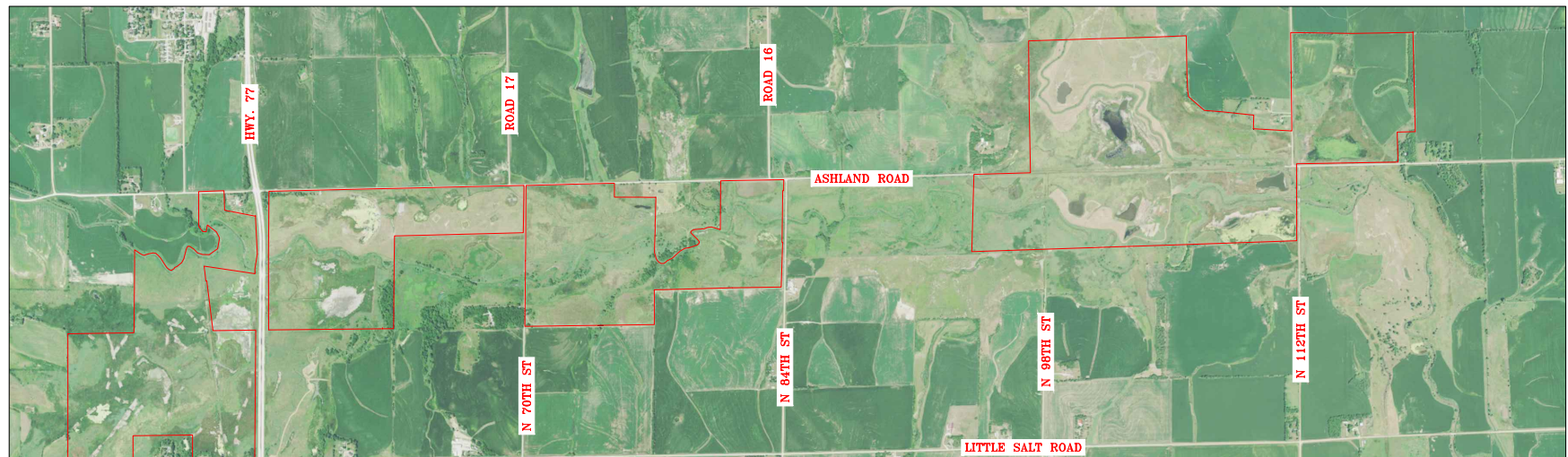
IN COOPERATION WITH  
NPGC, NAWCA

PLAN INDEX

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3 OVERALL PLAN EAST  
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10 EMBANKMENT F REPAIRS  
11 EMBANKMENT G REPAIRS  
12 EMBANKMENT H REPAIRS  
13 WCS I REPAIR  
14 WATER CONTROL STRUCTURE AND SEEDING DETAILS




VICINITY MAP  
NOT TO SCALE



LOCATION MAP  
NOT TO SCALE

ALL WRITTEN SCALES ARE ACCURATE ON 24x36 INCH SHEETS

DU REGIONAL ENGINEER:  
CASEY CAMPBELL, P.E.  
2121 N WEBB RD., SUITE 309  
GRAND ISLAND, NE 68803  
(308) 385-8832

 DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	LOCATION & VICINITY MAPS	SURVEYED BY: BAC
	APPROVED BY:	CHECKED BY: MMM
DATE: 4/14/2025	SHEET NO. 1 OF 14	APPROVED BY:

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ABBREVIATIONS LIST

BLDC = BUILDING CORNER  
BRK = BREAK  
BTM. = BOTTOM  
C.L. = CENTER LINE  
CMP = CORRUGATED METAL PIPE ROUND  
CMPA = CORRUGATED METAL PIPE ARCH  
CONC. = CONCRETE  
DIA. = DIAMETER  
E = EASTING COORDINATE OR EAST  
ELEV. = ELEVATION  
EMB. = EMBANKMENT  
EPAV = EDGE OF PAVEMENT  
EX. = EXISTING  
EXIST. = EXISTING  
FES = FLARED END SECTION  
FX = FENCE  
GA. = GAUGE  
G.W. = GUY WIRE  
INV = INVERT  
LAT = LATITUDE (WGS84)  
LONG = LONGITUDE (WGS84)  
L.F. = LINEAR FEET  
MISC = MISCELLANEOUS  
N = NORTHING COORDINATE OR NORTH  
NFS = NON-FLARED END SECTION  
O.C. = ON CENTER  
O.C.E.W. = ON CENTER EACH WAY  
OHE = OVERHEAD ELECTRIC  
P.C. = POINT OF INTERSECTION  
P.I. = POINT OF INTERSECTION  
P.T. = POINT OF TANGENCY  
RCP = REINFORCED CONCRETE PIPE  
RD = ROAD  
REM. = REMOVE  
REQ'D = REQUIRED  
R.O.W. = RIGHT OF WAY  
S = SOUTH  
SED. = SEDIMENT  
SHLD = SHOULDER  
SLP = SLOPE  
STPLC = STOPLOC  
TBM = TEMPORARY BENCHMARK  
TEL = TELEPHONE/COMMUNICATIONS  
UG = UNDERGROUND  
VEG = VEGETATION  
W = WEST OR WITH  
WCS = WATER CONTROL STRUCTURE  
WL = WATER LEVEL  
WS = WATER SHOT


\*NOTE: NOT ALL ABBREVIATIONS IN THIS LIST APPEAR ON THIS SHEET

GENERAL NOTES

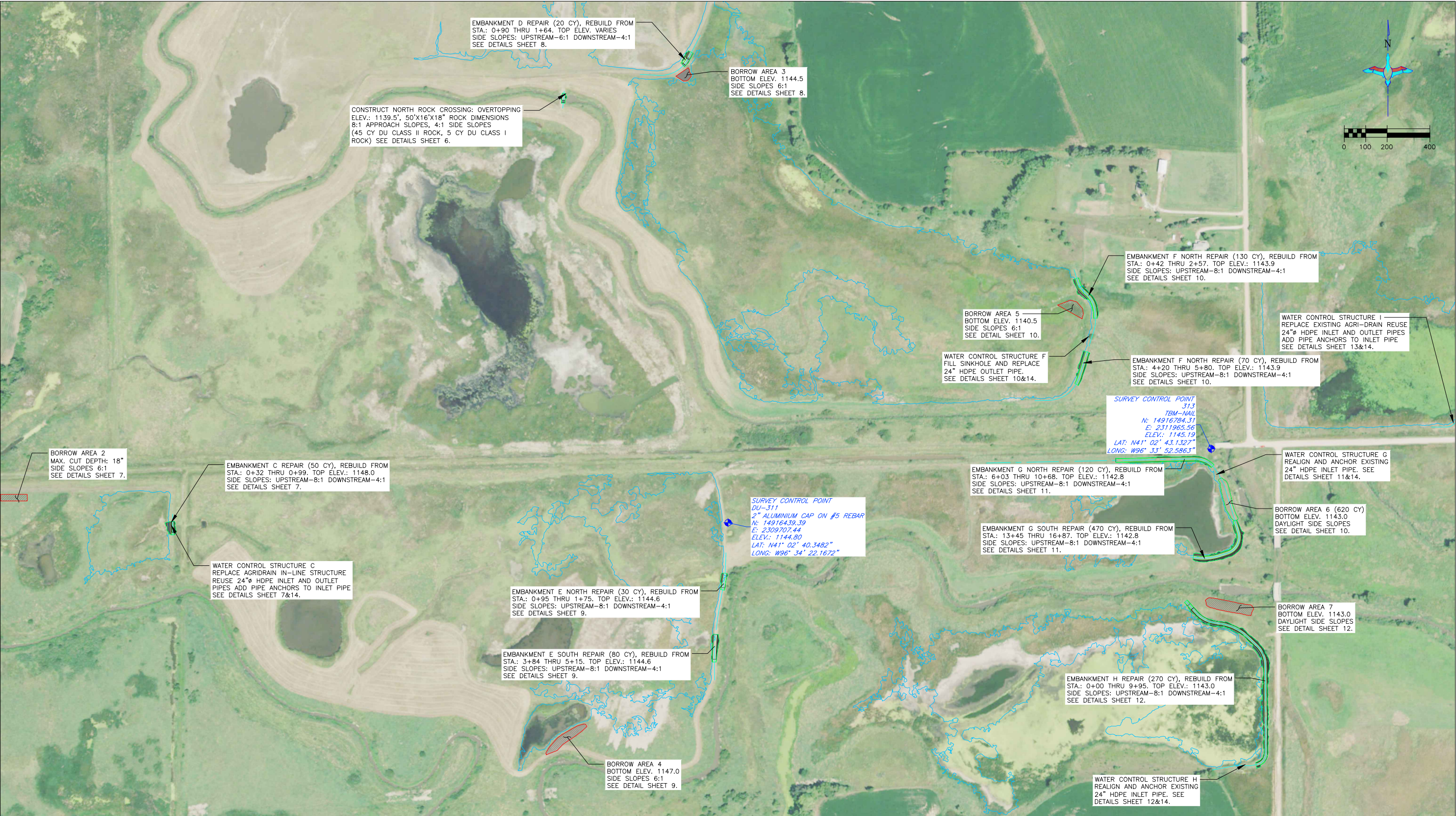
- ONE HALF FOOT CONTOUR INTERVAL SHOWN.
- 2018 1 METER RESOLUTION AERIAL IMAGERY IS SHOWN.
- ITALICIZED TEXT DENOTES EXISTING FEATURE OR EXISTING ELEVATION.
- SPOT ELEVATIONS INDICATED BY  $\oplus$ -XXXX.X ARE RANDOMLY LOCATED AND ARE BASED ON SURFACE MODEL ELEVATIONS.

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WEST AREA PLAN VIEW  
SCALE 1"=200'

 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	OVERALL PLAN WEST	SURVEYED BY: BAC
DATE: 4/14/2025	SHEET NO. 2 OF 14	CHECKED BY: MMM
	APPROVED BY:	APPROVED BY:






GENERAL NOTES

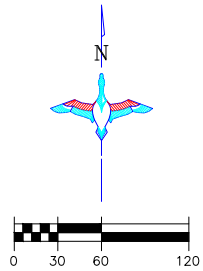
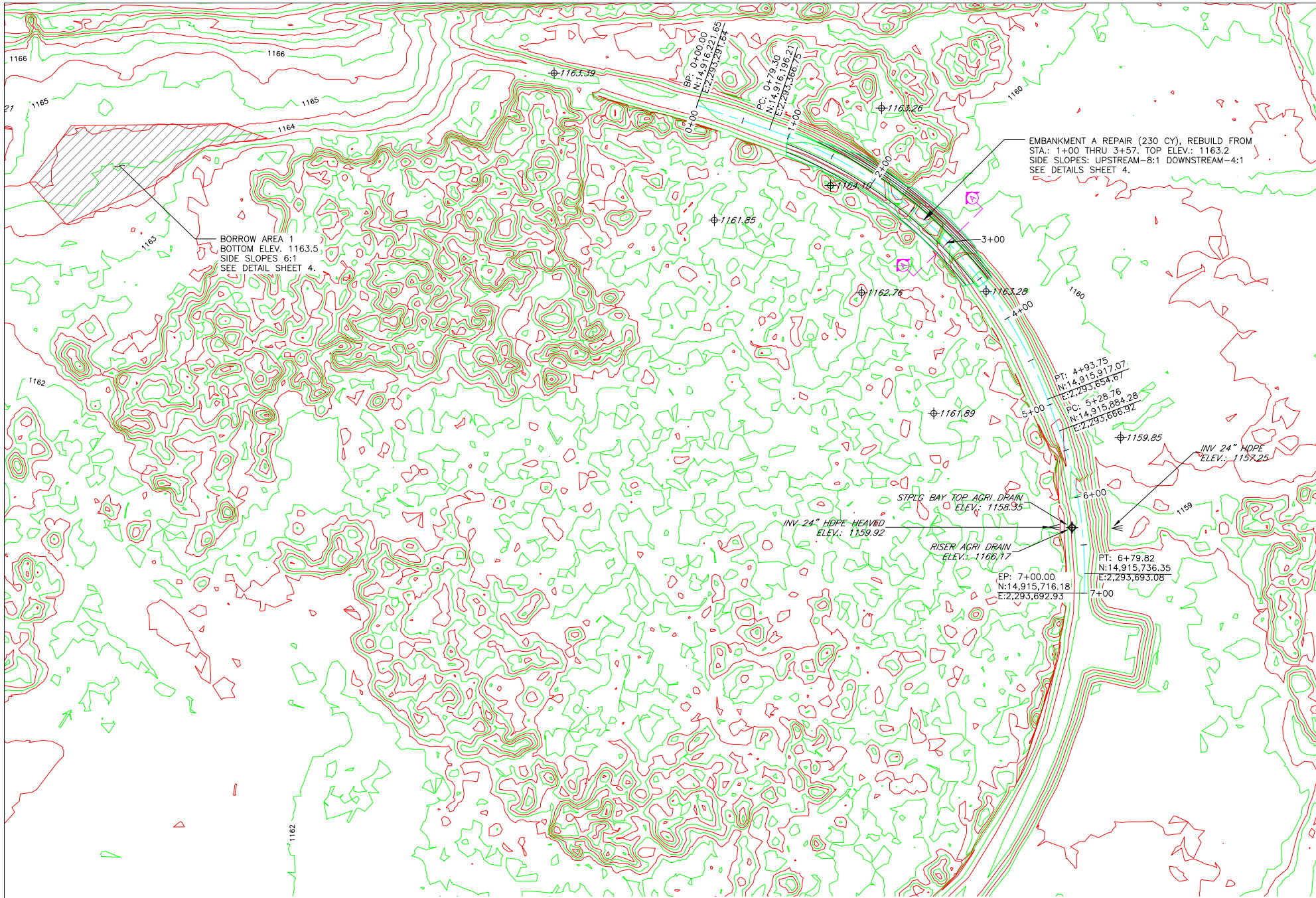
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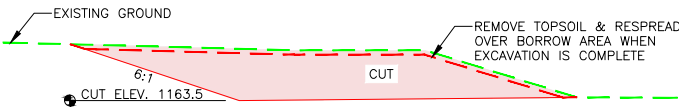
EAST AREA PLAN VIEW  
SCALE 1"=200'

 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	OVERALL PLAN EAST	SURVEYED BY: BAC
	DATE: 4/14/2025	CHECKED BY: MMM
DATE: 4/14/2025	SHEET NO. 3 OF 14	APPROVED BY:

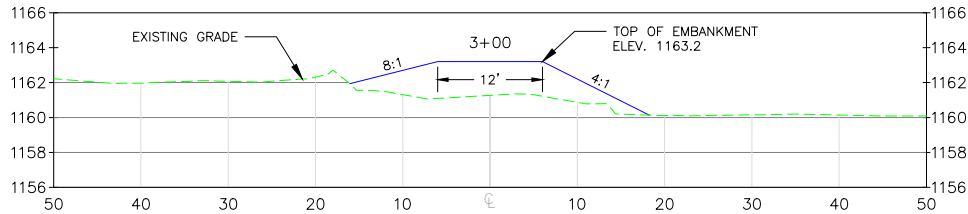




- BORROW AREA NOTE:** SUITABLE MATERIAL FOR ALL FILL SHALL BE OBTAINED FROM THE DESIGNATED BORROW AREA SHOWN ON THIS SHEET AS APPROVED BY THE DU FIELD ENGINEER. CARE SHALL BE TAKEN NOT TO OPEN UP ANY SAND LENSES THAT WILL INCREASE SEEPAGE FROM ANY EXCAVATION AREAS. FINISHED SLOPES SHALL BE 6:1 OR FLATTER AND 4" OF TOPSOIL SHALL BE RESPREAD OVER THE SLOPES. THE COST OF TOPSOIL WORK ON THE BORROW AREAS SHALL BE CONSIDERED INCIDENTAL TO "SITE PREPARATION."
- EMBANKMENT REPAIR NOTES:**
1. EMBANKMENT SHALL BE REBUILT FROM COMPACTED EARTHEN MATERIAL CONTAINING MINIMAL ORGANIC MATERIAL AND SHALL COMPLY WITH SPECIFICATION SECTION 204 "EMBANKMENT CONSTRUCTION".
  2. BEFORE EARTHWORK, VEGETATION SHALL BE STRIPPED FROM THE EMBANKMENT REPAIR AREA AND BORROW AREA. TOP SOIL SHALL BE RESPREAD OVER THE EMBANKMENT AND BORROW AREA AFTER FINISH GRADES HAVE BEEN MET. IF A TRM IS PRESENT IN THE AREA OF REPAIR, EMBANKMENT TOPSOIL WORK IS NOT REQUIRED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION."
  3. EMBANKMENT FILL SHALL BE PLACED IN LIFTS OF NO MORE THAN 8" AND COMPACTED PRIOR TO PLACING SUBSEQUENT LIFTS. THE ADDITION OF WATER TO EMBANKMENT FILL MAY BE REQUIRED TO ACHIEVE ADEQUATE COMPACTION. WATER ADDED TO FILL MATERIAL WILL BE CONSIDERED BID ITEM "WATER".
  4. DEWATERING OF WORK AREAS, IF REQUIRED, SHALL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION"
  5. THE BORROW AREA SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER ALL BORROW MATERIAL HAS BEEN REMOVED AND TOPSOIL HAS BEEN PLACED. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".
  6. MATERIAL HAUL ROUTES SHALL BE KEPT TO A MINIMUM TO AVOID UNNECESSARY SOIL AND VEGETATION DISTURBANCE. ALL HAUL ROUTES SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER PROJECT COMPLETION. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".



TYPICAL BORROW AREA CROSS SECTION  
N.T.S.



EMBANKMENT A SECTION AT STA 3+00  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'

**SEEDING AND MULCHING NOTE:**  
1. THE CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL AREAS DISTURBED BY CONSTRUCTION IN ACCORDANCE WITH DU SPEC. 402: SEEDING AND MULCHING".

2. SEE SEED MIX TABLE (SHEET 14) FOR SPECIES LIST. APPLICATION RATES SHALL BE 15LB/AC DRILLED OR 25LB/AC BROADCAST.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ADEQUATE SEED BED TO ALLOW SEEDING WITH STANDARD SEEDING EQUIPMENT. THIS WILL INCLUDE THE USE OF A HARROW OR OTHER MEANS IN ORDER TO LEAVE A SMOOTH, TRACK-FREE FINISH. BACK-DRAWING WITH A DOZER IS NOT AN ACCEPTABLE FINISH.

4. MULCHING SHALL BE REQUIRED FOR ALL SEEDED AREAS. THIS INCLUDES ANCHORING OF SOME TYPE SUCH AS TACKING, MATTING, CRIMPER PUNCHING, OR HYDRO-SEEDING TO PREVENT BLOWING OR WASHING AWAY.

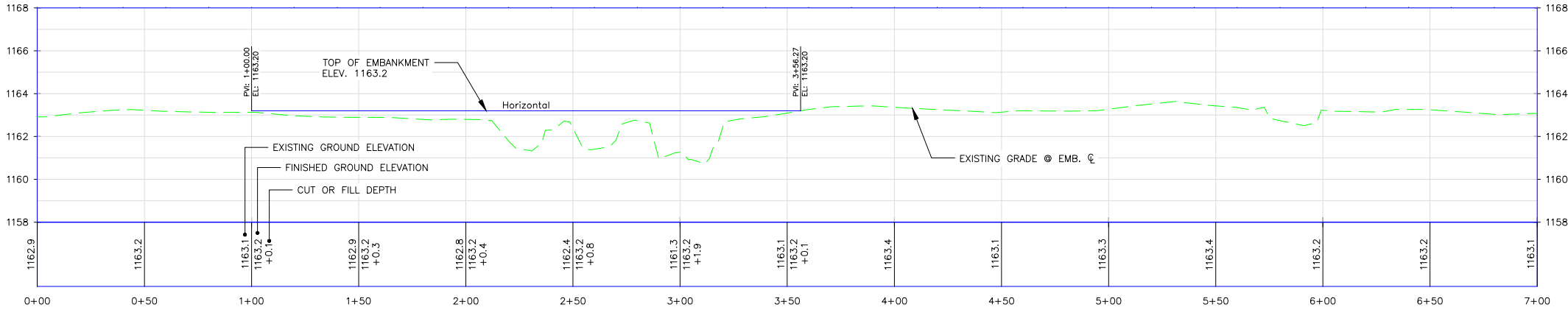
5. MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.

#### GENERAL NOTES

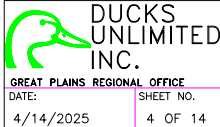
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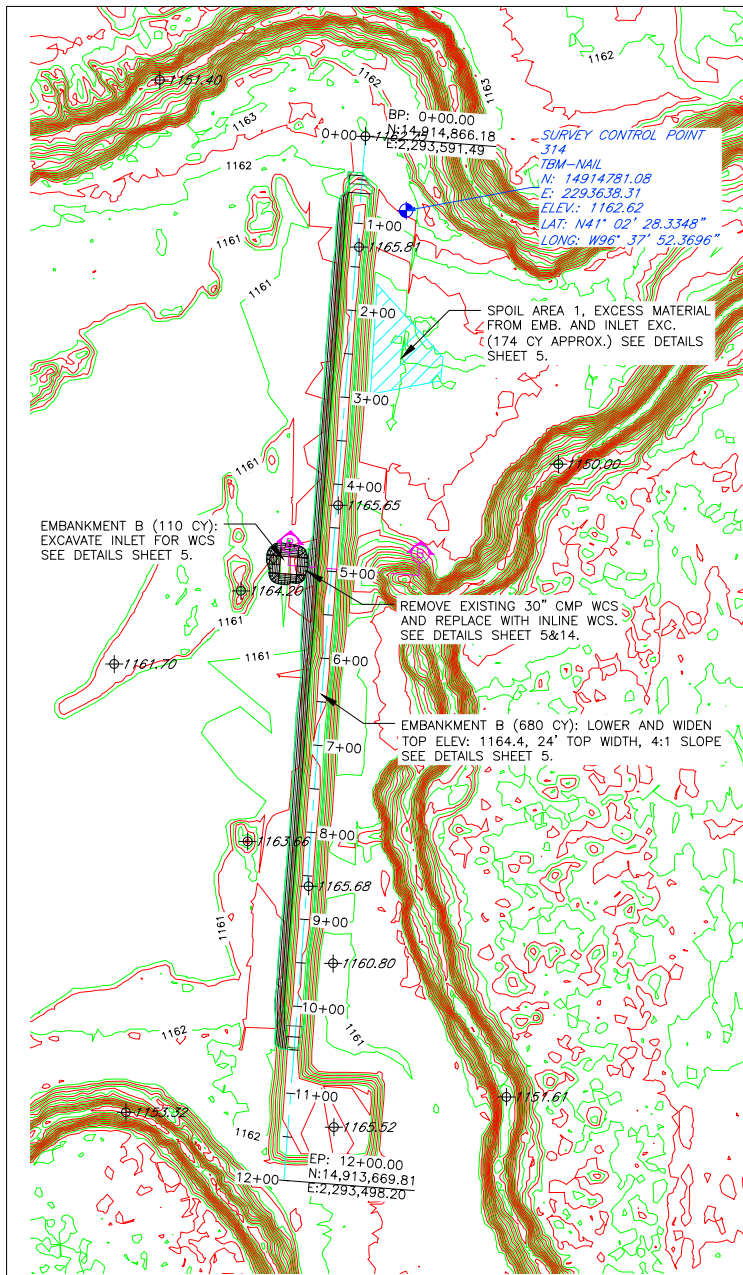
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EMBANKMENT A PLAN  
SCALE 1" = 60'

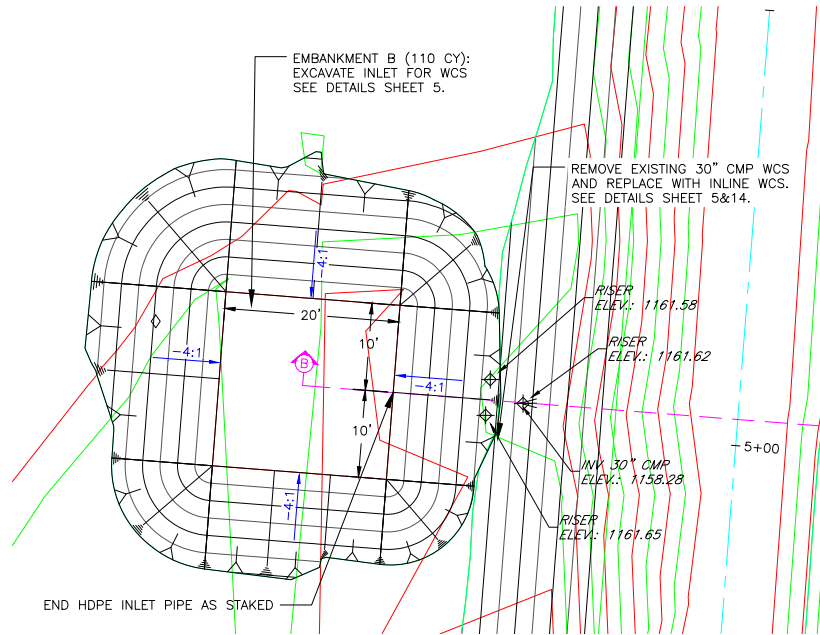


EMBANKMENT A REPAIR PROFILE  
HORIZONTAL SCALE 1" = 30'  
VERTICAL SCALE 1" = 3'

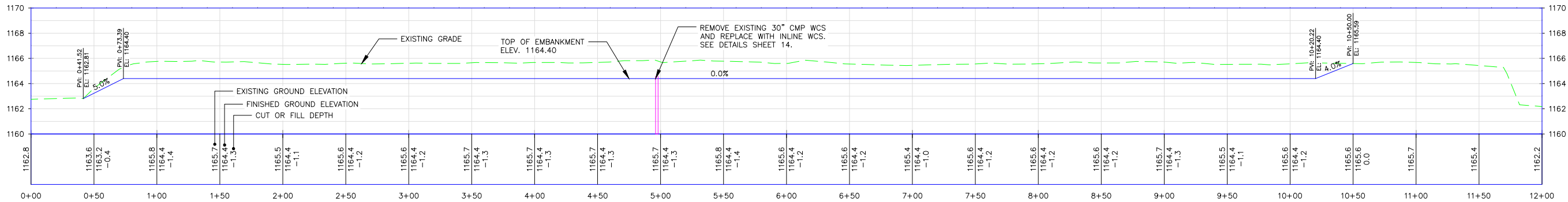
 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBANKMENT A REPAIRS	SURVEYED BY: BAC
	DATE: 4/14/2025	CHECKED BY: MMM
SHEET NO. 4 OF 14		APPROVED BY:



EMBAKMENT B PLAN  
SCALE 1" = 100'



EMBAKMENT B INLET  
EXCAVATION PLAN  
SCALE 1" = 10'



EMBAKMENT B EMBANKMENT REPAIR PROFILE  
HORIZONTAL SCALE 1" = 40'  
VERTICAL SCALE 1" = 4'

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#### GENERAL NOTES

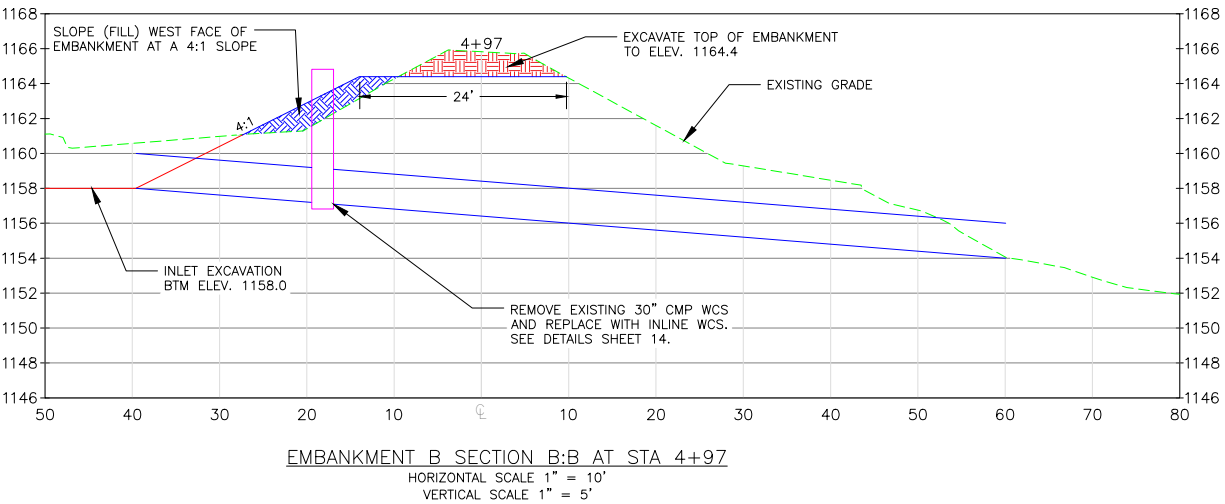
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**BORROW AREA NOTE:** SUITABLE MATERIAL FOR ALL FILL SHALL BE OBTAINED FROM THE DESIGNATED BORROW AREA SHOWN ON THIS SHEET AS APPROVED BY THE DU FIELD ENGINEER. CARE SHALL BE TAKEN NOT TO OPEN UP ANY SAND LENSES THAT WILL INCREASE SEEPAGE FROM ANY EXCAVATION AREAS. FINISHED SLOPES SHALL BE 6:1 OR FLATTER AND 4" OF TOPSOIL SHALL BE RESPREAD OVER THE SLOPES. THE COST OF TOPSOIL WORK ON THE BORROW AREAS SHALL BE CONSIDERED INCIDENTAL TO "SITE PREPARATION."

- SEEDING AND MULCHING NOTE:**
- THE CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL AREAS DISTURBED BY CONSTRUCTION IN ACCORDANCE WITH DU SPEC. 402: SEEDING AND MULCHING"
  - SEE SEED MIX TABLE (SHEET 14) FOR SPECIES LIST. APPLICATION RATES SHALL BE 15LB/AC DRILLED OR 25LB/AC BROADCAST.
  - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ADEQUATE SEED BED TO ALLOW SEEDING WITH STANDARD SEEDING EQUIPMENT. THIS WILL INCLUDE THE USE OF A HARROW OR OTHER MEANS IN ORDER TO LEAVE A SMOOTH, TRACK-FREE FINISH. BACK-DRAWING WITH A DOZER IS NOT AN ACCEPTABLE FINISH.
  - MULCHING SHALL BE REQUIRED FOR ALL SEEDED AREAS. THIS INCLUDES ANCHORING OF SOME TYPE SUCH AS TACKING, MATTING, CRIMPER PUNCHING, OR HYDRO-SEEDING TO PREVENT BLOWING OR WASHING AWAY.
  - MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.

- EMBANKMENT REPAIR NOTES:**
- EMBANKMENT SHALL BE REBUILT FROM COMPACTED EARTHEN MATERIAL CONTAINING MINIMAL ORGANIC MATERIAL AND SHALL COMPLY WITH SPECIFICATION SECTION 204 "EMBANKMENT CONSTRUCTION".
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  - EMBANKMENT FILL SHALL BE PLACED IN LIFTS OF NO MORE THAN 8" AND COMPACTED PRIOR TO PLACING SUBSEQUENT LIFTS. THE ADDITION OF WATER TO EMBANKMENT FILL MAY BE REQUIRED TO ACHIEVE ADEQUATE COMPACTION. WATER ADDED TO FILL MATERIAL WILL BE CONSIDERED BID ITEM "WATER".
  - DEWATERING OF WORK AREAS, IF REQUIRED, SHALL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION"
  - THE BORROW AREA SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER ALL BORROW MATERIAL HAS BEEN REMOVED AND TOPSOIL HAS BEEN PLACED. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".
  - MATERIAL HAUL ROUTES SHALL BE KEPT TO A MINIMUM TO AVOID UNNECESSARY SOIL AND VEGETATION DISTURBANCE. ALL HAUL ROUTES SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER PROJECT COMPLETION. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".

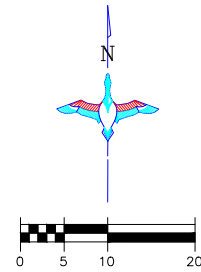
- INLET EXCAVATION NOTE:**
- EXCAVATION SHALL HAVE SIDE SLOPES OF 4:1 OR FLATTER UNLESS OTHERWISE NOTED IN THE PLAN VIEW.
  - MATERIAL SHALL BE REMOVED WITH AN EXCAVATOR OR SCRAPER AND SHALL BE PLACED IN THE DESIGNATED SPOIL AREA. THIS MATERIAL SHALL NOT BE USED FOR EMBANKMENT CONSTRUCTION. TEMPORARY PLACEMENT OF EXCAVATED MATERIAL WITHIN THE WETLAND FOOTPRINT IS PROHIBITED.
  - MATERIAL HAUL ROUTES SHALL BE KEPT TO A MINIMUM TO AVOID UNNECESSARY SOIL AND VEGETATION DISTURBANCE. ALL HAUL ROUTES SHALL BE RETURNED TO THEIR PRECONSTRUCTION CONDITIONS AT THE COMPLETION OF THE PROJECT. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".



EMBAKMENT B SECTION B:B AT STA 4+97  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'

 DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBANKMENT B REPAIRS	SURVEYED BY: BAC
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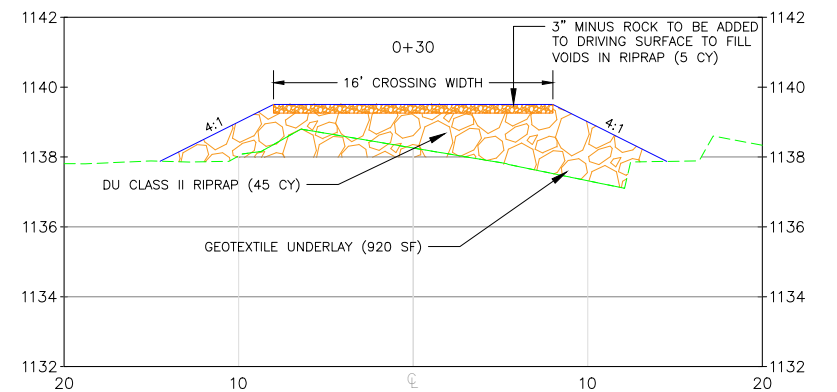


**RIPRAP CROSSING NOTES:**

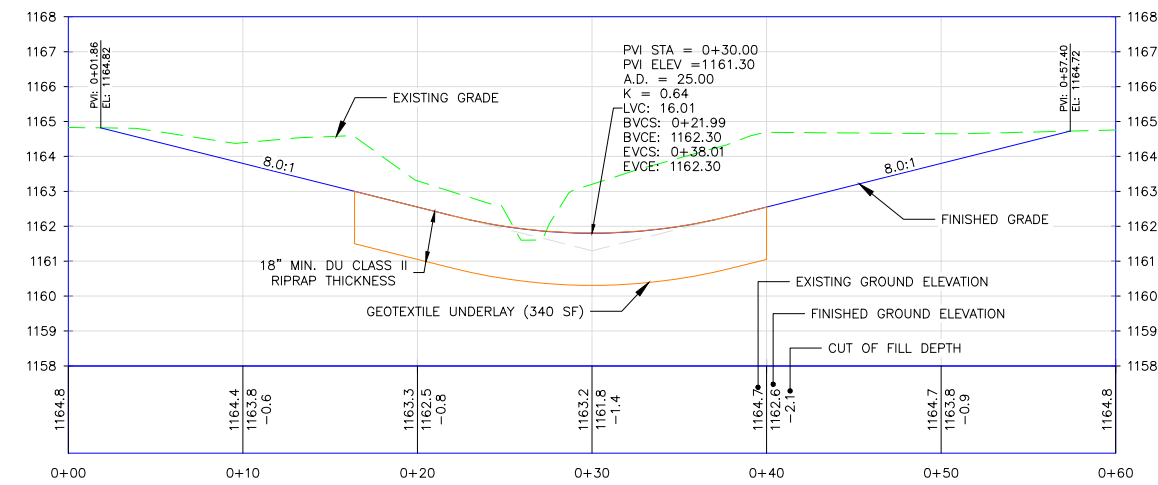
1. CROSSING APPROACHES SHALL BE 8:1 OR FLATTER WITH 4:1 SIDE SLOPES.
2. MATERIAL SHALL BE REMOVED WITH AN EXCAVATOR OR SCRAPER AND SHALL BE PLACED IN THE DESIGNATED SPOIL AREA. TEMPORARY PLACEMENT OF EXCAVATED MATERIAL WITHIN THE WETLAND FOOTPRINT IS PROHIBITED.
3. PLACEMENT OF GEOTEXTILE UNDERLAY CROSSINGS SHALL BE CONSIDERED INCIDENTAL TO "DU CLASS II RIPRAP" BID ITEMS.
4. MATERIAL HAUL ROUTES SHALL BE KEEP TO A MINIMUM TO AVOID UNNECESSARY SOIL AND VEGETATION DISTURBANCE. ALL HAUL ROUTES SHALL BE RETURNED TO THEIR PRECONSTRUCTION CONDITIONS AT THE COMPLETION OF THE PROJECT. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".

**SEEDING AND MULCHING NOTE:**

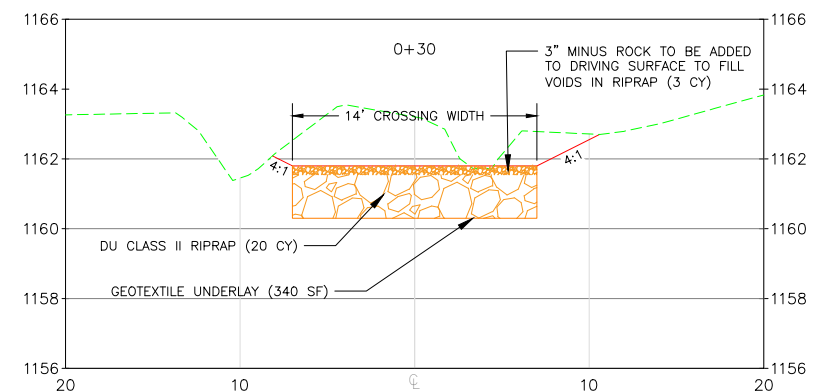
1. THE CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL AREAS DISTURBED BY CONSTRUCTION IN ACCORDANCE WITH DU SPEC. 402: SEEDING AND MULCHING"
2. SEE SEED MIX TABLE (SHEET 14) FOR SPECIES LIST. APPLICATION RATES SHALL BE 15LB/AC DRILLED OR 25LB/AC BROADCAST.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ADEQUATE SEED BED TO ALLOW SEEDING WITH STANDARD SEEDING EQUIPMENT. THIS WILL INCLUDE THE USE OF A HARROW OR OTHER MEANS IN ORDER TO LEAVE A SMOOTH, TRACK-FREE FINISH. BACK-DRAWING WITH A DOZER IS NOT AN ACCEPTABLE FINISH.
4. MULCHING SHALL BE REQUIRED FOR ALL SEEDED AREAS. THIS INCLUDES ANCHORING OF SOME TYPE SUCH AS TACKING, MATTING, CRIMPER PUNCHING, OR HYDRO-SEEDING TO PREVENT BLOWING OR WASHING AWAY.
5. MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.



NORTH WATER CROSSING PROFILE  
HORIZONTAL SCALE 1" = 5'  
VERTICAL SCALE 1" = 2.5'



SOUTH WATER CROSSING PROFILE  
HORIZONTAL SCALE 1" = 5'  
VERTICAL SCALE 1" = 2.5'

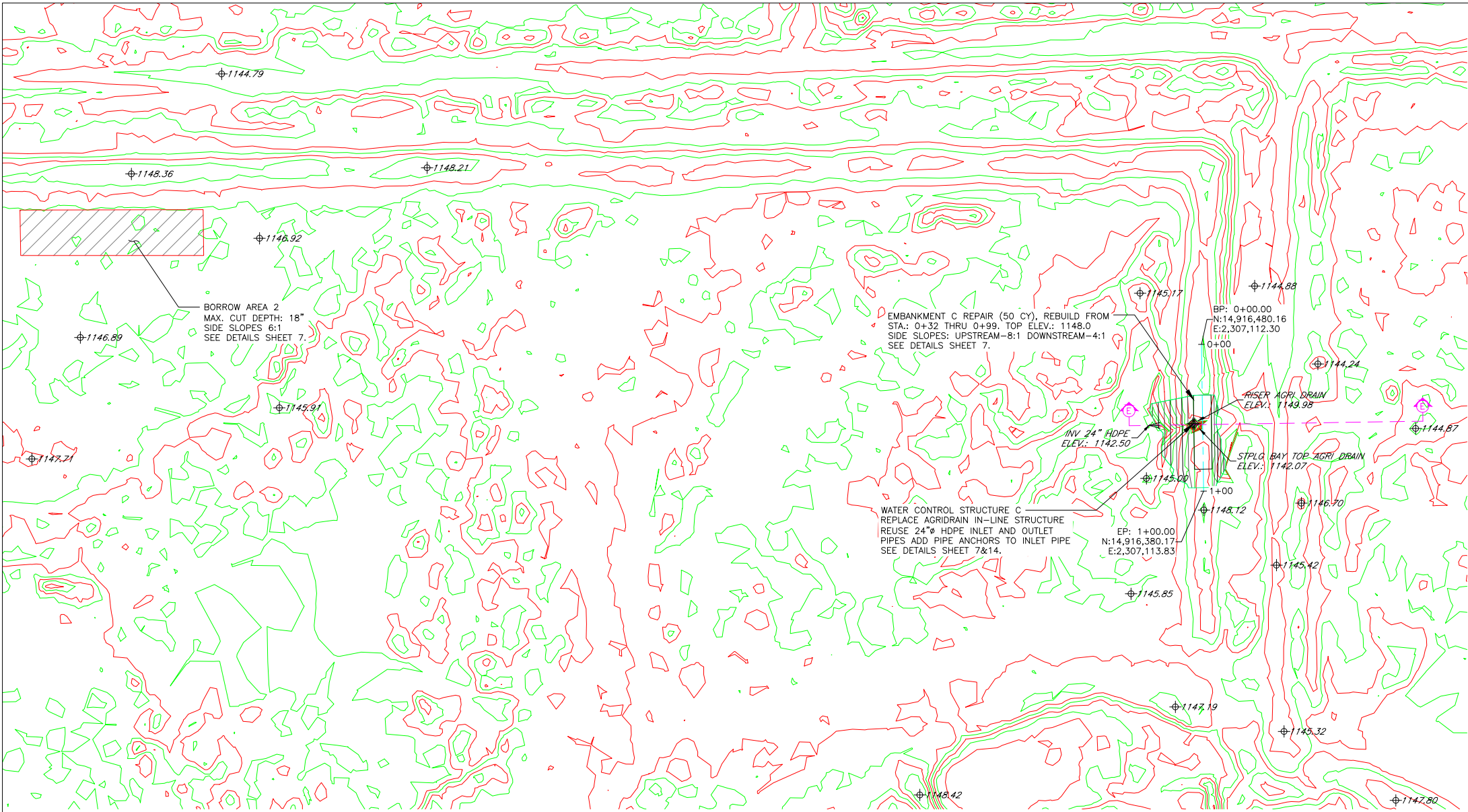


SOUTH WATER CROSSING SECTION C:C  
HORIZONTAL SCALE 1" = 5'  
VERTICAL SCALE 1" = 2.5'

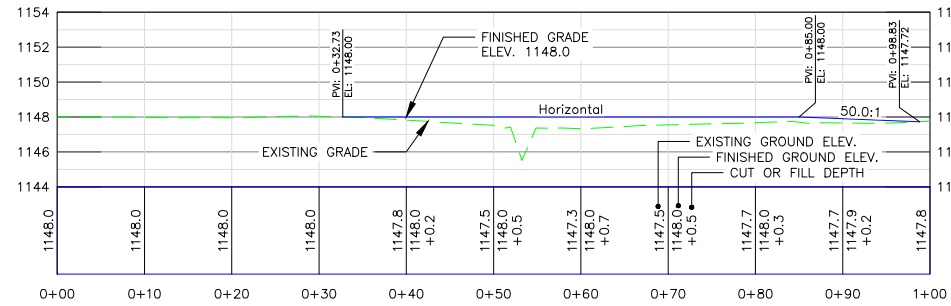
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## GENERAL NOTES

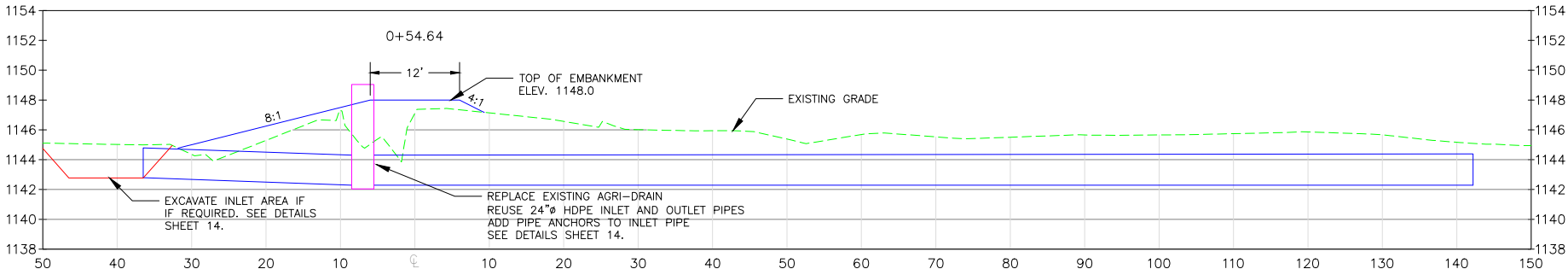
1. ONE HALF FOOT CONTOUR INTERVAL SHOWN.
2. 2018 1 METER RESOLUTION AERIAL IMAGERY IS SHOWN.
3. ITALICIZED TEXT DENOTES EXISTING FEATURE OR EXISTING ELEVATION.
4. SPOT ELEVATIONS INDICATED BY  $\phi$  XXXX.X ARE RANDOMLY LOCATED AND ARE BASED ON SURFACE MODEL ELEVATIONS.



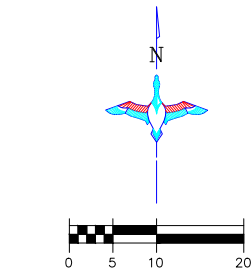
EMBAKMENT C PLAN  
SCALE 1" = 40'



EMBAKMENT C REPAIR PROFILE  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



EMBAKMENT C SECTION AT STA 0+54.64  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



**BORROW AREA NOTE:** SUITABLE MATERIAL FOR ALL FILL SHALL BE OBTAINED FROM THE DESIGNATED BORROW AREA SHOWN ON THIS SHEET AS APPROVED BY THE DU FIELD ENGINEER. CARE SHALL BE TAKEN NOT TO OPEN UP ANY SAND LENSES THAT WILL INCREASE SEEPAGE FROM ANY EXCAVATION AREAS. FINISHED SLOPES SHALL BE 6:1 OR FLATTER AND 4" OF TOPSOIL SHALL BE RESPREAD OVER THE SLOPES. THE COST OF TOPSOIL WORK ON THE BORROW AREAS SHALL BE CONSIDERED INCIDENTAL TO "SITE PREPARATION."

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5. MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.

**EMBAKMENT REPAIR NOTES:**  
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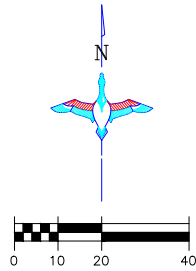
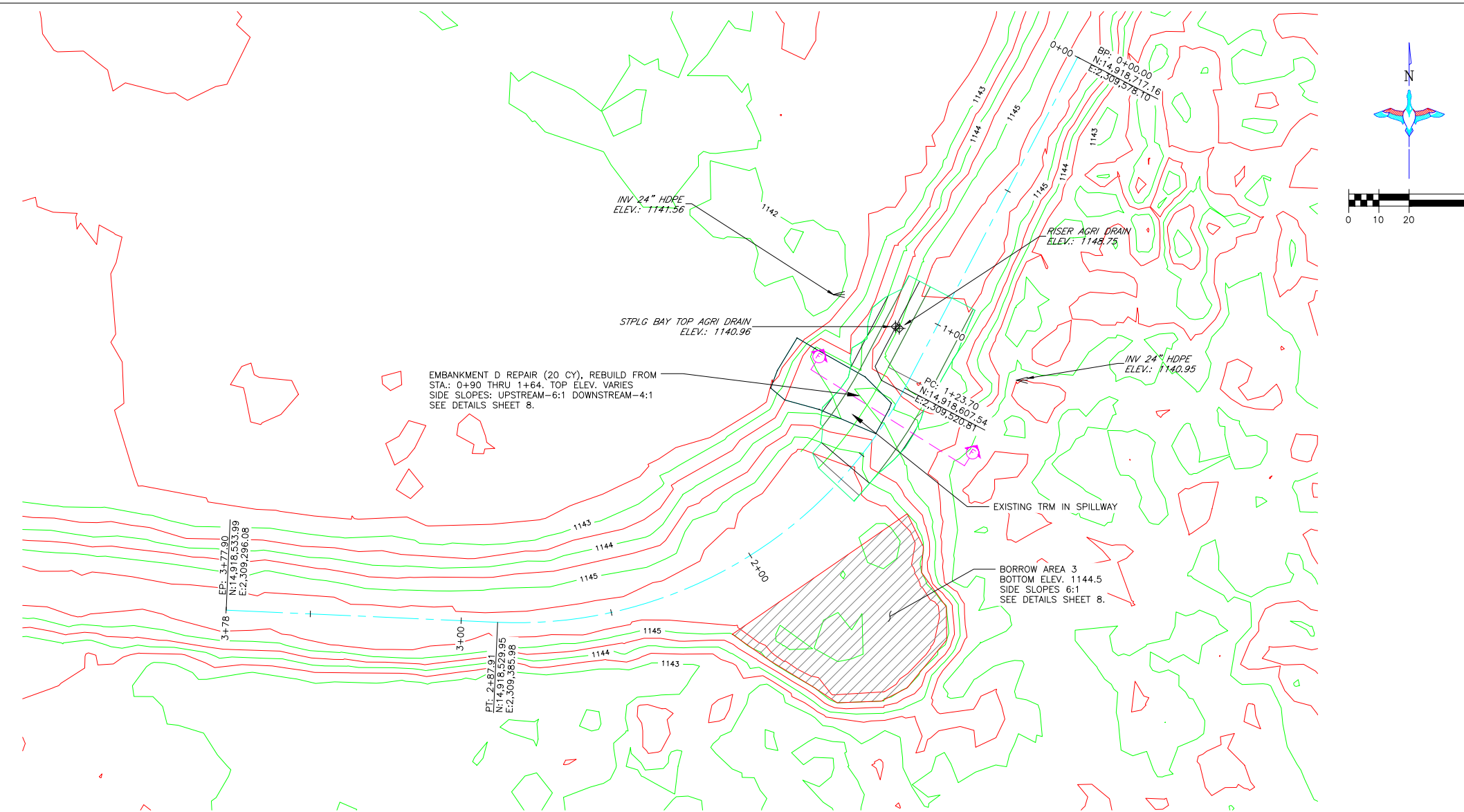
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 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBAKMENT C REPAIRS	SURVEYED BY: BAC
	CHECKED BY: MMM	
DATE: 4/14/2025	SHEET NO. 7 OF 14	APPROVED BY:



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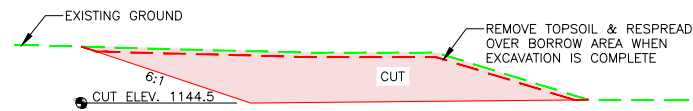
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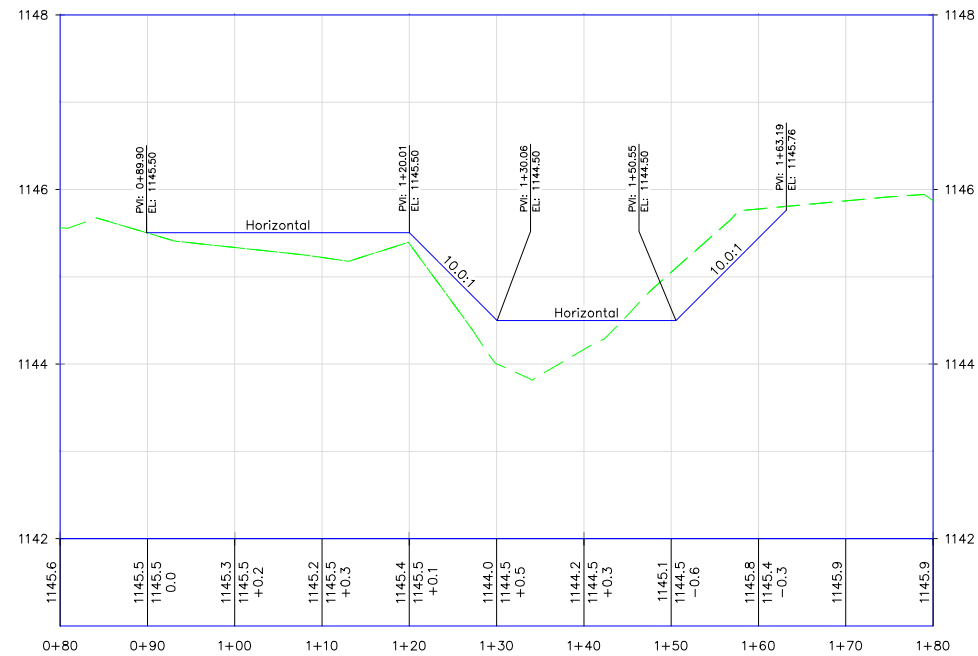
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**EMBANKMENT D PLAN**  
 SCALE 1" = 20'

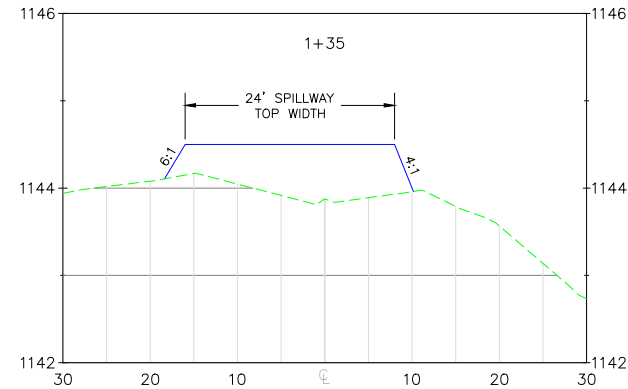


**TYPICAL BORROW AREA CROSS SECTION**  
 N.T.S.



**EMBANKMENT D REPAIR PROFILE**

HORIZONTAL SCALE 1" = 10'  
 VERTICAL SCALE 1" = 1'



**EMBANKMENT D SECTION F-F**  
 HORIZONTAL SCALE 1" = 10'  
 VERTICAL SCALE 1" = 1'

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<p><b>DUCKS UNLIMITED INC.</b>          GREAT PLAINS REGIONAL OFFICE</p>	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBANKMENT D REPAIRS	SURVEYED BY: BAC
		CHECKED BY: MMM
DATE: 4/14/2025	SHEET NO. 8 OF 14	APPROVED BY:



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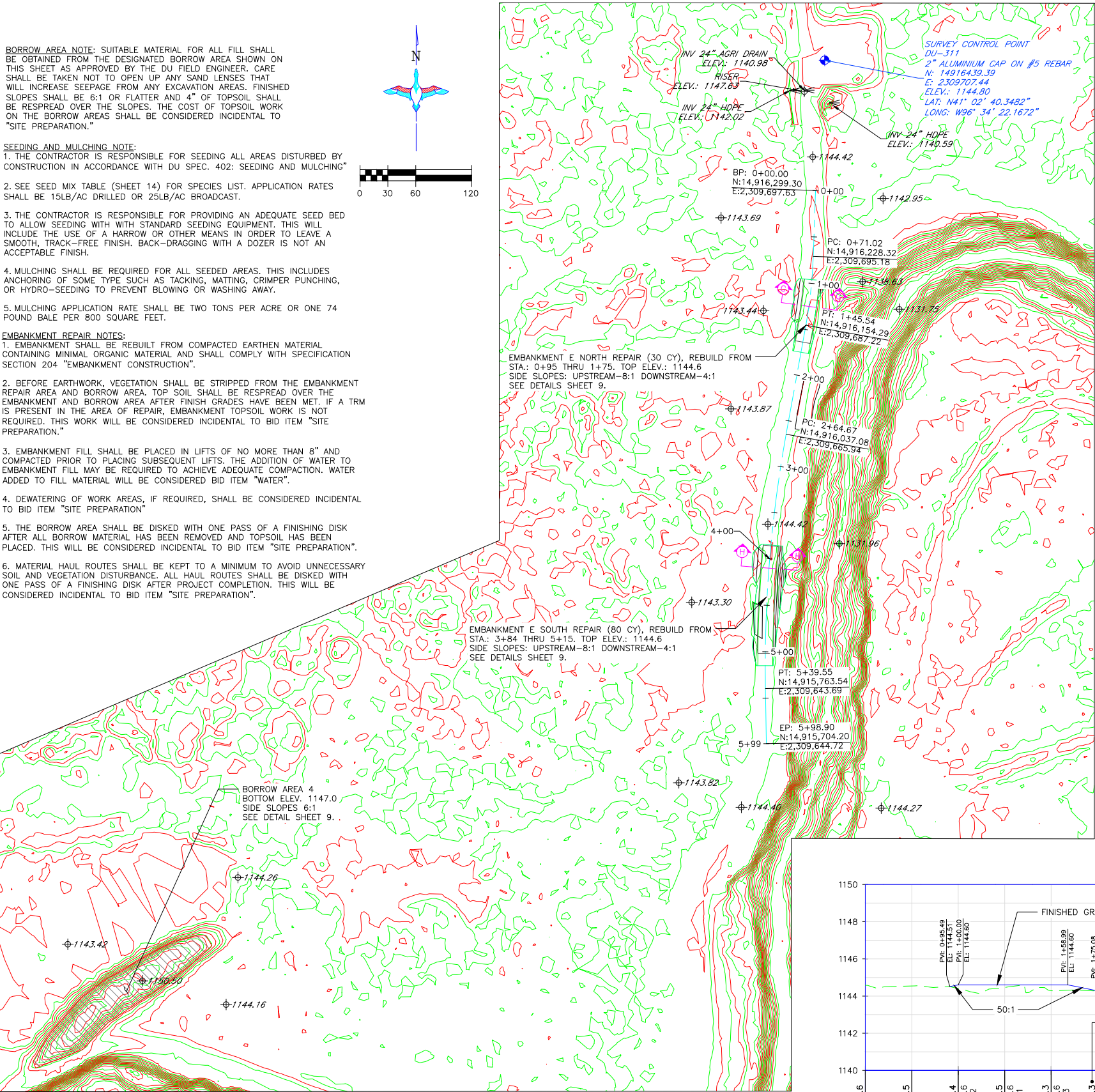
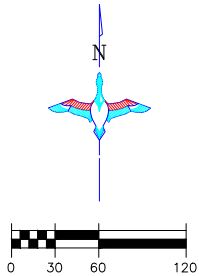
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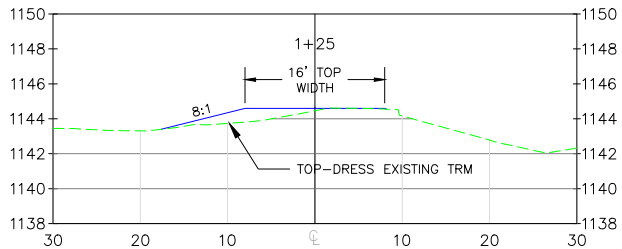
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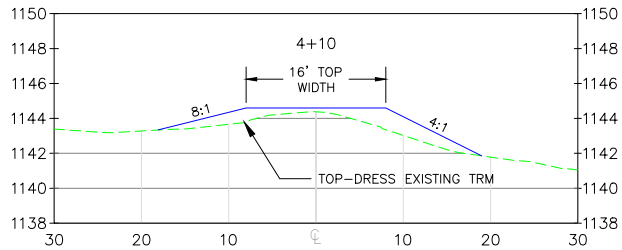
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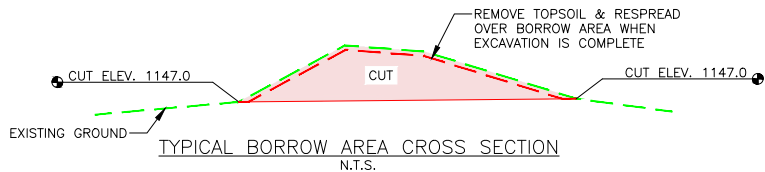
EMBANKMENT E PLAN  
SCALE 1" = 60'



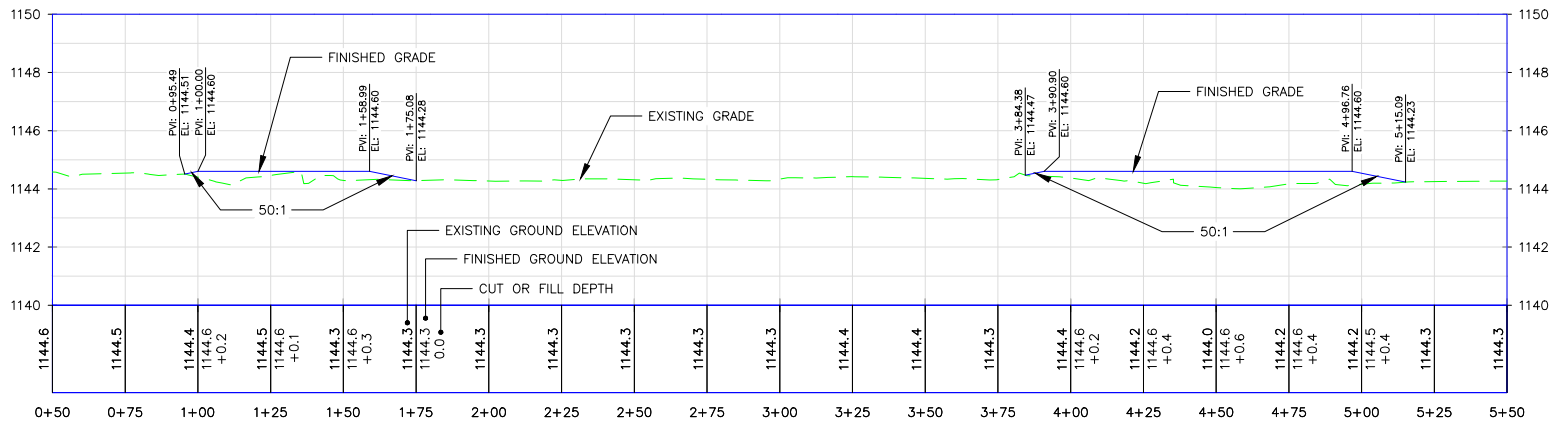
EMBANKMENT E REPAIR NORTH SECTION G:G  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



EMBANKMENT E REPAIR SOUTH SECTION H:H  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



TYPICAL BORROW AREA CROSS SECTION  
N.T.S.




EMBANKMENT E REPAIR PROFILE  
HORIZONTAL SCALE 1" = 30'  
VERTICAL SCALE 1" = 3'

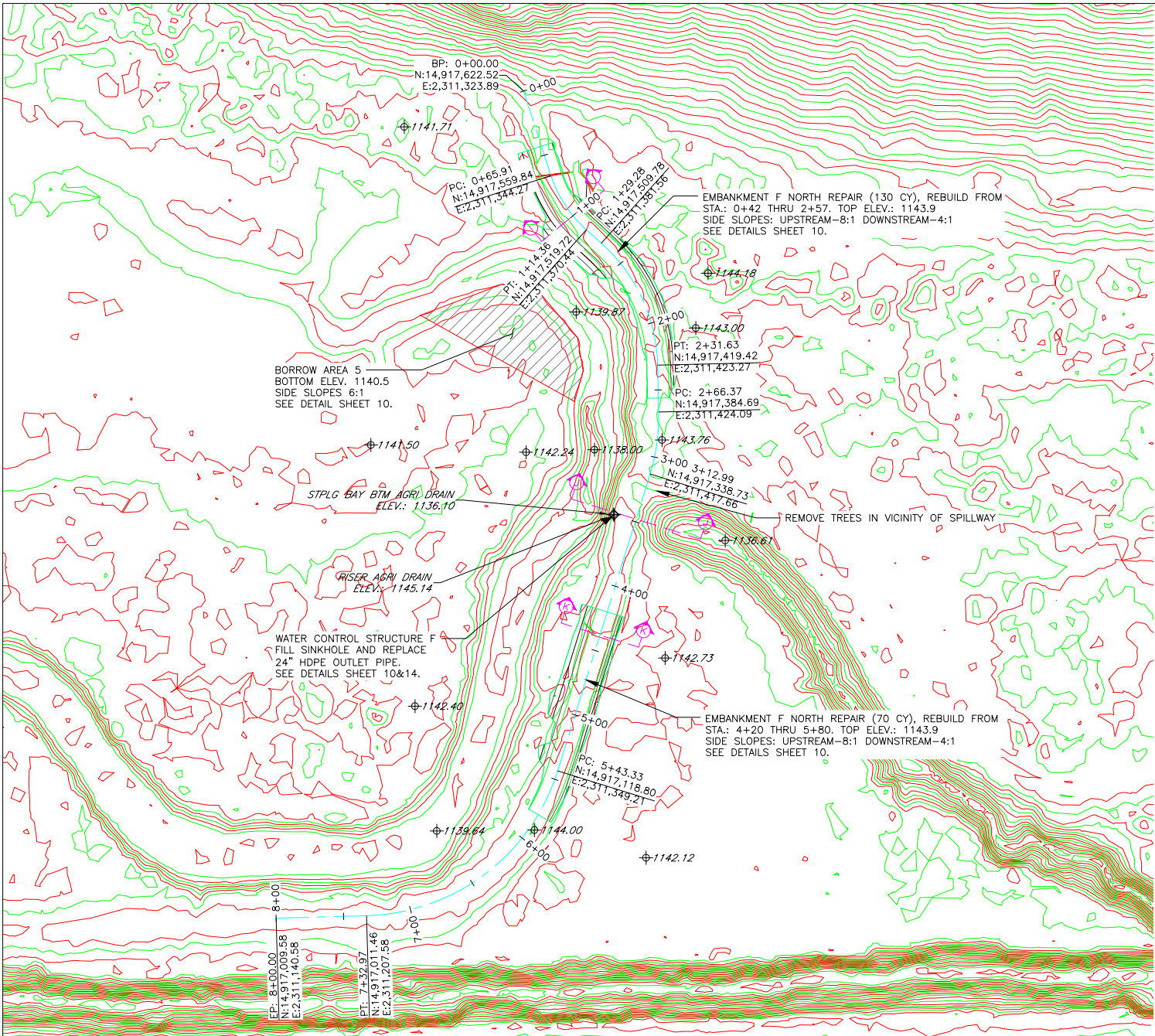
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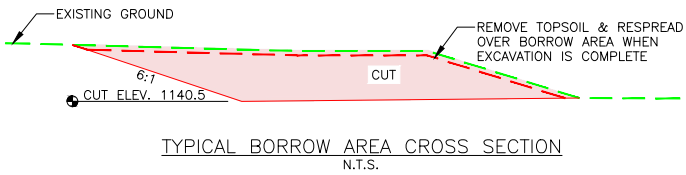
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 GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBANKMENT E REPAIRS	CHECKED BY: MMM
	DATE: 4/14/2025	SHEET NO. 9 OF 14





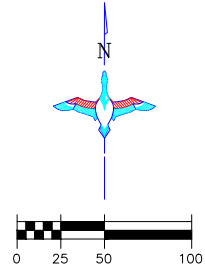
EMBAKMENT F PLAN  
SCALE 1" = 50'



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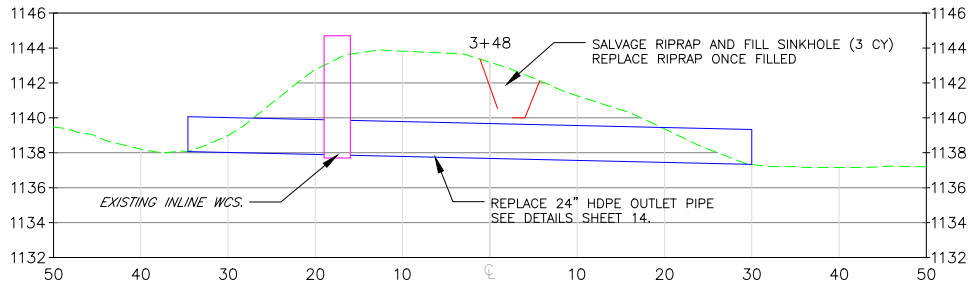
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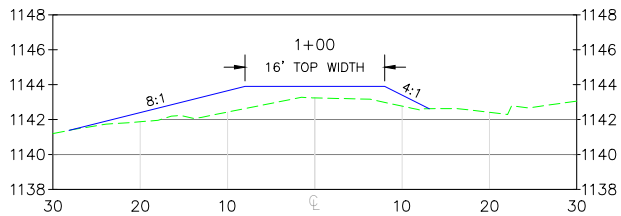
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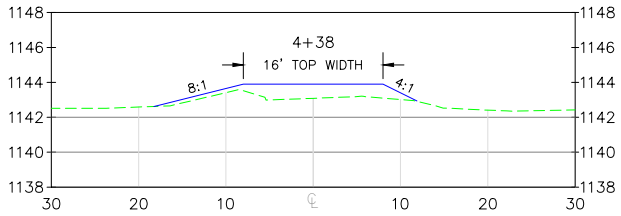
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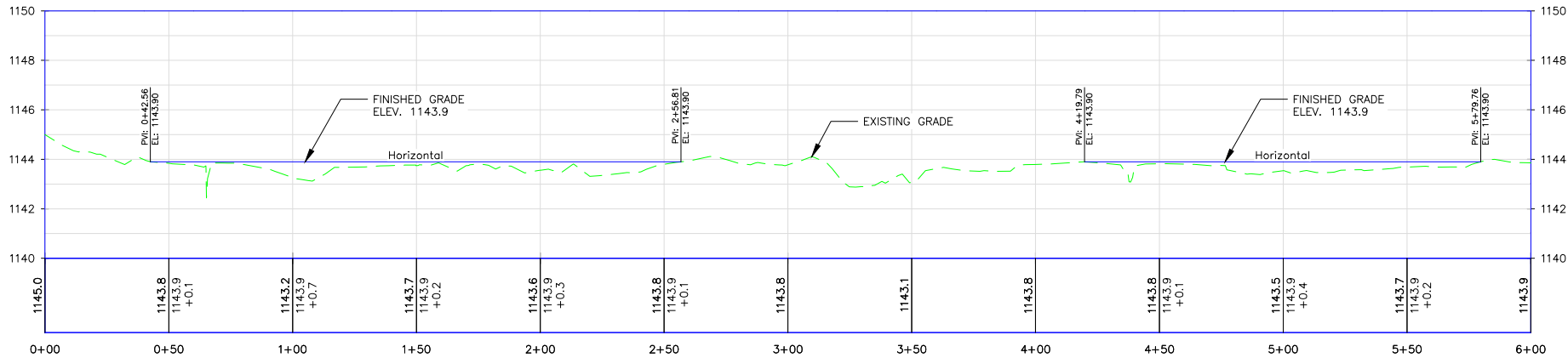
EMBAKMENT F WCS REPAIR SECTION J:J  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



EMBAKMENT F NORTH REPAIR SECTION K:K  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



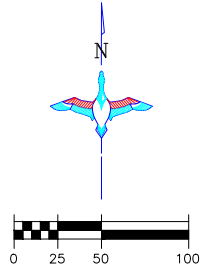
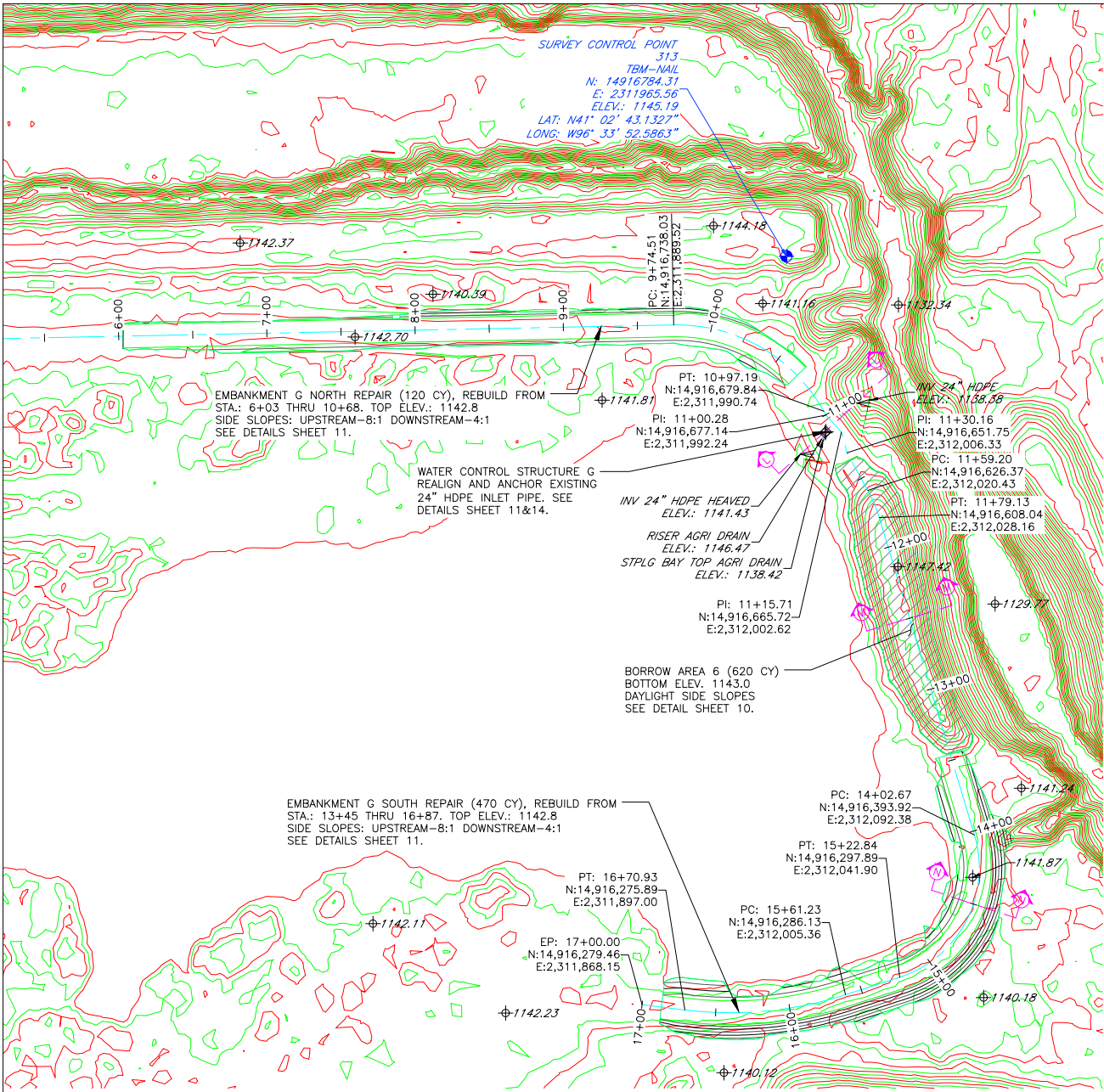
EMBAKMENT F SOUTH REPAIR SECTION K:K  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



EMBAKMENT F REPAIR PROFILE  
HORIZONTAL SCALE 1" = 30'  
VERTICAL SCALE 1" = 3'

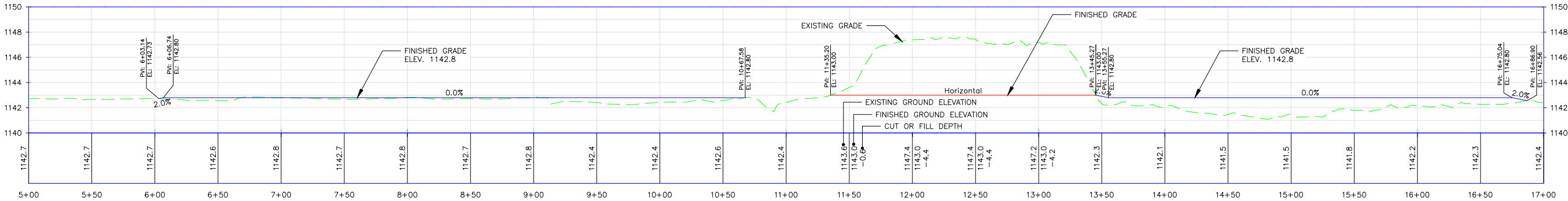
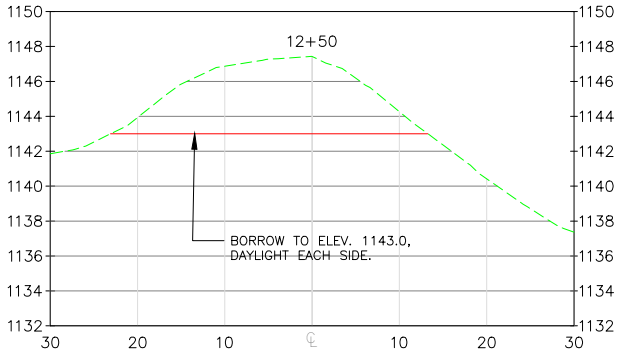
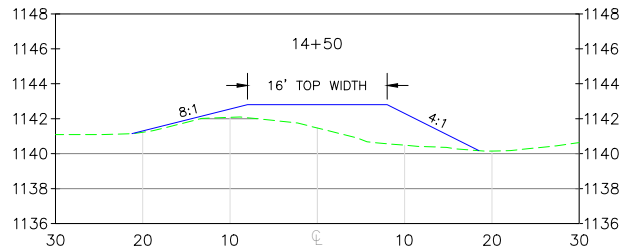
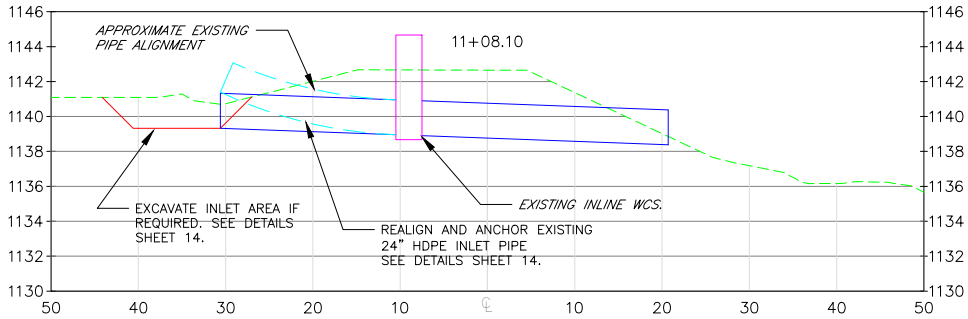
 GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	EMBAKMENT F REPAIRS	SURVEYED BY: BAC
	CHECKED BY: MMM	
DATE: 4/14/2025	SHEET NO. 10 OF 14	APPROVED BY:





- BORROW AREA NOTE:** SUITABLE MATERIAL FOR ALL FILL SHALL BE OBTAINED FROM THE DESIGNATED BORROW AREA SHOWN ON THIS SHEET AS APPROVED BY THE DU FIELD ENGINEER. CARE SHALL BE TAKEN NOT TO OPEN UP ANY SAND LENSES THAT WILL INCREASE SEEPAGE FROM ANY EXCAVATION AREAS. FINISHED SLOPES SHALL BE 6:1 OR FLATTER AND 4" OF TOPSOIL SHALL BE RESPREAD OVER THE SLOPES. THE COST OF TOPSOIL WORK ON THE BORROW AREAS SHALL BE CONSIDERED INCIDENTAL TO "SITE PREPARATION."
- SEEDING AND MULCHING NOTE:**  
1. THE CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL AREAS DISTURBED BY CONSTRUCTION IN ACCORDANCE WITH DU SPEC. 402: SEEDING AND MULCHING"  
2. SEE SEED MIX TABLE (SHEET 14) FOR SPECIES LIST. APPLICATION RATES SHALL BE 15LB/AC DRILLED OR 25LB/AC BROADCAST.  
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ADEQUATE SEED BED TO ALLOW SEEDING WITH WITH STANDARD SEEDING EQUIPMENT. THIS WILL INCLUDE THE USE OF A HARROW OR OTHER MEANS IN ORDER TO LEAVE A SMOOTH, TRACK-FREE FINISH. BACK-DRAWING WITH A DOZER IS NOT AN ACCEPTABLE FINISH.  
4. MULCHING SHALL BE REQUIRED FOR ALL SEEDED AREAS. THIS INCLUDES ANCHORING OF SOME TYPE SUCH AS TACKING, MATTING, CRIMPER PUNCHING, OR HYDRO-SEEDING TO PREVENT BLOWING OR WASHING AWAY.  
5. MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.

- EMBANKMENT REPAIR NOTES:**  
1. EMBANKMENT SHALL BE REBUILT FROM COMPACTED EARTHEN MATERIAL CONTAINING MINIMAL ORGANIC MATERIAL AND SHALL COMPLY WITH SPECIFICATION SECTION 204 "EMBANKMENT CONSTRUCTION".  
2. BEFORE EARTHWORK, VEGETATION SHALL BE STRIPPED FROM THE EMBANKMENT REPAIR AREA AND BORROW AREA. TOP SOIL SHALL BE RESPREAD OVER THE EMBANKMENT AND BORROW AREA AFTER FINISH GRADES HAVE BEEN MET. IF A TRM IS PRESENT IN THE AREA OF REPAIR, EMBANKMENT TOPSOIL WORK IS NOT REQUIRED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION."  
3. EMBANKMENT FILL SHALL BE PLACED IN LIFTS OF NO MORE THAN 8" AND COMPACTED PRIOR TO PLACING SUBSEQUENT LIFTS. THE ADDITION OF WATER TO EMBANKMENT FILL MAY BE REQUIRED TO ACHIEVE ADEQUATE COMPACTION. WATER ADDED TO FILL MATERIAL WILL BE CONSIDERED BID ITEM "WATER".  
4. DEWATERING OF WORK AREAS, IF REQUIRED, SHALL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION"  
5. THE BORROW AREA SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER ALL BORROW MATERIAL HAS BEEN REMOVED AND TOPSOIL HAS BEEN PLACED. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".  
6. MATERIAL HAUL ROUTES SHALL BE KEPT TO A MINIMUM TO AVOID UNNECESSARY SOIL AND VEGETATION DISTURBANCE. ALL HAUL ROUTES SHALL BE DISKED WITH ONE PASS OF A FINISHING DISK AFTER PROJECT COMPLETION. THIS WILL BE CONSIDERED INCIDENTAL TO BID ITEM "SITE PREPARATION".

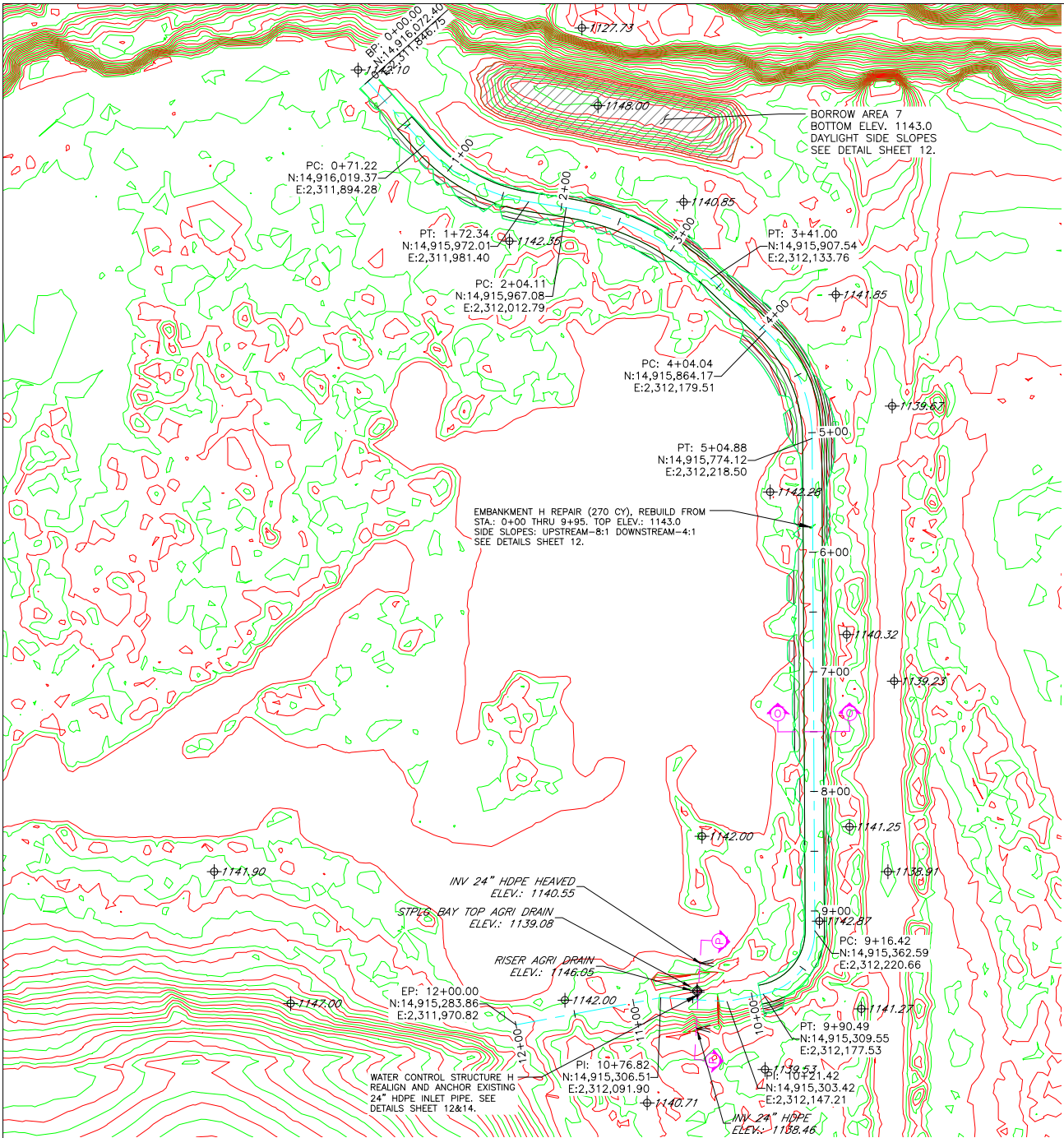


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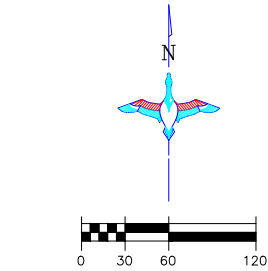
**GENERAL NOTES**

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- 2018 1 METER RESOLUTION AERIAL IMAGERY IS SHOWN.
- ITALICIZED TEXT DENOTES EXISTING FEATURE OR EXISTING ELEVATION.
- SPOT ELEVATIONS INDICATED BY  $\phi$  XXXX.X ARE RANDOMLY LOCATED AND ARE BASED ON SURFACE MODEL ELEVATIONS.





EMBANKMENT H PLAN  
SCALE 1" = 60'



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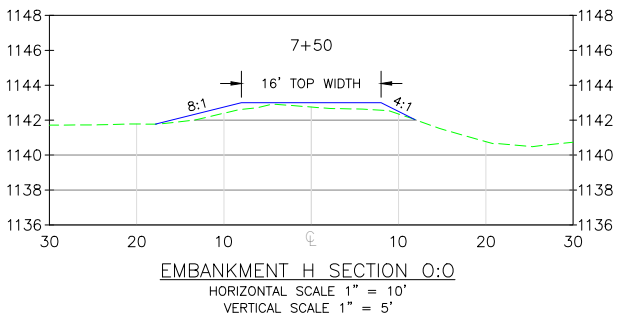
2. BEFORE EARTHWORK, VEGETATION SHALL BE STRIPPED FROM THE EMBANKMENT REPAIR AREA AND BORROW AREA. TOP SOIL SHALL BE RESPREAD OVER THE EMBANKMENT AND BORROW AREA AFTER FINISH GRADES HAVE BEEN MET. IF A TRM IS PRESENT IN THE AREA OF REPAIR, EMBANKMENT TOPSOIL WORK IS NOT REQUIRED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO "SITE PREPARATION."

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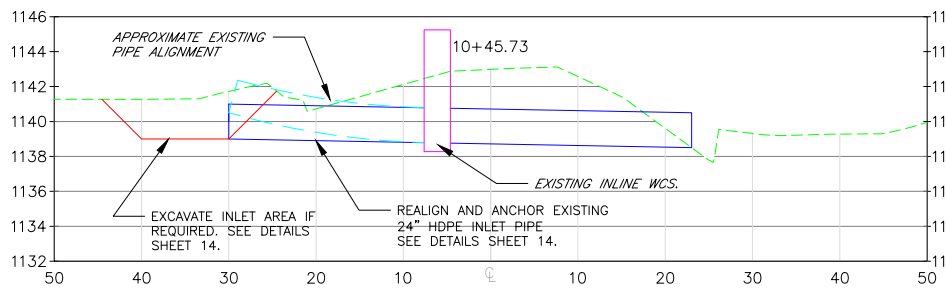
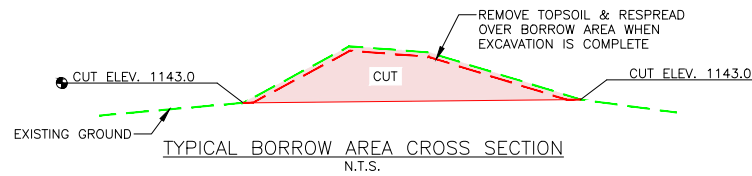
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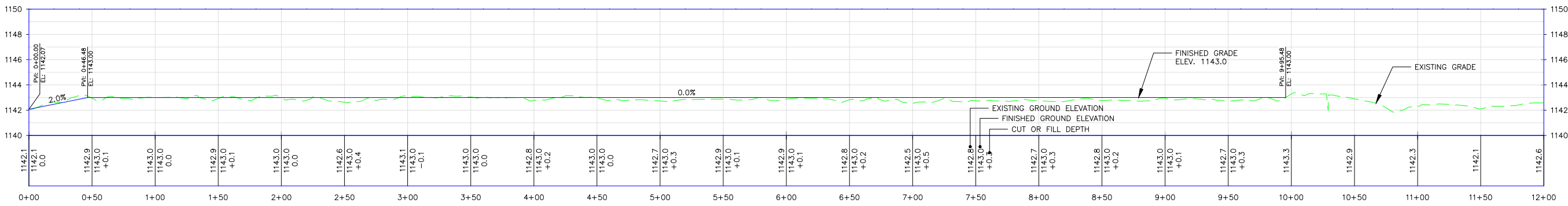
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EMBANKMENT H SECTION 0+0  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



EMBANKMENT H SECTION P:P  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'



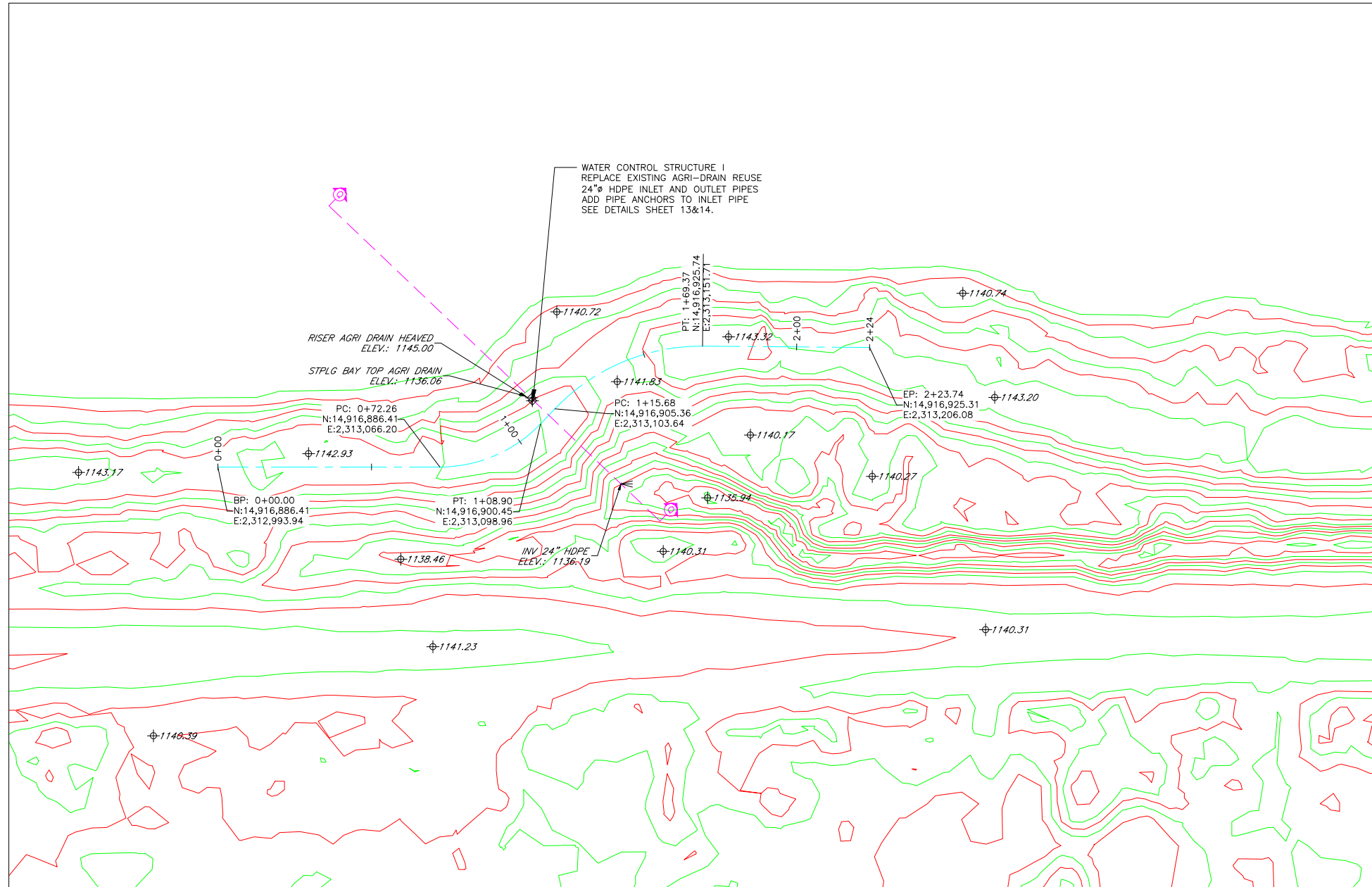
EMBANKMENT H REPAIR PROFILE  
HORIZONTAL SCALE 1" = 40'  
VERTICAL SCALE 1" = 4'

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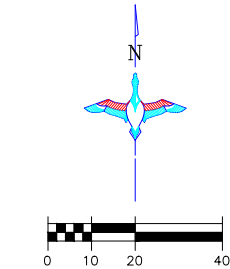
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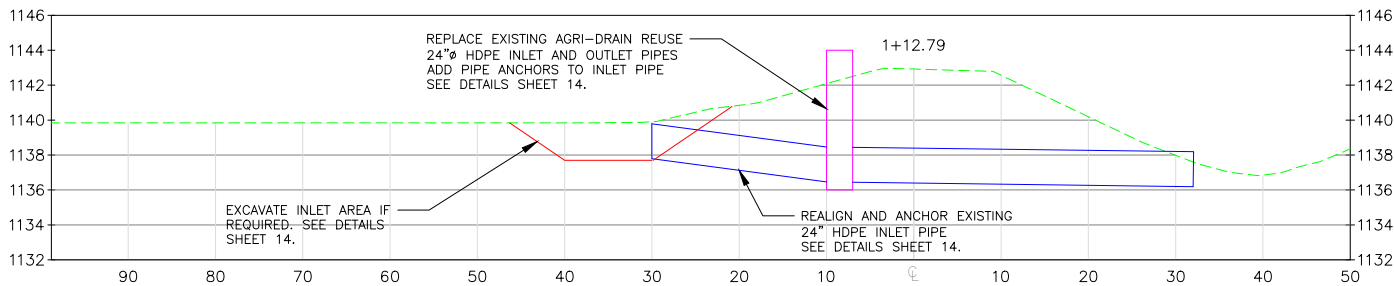


EMBANKMENT I PLAN  
SCALE 1" = 20'



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EMBANKMENT I SECTION Q:Q  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 5'

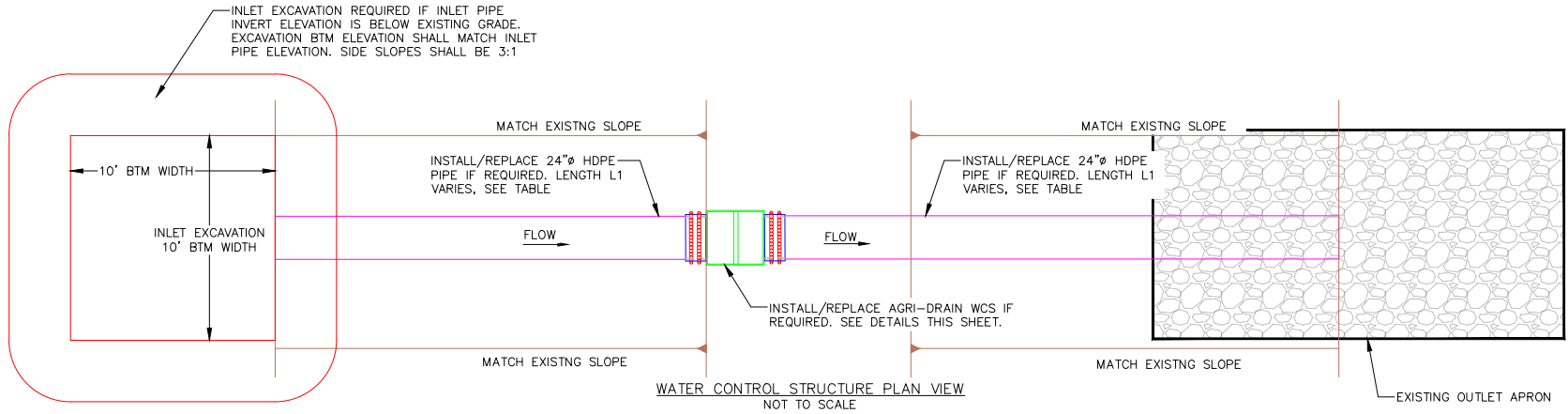
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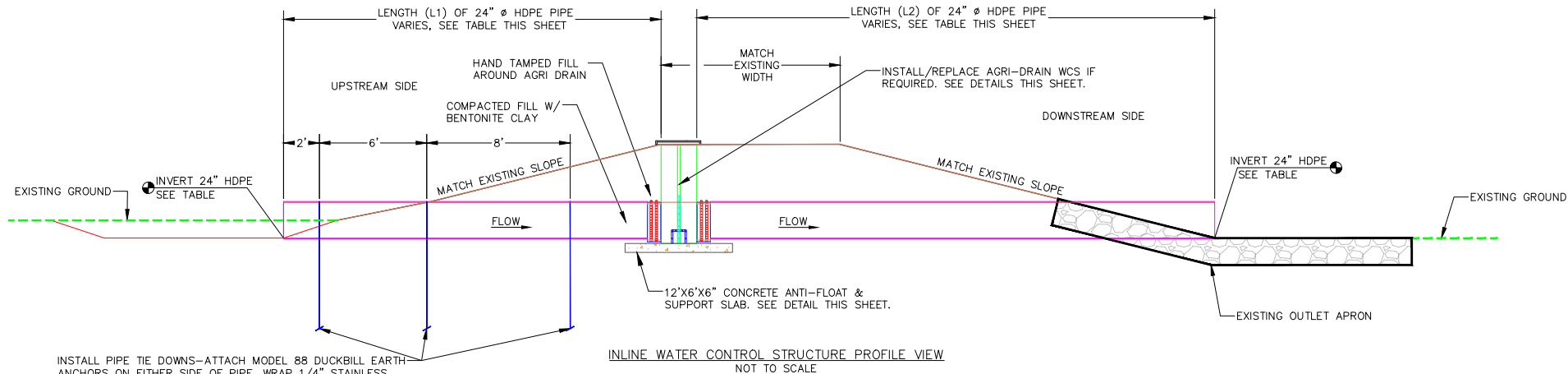
 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA	DRAWN BY: CC/CR
	WCS I REPAIR	SURVEYED BY: BAC
		CHECKED BY: MMM
DATE: 4/14/2025	SHEET NO. 13 OF 14	APPROVED BY:





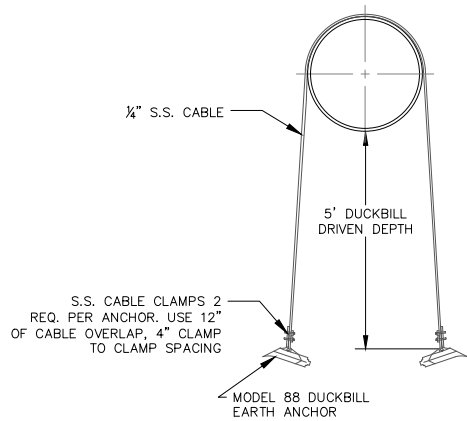
AGRI DRAIN INLINE WATER CONTROL STRUCTURE TABLE								
WCS/EMB	WCS HEIGHT (FT.)	UPSTREAM PIPE LENGTHS (FT.)	DOWNSIDE PIPE LENGTHS (FT.)	UPSTREAM PIPE INVERTS	DOWNSIDE PIPE INVERTS	PIPE MATERIAL	INLET PIPE REQUIRED ANCHOR PAIRS	INLET EXCAVATION REQUIRED
B	8*	20*	80*	1158.00*	1154.00*	24"Ø DUAL-WALL HDPE	3	YES
C	8*	28	150	1142.50*	NO ELEV.	24"Ø DUAL-WALL HDPE	3	NO
F	8	16	50*	NO ELEV.	1137.30*	24"Ø DUAL-WALL HDPE	0	NO
G	8	20	28	1138.50*	1138.38	24"Ø DUAL-WALL HDPE	3	YES
H	8	20	28	1139.00*	1138.46	24"Ø DUAL-WALL HDPE	3	YES
I	8*	20	40	1137.80*	1136.19	24"Ø DUAL-WALL HDPE	3	YES

NOTE: AN ASTERISK ON WCS HEIGHT OR PIPE LENGTH INDICATE THE COMPONENT SHALL BE REMOVED AND REPLACED WITH NEW. AN ASTERISK ON PIPE INVERTS INDICATE THAT THE EXISTING PIPE SHALL BE RESET (ALIGNED AND ANCHORED).



#### STRUCTURE INSTALLATION/REPAIR NOTES:

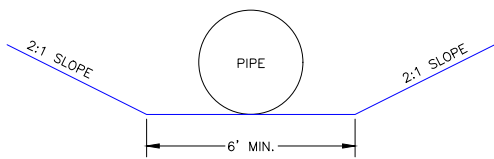
1. WATER CONTROL STRUCTURE BASE, INLET AND OUTLET PIPE SHALL BE PLACED ON A LEVEL SURFACE OF COMPACTED SOIL.
2. LEVEL STRUCTURE VERTICALLY PRIOR TO PLACING BACKFILL. BACKFILL AROUND STRUCTURE BY HAND IN 6" LIFTS. HAND TAMP ONLY.
3. BENTONITE CLAY SHALL BE MIXED WITH BACKFILL MATERIAL AROUND WCS AND PIPE TO PROVIDE A WATER TIGHT SEAL. TEN FIFTY POUND BAGS PER STRUCTURE IS REQUIRED. COST FOR CLAY AND INSTALLATION SHALL BE INCIDENTAL TO "WATER CONTROL STRUCTURES".
4. COST OF SUPPLY AND LABOR PERTAINING TO STRUCTURES, PIPES, ANCHORS, APPURTENANCES, AND EXCAVATION OF THE INLET SHALL BE PAID UNDER BID ITEM "WATER CONTROL STRUCTURES".
5. INLET EXCAVATIONS SHALL BE 10'x10' WITH 3:1 SIDE SLOPES UNLESS OTHERWISE SPECIFIED. MATERIALS FROM THE INLET EXCAVATIONS SHALL BE SPOILED IN THE ADJACENT BORROW/SPOIL AREA. IF NO AREA IS IDENTIFIED ON THE PLANS AN AREA SHALL BE SPECIFIED BY A DU FIELD ENGINEER.
6. AGRI DRAIN PVC STOP LOGS SHALL BE WATERTIGHT AND PROVIDED BY SUPPLIER.
7. AGRI DRAIN CORP. TELEPHONE NUMBER IS 1-800-232-4742 SPECIFY SIZE AND TYPE OF PIPE WHEN ORDERING. ORDER BASE EXTENSION TO ALLOW ANCHORING TO CONCRETE SLAB.
8. AGRI DRAIN WATER CONTROL STRUCTURES HAVE A METAL BOTTOM BRACE THAT SHALL BE EMBEDDED INTO CONCRETE SLAB.
9. THE AGRI DRAIN WATER CONTROL STRUCTURES SHALL BE ORDERED WITH A METAL LID, THE STANDARD PLASTIC LID IS NOT ALLOWED.



#### NOTES:

1. REQ'D ON L1 SECTIONS AS SPECIFIED (SEE TABLE). INSTALL ANCHOR 2' FROM END OF PIPE, 6' C-C ON EXPOSED PIPE, AND 8' C-C ON BURIED PIPE.
2. DUCKBILL EARTH ANCHORS MAY COME WITH CABLES ATTACHED. IF EXTRA LENGTH IS REQUIRED, INSTALL (2) S.S. CABLE CLAMPS AS SHOWN. U-BOLT MUST GO OVER THE TAIL END OF THE CABLE.
3. INSTALL ANCHORS ACCORDING TO MANUFACTURES RECOMMENDATIONS.

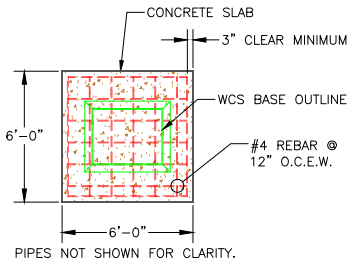
INLET PIPE ANCHOR PAIR DETAIL  
NOT TO SCALE



PIPE TRENCH DETAIL  
NOT TO SCALE

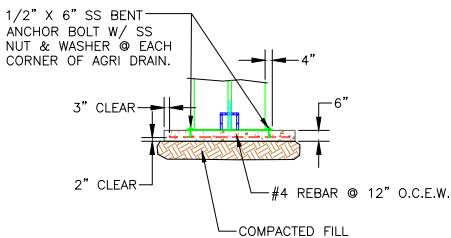
#### STRUCTURAL CONCRETE NOTES

1. CONCRETE,  $f_y = 4000$  psi
2. REINFORCEMENT, A615, GRADE 60  $f_y = 60,000$  psi
3. ALL REINFORCING STEEL SHALL BE LAPPED IN ACCORDANCE WITH ACI STANDARD 318-95 (36 BAR DIAMETERS MINIMUM)



WATER CONTROL STRUCTURE  
CONCRETE SLAB PLAN

SCALE: 1"=4'




WATER CONTROL STRUCTURE  
CONCRETE SLAB PROFILE

SCALE: 1"=4'

SEED MIX TABLE-GRASS	
GRASS SPECIES	PERCENTAGE
SWITCHGRASS	40-45%
BIG BLUESTEM	18-22%
INDIANGRASS	18-22%
SIDEOUTS GRAMA	8-12%
SLENDER WHEATGRASS	2-5%
CANAD WILDRIE	2-5%

SEEDING AREA TABLE				
AREA	ACRES	MIN. QTY. SEED DRILLED (LB)	MIN. QTY. SEED BROADCAST (LB)	MIN. QTY. MULCH APPLIED (LB)
EMBANKMENT A	0.19	2.9	4.8	380
EMBANKMENT B	0.82	12.3	20.5	1640
EMBANKMENT C	0.06	0.9	1.5	120
EMBANKMENT D	0.05	0.8	1.3	100
EMBANKMENT E	0.13	2.0	3.3	260
EMBANKMENT F	0.25	3.8	6.3	500
EMBANKMENT G	0.50	7.5	12.5	1000
EMBANKMENT H	0.59	8.9	14.8	1180
WCS I	0.03	0.5	0.8	60
BORROW AREA 1	0.29	4.4	7.3	580
BORROW AREA 2	0.09	1.4	2.3	180
BORROW AREA 3	0.06	0.9	1.5	120
BORROW AREA 4	0.18	2.7	4.5	360
BORROW AREA 5	0.12	1.8	3.0	240
BORROW AREA 6	0.17	2.6	4.3	340
BORROW AREA 7	0.24	3.6	6.0	480
SPOIL AREA 1	0.15	2.3	3.8	300
SPOIL AREA 2	0.02	0.3	0.5	40
TOTALS:	3.94	59.6	99.0	7880

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 <b>DUCKS UNLIMITED</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. NE-033-3	DESIGNED BY: CDC
	JACK SINN WMA WATER CONTROL STRUCTURE AND SEEDING DETAILS	DRAWN BY: CC/CR SURVEYED BY: BAC CHECKED BY: MMM
DATE: 4/14/2025	SHEET NO. 14 OF 14	APPROVED BY: .

K:\Land Projects\NE-33-3 Jack Sinn WMA\Final\NE-33-3 Jack Sinn\_Final.dwg