

IOWA DEPARTMENT OF NATURAL RESOURCES



BLUE LAKE FISH BARRIER SYSTEM

MONONA COUNTY, IOWA IDNR PROJECT #14-01-67-02

I hereby certify that this plan was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Dale Schlautman 2/12/15
(signature) (date)

Dale Schlautman
License number 16235
My license renewal date is December 31, 2015
Pages or sheets covered by this seal:
Sheets 1 - 11

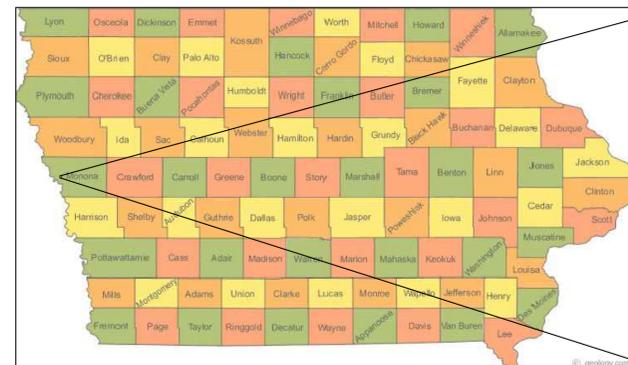


IMAGE SOURCE: WWW.GEOLOGY.COM

STATE MAP
NOT TO SCALE



IMAGE SOURCE: WWW.GOOGLEMAPS.COM

LOCAL AREA MAP
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AERIAL SOURCE: GOOGLE EARTH

VICINITY MAP
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AUTHORIZATION TO BID

AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY

ENGINEERING BUREAU CHIEF _____ DATE _____

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**BLUE LAKE SYSTEM
FISH BARRIER SYSTEM
MONONA COUNTY, IOWA**

COVER SHEET



EA ENGINEERING,
SCIENCE, AND
TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	JRM
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	COVER SHEET.DWG
DRAWING NUMBER	G-001
SHEET NUMBER	1 OF 11

FILE PATH: F:\STATE & LOCAL\STATE\IOWA\DEPT OF NATURAL RESOURCES\PROJECTS\1515501 - BLUE LAKE\FIGURES\COVER SHEET.DWG [COVER SHEET] 8/13/14 (rev)

GENERAL CONSTRUCTION NOTES:

- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AS REQUIRED.
- TOPOGRAPHIC CONTOURS, SITE FEATURES, BATHYMETRIC DATA AND ASSOCIATED CONTOURS SHOWN ARE BASED UPON A SITE SURVEY PERFORMED BY EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC ON 5TH JUNE, 2014.
- ALL TOPOGRAPHIC AND BATHYMETRIC ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). ALL HORIZONTAL LOCATIONS ARE REFERENCED TO IOWA NORTH STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD 83).
- HORIZONTAL LAYOUT OF SITE IMPROVEMENTS WILL BE PROVIDED BY ENGINEER IN ELECTRONIC FORMAT AS DESCRIBED IN THE SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING IN PLACE ALL ACTIVE UTILITY STRUCTURES (BOTH BELOW AND ABOVE GROUND), PIPING, AND APPURTENANCES THAT ARE TO REMAIN IN PLACE UNLESS SPECIFIED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING AND CLEANING UP DUST AND MUD ON ALL ROADS DUE TO VEHICLES ARRIVING AND LEAVING THE JOB SITE AS PART OF THIS WORK.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK THAT WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CORRECTIONS OR ADJUSTMENTS MADE WITHOUT NOTIFYING THE ENGINEER.
- EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. LOCATION, CONFIGURATIONS, AND ELEVATIONS OF EXISTING UNDERGROUND POWER, TELEPHONE, FIBER OPTIC CABLE, DUCT WAYS, SPRINKLER SYSTEMS, SEPTIC SYSTEMS, AND WATER, GAS, AND SEWER SERVICE LINES MAY NOT ALL BE INDICATED. OTHER UTILITIES AND STRUCTURES MAY BE PRESENT. UNDERGROUND LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND STRUCTURES, AS FURNISHED BY THE OWNER OF EACH UTILITY OR STRUCTURE, ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN IN PROFILE.
- JOB SAFETY SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
- RESTORE ANY EXISTING STRUCTURES THAT ARE DISTURBED, DAMAGED, OR REMOVED BY CONSTRUCTION TO THEIR ORIGINAL LOCATION AND CONDITION.
- SEED ALL DISTURBED AREAS ABOVE THE PROPOSED WATER ELEVATION IN ACCORDANCE WITH SPECIFICATIONS.
- STAY WITHIN LIMITS OF DISTURBANCE AS SHOWN ON THE DRAWINGS, OR IF NOT SHOWN, ALL LIMITS OF DISTURBANCE SHALL EXTEND 10 FEET FROM PROPOSED WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR A FINAL AS-BUILT SURVEY OF FINISHED GRADES AS REQUIRED IN THE TECHNICAL SPECIFICATIONS. THE ENGINEER WILL PROVIDE CONSTRUCTION STAKING.

BASE POLLUTION PREVENTION PLAN:

THIS BASE POLLUTION PREVENTION PLAN (PPP) INCLUDES INFORMATION ON ROLES AND RESPONSIBILITIES, PROJECT SITE DESCRIPTION, CONTROLS, MAINTENANCE PROCEDURES, INSPECTION REQUIREMENTS, NON-STORM WATER CONTROLS, POTENTIAL SOURCES OF OFF SITE POLLUTION, AND DEFINITIONS. THIS PLAN REFERENCES OTHER DOCUMENTS RATHER THAN REPEATING THE INFORMATION CONTAINED IN THE DOCUMENTS. A COPY OF THIS BASE POLLUTION PREVENTION PLAN, AMENDED AS NEEDED PER PLAN REVISIONS OR BY CONTRACT MODIFICATION, WILL BE READILY AVAILABLE FOR REVIEW. ALL CONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT CONTROLS POLLUTANTS, MINIMIZES EROSION, AND PREVENTS SEDIMENTS FROM ENTERING WATERS OF THE STATE AND LEAVING THE PROJECT SITE. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE PPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP.

I. ROLES AND RESPONSIBILITIES

- ENGINEER:
 - PREPARES BASE PPP INCLUDED IN THE DRAWINGS.
 - MAKE THESE PLANS AVAILABLE TO THE DNR UPON THEIR REQUEST.
 - REVIEW CONTRACTOR'S INSPECTION REPORTS.
- CONTRACTOR/SUBCONTRACTOR:
 - AFFECTED CONTRACTORS/SUBCONTRACTORS ARE CO-PERMITTEES AND WILL SIGN A CERTIFICATION STATEMENT ADHERING TO THE REQUIREMENTS OF THE NPDES PERMIT AND THIS PPP PLAN. ALL CO-PERMITTEES ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE IOWA ADMINISTRATIVE CODE TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS PPP.
 - MAINTAIN AN UP-TO-DATE LIST THAT IDENTIFIES CONTRACTORS AND SUBCONTRACTORS AS CO-PERMITTEES.
 - PREPARE A STORM WATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THIS BASE PPP, THE TECHNICAL SPECIFICATIONS, AND NPDES GENERAL PERMIT NO. 2.
 - UPDATE PPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS FROM THE PROJECT.
 - PREPARES NOTICE OF INTENT (NOI) SUBMITTED TO IOWA DNR.
 - SIGNATURE AUTHORITY ON THE PPP AND NOI.
 - INSTALL AND MAINTAIN APPROPRIATE CONTROLS.
 - SUPERVISE AND IMPLEMENT GOOD HOUSEKEEPING PRACTICES.
 - CONDUCT REQUIRED INSPECTIONS OF THE SITE AND COMPLETE INSPECTION REPORT AFTER EACH INSPECTION.
 - SIGNATURE AUTHORITY ON CO-PERMITTEE CERTIFICATION STATEMENTS, STORM WATER INSPECTION REPORTS, AND NOTICE OF DISCONTINUATION (NOD).

II. PROJECT SITE DESCRIPTION

- THIS POLLUTION PREVENTION PLAN (PPP) IS FOR THE CONSTRUCTION OF FISH BARRIERS, CULVERTS, AND A SEDIMENT BASIN.
- THIS PPP COVERS APPROXIMATELY 6.3 ACRES WITH AN ESTIMATED 6.3 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 6.3 ACRES DISTURBED.
- THE PPP IS LOCATED IN AN AREA OF 1 SOIL ASSOCIATION ALBATON SILTY CLAY. THE ESTIMATED AVERAGE SCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 85.
- STORM WATER SITE MAP - MULTIPLE SOURCES OF INFORMATION COMPRISE THE BASE STORM WATER SITE MAP INCLUDING:
 - DRAINAGE PATTERNS - EXISTING CONDITIONS AND PLAN AND PROFILE SHEETS.
 - PROPOSED SLOPES - PLAN AND PROFILE SHEETS.
 - AREAS OF SOIL DISTURBANCE - CONSTRUCTION LIMITS SHOWN ON PLAN AND PROFILE SHEETS.
 - LOCATION OF STRUCTURAL CONTROLS - STAGING, ACCESS, AND SPOIL SHEET.
 - LOCATIONS OF NON-STRUCTURAL CONTROLS - STAGING, ACCESS, AND SPOIL SHEET.
 - LOCATIONS OF STABILIZATION PRACTICES - GENERALLY WITHIN CONSTRUCTION LIMITS SHOWN ON PLAN AND PROFILE SHEETS.
 - SURFACE WATERS (INCLUDING WETLANDS) - EXISTING CONDITIONS AND PLAN AND PROFILE SHEETS.
 - LOCATIONS WHERE STORM WATER IS DISCHARGED - EXISTING CONDITIONS AND PLAN AND PROFILE SHEETS.
- THE BASE SITE MAP IS AMENDED BY CONTRACT MODIFICATIONS AND PROGRESS PAYMENTS OF COMPLETED WORK.
- RUNOFF FROM THIS WORK WILL FLOW INTO BLUE LAKE AND STORM WATER DITCHES NEAR THE MISSOURI RIVER.

III. CONTROLS

- THE CONTRACTOR'S PPP SHOULD CLEARLY DESCRIBE THE INTENDED SEQUENCE OF MAJOR ACTIVITIES AND FOR EACH ACTIVITY DEFINE THE CONTROL MEASURE AND THE TIMING DURING THE CONSTRUCTION PROCESS THAT THE MEASURE WILL BE IMPLEMENTED.
- PRESERVE VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION.
- THE TECHNICAL SPECIFICATIONS DEFINE REQUIREMENTS TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES. ACTUAL QUANTITIES OF SEDIMENT CONTROL MEASURES USED MAY VARY FROM THE DRAWINGS AND BASE PPP AND AMENDMENT OF THE PLAN WILL BE DOCUMENTED VIA FIELDBOOK ENTRIES OR BY CONTRACT MODIFICATION. ADDITIONAL EROSION AND SEDIMENT CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE INSPECTOR AND/OR CONTRACTOR DURING STORM WATER MONITORING INSPECTIONS. IF THE WORK INVOLVED IS NOT APPLICABLE TO ANY CONTRACT ITEMS, THE WORK WILL BE SUBSIDIARY TO OTHER RELATED WORK ITEMS.
 - EROSION AND SEDIMENT CONTROLS
 - STABILIZATION PRACTICES
 - SITE PLANS WILL ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE ATTAINABLE AND DISTURBED PORTIONS OF THE SITE WILL BE STABILIZED.
 - STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.
 - TEMPORARY STABILIZING SEEDING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST 21 DAYS, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING TIME PERIOD.
 - STRUCTURAL PRACTICES
 - STRUCTURAL PRACTICES WILL BE IMPLEMENTED TO DIVERT FLOWS FROM EXPOSED SOILS AND DETAIN OR OTHERWISE

ESTIMATED QUANTITIES:

BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY	BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY
1	MOBILIZATION/DEMOLITION	LS	1	9	SOUTH OUTLET CONCRETE STRUCTURE	LS	1
2	NPDED PERMITTING AND PPP	LS	1	10	WEST OUTLET CONCRETE STRUCTURE	LS	1
3	DEWATERING	LS	1	11	NEBOWA BAY INLET CONCRETE STRUCTURE	LS	1
4	PERMEABLE ROCK BARRIER RIPRAP	TON	1,840	12	WEST OUTLET 3' X 3' CULVERT	LF	33
	SOUTH OUTLET PERMEABLE ROCK BARRIER	TON	530	13	NEBOWA BAY INLET 3' X 4' CULVERT	LF	33
	WEST OUTLET PERMEABLE ROCK BARRIER	TON	255	14	TRAVELLING WATER SCREEN	EA	1
	NEBOWA BAY INLET PERMEABLE ROCK BARRIER	TON	1,055	15	ELECTRIC SERVICE	LS	1
5	PERMEABLE ROCK BARRIER 3 INCH ROCK	TON	130	16	EXCAVATION AND SPOIL	CY	15,820
6	GEOGRID FABRIC	SY	1,840		WEST OUTLET PERMEABLE ROCK BARRIER	CY	200
	SOUTH OUTLET PERMEABLE ROCK BARRIER	SY	400		NEBOWA BAY	CY	15,620
	WEST OUTLET PERMEABLE ROCK BARRIER	SY	230	17	FILL	CY	280
	NEBOWA BAY INLET PERMEABLE ROCK BARRIER	SY	710		SOUTH OUTLET PERMEABLE ROCK BARRIER	CY	150
	NEBOWA BAY ACCESS RAMPS	SY	500		CHURCH CAMP ROAD	CY	50
7	RIPRAP APRONS	EA	3		NEBOWA BAY ACCESS RAMPS	CY	80
	SOUTH OUTLET APRON	TON	23	18	ROAD GRAVEL	TON	30
	WEST OUTLET APRON	TON	23	19	CLEARING AND GRUBBING	AC	0.3
	NEBOWA BAY INLET APRON	TON	23	20	SEEDING DISTURBED AREAS	AC	3.2
8	CRUSHED ROCK BASE	TON	205	21	SEEDING WETLANDS	AC	1.5
	SOUTH OUTLET PERMEABLE ROCK BARRIER	TON	60	22	FLOATING SILT CURTAIN	EA	1
	WEST OUTLET PERMEABLE ROCK BARRIER	TON	35	23	SILT FENCE	LF	2,850
	NEBOWA BAY INLET PERMEABLE ROCK BARRIER	TON	110				

- LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE.
- STRUCTURAL ITEMS TO BE USED FOR THIS PROJECT ARE LOCATED ON THE STAGING, ACCESS, AND SPOIL SHEET AND TECHNICAL SPECIFICATIONS. TYPICAL DRAWINGS DETAILING CONSTRUCTION OF THE DEVICES TO BE USED ON THIS PROJECT CAN BE FOUND ON DETAILS I SHEET OF THE DRAWINGS.
- STORM WATER MANAGEMENT
 - MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. THE INSTALLATION OF THESE DEVICES MAY BE SUBJECT TO SECTION 404 OF THE CLEAN WATER ACT.
- OTHER CONTROLS
 - CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.
 - VEHICLE ENTRANCES AND EXITS - CONSTRUCT AND MAINTAIN ENTRANCES AND EXITS TO PREVENT TRACKING OF SEDIMENTS ONTO ROADWAYS.
 - MATERIAL DELIVERY, STORAGE AND USE - IMPLEMENT PRACTICES TO PREVENT DISCHARGE OF CONSTRUCTION MATERIALS DURING DELIVERY, STORAGE, AND USE.
 - STOCKPILE MANAGEMENT - INSTALL CONTROLS TO REDUCE OR ELIMINATE POLLUTION OF STORM WATER FROM STOCKPILES OF SOIL AND PAVING.
 - WASTE DISPOSAL - DO NOT DISCHARGE ANY MATERIALS, INCLUDING BUILDING MATERIALS, INTO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
 - SPILL PREVENTION AND CONTROL - IMPLEMENT PROCEDURES TO CONTAIN AND CLEAN-UP SPILLS AND PREVENT MATERIAL DISCHARGES TO THE STORM DRAIN SYSTEM AND WATERS OF THE STATE.
 - CONCRETE RESIDUALS AND WASHOUT WASTES - DESIGNATE TEMPORARY CONCRETE WASHOUT FACILITIES FOR RINSING OUT CONCRETE TRUCKS. PROVIDE DIRECTIONS TO TRUCK DRIVERS WHERE DESIGNATED WASHOUT FACILITIES ARE LOCATED.
 - VEHICLE AND EQUIPMENT CLEANING - EMPLOY WASHING PRACTICES THAT PREVENT CONTAMINATION OF SURFACE AND GROUND WATER FROM WASH WATER.
 - VEHICLE AND EQUIPMENT FUELING AND MAINTENANCE - PERFORM ON SITE FUELING AND MAINTENANCE IN ACCORDANCE WITH ALL ENVIRONMENT LAWS SUCH AS PROPER STORAGE OF ONSIDE FUELS AND PROPER DISPOSAL OF USED ENGINE OIL OR OTHER FLUIDS ON SITE.
 - LITTER MANAGEMENT - ENSURE EMPLOYEES PROPERLY DISPOSE OF LITTER.
 - APPROVED STATE OR LOCAL PLANS
 - DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

IV. MAINTENANCE PROCEDURES

- THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. THIS SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.
- INSPECTION REQUIREMENTS
 - INSPECTIONS SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT THAT IS 1/2" OR GREATER. STORM WATER MONITORING INSPECTIONS WILL INCLUDE:
 - DATE OF THE INSPECTION.
 - SUMMARY OF THE SCOPE OF THE INSPECTION.
 - NAME AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION.
 - RAINFALL AMOUNT.
 - REVIEW EROSION AND SEDIMENT CONTROL MEASURES WITHIN DISTURBED AREAS FOR THE EFFECTIVENESS IN PREVENTING IMPACTS TO RECEIVING WATERS.
 - MAJOR OBSERVATIONS RELATED TO THE IMPLEMENTATION OF THE PPP.
 - IDENTIFY CORRECTIVE ACTIONS REQUIRED TO MAINTAIN OR MODIFY EROSION AND SEDIMENT CONTROL MEASURES.
 - INCLUDE STORM WATER MONITORING INSPECTION REPORTS IN THE AMENDED PPP. INCORPORATE ANY ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DETERMINED AS A RESULT OF THE INSPECTION. IMMEDIATELY BEGIN CORRECTIVE ACTIONS ON ALL DEFICIENCIES FOUND AND COMPLETE ALL ACTIONS WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

VI. NON-STORM WATER DISCHARGES

THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS) AND SLOPE DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE, EROSION STONE OR OTHER APPROPRIATE MATERIALS.

VII. POTENTIAL SOURCES OF OFF SITE POLLUTION

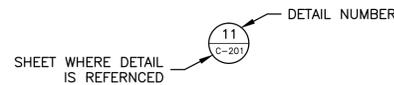
SILTS, SEDIMENT, AND OTHER FORMS OF POLLUTION MAY BE TRANSPORTED ONTO THE PROJECT SITE AS A RESULT OF A STORM EVENT. POTENTIAL SOURCES OF POLLUTION LOCATED OUTSIDE THE PROJECT SITE ARE BEYOND THE CONTROL OF THIS PPP. POLLUTION WITHIN THE PROJECT SITE WILL BE CONVEYED AND CONTROLLED PER THIS PPP.

VIII. DEFINITIONS

- BASE PPP - INITIAL POLLUTION PREVENTION PLAN.
- AMENDED PPP - MAY INCLUDE PLAN REVISIONS OR CONTRACT MODIFICATIONS FOR NEW ITEMS AND FIELDBOOK ENTRIES MADE BY THE INSPECTOR.
- CONTROLS - METHODS, PRACTICES, OR MEASURES TO MINIMIZE OR PREVENT EROSION, CONTROL SEDIMENTATION, CONTROL STORM WATER, OR MINIMIZE CONTAMINANTS FROM OTHER TYPES OF WASTE OR MATERIALS.
- SIGNATURE AUTHORITY - REPRESENTATIVE FROM ENGINEER OR CONTRACTOR/SUBCONTRACTOR AUTHORIZED TO SIGN VARIOUS STORM WATER DOCUMENTS.

LEGEND:

- EXISTING CONTOURS
- FENCE
- EXISTING OVERHEAD POWERLINES
- EXISTING UNDERGROUND POWERLINES
- EXISTING PROPERTY LINE
- CONTROL POINT
- SIGN
- UTILITY POLE
- PROPOSED CONTOURS
- PROPOSED UNDERGROUND POWERLINE
- PROPOSED UTILITY POLE
- RIPRAP
- SPOILS AREA
- CONSTRUCTION ENTRANCE
- LIMITS OF DISTURBANCE
- SILT FENCE
- TEMPORARY ACCESS RAMP
- TEMPORARY EQUIPMENT STAGING/ MATERIAL STOCKPILE AREA
- WATER SURFACE ELEVATION
- DIRECTION FLOW ARROW
- DEWATERING DIVERSION
- EDGE OF WATER



ABBREVIATIONS:

A	AMPERE	NAD	NORTH AMERICAN DATUM
AC	ALTERNATING CURRENT	NAVD	NORTH AMERICAN VERTICAL DATUM
AF	AMPS FRAME	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
APPROX.	APPROXIMATE		
CMP	CORRUGATED METAL PIPE	O.C.	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
ALUM.	CONTINUOUS	PPP	POLLUTION PREVENTION PLAN
CP	CONTROL POINT	RCP	REINFORCED CONCRETE PIPE
CY	CUBIC YARDS	R.O.W.	RIGHT-OF-WAY
DIA.	DIAMETER	SF	SQUARE FEET
ELEV.	ELEVATION	TYP	TYPICAL
FT	FEET	USGS	UNITED STATES GEOLOGICAL SURVEY
FT BGS	FEET BELOW GROUND SURFACE	VAC	VOLTS ALTERNATING CURRENT
FVNR	FULL VOLTAGE NON-REVERSING	W.S.	WATER SURFACE
ID	INSIDE DIAMETER	Ø	DIAMETER
INV.	INVERT	"	INCHES
LF	LINEAR FEET	'	FEET
LOD	LIMITS OF DISTURBANCE	#	NUMBER
N/A	NOT AVAILABLE		

SEQUENCE OF CONSTRUCTION:

- PREPARATION AND APPROVAL OF REQUIRED SUBMITTALS
- LOCATE UTILITIES
- PREPARE STAGING AREAS AND EROSION CONTROL MEASURES
- DRAIN LAKE TO STRUCTURE INVERT BY REMOVING EXISTING STOP LOGS AT SOUTH AND WEST OUTLETS
- WORK AT NEBOWA BAY INLET AND NEBOWA BAY SEDIMENT BASIN SHALL NOT OCCUR BETWEEN MAY 1 AND SEPTEMBER 10.
- COMPLETE THE FOLLOWING WORK IN PHASES. PHASE 1: SOUTH OUTLET, PHASE 2: WEST OUTLET, PHASE 3: NEBOWA BAY INLET. NEBOWA BAY SEDIMENT BASIN EXCAVATION MAY OCCUR CONCURRENTLY WITH OTHER PHASES.
 - SANDBAG AND DEWATER
 - REMOVE EXISTING CMP CULVERT AND STRUCTURE
 - REMOVE EXISTING SHEET PILE FISH TRAP AND EXCAVATE EMBANKMENT
 - PRE-CAST CONCRETE BOX CULVERT
 - CAST-IN-PLACE CONCRETE STRUCTURE
 - RIPRAP APRON
 - INSTALL ELECTRICAL SERVICE AND TRAVELLING WATER SCREEN
 - SANDBAG CULVERT UPSTREAM OF NEBOWA BAY AND DIVERT WATER
 - EXCAVATION OF NEBOWA BAY SEDIMENT BASIN AND PLACEMENT OF SPOIL MATERIAL (POST HARVEST)
 - CONSTRUCT ALL PERMEABLE ROCK BARRIERS UPON COMPLETION OF NEBOWA BAY EXCAVATION
 - SEED AND MULCH DISTURBED AREAS
 - INSTALL STOP LOGS IN SOUTH OUTLET
 - DEMOLITION
 - REMOVE EROSION CONTROL MEASURES
 - RECORD DOCUMENTS

REVISIONS

DESCRIPTION

NO. DATE BY

NO. DATE BY

BLUE LAKE FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

ABBREVIATIONS, GENERAL NOTES, AND LEGEND

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC

221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE: FEBRUARY 2015

DESIGNED BY: LLR

DRAWN BY: JRM

CHECKED BY: JMT

PROJECT MANAGER: JMT

PROJECT NUMBER: 1515501

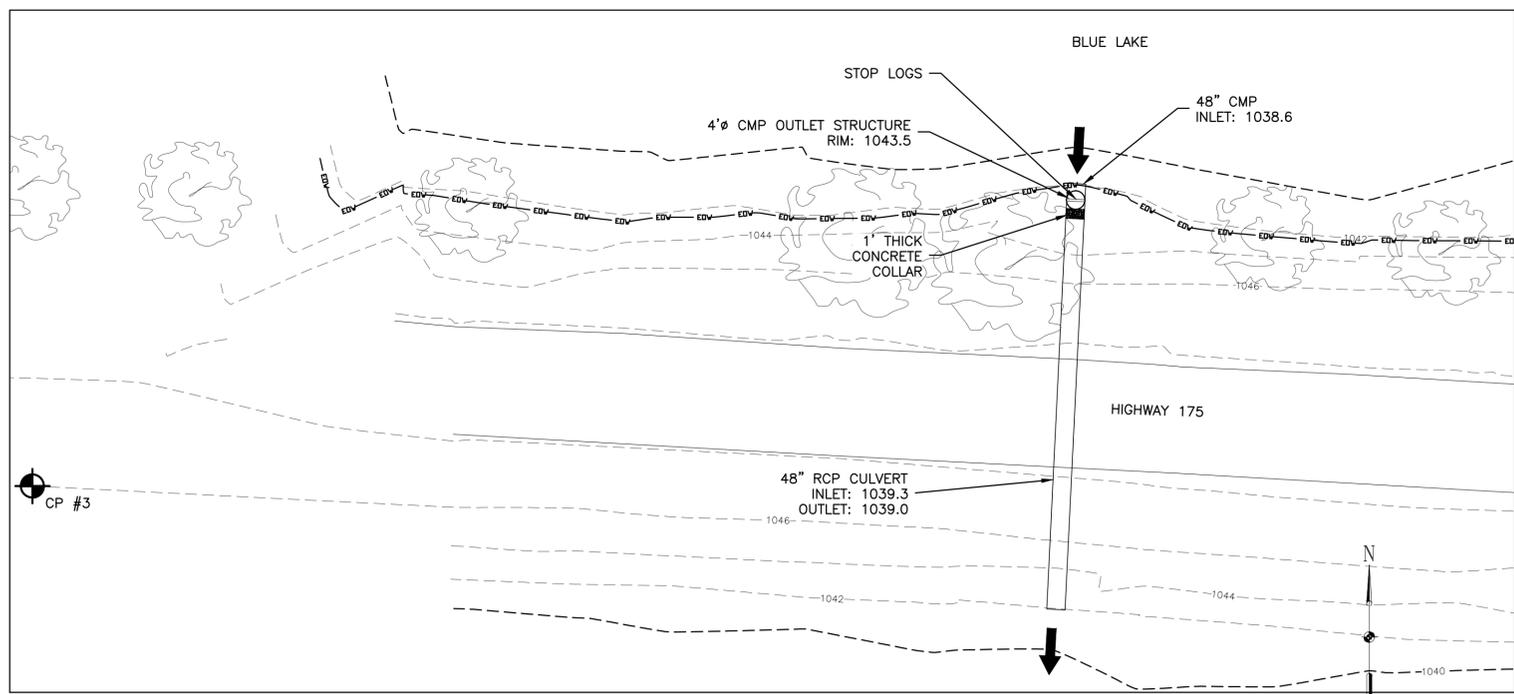
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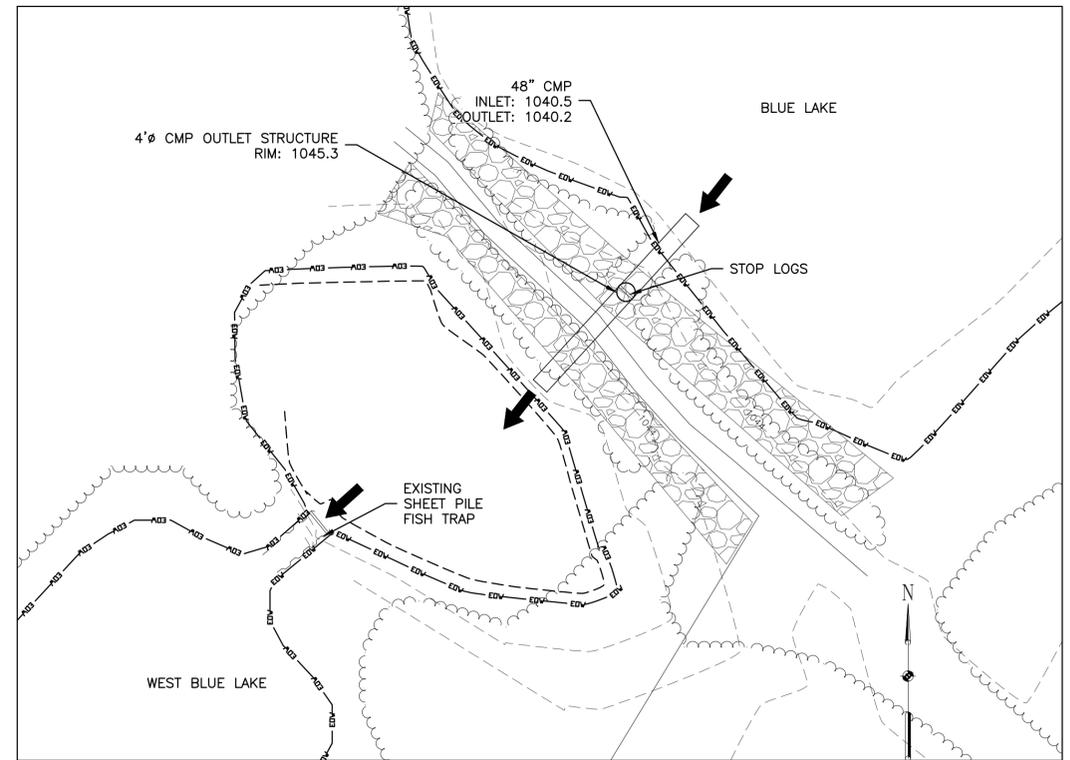
DRAWING NUMBER: G-002

SHEET NUMBER: 2 OF 11

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SOUTH OUTLET EXISTING CONDITIONS

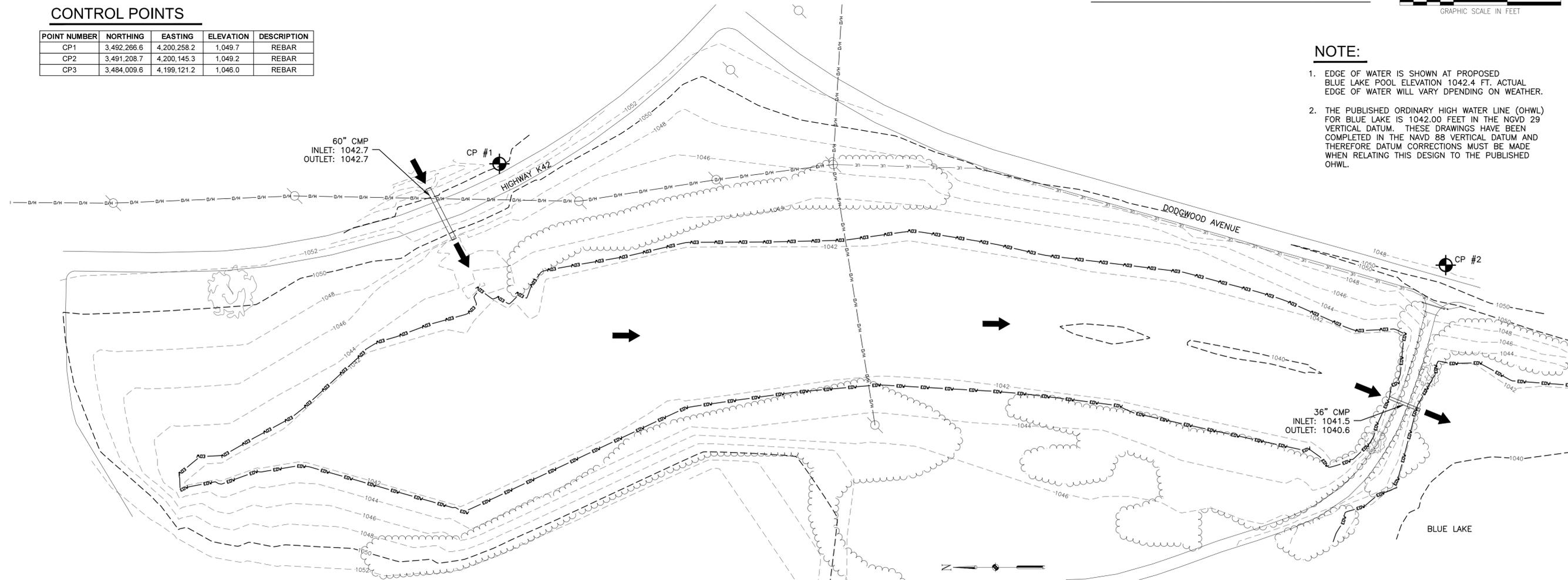


WEST OUTLET EXISTING CONDITIONS

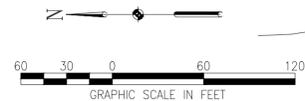


CONTROL POINTS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	3,492,266.6	4,200,258.2	1,049.7	REBAR
CP2	3,491,208.7	4,200,145.3	1,049.2	REBAR
CP3	3,484,009.6	4,199,121.2	1,046.0	REBAR



NEBOWA BAY EXISTING CONDITIONS



NOTE:

- EDGE OF WATER IS SHOWN AT PROPOSED BLUE LAKE POOL ELEVATION 1042.4 FT. ACTUAL EDGE OF WATER WILL VARY DEPENDING ON WEATHER.
- THE PUBLISHED ORDINARY HIGH WATER LINE (OHWL) FOR BLUE LAKE IS 1042.00 FEET IN THE NGVD 29 VERTICAL DATUM. THESE DRAWINGS HAVE BEEN COMPLETED IN THE NAVD 88 VERTICAL DATUM AND THEREFORE DATUM CORRECTIONS MUST BE MADE WHEN RELATING THIS DESIGN TO THE PUBLISHED OHWL.

REVISIONS

NO. DATE BY DESCRIPTION

BLUE LAKE FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

EXISTING CONDITIONS



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE: **FEBRUARY 2015**

DESIGNED BY: **LLR**

DRAWN BY: **JRM**

CHECKED BY: **JMT**

PROJECT MANAGER: **JMT**

PROJECT NUMBER: **1515501**

SCALE: **AS SHOWN**

FILE NAME: **EXISTING CONDITIONS.DWG**

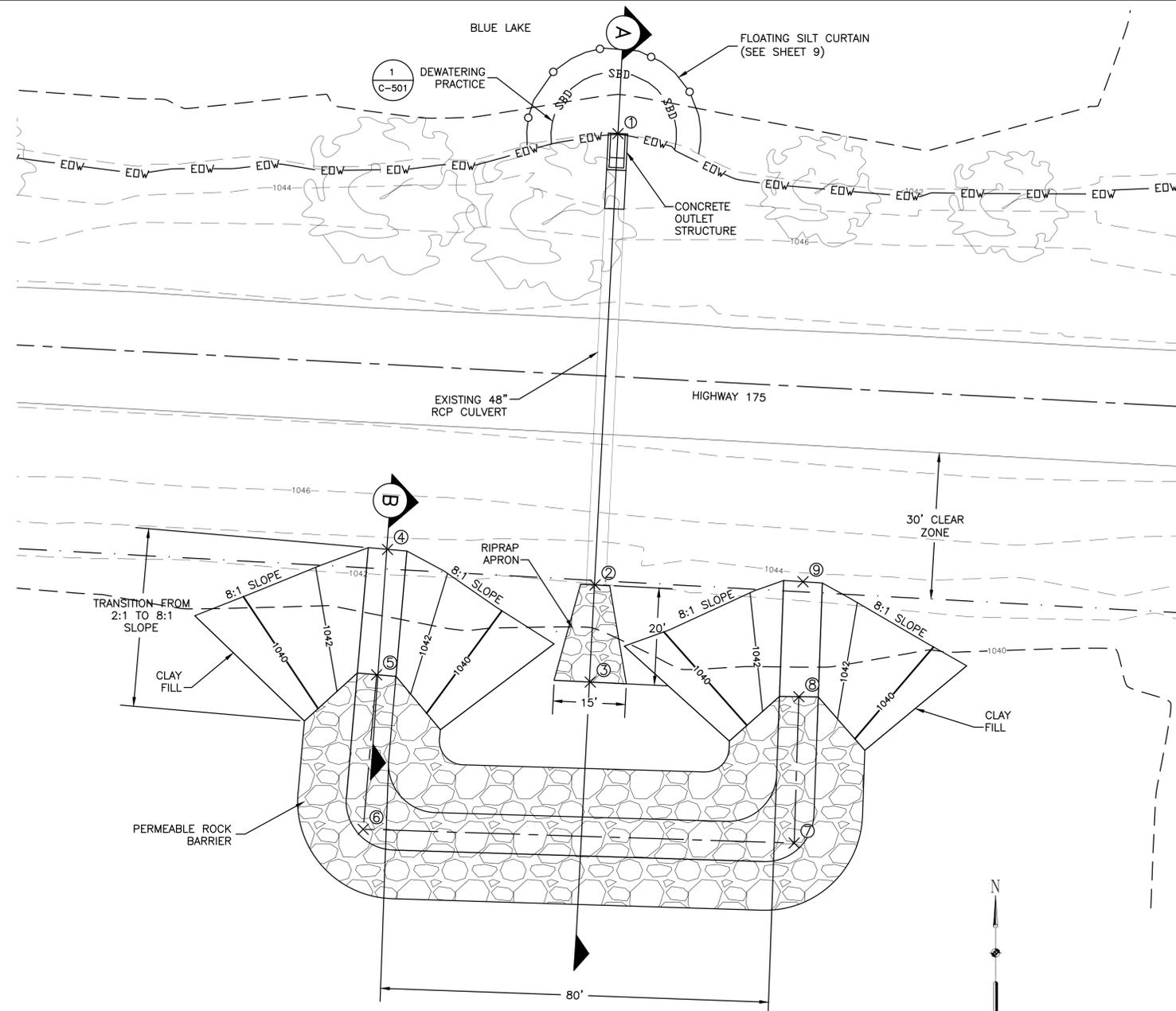
DRAWING NUMBER: **C-101**

SHEET NUMBER: **3 OF 11**

FILE PATH: F:\STATE & LOCAL\STATE\IOWA\DEPT OF NATURAL RESOURCES\PROJECTS\1515501 - BLUE LAKE\FIGURES\EXISTING CONDITIONS.DWG (EXISTING CONDITIONS) 7/21/14.rvt

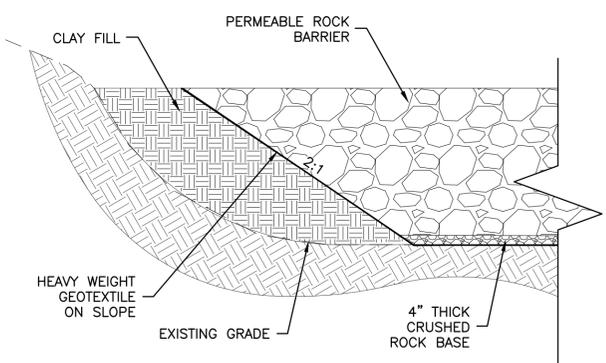
CONSTRUCTION STAKING

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	3,484,075.6	4,199,349.6	1,039.3	CONCRETE OUTLET STRUCTURE CENTERLINE
2	3,483,982.6	4,199,344.9	1,039.0	RIPRAP APRON CENTERLINE
3	3,483,962.7	4,199,343.9	1,039.0	RIPRAP APRON CENTERLINE
4	3,483,990.0	4,199,302.1	1,043.4	CLAY FILL DAYLIGHT
5	3,483,964.2	4,199,299.8	1,043.4	PERMEABLE ROCK BARRIER CENTERLINE
6	3,483,932.4	4,199,297.1	1,043.4	PERMEABLE ROCK BARRIER CENTERLINE
7	3,483,929.6	4,199,385.9	1,043.4	PERMEABLE ROCK BARRIER CENTERLINE
8	3,483,959.7	4,199,386.9	1,043.4	PERMEABLE ROCK BARRIER CENTERLINE
9	3,483,983.3	4,199,387.7	1,043.4	CLAY FILL DAYLIGHT

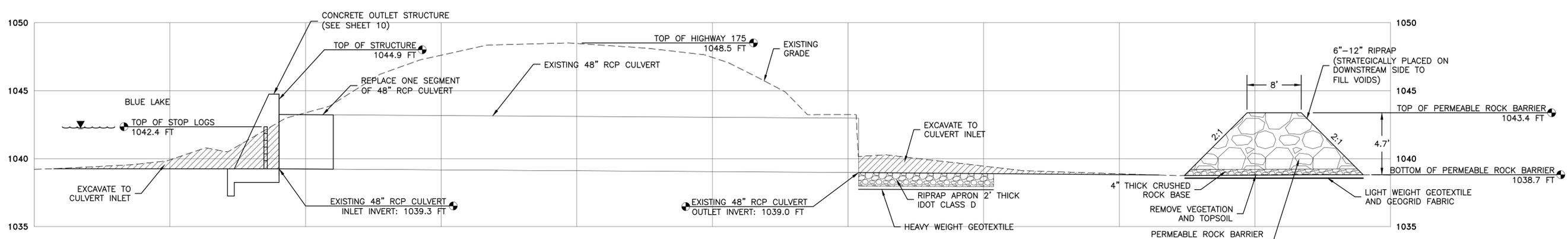


NOTES:

1. THE CONCRETE OUTLET STRUCTURE IS DESIGNED FOR A FUTURE TRAVELING WATER SCREEN TO BE INSTALLED BY OTHERS.
2. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION. DO NOT CLEAR TREES GREATER THAN 2 INCH DIAMETER WITHOUT ENGINEER APPROVAL.
3. ALL DISTURBED AREAS SHALL BE RE-SEEDED. CONTRACTOR SHALL OBTAIN PERMIT FOR WORK IN THE IOWA DEPARTMENT OF ROADS R.O.W. AND OBSERVE REQUIREMENTS OF CLEAR ZONE.
4. PROVIDE TRAFFIC CONTROL ON HIGHWAY 175 IN ACCORDANCE WITH IOWA DEPARTMENT OF TRANSPORTATION STANDARDS.
5. SOUTH OUTLET LEGAL DESCRIPTION: SE 1/4 OF THE SE 1/4 OF SECTION 2 T83N R46W.



(B) PERMEABLE ROCK BARRIER DETAIL
NOT TO SCALE



(A) SOUTH OUTLET STRUCTURE - PROFILE VIEW
HORIZONTAL SCALE: 1"=8'
VERTICAL SCALE: 1"=4'

NO.	DATE	BY	DESCRIPTION

BLUE LAKE SYSTEM
FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

SOUTH OUTLET PLAN AND PROFILE



EA ENGINEERING,
SCIENCE, AND
TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	JRM
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	PROPOSED CONDITIONS.DWG
DRAWING NUMBER	C-201
SHEET NUMBER	4 OF 11

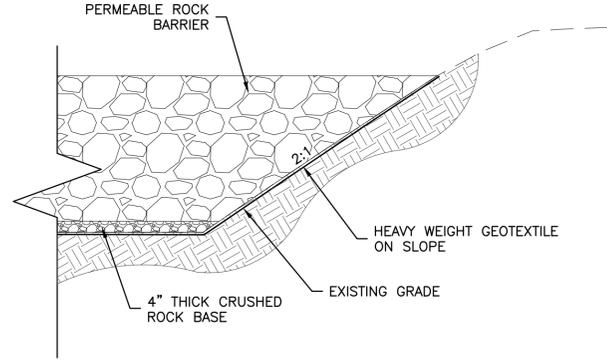
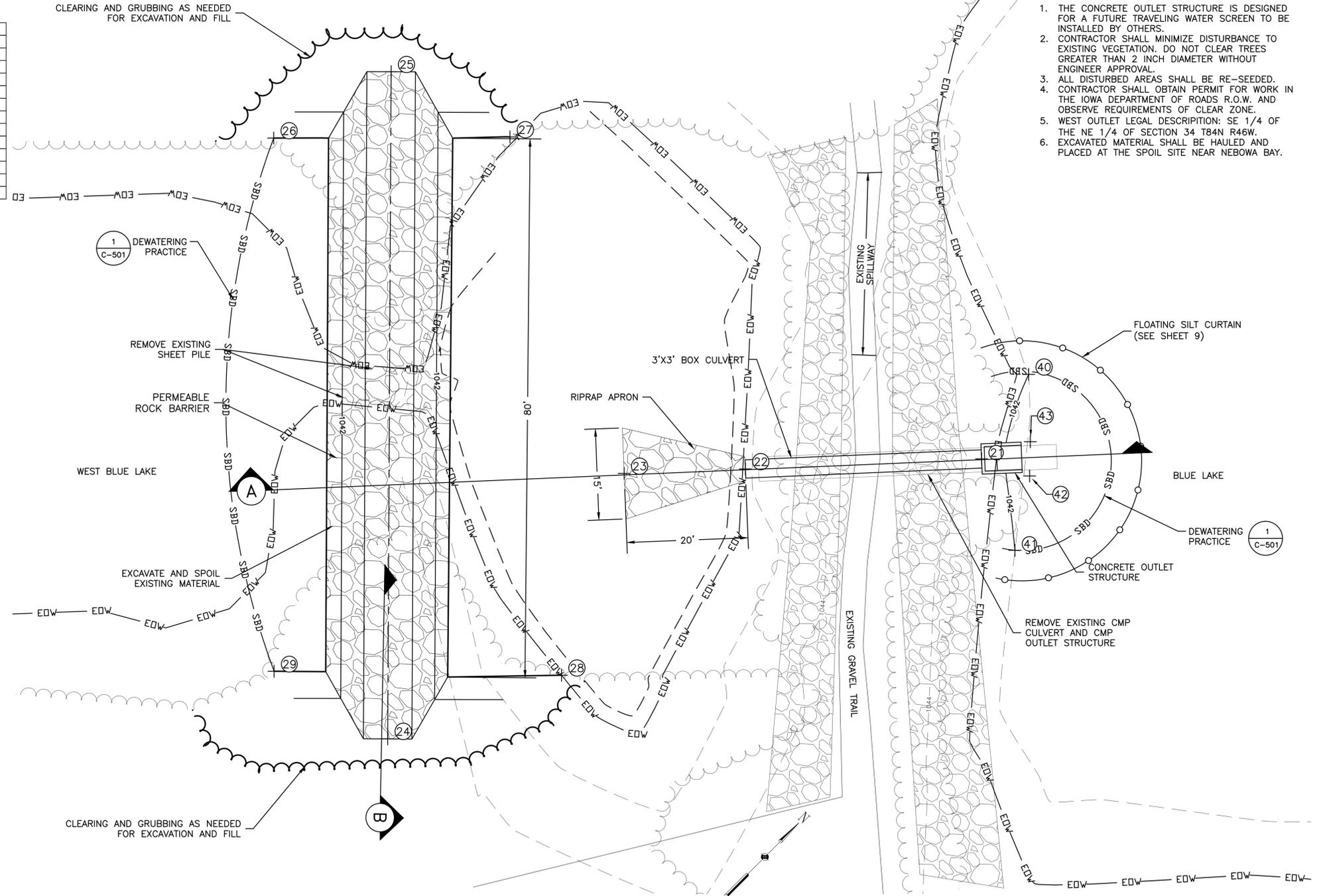
FILE PATH: F:\STATE & LOCAL\STATE\IOWA\DEPT OF NATURAL RESOURCES\PROJECTS\1515501 - BLUE LAKE\FIGURES\PROPOSED CONDITIONS.DWG [SOUTH OUTLET] 7/23/14.rvt

CONSTRUCTION STAKING

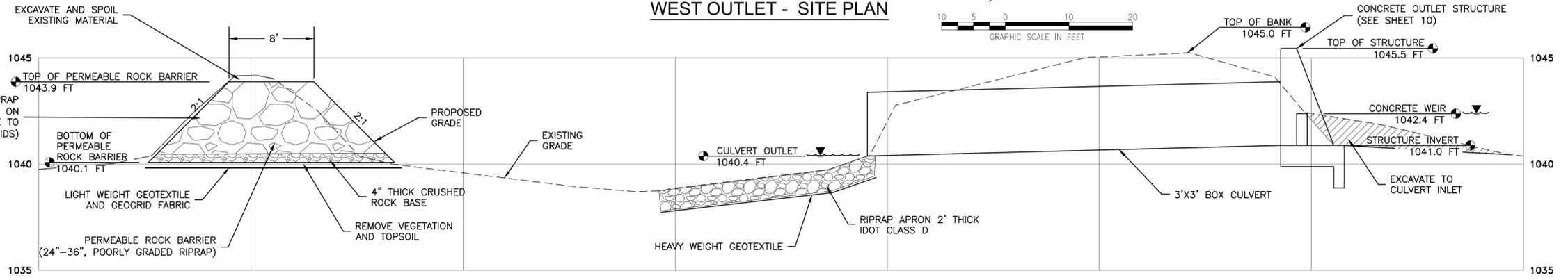
POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
21	3,492,120.7	4,194,556.1	-	CONCRETE OUTLET STRUCTURE CENTERLINE
22	3,492,092.0	4,194,529.7	1,040.4	RIPRAP APRON CENTERLINE
23	3,492,077.4	4,194,516.1	1,039.0	RIPRAP APRON CENTERLINE
24	3,492,018.9	4,194,519.4	1,043.9	PERMEABLE ROCK BARRIER CENTERLINE
25	3,492,096.9	4,194,442.2	1,043.9	PERMEABLE ROCK BARRIER CENTERLINE
26	3,492,075.5	4,194,436.2	1,040.1	EXCAVATION GRADING LIMIT
27	3,492,103.2	4,194,463.7	1,040.1	EXCAVATION GRADING LIMIT
28	3,492,046.6	4,194,532.3	1,040.1	EXCAVATION GRADING LIMIT
29	3,492,013.5	4,194,498.3	1,040.1	EXCAVATION GRADING LIMIT
40	3,492,136.1	4,194,551.8	1,042.0	EXCAVATION GRADING LIMIT
41	3,492,114.0	4,194,570.6	1,042.0	EXCAVATION GRADING LIMIT
42	3,492,124.4	4,194,563.7	1,041.0	EXCAVATION GRADING LIMIT
43	3,492,128.4	4,194,559.8	1,041.0	EXCAVATION GRADING LIMIT

NOTES:

1. THE CONCRETE OUTLET STRUCTURE IS DESIGNED FOR A FUTURE TRAVELING WATER SCREEN TO BE INSTALLED BY OTHERS.
2. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION. DO NOT CLEAR TREES GREATER THAN 2 INCH DIAMETER WITHOUT ENGINEER APPROVAL.
3. ALL DISTURBED AREAS SHALL BE RE-SEEDED.
4. CONTRACTOR SHALL OBTAIN PERMIT FOR WORK IN THE IOWA DEPARTMENT OF ROADS R.O.W. AND OBSERVE REQUIREMENTS OF CLEAR ZONE.
5. WEST OUTLET LEGAL DESCRIPTION: SE 1/4 OF THE NE 1/4 OF SECTION 34 T84N R46W.
6. EXCAVATED MATERIAL SHALL BE HAULED AND PLACED AT THE SPOIL SITE NEAR NEBOWA BAY.



B PERMEABLE ROCK BARRIER DETAIL
NOT TO SCALE



A WEST OUTLET STRUCTURE - PROFILE VIEW
HORIZONTAL SCALE: 1"=6'
VERTICAL SCALE: 1"=3'

NO.	DATE	BY	DESCRIPTION

BLUE LAKE FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

WEST OUTLET PLAN AND PROFILE



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	JRM
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	SEE FILE PATH
DRAWING NUMBER	C-202
SHEET NUMBER	5 OF 11

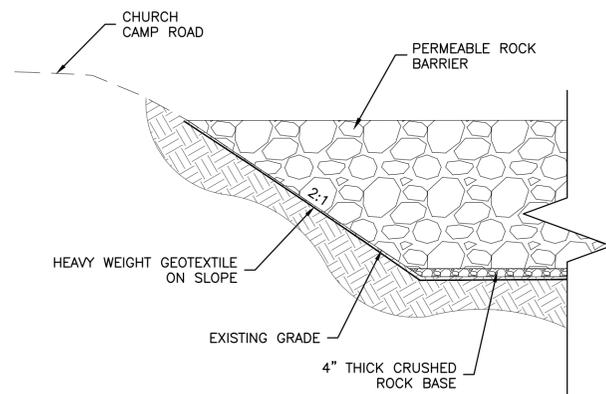
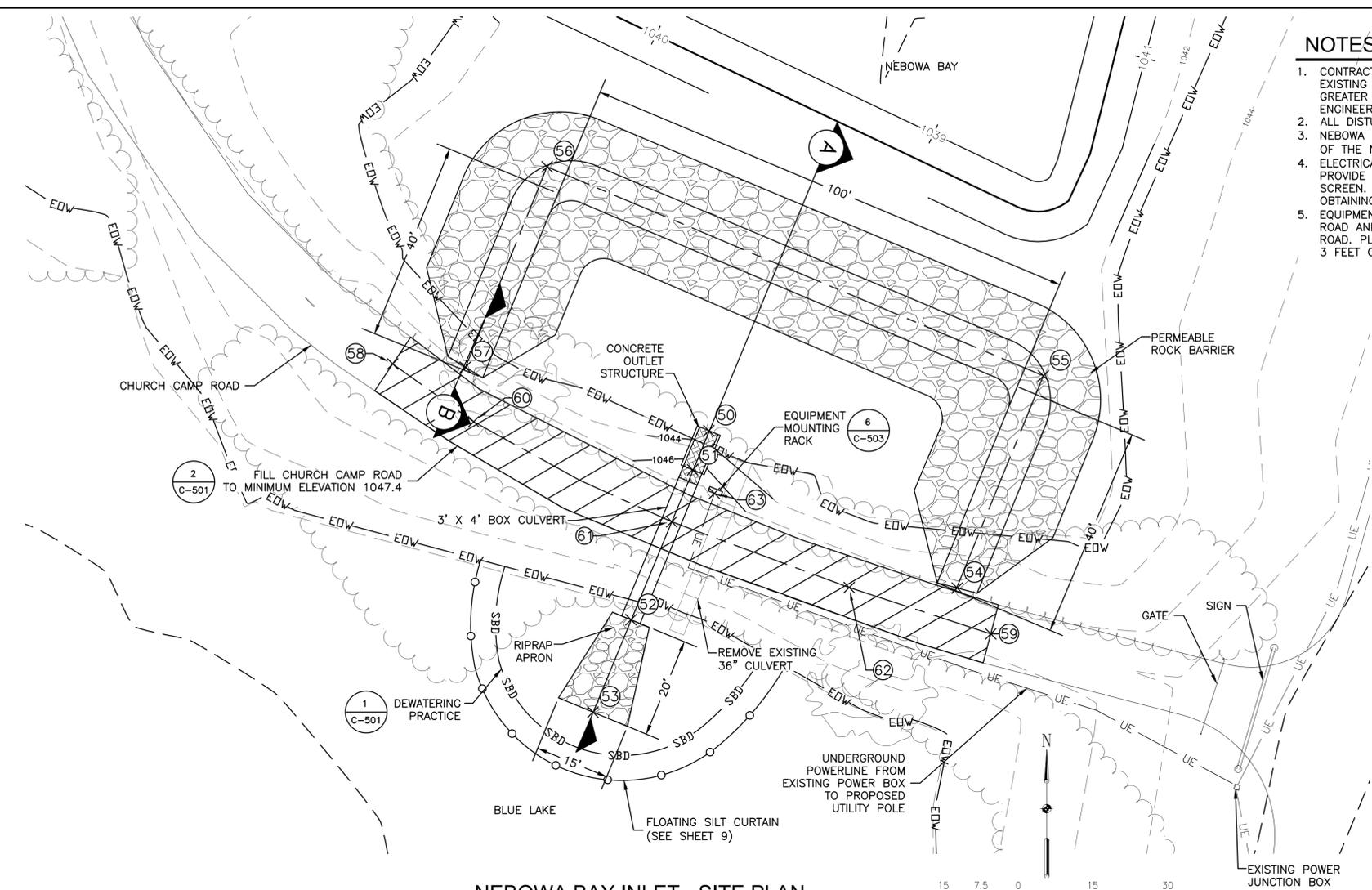
FILE PATH: F:\STATE & LOCAL\STATE\IOWA\DEPT OF NATURAL RESOURCES\PROJECTS\1515501 - BLUE LAKE\FIGURES\PROPOSED CONDITIONS\WEST OUTLET\7/23/14.rvt

CONSTRUCTION STAKING

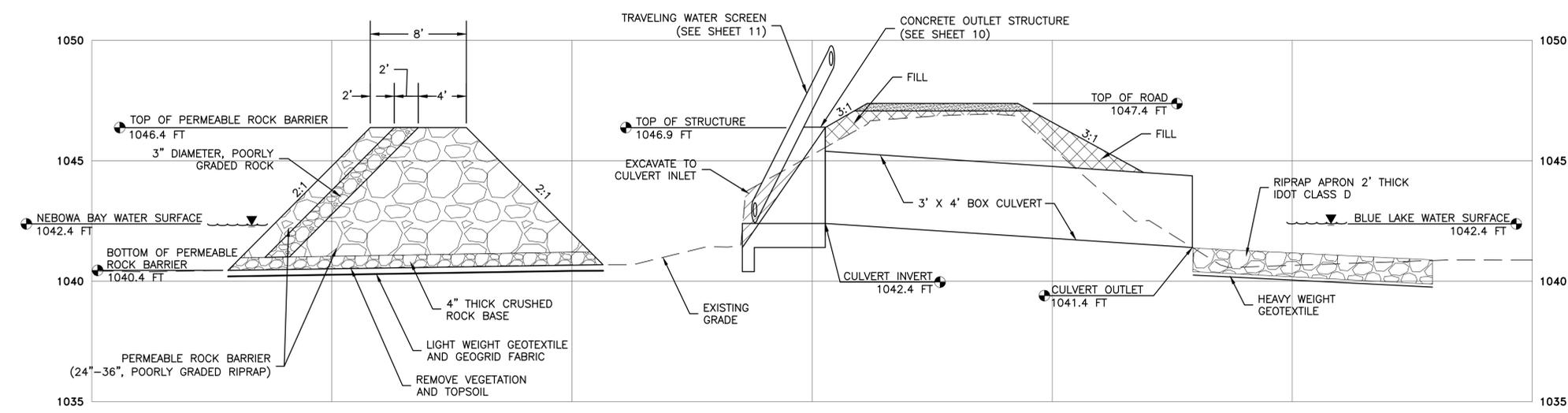
POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
50	3,491,278.2	4,199,990.0	1042.4	CONCRETE OUTLET STRUCTURE CENTERLINE
51	3,491,270.3	4,199,986.8	1042.4	CONCRETE OUTLET STRUCTURE CENTERLINE
52	3,491,240.3	4,199,974.4	1041.4	RIPRAP APRON CENTERLINE - NEBOWA INLET
53	3,491,221.8	4,199,966.8	1040.9	RIPRAP APRON CENTERLINE - NEBOWA INLET
54	3,491,246.7	4,200,039.9	1046.4	PERMEABLE ROCK BARRIER CENTERLINE
55	3,491,289.2	4,200,057.2	1046.4	PERMEABLE ROCK BARRIER CENTERLINE
56	3,491,331.1	4,199,957.6	1046.4	PERMEABLE ROCK BARRIER CENTERLINE
57	3,491,290.9	4,199,941.1	1046.4	PERMEABLE ROCK BARRIER CENTERLINE
58	3,491,291.6	4,199,926.6	1047.4	FILL CHURCH CAMP ROAD CENTERLINE
59	3,491,237.5	4,200,046.6	1047.4	FILL CHURCH CAMP ROAD CENTERLINE
60	3,491,280.0	4,199,942.8	1047.4	FILL CHURCH CAMP ROAD CENTERLINE
61	3,491,260.0	4,199,982.6	1047.4	FILL CHURCH CAMP ROAD CENTERLINE
62	3,491,246.8	4,200,018.2	1047.4	FILL CHURCH CAMP ROAD CENTERLINE
63	3,491,265.6	4,199,991.2	-	EQUIPMENT MOUNTING RACK

NOTES:

1. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION. DO NOT CLEAR TREES GREATER THAN 2 INCH DIAMETER WITHOUT ENGINEER APPROVAL.
2. ALL DISTURBED AREAS SHALL BE RE-SEEDDED.
3. NEBOWA BAY INLET LEGAL DESCRIPTION: SE 1/4 OF THE NE 1/4 OF SECTION 35 T84N R46W.
4. ELECTRICAL UTILITY PROVIDER (WPCO) TO PROVIDE SERVICE FOR THE TRAVELING WATER SCREEN. CONTRACTOR SHALL COORDINATE OBTAINING THIS SERVICE.
5. EQUIPMENT MOUNTING RACK SHALL BE 5' FROM ROAD AND CONTROLS SHALL FACE AWAY FROM ROAD. PLACE EQUIPMENT MOUNTING RACK WITHIN 3 FEET OF TRAVELING WATER SCREEN.



B PERMEABLE ROCK BARRIER DETAIL
NOT TO SCALE



NEBOWA BAY INLET - PROFILE VIEW
HORIZONTAL SCALE: 1"=6'
VERTICAL SCALE: 1"=3'

NO.	DATE	BY	DESCRIPTION

BLUE LAKE FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

NEBOWA BAY INLET PLAN AND PROFILE



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	JRM
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	PROPOSED CONDITIONS.DWG
DRAWING NUMBER	C-203
SHEET NUMBER	6 OF 11

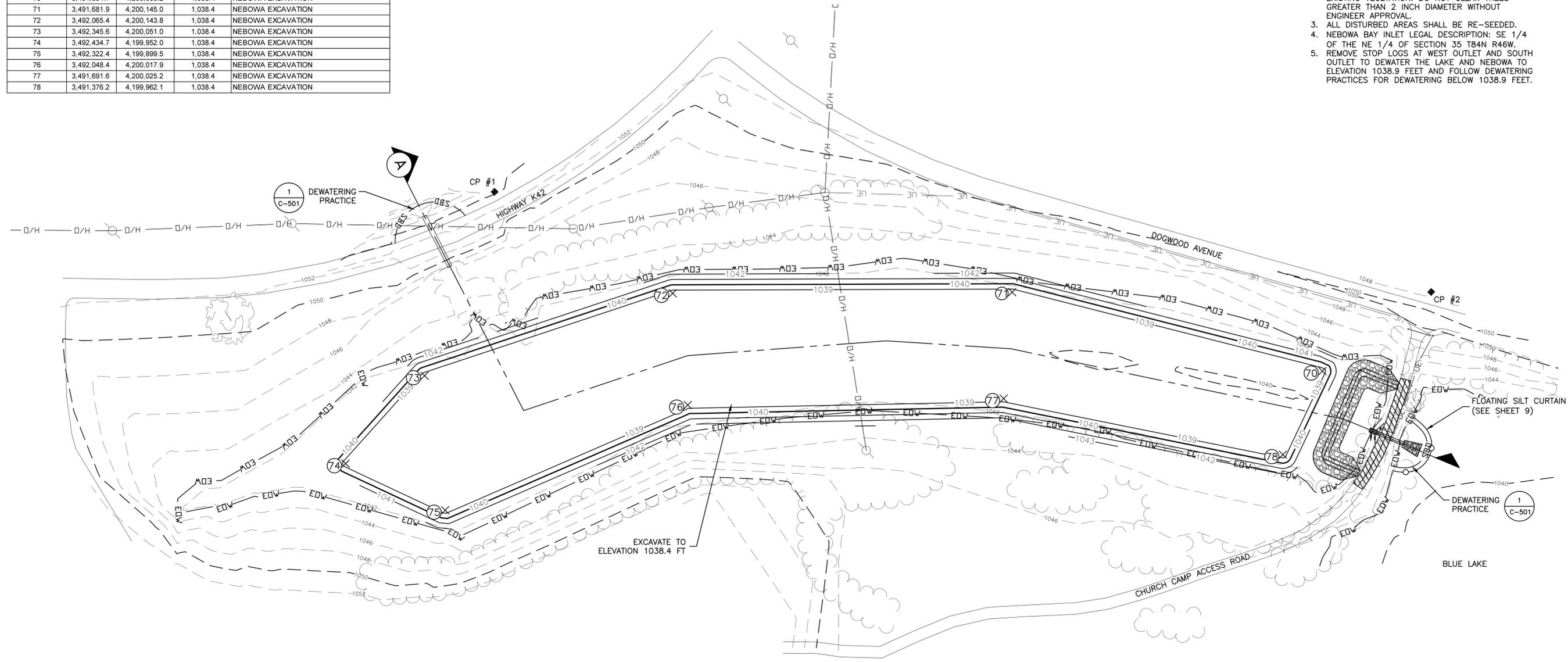
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CONSTRUCTION STAKING

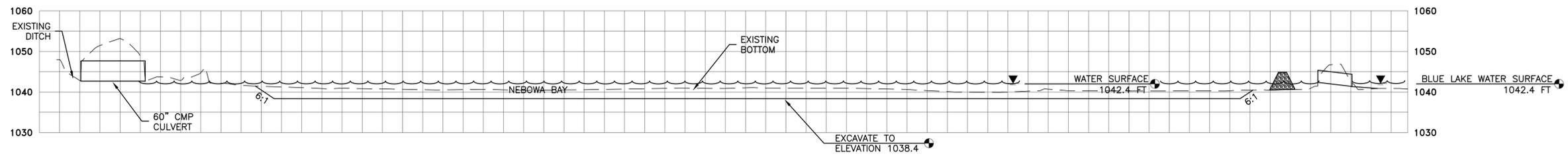
POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
70	3,491,331.7	4,200,056.2	1,038.4	NEBOWA EXCAVATION
71	3,491,681.9	4,200,145.0	1,038.4	NEBOWA EXCAVATION
72	3,492,065.4	4,200,143.8	1,038.4	NEBOWA EXCAVATION
73	3,492,345.6	4,200,051.0	1,038.4	NEBOWA EXCAVATION
74	3,492,434.7	4,199,952.0	1,038.4	NEBOWA EXCAVATION
75	3,492,322.4	4,199,899.5	1,038.4	NEBOWA EXCAVATION
76	3,492,048.4	4,200,017.9	1,038.4	NEBOWA EXCAVATION
77	3,491,691.6	4,200,025.2	1,038.4	NEBOWA EXCAVATION
78	3,491,376.2	4,199,962.1	1,038.4	NEBOWA EXCAVATION

NOTES:

- EXCAVATED MATERIAL SHALL BE SPOILED IN THE SPOIL AREA SHOWN ON SHEET 8.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION. DO NOT CLEAR TREES GREATER THAN 2 INCH DIAMETER WITHOUT ENGINEER APPROVAL.
- ALL DISTURBED AREAS SHALL BE RE-SEEDED.
- NEBOWA BAY INLET LEGAL DESCRIPTION: SE 1/4 OF THE NE 1/4 OF SECTION 35 T84N R46W.
- REMOVE STOP LOGS AT WEST OUTLET AND SOUTH OUTLET TO DEWATER THE LAKE AND NEBOWA TO ELEVATION 1038.9 FEET AND FOLLOW DEWATERING PRACTICES FOR DEWATERING BELOW 1038.9 FEET.



NEBOWA BAY SEDIMENT BASIN



A NEBOWA BAY SEDIMENT BASIN - PROFILE VIEW
 HORIZONTAL SCALE: 1"=60'
 VERTICAL SCALE: 1"=15'

REVISIONS

NO. DATE BY DESCRIPTION

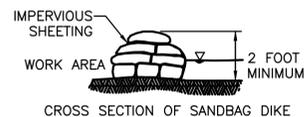
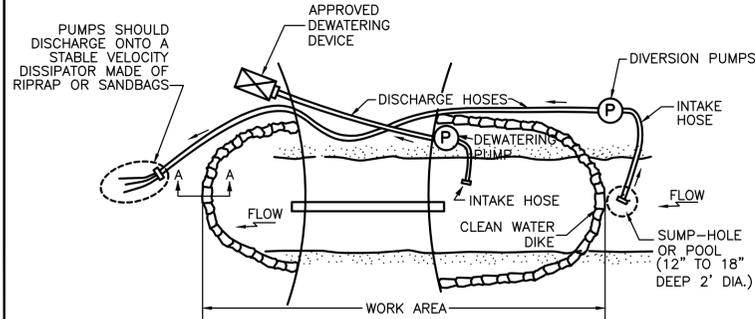
BLUE LAKE FISH BARRIER SYSTEM
 MONONA COUNTY, IOWA
NEBOWA BAY SEDIMENT BASIN PLAN AND PROFILE



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
 221 Sun Valley Boulevard
 Suite D
 Lincoln, Nebraska 68528
 (402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	JRM
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	SEE FILE PATH
DRAWING NUMBER	C-204
SHEET NUMBER	7 OF 11

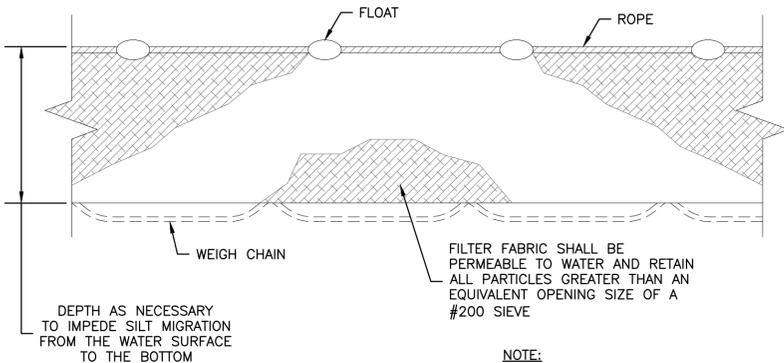
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SECTION A-A

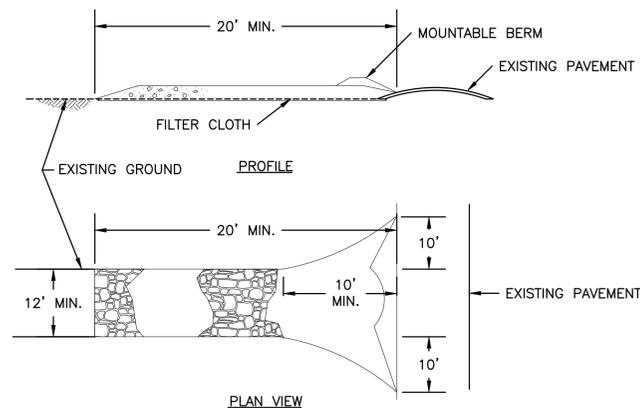
1 DEWATERING PRACTICE DETAIL

C-202, AND C-203 NOT TO SCALE



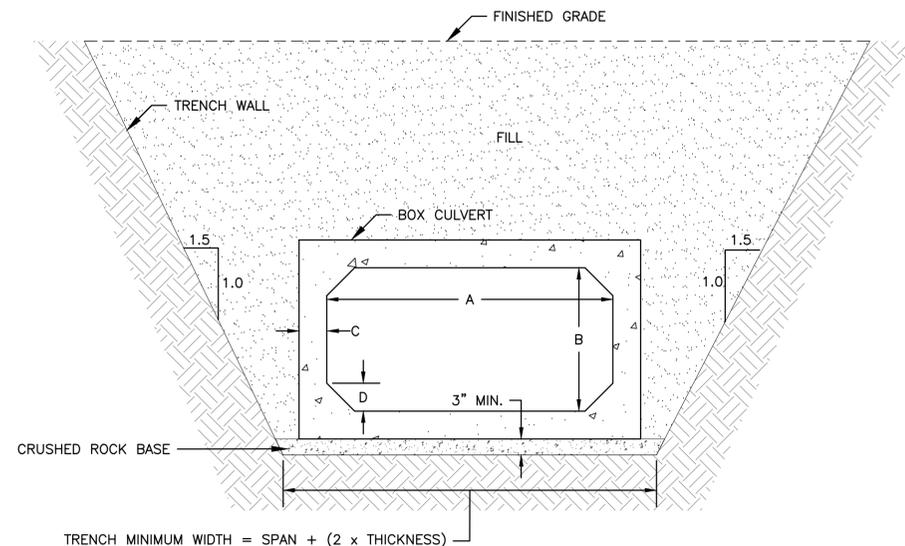
FLOATING SILT CURTAIN DETAIL

NOT TO SCALE



4 STABILIZED CONSTRUCTION ENTRANCE

C-205 NOT TO SCALE



BOX CULVERT - TYPICAL TRENCH SECTION

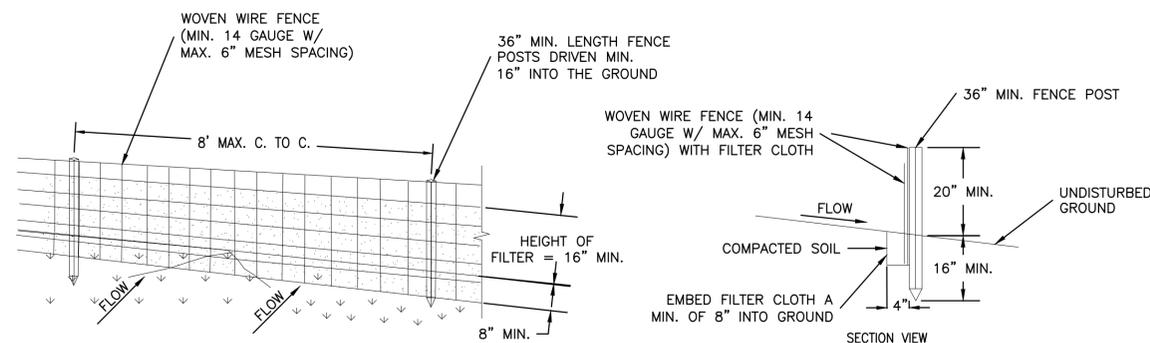
NOT TO SCALE

CULVERT DIMENSION TABLE

	WEST	NEBOWA
A, SPAN (FT.)	3	4
B, RISE (FT.)	3	3
C, THICKNESS (IN.)	5	5
D, HAUNCH (IN.)	7	7

CONSTRUCTION NOTES:

- CRUSHED ROCK BASE SHALL BE CAREFULLY INSPECTED TO ENSURE NO DIPS OR MOUNDS EXIST THAT WOULD PUT EXCESS PRESSURE ON THE BOX WHEN INSTALLED.
- CRUSHED ROCK BASE THICKNESS SHALL BE AT LEAST 3".
- FILL SHALL BE COMPACTED ON THE SIDES AND ABOVE THE BOX TO PROVIDE UNIFORM SUPPORT AND PRESSURE ALONG THE LENGTH OF THE BOX.
- DURING CONNECTION OF BOX SECTIONS, A SMALL TRENCH SHALL BE MADE ALONG THE JOINT TO COLLECT CRUSHED ROCK BASE THAT WOULD OTHERWISE BE PULLED INTO THE JOINT.
- THE BOX SHALL BE CONSTRUCTED FROM THE OUTLET END TOWARDS THE INLET END, WITH THE BELL END OF EACH CULVERT SECTION FACING UPSTREAM.



NOTES:

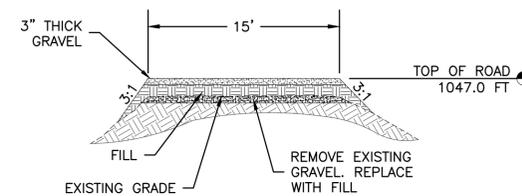
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "I" OR "U" TYPE OR HARDWOOD WITH A MINIMUM CROSS-SECTIONAL AREA OF 3 SQUARE INCHES.
- FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH SPACED EVERY 24" AT TOP, MID SECTION, AND BOTTOM. FENCE SHALL BE WOVEN WIRE, 14 GAUGE, 6" MAXIMUM MESH OPENING.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
- PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
- ANY TORN SILT FENCE CLOTH SECTIONS SHALL BE REPLACED BY THE CONTRACTOR IMMEDIATELY.

3 TEMPORARY SILT FENCE DETAIL

C-205 NOT TO SCALE

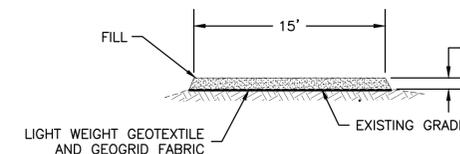
CONSTRUCTION NOTES:

- STONE SIZE - USE 2" TO 3.5" CLEAN CRUSHED ROCK, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 20 FEET.
- THICKNESS - NOT LESS THAN SIX (6) INCHES. (COMPACTED)
- WIDTH - AS REQUIRED BUT NOT LESS THAN 12 FEET.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ADJACENT ROADS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO ROADS MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO ROADS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A WASH PAD.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN AND OTHER TIMES WHEN STONE VOIDS HAVE BEEN FILLED WITH SOIL.
- ACCESS ROADS TO STABILIZED ENTRY POINTS SHALL BE MAINTAINED.
- CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATORY REQUIREMENTS.



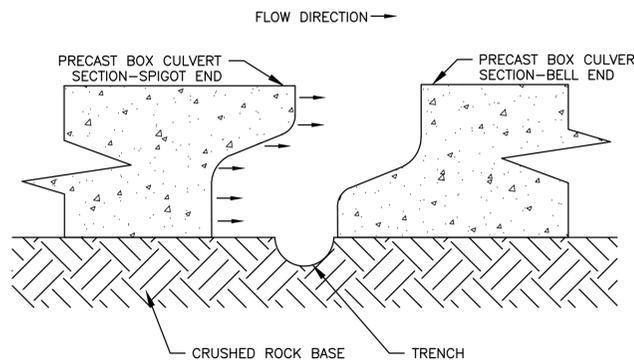
2 CHURCH CAMP ROAD - SECTION

C-203 NOT TO SCALE



5 TEMPORARY ACCESS RAMP - SECTION

C-205 NOT TO SCALE



BOX CULVERT - INSTALLATION DETAIL

NOT TO SCALE

REVISIONS

DESCRIPTION

BY

NO.

DATE

NO.

DATE

NO.

DATE

BLUE LAKE FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

DETAILS 1



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE: FEBRUARY 2015

DESIGNED BY: LLR

DRAWN BY: CNS

CHECKED BY: JMT

PROJECT MANAGER: JMT

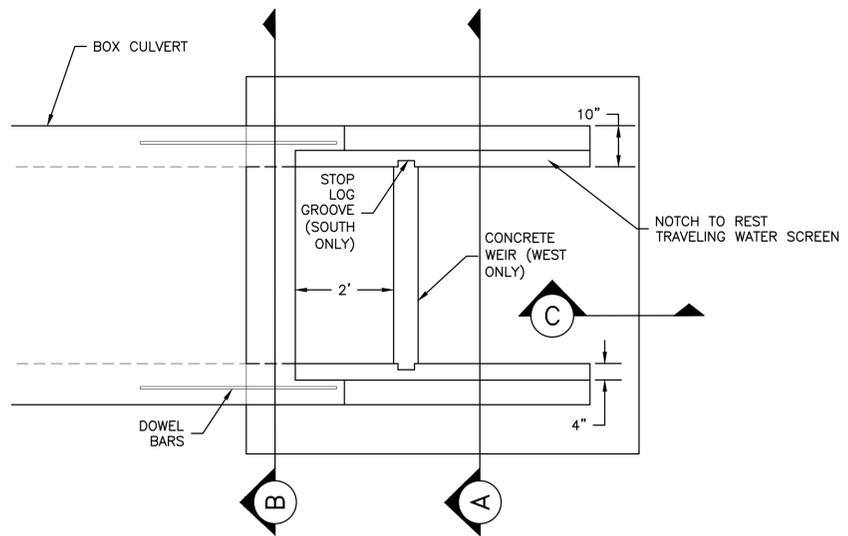
PROJECT NUMBER: 1515501

SCALE: AS SHOWN

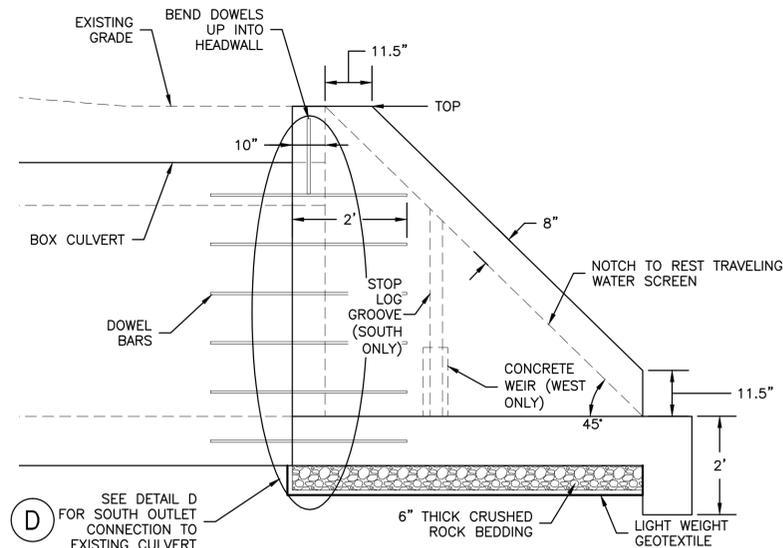
FILE NAME: DETAILS.DWG

DRAWING NUMBER: C-501

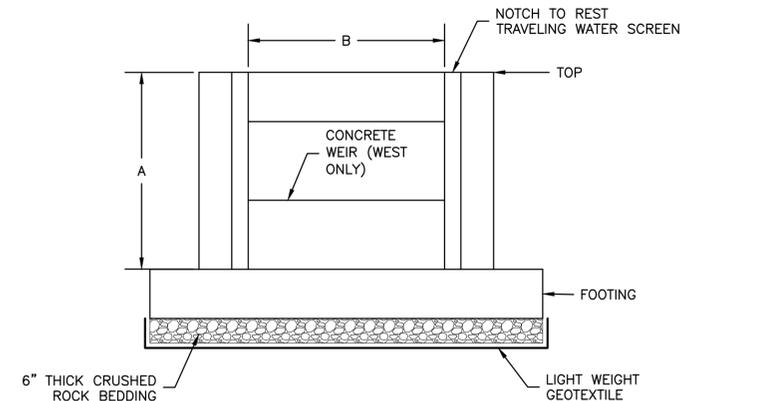
SHEET NUMBER: 9 OF 11



CONCRETE OUTLET STRUCTURE (TYP.) - TOP VIEW
NOT TO SCALE



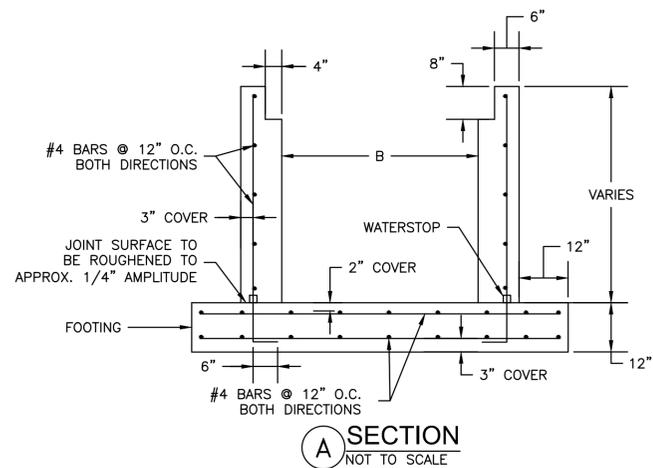
CONCRETE OUTLET STRUCTURE (TYP.) - SIDE VIEW
NOT TO SCALE



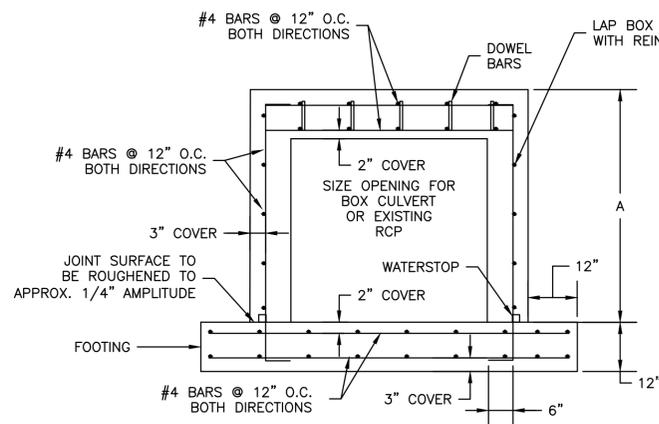
CONCRETE OUTLET STRUCTURE (TYP.) - FRONT VIEW
NOT TO SCALE

OUTLET DIMENSION TABLE

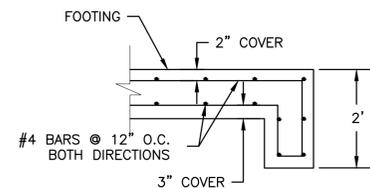
	HEIGHT (A)	WIDTH (B)	CONCRETE WEIR HEIGHT (C)	STOP LOG HEIGHT
SOUTH	5.6'	4.0'	N/A	3.1'
WEST	4.5'	3.0'	1.4'	N/A
NEBOWA	4.5'	4.0'	N/A	N/A



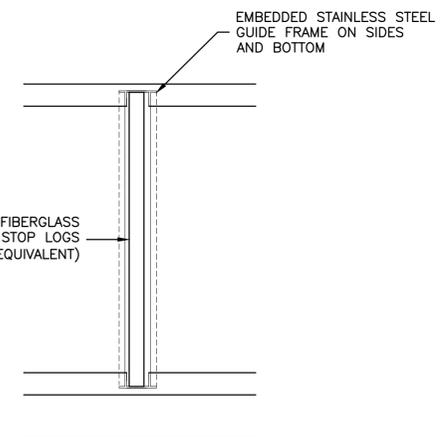
SECTION A
NOT TO SCALE



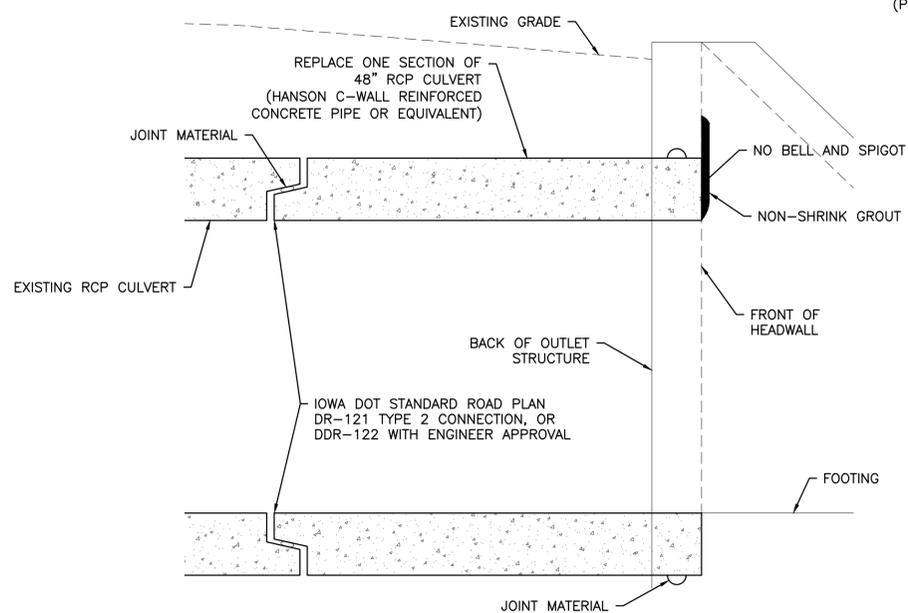
SECTION B
NOT TO SCALE



SECTION C
NOT TO SCALE



STOP LOG DETAIL (TYP.)
NOT TO SCALE



SECTION D SOUTH OUTLET CONNECTION TO EXISTING CULVERT
NOT TO SCALE

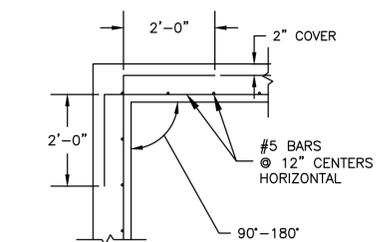
NOTES:

1. THE EXISTING RCP CULVERT AT THE SOUTH OUTLET IS 48" DIAMETER.
2. BOX CULVERT SPAN AND RISE IS SHOWN ON SHEET 9.

CONSTRUCTION NOTES:

1. CONCRETE OUTLET STRUCTURE DETAILS ARE SHOWN WITH ALL ITEMS INCLUDING THE CONCRETE WEIR, STOP LOG GROOVE, AND STOP LOGS. STOP LOG GROOVE AND STOP LOGS SHALL BE INSTALLED AT THE SOUTH OUTLET ONLY. CONCRETE WEIR SHALL BE INSTALLED AT THE WEST OUTLET ONLY.
2. ENGINEER MUST APPROVE STEEL REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE.
3. REINFORCEMENT BARS SHALL BE GRADE 60 STEEL.
4. LAP SPLICES FOR #4 BARS SHALL BE A MINIMUM OF 2'-7". BOX CULVERT DOWELS SHALL BE LAPPED WITH #4 HORIZONTAL BARS.
5. A 2" MINIMUM OF CONCRETE COVER OVER REINFORCEMENT IS REQUIRED.
6. IF FORM TIES ARE BROKEN OFF FLUSH WITH THE WALL, A SEALANT SUCH AS WATCHDOG WATERPROOFING OR ECONOLITE-T MUST BE PLACED OVER EXPOSED METAL WITH A WIDTH OF 4" AND A THICKNESS OF 1/6" AND MUST BE APPROVED BY THE ENGINEER.
7. ALL CHAIRS USED TO PLACE REBAR SHALL BE PLASTIC OR CONCRETE BLOCK.

CONCRETE WEIR SECTION
NOT TO SCALE



CORNER BAR DETAIL
NOT TO SCALE

NO.	DATE	BY	DESCRIPTION

BLUE LAKE SYSTEM
FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

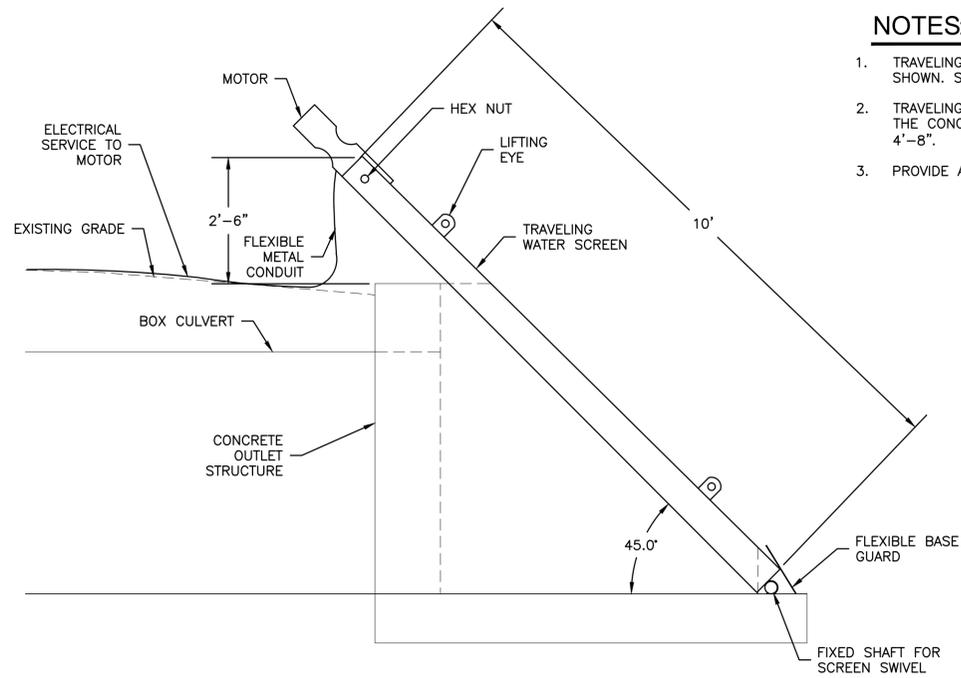
DETAILS II



EA ENGINEERING,
SCIENCE, AND
TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	CNS
CHECKED BY	JMT
PROJECT MANAGER	JMT
PROJECT NUMBER	1515501
SCALE	AS SHOWN
FILE NAME	DETAILS.DWG
DRAWING NUMBER	C-502
SHEET NUMBER	10 OF 11

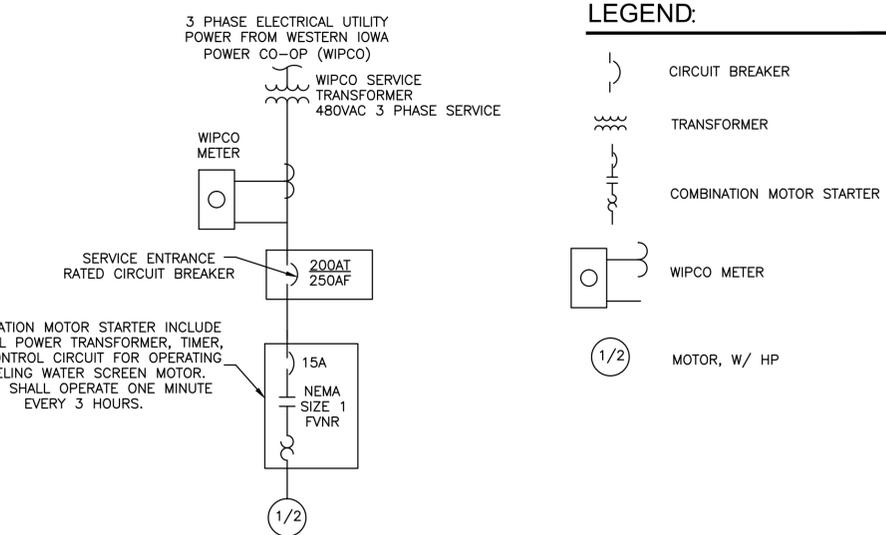
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TRAVELING WATER SCREEN SECTION
NOT TO SCALE

NOTES:

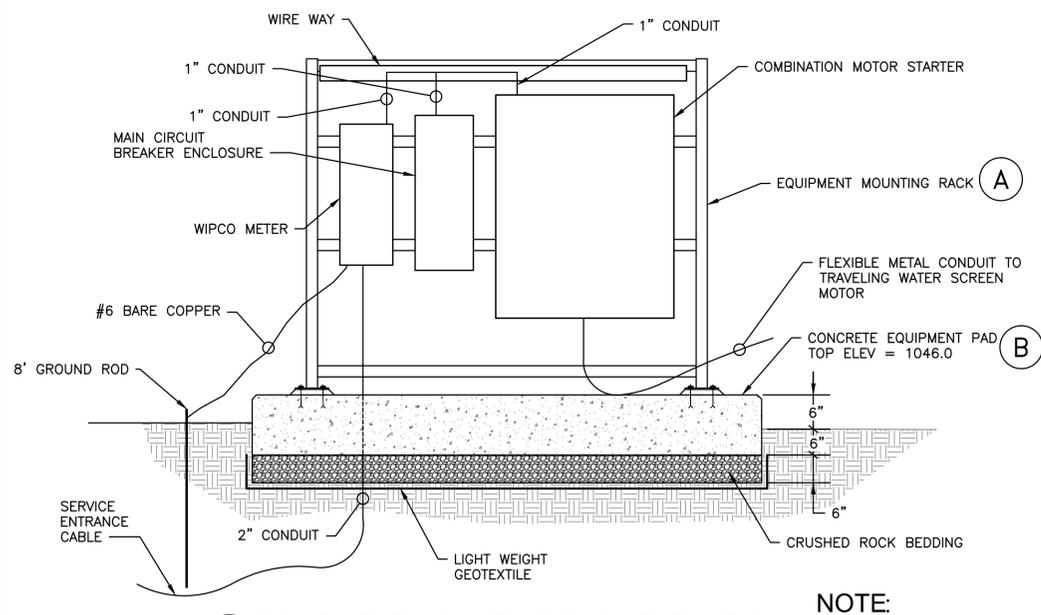
- TRAVELING WATER SCREEN SHALL BE FABRICATED TO CUSTOM SPECIFICATIONS AS SHOWN. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.
- TRAVELING WATER SCREEN SHALL BE PROPER WIDTH TO REST IN NOTCH PROVIDED ON THE CONCRETE OUTLET STRUCTURE. TOTAL WIDTH OF THE STRUCTURE AND NOTCH IS 4'-8".
- PROVIDE A HEX NUT OPPOSITE FROM MOTOR TO ALLOW FOR HAND CRANK OPERATION.



TRAVELING WATER SCREEN ONE LINE DIAGRAM
NOT TO SCALE

LEGEND:

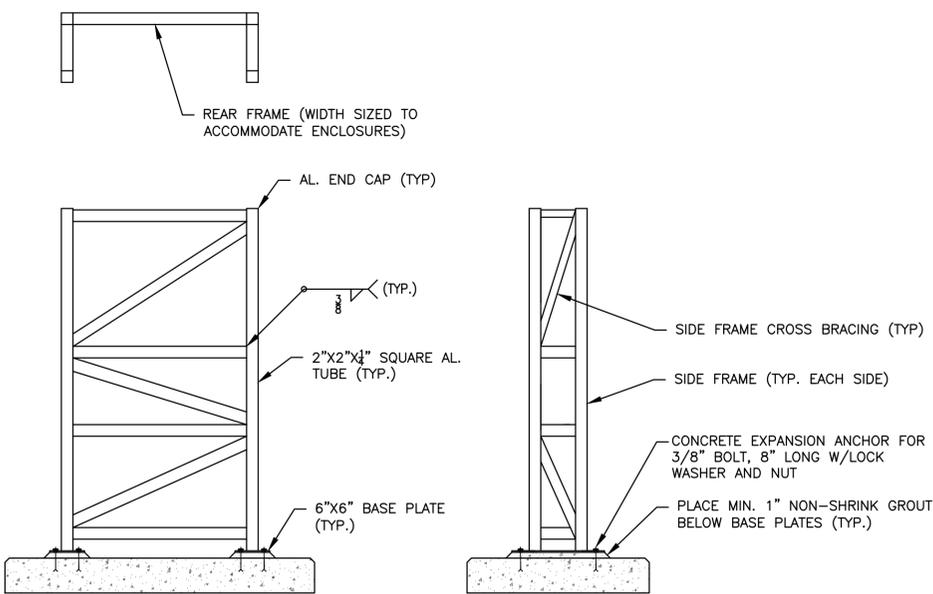
- CIRCUIT BREAKER
- TRANSFORMER
- COMBINATION MOTOR STARTER
- WIPCO METER
- MOTOR, W/ HP



EQUIPMENT MOUNTING RACK ELEVATION
NOT TO SCALE

NOTE:

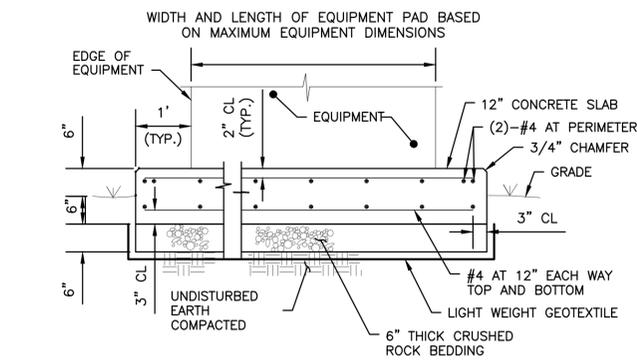
- EQUIPMENT PANELS SHALL BE LOCKED AT ALL TIMES. HARDWARE FOR LOCKING SHALL BE PROVIDED BY CONTRACTOR.



EQUIPMENT MOUNTING RACK DETAIL
NOT TO SCALE

NOTES:

- SIDE FRAME SHALL BE 10" DEEP MINIMUM. THE SIDE FRAME SHALL BE APPROXIMATELY TWO THIRDS THE SIZE OF THE LARGEST ENCLOSURE DEPTH.
- CROSS BRACING SHALL BE PROVIDED ON THE REAR FRAME ASSEMBLY FOR EQUIPMENT MOUNTING RACK 24" WIDE AND LARGER. CROSS BRACING SHALL BE PROVIDED ON THE SIDE FRAME FOR EQUIPMENT MOUNTING RACK 18" DEEP OR LARGER.
- ENCLOSURES SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE. THE EQUIPMENT MOUNTING RACK SHALL BE FASTENED TO THE CONCRETE EQUIPMENT PAD WITH CORROSION RESISTANT EXPANSION ANCHORS.



EXTERIOR CONCRETE EQUIPMENT PAD DETAIL
NOT TO SCALE

NO.	DATE	BY	DESCRIPTION

BLUE LAKE SYSTEM
FISH BARRIER SYSTEM
MONONA COUNTY, IOWA

DETAILS III

EA
EA ENGINEERING,
SCIENCE, AND
TECHNOLOGY, INC., PBC
221 Sun Valley Boulevard
Suite D
Lincoln, Nebraska 68528
(402) 476-3766

DATE	FEBRUARY 2015
DESIGNED BY	LLR
DRAWN BY	CNS
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PROJECT MANAGER	JMT
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FILE NAME	DETAILS.DWG
DRAWING NUMBER	C-503
SHEET NUMBER	11 OF 11

FILE PATH: F:\STATE & LOCAL\STATE\IOWA\DEPT OF NATURAL RESOURCES\PROJECTS\1515501 - BLUE LAKE\FISH BARRIERS\DETAILS.DWG [DETAILS III] 8/13/14 RRF