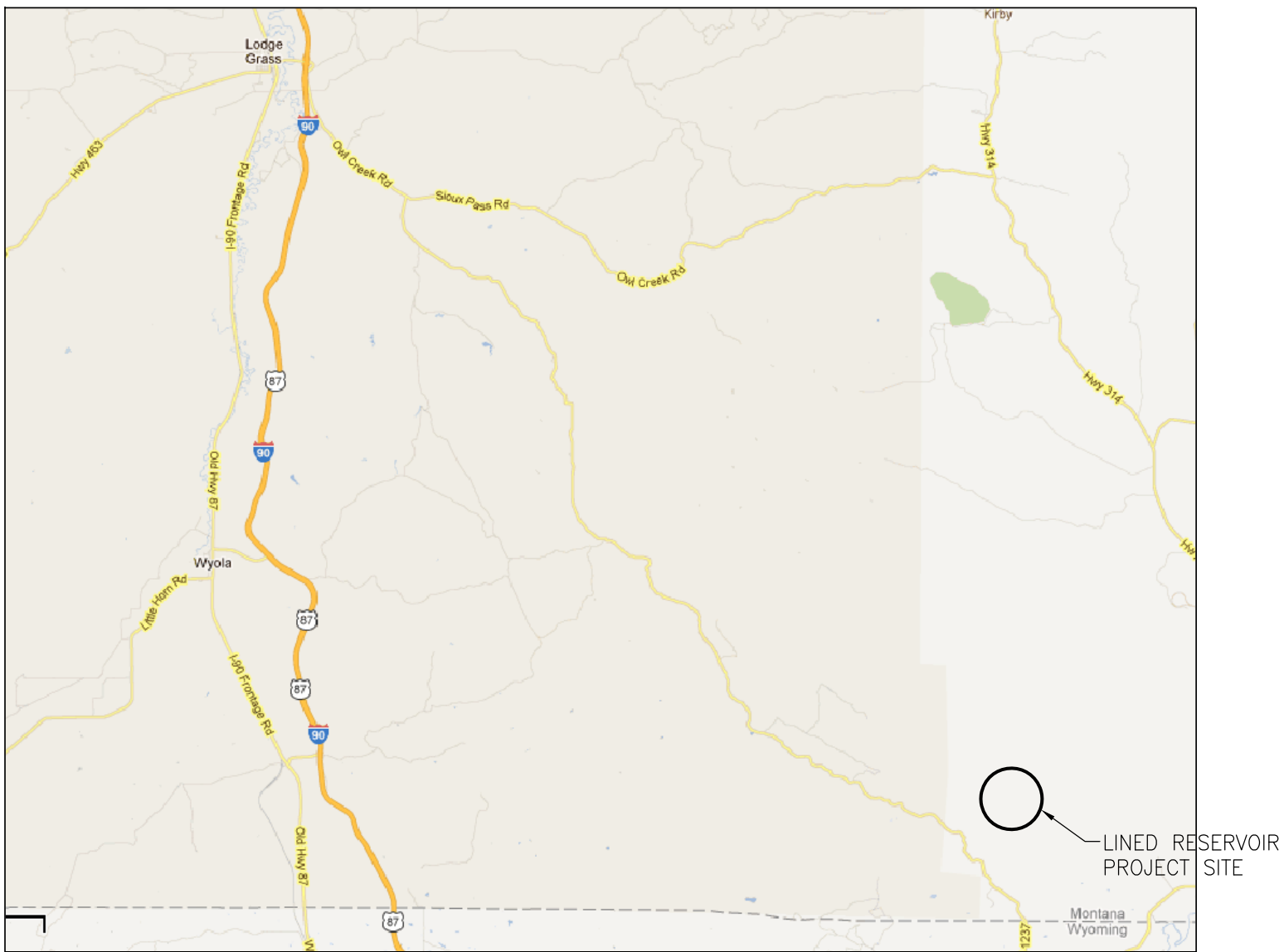


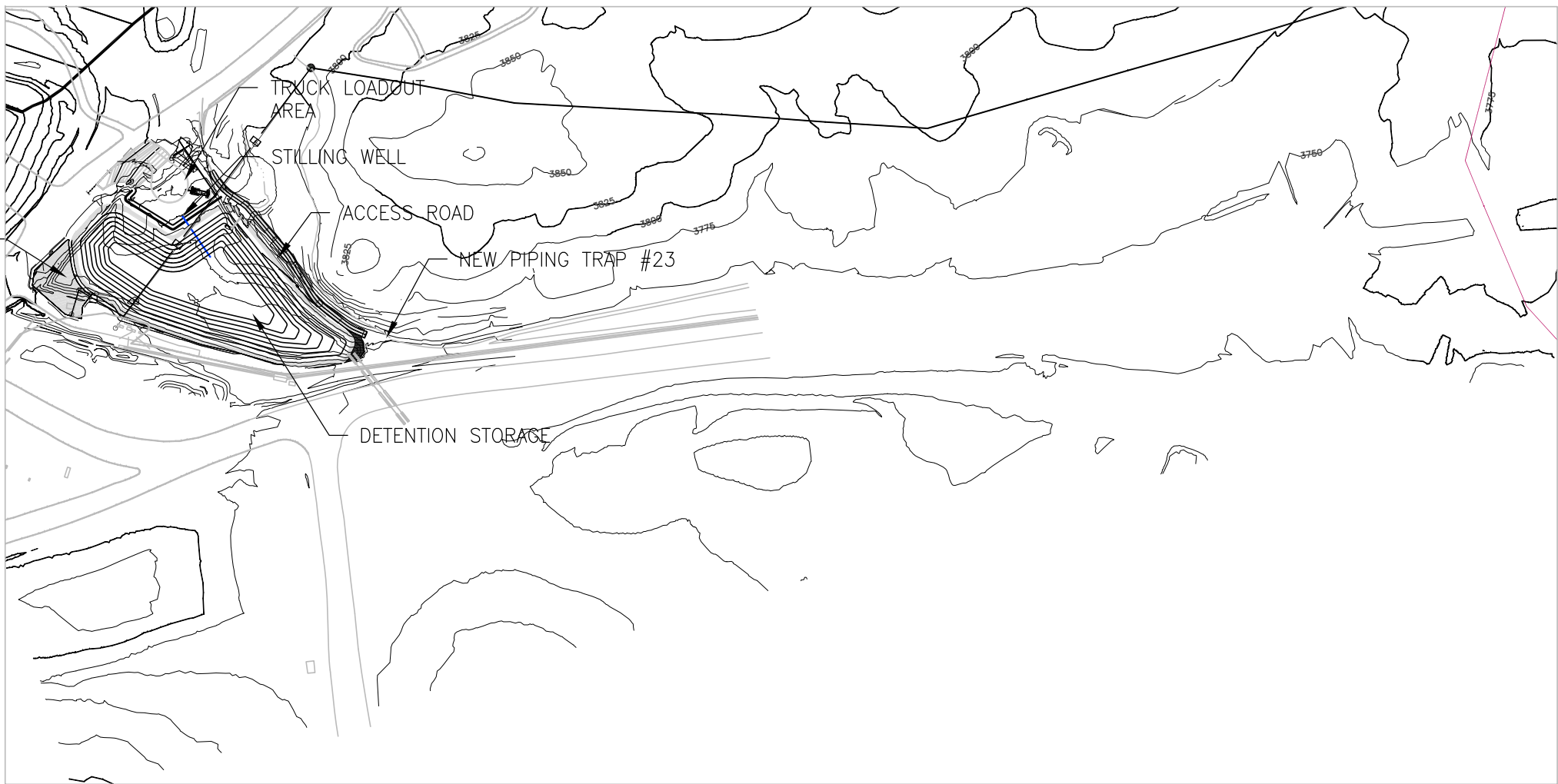
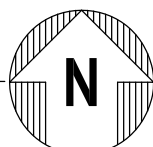
CLOUD PEAK ENERGY INC.
SPRING CREEK MINE TRAP 23 LINED RESERVOIR
BIG HORN COUNTY, MONTANA 59025
SECTION 23NE & 24 NW, T8S, R39E

LEGEND:

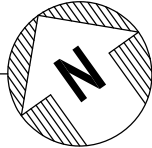
	EXISTING CONTOUR LINE
	NEW CONTOUR LINE
	EXISTING FENCE
	UNDERGROUND TELEPHONE LINE
	OVERHEAD ELECTRICAL LINE
	STORM SEWER LINE
	RAILROAD
	DRAINAGE BOUNDARY
	EXISTING STRUCTURE
	NEW STRUCTURES
	CENTER LINE
	EXISTING EOP
	PROPERTY LINE
	EXISTING RIGHT OF WAY LINE
	CREEK BED
	SEDIMENT CONTROL
	RIP-RAP
	GRAVEL
	CRUSHED STONE
	BACKFILL
	FILL-DIRT
	SITE BENCHMARK
	EXIST.
	ROW
	TBR
	TBR&R
	UIP
	FES
	TOC
	BOC
	EXISTING
	RIGHT OF WAY
	TO BE REMOVED
	TO BE REMOVED AND REPLACED
	USE-IN-PLACE
	FLARED END
	TOP OF CONCRETE
	BOTTOM OF CONCRETE



VICINITY MAP
N.T.S.



SITE MAP
SCALE: 1"=200'



THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL LOCATE THE UTILITIES IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION IMPROVEMENTS.

REV.	DATE	DESCRIPTION	APPROVED
1	05/24/12	ISSUED FOR BIDDING	RED

DRAWING LIST

DRAWING NO.	DRAWING TITLE	REV	DATE
TRAP 23			
T-001	TITLE SHEET	1	05/24/2012
C-100	SITE OVERALL PLAN	1	05/24/2012
C-101	SITE PLAN AND GRADING	1	05/24/2012
C-102	LOAD OUT AND STORAGE AREA GRADING	1	05/24/2012
C-103	ACCESS ROAD PLAN AND PROFILE	1	05/24/2012
C-104	PIPING SITE PLAN	1	05/24/2012
C-105	PIPING PLAN AND PROFILE	1	05/24/2012
C-106	PIPING PLAN AND PROFILE	1	05/24/2012
C-107	PIPING PLAN AND PROFILE	1	05/24/2012
C-108	PIPING PLAN AND PROFILE	1	05/24/2012
C-109	STILLING WELL PROFILE	1	05/24/2012
C-201	ACCESS ROAD CROSS SECTIONS	1	05/24/2012
C-202	ACCESS ROAD CROSS SECTIONS	1	05/24/2012
C-203	ACCESS ROAD CROSS SECTIONS	1	05/24/2012
C-204	DETENTION BASELINE PROFILE	1	05/24/2012
C-205	DETENTION SECTIONS	1	05/24/2012
C-206	DETENTION SECTIONS	1	05/24/2012
C-207	DETENTION SECTIONS	1	05/24/2012
C-208	DETENTION SECTIONS	1	05/24/2012
C-301	SECTIONS AND DETAILS	1	05/24/2012
C-302	SECTIONS AND DETAILS	1	05/24/2012
C-303	STILLING WELL DETAILS	1	05/24/2012
C-401	CULVERT & OUTFALL PIPE PROFILES	1	05/24/2012
MECHANICAL			
M-001	PIPING SCHEMATIC - TRAP 23	1	05/24/2012
M-005	KEY PLAN - WATER TANK	1	05/24/2012
M-011	GENERAL ARRANGEMENT - WATER TANK	1	05/24/2012
M-012	PLANS - WATER TANK PLATFORMS	1	05/24/2012
M-021	EQUIPMENT DRAWING - WATER TANK	1	05/24/2012
M-031	TRAP 23 STILLING WELL	1	05/24/2012
M-041	SPECIFICATIONS	1	05/24/2012
M-051	PIPING LAYOUT - WATER TANK	1	05/24/2012
M-055	DETAILS - PIPING SUPPORTS	1	05/24/2012
ELECTRICAL			
E-101	ELECTRICAL PLAN	1	05/24/2012
E-102	CABLE BLOCK DIAGRAM & SCHEDULES	1	05/24/2012
E-103	CONTROL PANEL WITH BOM	1	05/24/2012
E-104	MISC SCHEMATICS & WIRING DIAGRAMS	1	05/24/2012
E-105	CONTROL PANEL WIRING DIAGRAM	1	05/24/2012
E-106	IO CONNECTIONS	1	05/24/2012
E-107	CONTROL PANEL FIELD WIRING DIAGRAM	1	05/24/2012
E-108	MISC ELECTRICAL DETAILS	1	05/24/2012
STRUCTURAL			
S-001	SPECIFICATIONS & GENERAL NOTES	1	05/24/2012
S-002	FOUNDATION PLAN SECTIONS & DETIALS	1	05/24/2012
S-003	FRAMING PLANS AND SECTIONS	1	05/24/2012
S-004	BASE PLATE - GUARDRAIL & LADDER DETAILS	1	05/24/2012



DRAWN BY
KP

CHECKED BY
MWB

SCALE ON 22"x34"
SHOWN

DATE
05/24/2012

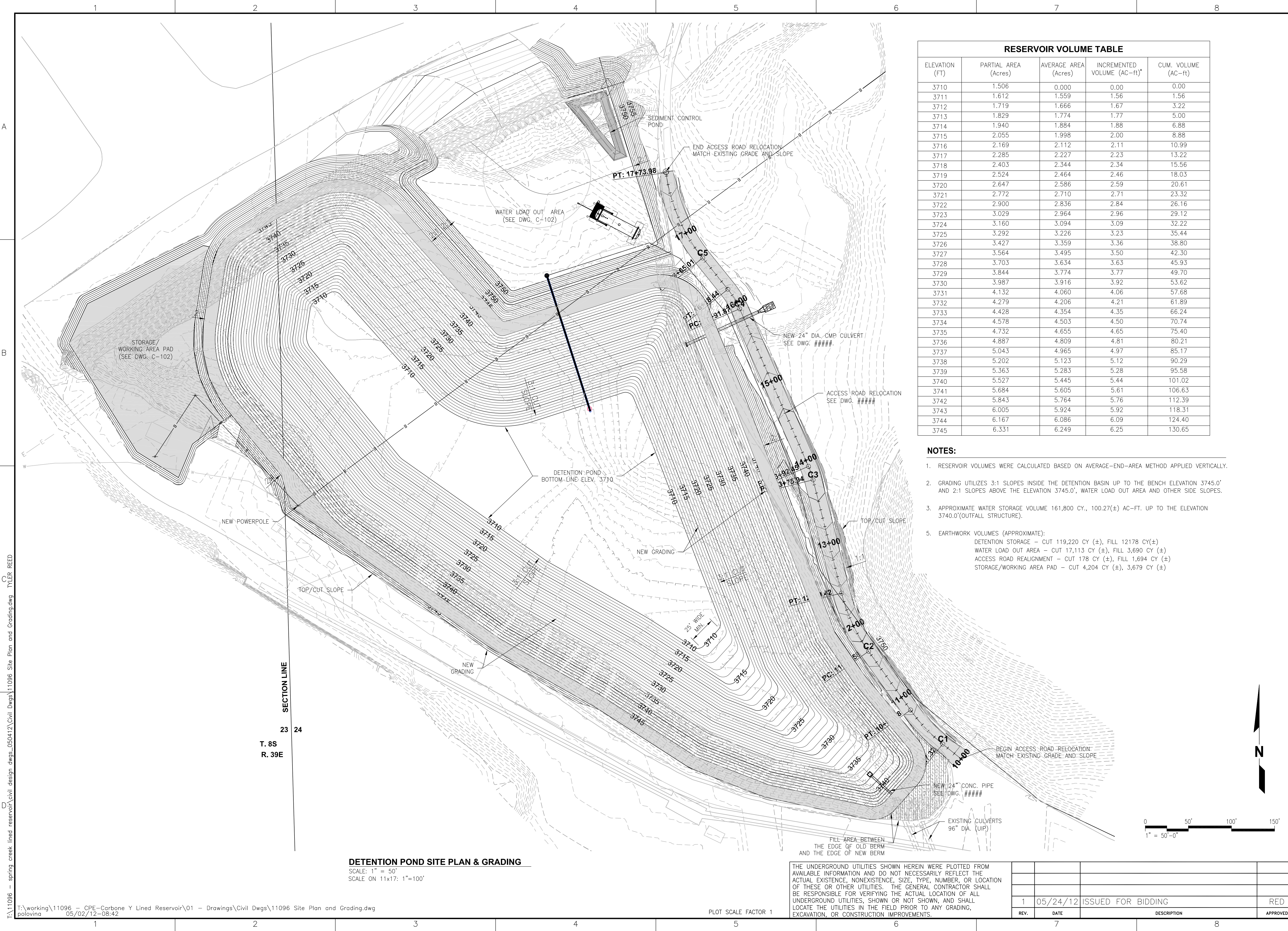
SPRING CREEK MINE
CPE-CARBONE Y LINED RESERVOIR
TRAP 23
TITLE SHEET

PROJECT NO.

11096

DRAWING NO.

T-001



RESERVOIR VOLUME TABLE				
ELEVATION (FT)	PARTIAL AREA (Acres)	AVERAGE AREA (Acres)	INCREMENTED VOLUME (AC-ft)*	CUM. VOLUME (AC-ft)
3710	1.506	0.000	0.00	0.00
3711	1.612	1.559	1.56	1.56
3712	1.719	1.666	1.67	3.22
3713	1.829	1.774	1.77	5.00
3714	1.940	1.884	1.88	6.88
3715	2.055	1.998	2.00	8.88
3716	2.169	2.112	2.11	10.99
3717	2.285	2.227	2.23	13.22
3718	2.403	2.344	2.34	15.56
3719	2.524	2.464	2.46	18.03
3720	2.647	2.586	2.59	20.61
3721	2.772	2.710	2.71	23.32
3722	2.900	2.836	2.84	26.16
3723	3.029	2.964	2.96	29.12
3724	3.160	3.094	3.09	32.22
3725	3.292	3.226	3.23	35.44
3726	3.427	3.359	3.36	38.80
3727	3.564	3.495	3.50	42.30
3728	3.703	3.634	3.63	45.93
3729	3.844	3.774	3.77	49.70
3730	3.987	3.916	3.92	53.62
3731	4.132	4.060	4.06	57.68
3732	4.279	4.206	4.21	61.89
3733	4.428	4.354	4.35	66.24
3734	4.578	4.503	4.50	70.74
3735	4.732	4.655	4.65	75.40
3736	4.887	4.809	4.81	80.21
3737	5.043	4.965	4.97	85.17
3738	5.202	5.123	5.12	90.29
3739	5.363	5.283	5.28	95.58
3740	5.527	5.445	5.44	101.02
3741	5.684	5.605	5.61	106.63
3742	5.843	5.764	5.76	112.39
3743	6.005	5.924	5.92	118.31
3744	6.167	6.086	6.09	124.40
3745	6.331	6.249	6.25	130.65

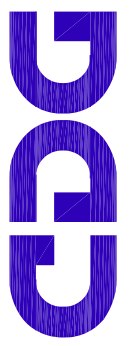
- NOTES:**
1. RESERVOIR VOLUMES WERE CALCULATED BASED ON AVERAGE-END-AREA METHOD APPLIED VERTICALLY.
 2. GRADING UTILIZES 3:1 SLOPES INSIDE THE DETENTION BASIN UP TO THE BENCH ELEVATION 3745.0' AND 2:1 SLOPES ABOVE THE ELEVATION 3745.0'. WATER LOAD OUT AREA AND OTHER SIDE SLOPES.
 3. APPROXIMATE WATER STORAGE VOLUME 161,800 CY., 100.27(±) AC-FT. UP TO THE ELEVATION 3740.0'(OUTFALL STRUCTURE).
 5. EARTHWORK VOLUMES (APPROXIMATE):
DETENTION STORAGE - CUT 119,220 CY (±), FILL 12178 CY (±)
WATER LOAD OUT AREA - CUT 17,113 CY (±), FILL 3,690 CY (±)
ACCESS ROAD REALIGNMENT - CUT 178 CY (±), FILL 1,694 CY (±)
STORAGE/WORKING AREA PAD - CUT 4,204 CY (±), 3,679 CY (±)

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1	05/24/12	ISSUED FOR BIDDING		RED
REV.	DATE	DESCRIPTION		APPROVED

SPRING CREEK MINE
CPE-CARBONE Y LINED RESERVOIR
TRAP 23
SITE PLAN AND GRADING

PROJECT NO.	11096
DRAWING NO.	C-101



CDG
ENGINEERS
Planners Inc.

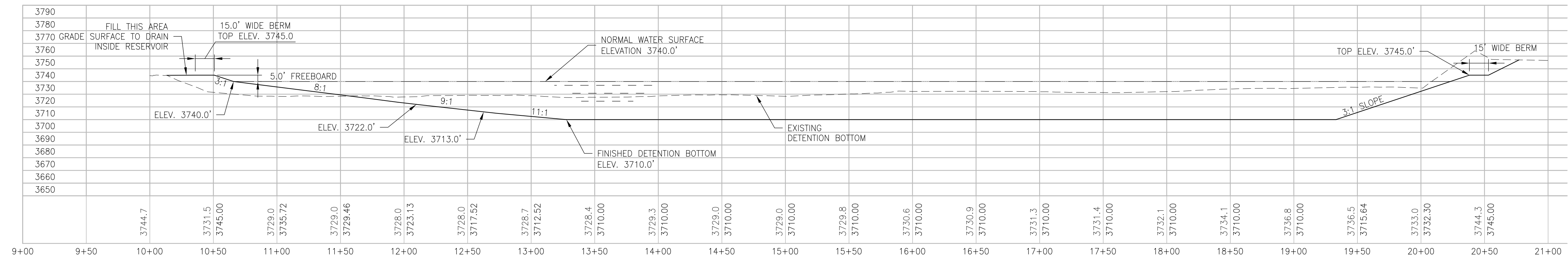
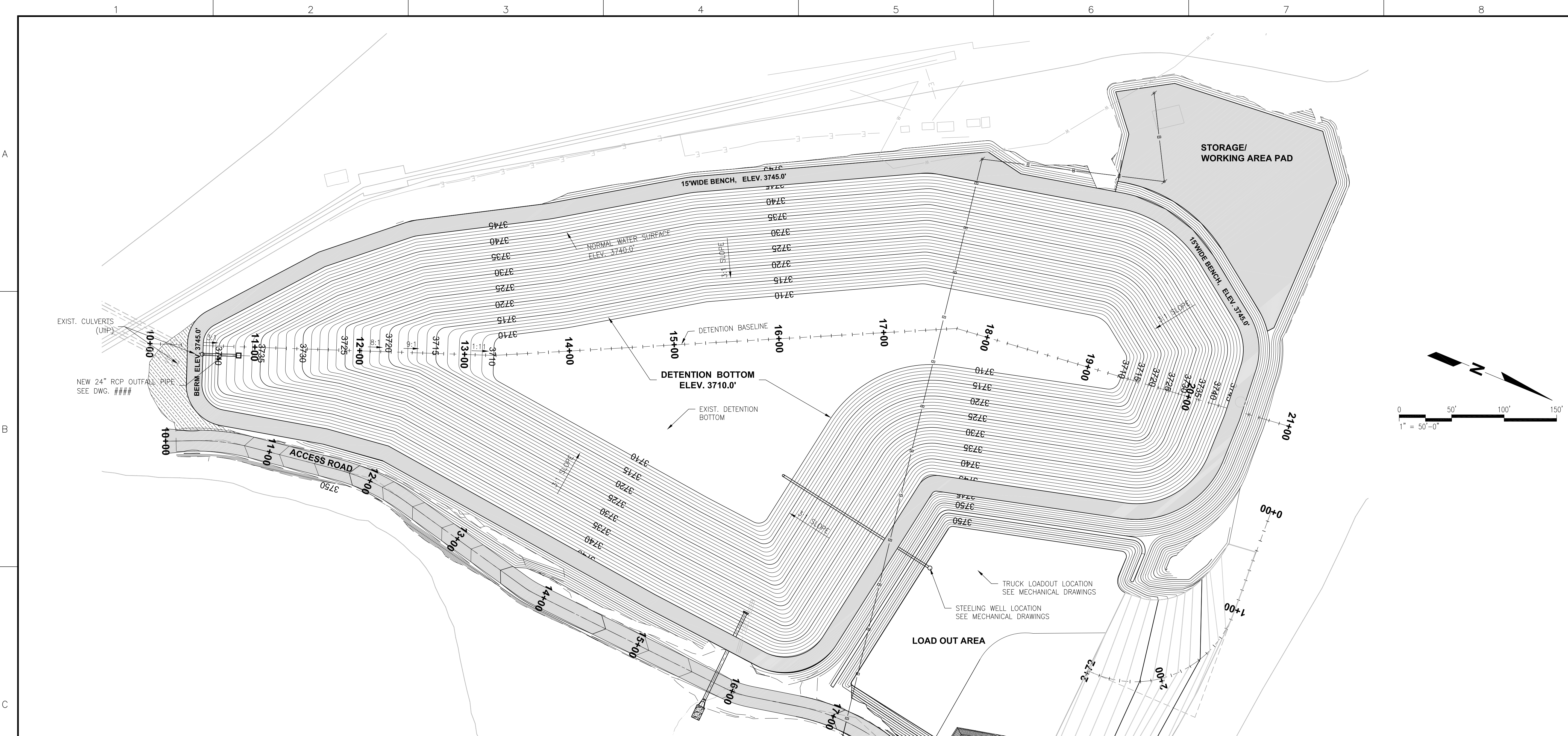


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One Campbell Plaza
St. Louis, Missouri 63139
Missouri State Certificate of Authority # 1271



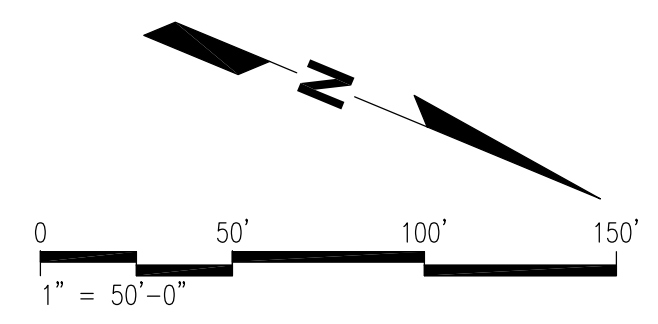
CLOUD PEAK
ENERGY

SPRING CREEK MINE



- GENERAL NOTES:**
1. INSTALL 45 MIL. THICK GEOMEMBRANE ON ENTIRE BOTTOM AND SIDE SLOPES OF THE DETENTIONS. REFER TO INSTALLATION GUIDELINES SPECIFICATIONS AND DETAILS AS SHOWN ON DRAWING ##### AND #####.
 2. SEE DRAWING #####, #####, ##### & ##### FOR DETENTION SECTIONS.
 3. SEE DRAWING ##### FOR ACCESS ROAD PROFILE.

DETENTION BASELINE PROFILE
HORIZ. SCALE: 1"=50'
VERT. SCALE: 1"=50'



REV.	DATE	DESCRIPTION	APPROVED
1	05/24/12	ISSUED FOR BIDDING	RED



DRAWN BY KP
CHECKED BY MWB
SCALE SHOWN
DATE 5/7/12

SPRING CREEK MINE
CPE-CARBONY Y LINED RESERVOIR
TRAP 23
DETENTION BASELINE PROFILE

PROJECT NO. 11096
DRAWING NO. C-204

T:\11096 - spring creek lined reservoir\civil design dwgs\050412\Civil Dwgs\11096 Details.dwg TYLER REED

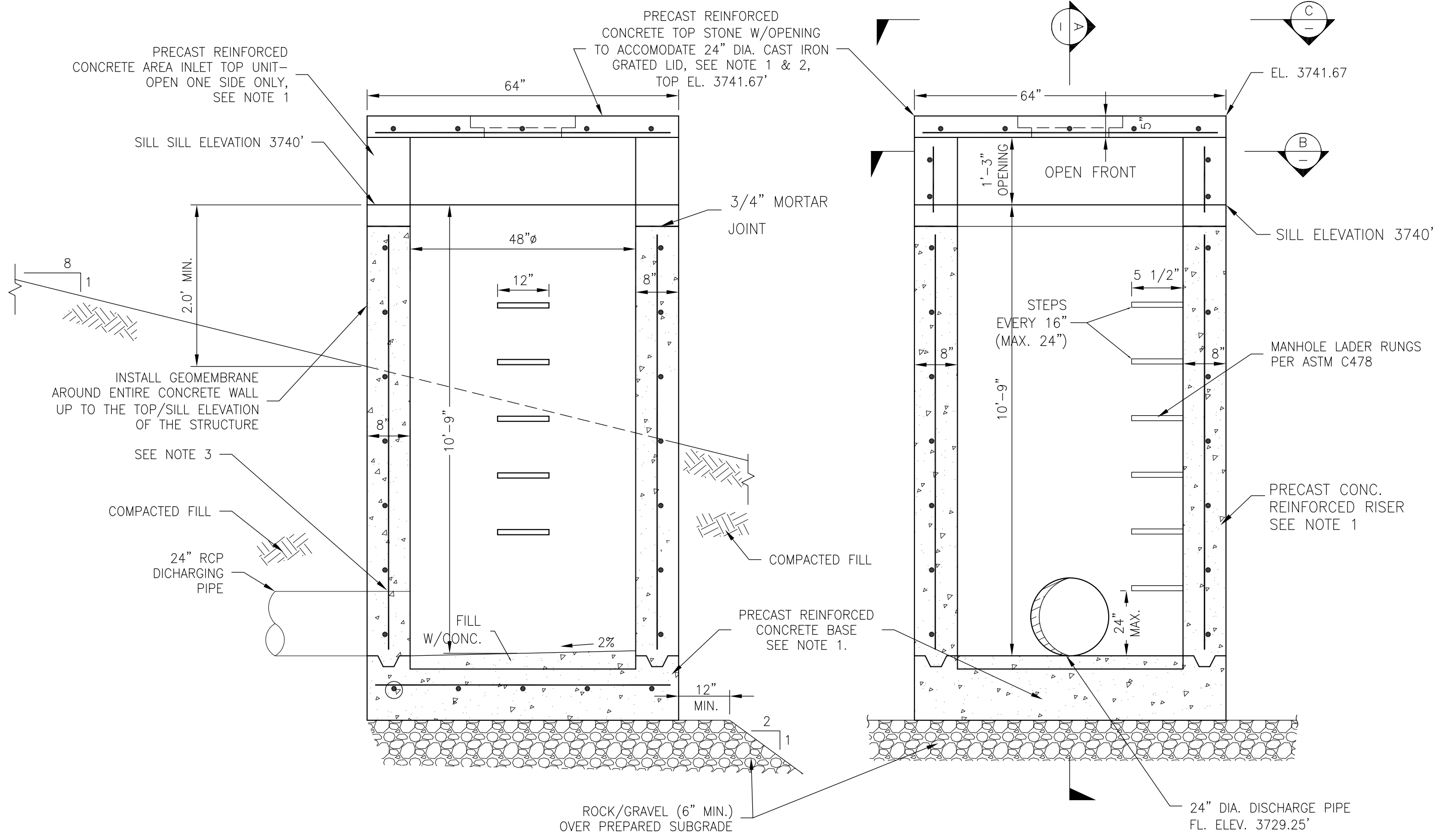
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A

B

C

D

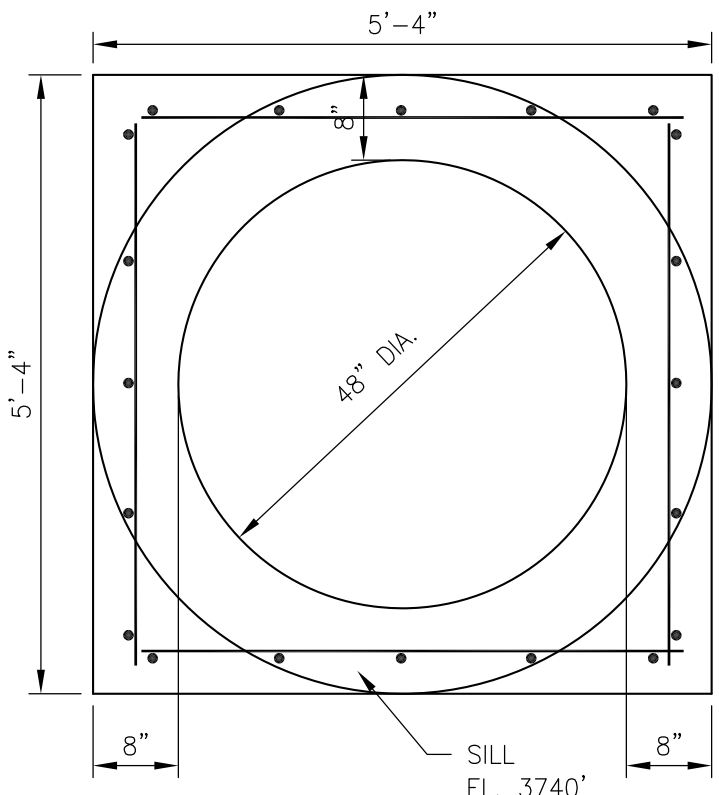


SECTION

SCALE: NTS

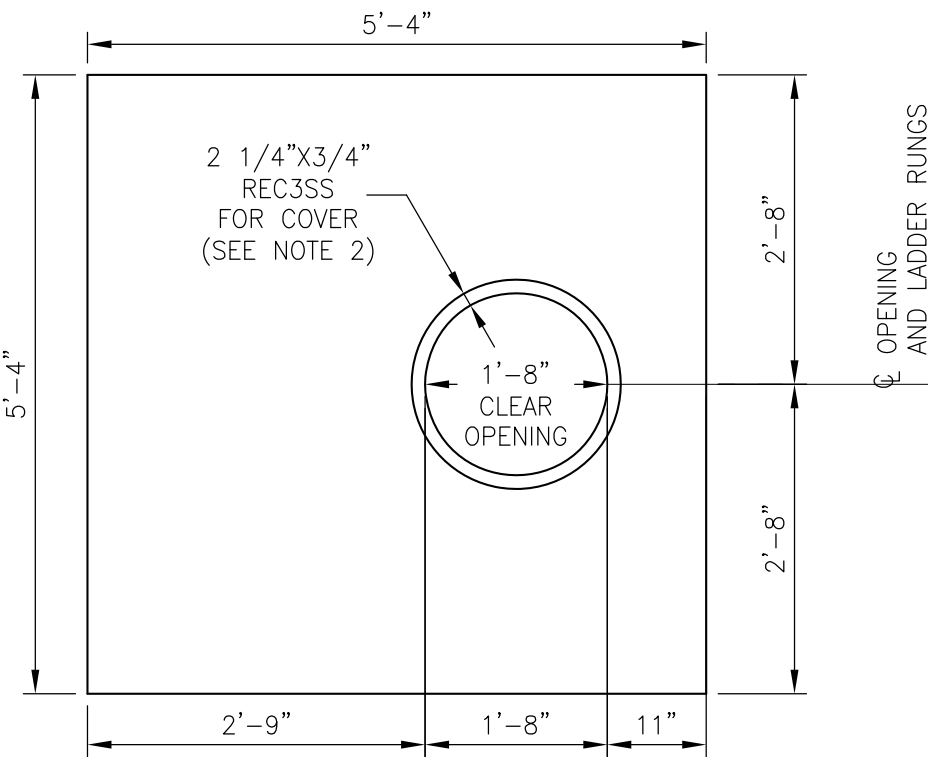
FRONT VIEW

SCALE: NTS



SECTION - AREA INLET TOP UNIT

SCALE: NTS



SECTION - TOP STONE

SCALE: NTS

OVERFLOW STRUCTURE (TYP.)

SCALE: NTS



GEOMEMBRANE APPLICATION ON STRUCTURE WALLS

SCALE: NTS

GENERAL NOTES:

1. ENTIRE OVERFLOW STRUCTURE INCLUDING BASE, RISER, AREA INLET TOP UNIT AND TOP STONE SHALL BE PRECAST REINFORCED CONCRETE MEETING THE REQUIREMENTS OF ASTM C478.
2. PROVIDE AND INSTALL 24" DIA. LIGHT DUTY CAST IRON GRATED INLET TOP COVER NEENAH MODEL #R-4380-21/ OR EQUAL.
3. PROVIDE AND INSTALL PATENTED COMPRESSION TYPE JOINT, E.G. "A-LOCK" BETWEEN PIPE AND OVERFLOW STRUCTURE.

SPRING CREEK MINE
CPE-CARBONE Y LINED RESERVOIR
TRAP 23
SECTIONS AND DETAILS

PROJECT NO.

11096

DRAWING NO.

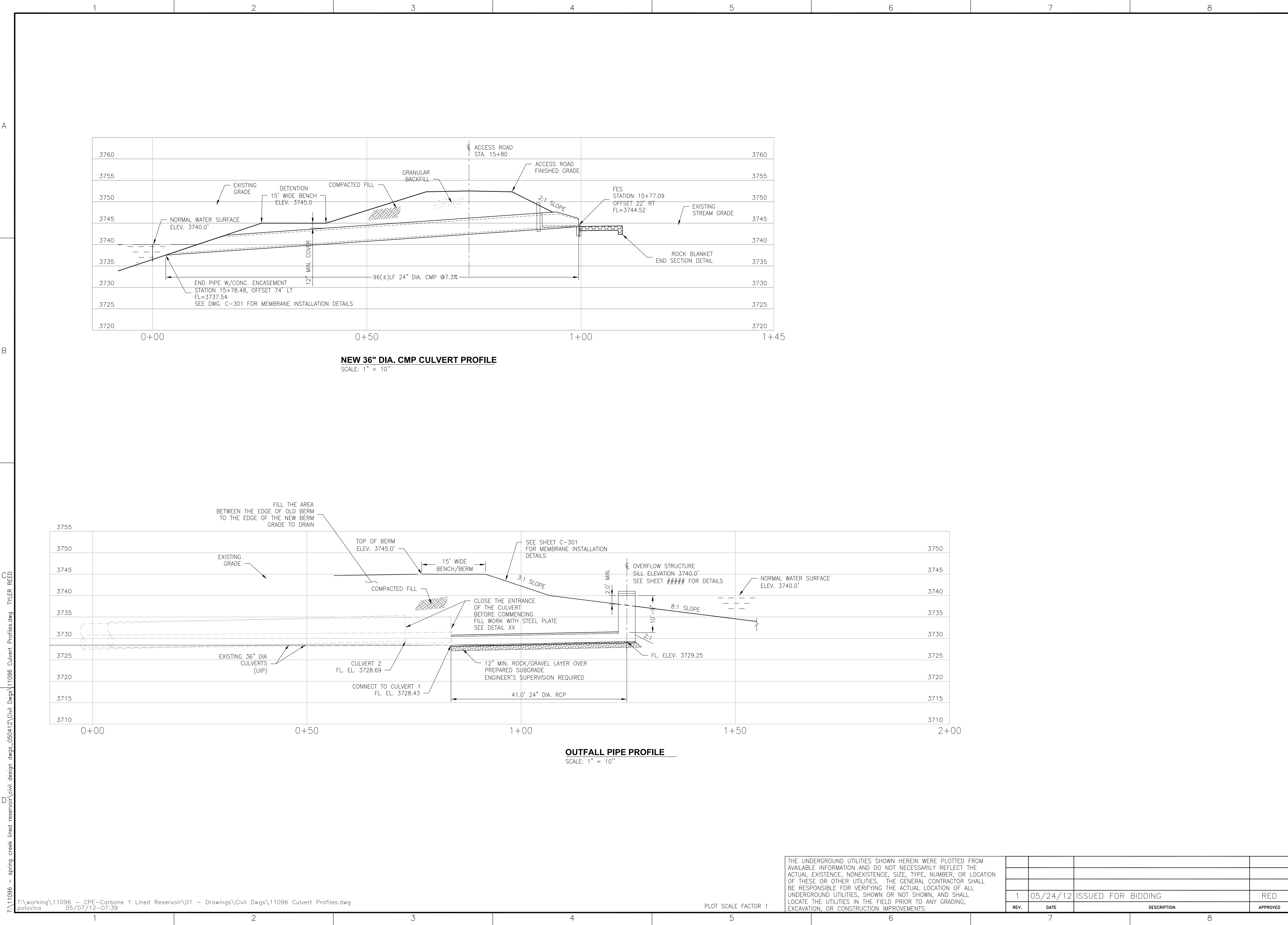
C-302

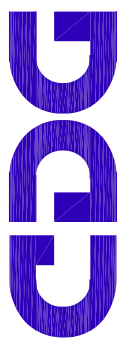


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1 2 3 4 5 6 7 8





ENGINEERS
CDG Engineers Architects Planners Inc.
One Campbell Plaza
St. Louis, Missouri 63139
Missouri State Certificate of Authority # 1271





SPRING CREEK MINE

DRAWN BY
KP
CHECKED BY
MWB
SCALE ON 22"x34"
SHOWN
DATE
12/13/11

SPRING CREEK MINE
CPE-CARBONE Y LINED RESERVOIR
TRAP 23
CULVERT & OUTFALL PIPE PROFILES

PROJECT NO.
11096
DRAWING NO.
C-401

1	05/24/12	ISSUED FOR BIDDING	RED
REV.	DATE	DESCRIPTION	APPROVED