

ADDENDUM C

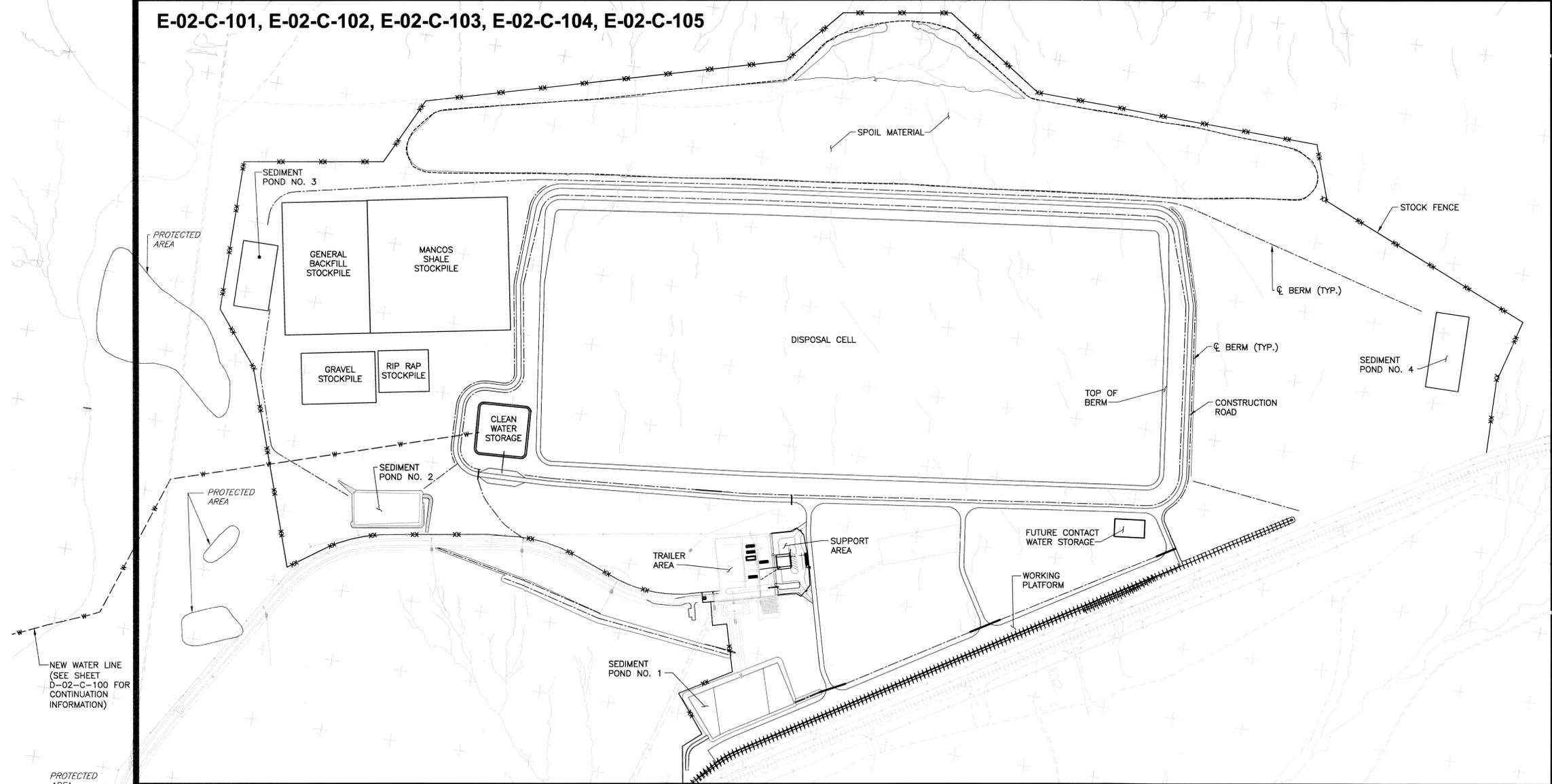
Final Remedial Action Plan
DOE-EM/GJ1547
July 2008

Final Design Drawings

Number	Title	
E-02-C-100	Overall Site Plan/Key Plan	
E-02-C-101	Overall Cell Layout Plan	
E-02-C-102	Overall Cell Grading Plan	
E-02-C-103	Overall Cell Top of Waste Plan	
E-02-C-104	Overall Cell Cap Plan/Fencing Plan	
E-02-C-105	Rock Cover Plan	
E-02-C-300	Disposal Cell Cross Sections	
E-02-C-301	Disposal Cell Cross Sections	
E-02-C-500	Details – 1	
E-02-C-501	Details – 2	



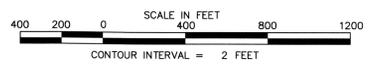
E-02-C-101, E-02-C-102, E-02-C-103, E-02-C-104, E-02-C-105



NEW WATER LINE
(SEE SHEET
D-02-C-100 FOR
CONTINUATION
INFORMATION)

**THIS DRAWING CONTAINS
QUALITY LEVEL 2 ITEMS**

QA-1 QUALITY LEVEL:
ALL EARTHWORK ACTIVITIES FOR THE DISPOSAL CELL AT CRESCENT JUNCTION,
INCLUDING: THE CELL EXCAVATION, CONSTRUCTION OF THE PERIMETER
EMBANKMENTS, RRM PLACEMENT, WASTE CELL SPOIL MATERIAL EMBANKMENT,
AND PERIMETER DITCHES ARE DESIGNATED AS QUALITY LEVEL 2.

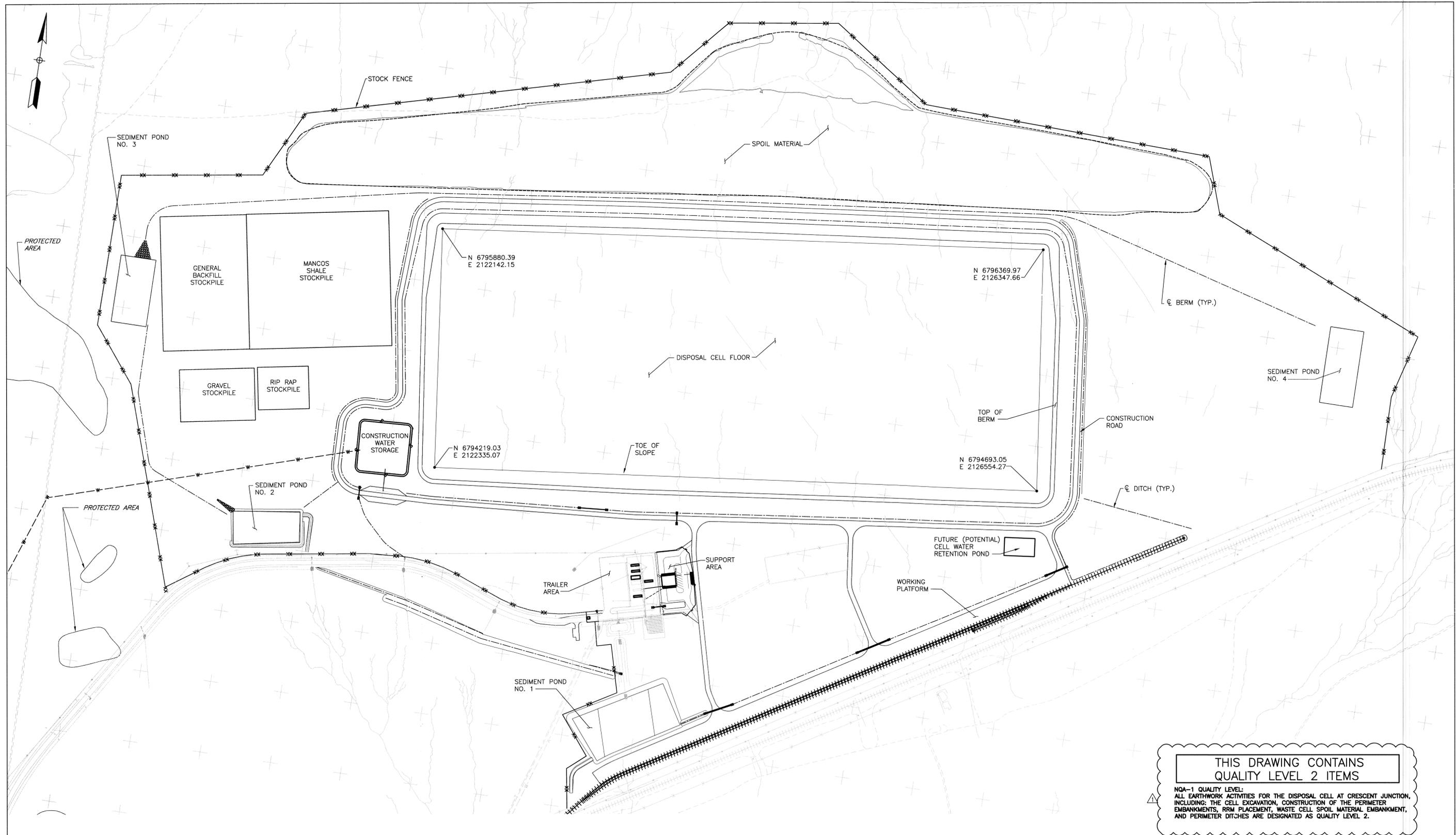


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125 Broadway Ave., Oak Ridge, Tennessee 37830
Tel: 865-220-4800 Fax: 865-220-6170
JACOBS PROJECT NO: 35J2500

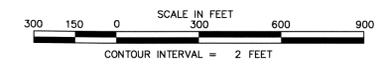


1	04/23/08	Added Quality Assurance Level Notes	JGA	FMP	WDB	MED
0	12/17/07	Issued For Construction	LLE	FMP	-	-
PROJECT LOCATION		U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO		EnergySolutions / Jacobs Under DOE Contract No. DE-AM08-05SR2406		
PROJECT DESIGN		RAP DISPOSAL CELL DESIGN		MOAB UMITRA PROJECT		
APPROVALS		PROJECT BY: L ENGLAND 12/17/07 PROJECT BY: F PARTON 12/17/07 PROJECT BY: W BARTON 12/17/07 PROJECT BY: F PARTON 12/17/07 PROJECT BY: M OAKS 12/17/07 PROJECT BY: D SMITH 12/17/07		OVERALL CELL SITE PLAN/KEY PLAN		
PROJECT NO.		E-02-C-100		SHEET 1 OF 1		



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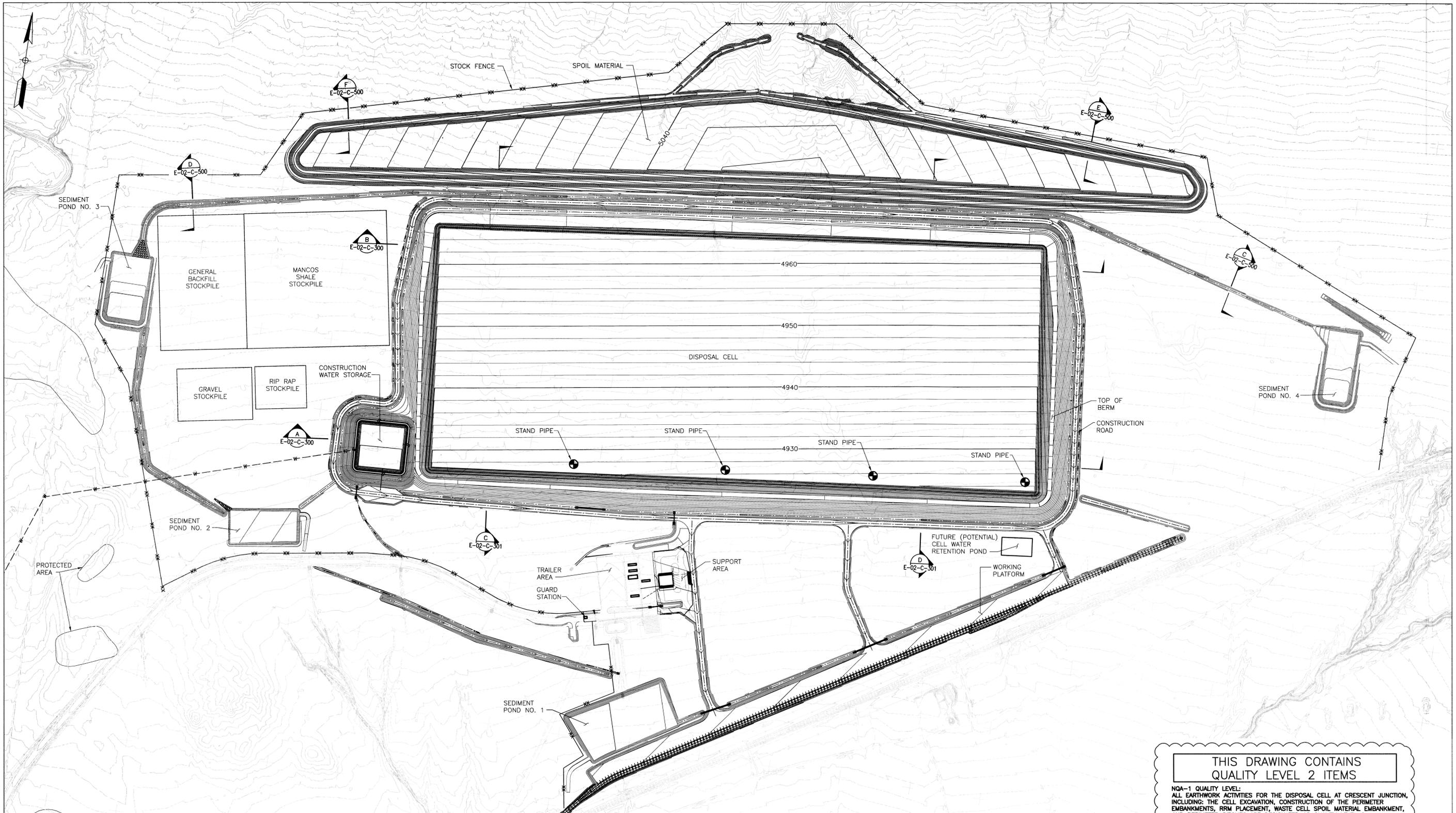


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JACOBS PROJECT NO. 350J2600

SEAL
REGISTERED PROFESSIONAL ENGINEER
FRANKLIN M. WARTON JR.
STATE OF UTAH

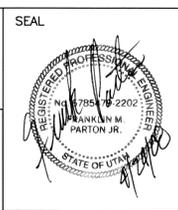
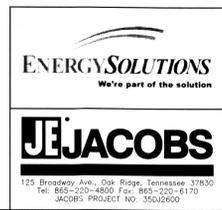
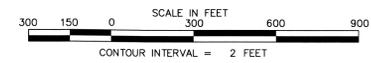
1	04/23/08	Added Quality Assurance Level Notes	JGA	FMP	W	MKO
0	12/17/07	Issued For Construction	LLE	FMP	-	-
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO			EnergySolutions / Jacobs Under DOE Contract No. DE-AM09-05SR22406			
PROJECT LOCATION: RAP DISPOSAL CELL DESIGN		APPROVALS		MOAB UMTRA PROJECT		
REFERENCE:		DESIGNED BY: L ENGLAND	CHECKED BY: F PARTON	OVERALL CELL LAYOUT PLAN		
		DRAWN BY: W BARTON	DATE: 12/17/07			
		PROJECT MANAGER: M OAKS	DATE: 12/17/07			
		PROJECT NO.:	DATE: 12/17/07	DRAWING NO. E-02-C-101		
				SHEET 1 OF 1		



NOTES:
 1. ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED, AND RE-VEGETATED BY OTHERS AT APPROPRIATE TIME.

THIS DRAWING CONTAINS
 QUALITY LEVEL 2 ITEMS

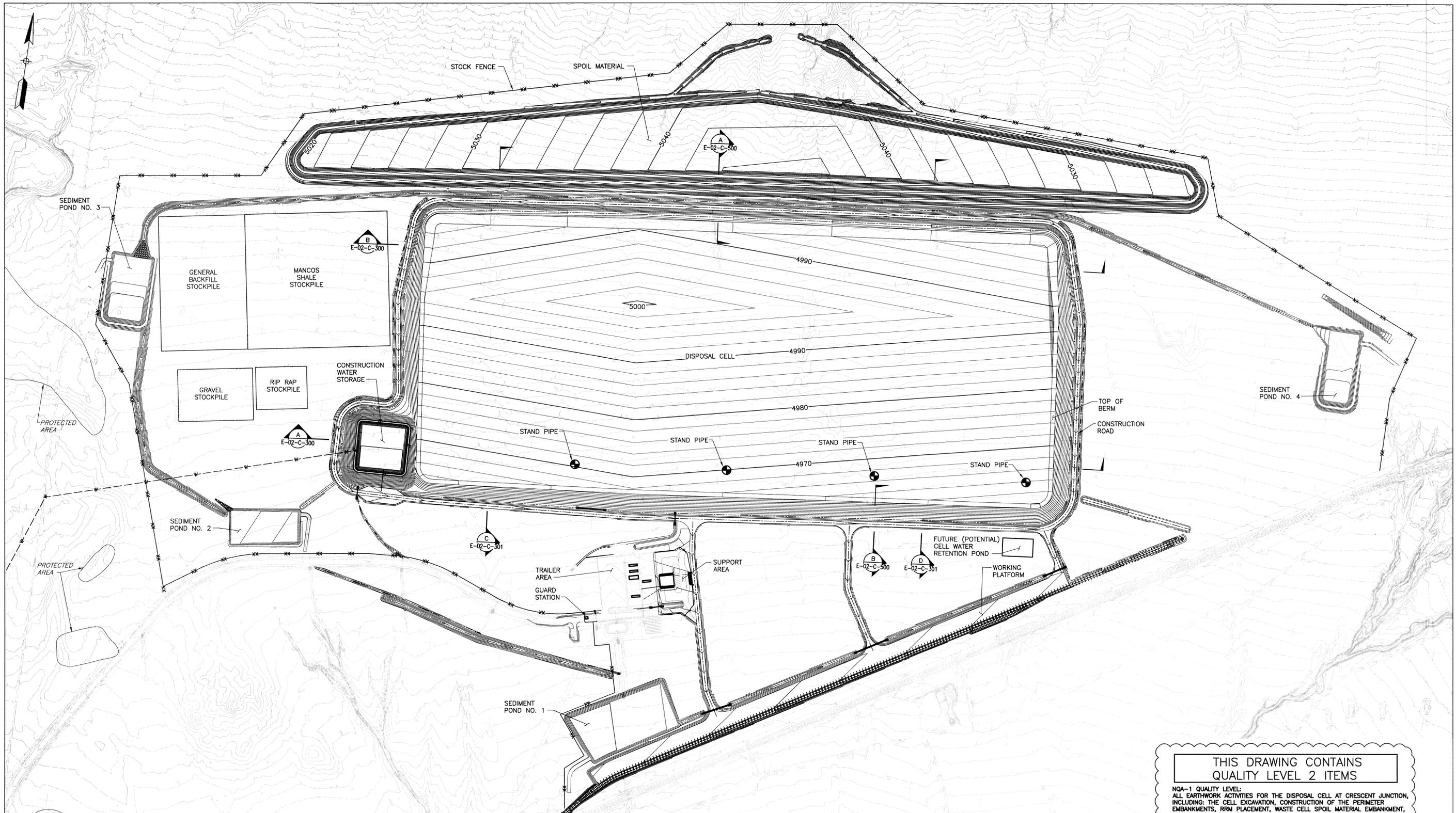
NOA-1 QUALITY LEVEL:
 ALL EARTHWORK ACTIVITIES FOR THE DISPOSAL CELL AT CRESCENT JUNCTION, INCLUDING: THE CELL EXCAVATION, CONSTRUCTION OF THE PERIMETER EMBANKMENTS, RRM PLACEMENT, WASTE CELL SPOIL MATERIAL EMBANKMENT, AND PERIMETER DITCHES ARE DESIGNATED AS QUALITY LEVEL 2.



2	04/23/08	Added Quality Assurance Level Notes	JGA	FMP	FMP	MLO
1	02/29/08	Changed monitoring well label to stand pipe	LLE	FMP	FMP	MLO
0	12/17/07	Issued For Construction	LLE	FMP	-	-

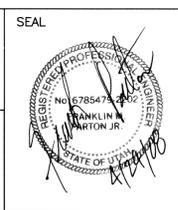
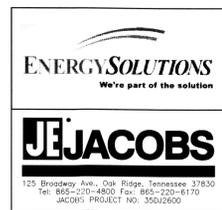
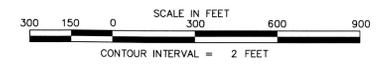
Work Performed by: _____
 APPROVED BY: _____

U.S. DEPARTMENT OF ENERGY		EnergySolutions / Jacobs	
GRAND JUNCTION, COLORADO		Under DOE Contract No. DE-AM09-05SR22406	
PROJECT LOCATION:	APPROVALS	MOAB UMTRA PROJECT	
RAP DISPOSAL CELL DESIGN	DESIGNED BY: L. ENGLAND	DATE: 12/17/07	OVERALL CELL GRADING PLAN
	CHECKED BY: C. PARTON	DATE: 12/17/07	
	DESIGNED BY: W. BARTON	DATE: 12/17/07	
	CHECKED BY: F. PARTON	DATE: 12/17/07	
	PROJECT MANAGER: M. OAKS	DATE: 12/17/07	
PROJECT MANAGER: D. SMITH	DATE: 12/17/07	PROJECT NO. E-02-C-102	SHEET 1 OF 1



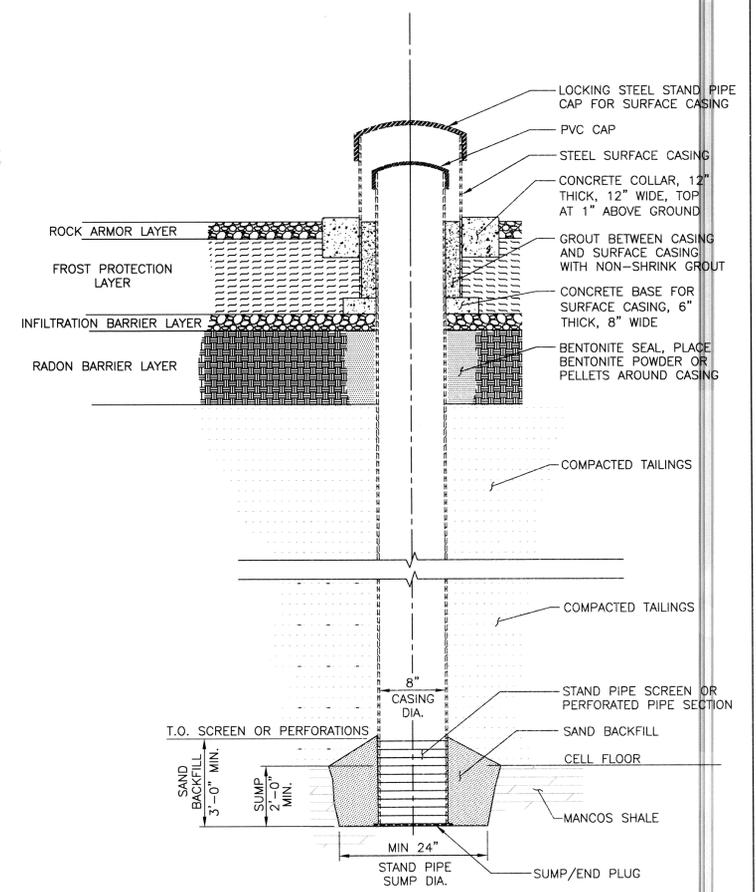
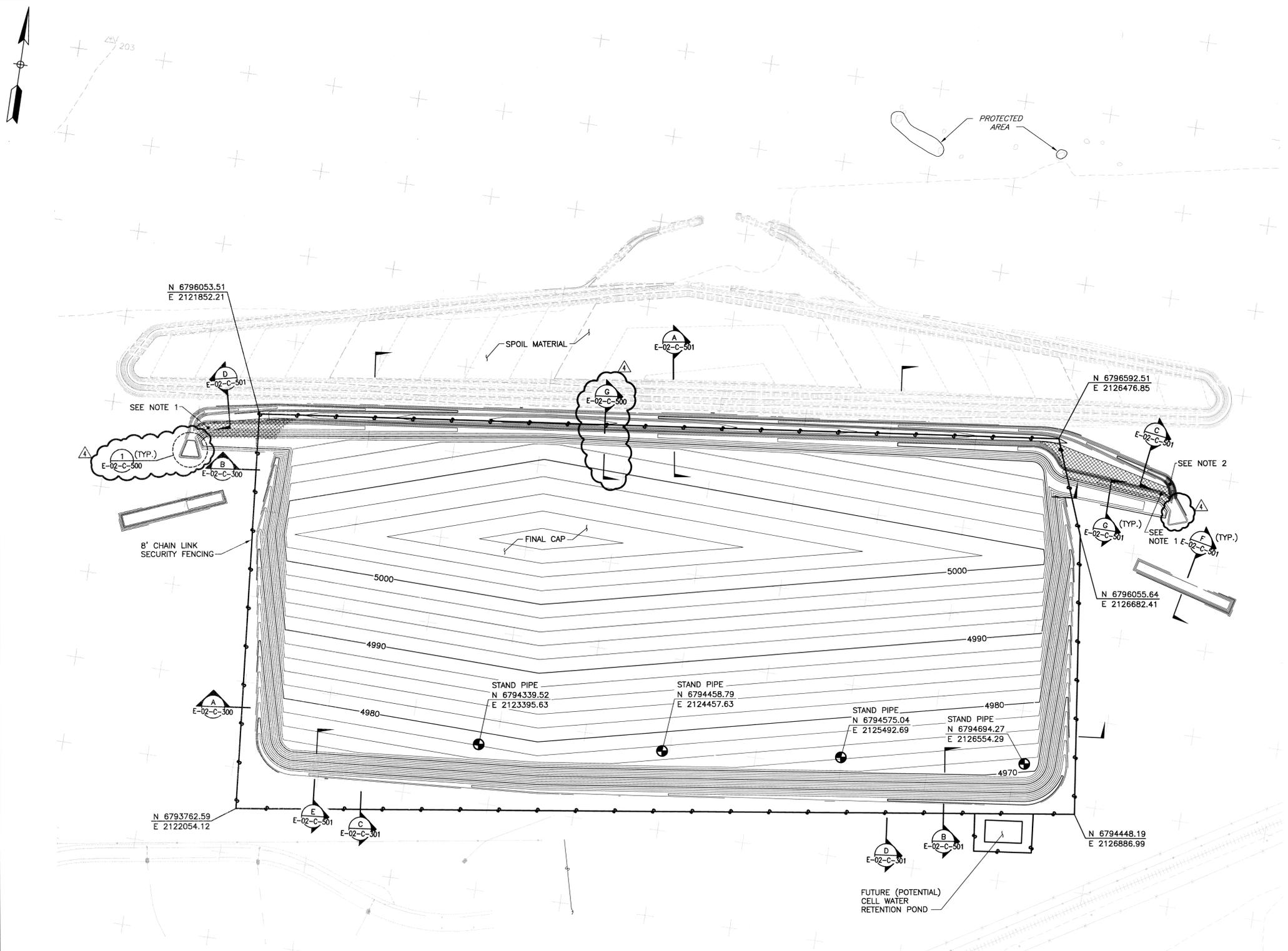
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2	04/23/08	Added Quality Assurance Level Notes	JGA	FMP	MLO
1	02/29/08	Changed monitoring well label to stand pipe	LLE	FMP	MLO
0	12/17/07	Issued For Construction	LLE	FMP	MLO

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO		EnergySolutions / Jacobs Under DOE Contract No. DE-AM09-05SR22406																								
PROJECT LOCATION: RAP DISPOSAL CELL DESIGN	APPROVALS	MOAB UMTRA PROJECT																								
REFERENCE:	APPROVALS	OVERALL CELL TOP OF WASTE PLAN																								
	<table border="1"> <tr> <td>DESIGNED BY:</td> <td>L ENGLAND</td> <td>DATE:</td> <td>12/17/07</td> </tr> <tr> <td>DRAWN BY:</td> <td>F PARTON</td> <td>DATE:</td> <td>12/17/07</td> </tr> <tr> <td>CHECKED BY:</td> <td>W BARTON</td> <td>DATE:</td> <td>12/17/07</td> </tr> <tr> <td>PROJECT MANAGER:</td> <td>F PARTON</td> <td>DATE:</td> <td>12/17/07</td> </tr> <tr> <td>PROJECT ENGINEER:</td> <td>M OAKS</td> <td>DATE:</td> <td>12/17/07</td> </tr> <tr> <td>DESIGNER:</td> <td>D SMITH</td> <td>DATE:</td> <td>12/17/07</td> </tr> </table>	DESIGNED BY:	L ENGLAND	DATE:	12/17/07	DRAWN BY:	F PARTON	DATE:	12/17/07	CHECKED BY:	W BARTON	DATE:	12/17/07	PROJECT MANAGER:	F PARTON	DATE:	12/17/07	PROJECT ENGINEER:	M OAKS	DATE:	12/17/07	DESIGNER:	D SMITH	DATE:	12/17/07	PROJECT NO. E-02-C-103
DESIGNED BY:	L ENGLAND	DATE:	12/17/07																							
DRAWN BY:	F PARTON	DATE:	12/17/07																							
CHECKED BY:	W BARTON	DATE:	12/17/07																							
PROJECT MANAGER:	F PARTON	DATE:	12/17/07																							
PROJECT ENGINEER:	M OAKS	DATE:	12/17/07																							
DESIGNER:	D SMITH	DATE:	12/17/07																							
		SHEET	1 OF 1																							

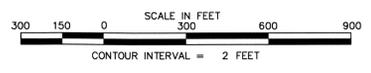


- NOTES:**
1. TOP OF STAND PIPE SURFACE CASING, 3 FT ABOVE FINAL GROUND SURFACE.
 2. TOP OF CASING TO BE 2.5 FT ABOVE FINAL GROUND SURFACE.
 3. SURVEY THE AS-BUILT LOCATION AND ELEVATION OF THE TOP OF CASING AND TAG THE STAND PIPE CAP WITH THE COORDINATES, ELEVATION, AND STAND PIPE NUMBER.
 4. STAND PIPE NUMBER SHALL BE AS DIRECTED BY THE CONSTRUCTION MANAGER.
 5. STAND PIPE CASING AND SCREEN TO BE SCHEDULE 80 PVC WITH THREADED AND COUPLED OR FLUSH JOINT FITTINGS.
 6. ANNULAR FILL TO BE CEMENT/BENTONITE GROUT.
 7. STAND PIPE SURFACE CASING SHALL BE CARBON STEEL SCH. 40.

STAND PIPE DETAIL
SCALE: NONE

- NOTES:**
1. COVER HATCHED AREA WITH D50=3" CRUSHED STONE.
 2. FOR THIS SECTION OF DITCH USE D50=8" CRUSHED STONE.
 3. REVISION 1 - REVISED GRADING AND CHANGED MONITORING WELL LABEL TO STAND PIPE.
 4. REVISION 2 - MODIFIED DIVERSION BERMS, MODIFIED E/W DITCH ALONG NORTH SIDE TO BE DIVERTED TO OUTFALLS AWAY FROM DISPOSAL CELL.

QUALITY LEVEL 2



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JACOBS PROJECT NO: 35D2600

SEAL

4	07/9/08	Revised Detail 1 & added Section G	JCA	EJP	WOB	WJ
3	04/24/08	Added Quality Assurance Level Notes	LLE	FMP	-	M OAKS
0	12/17/07	Issued For Construction	LLE	FMP	-	-

Work Performed By: PROJECT #

U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO

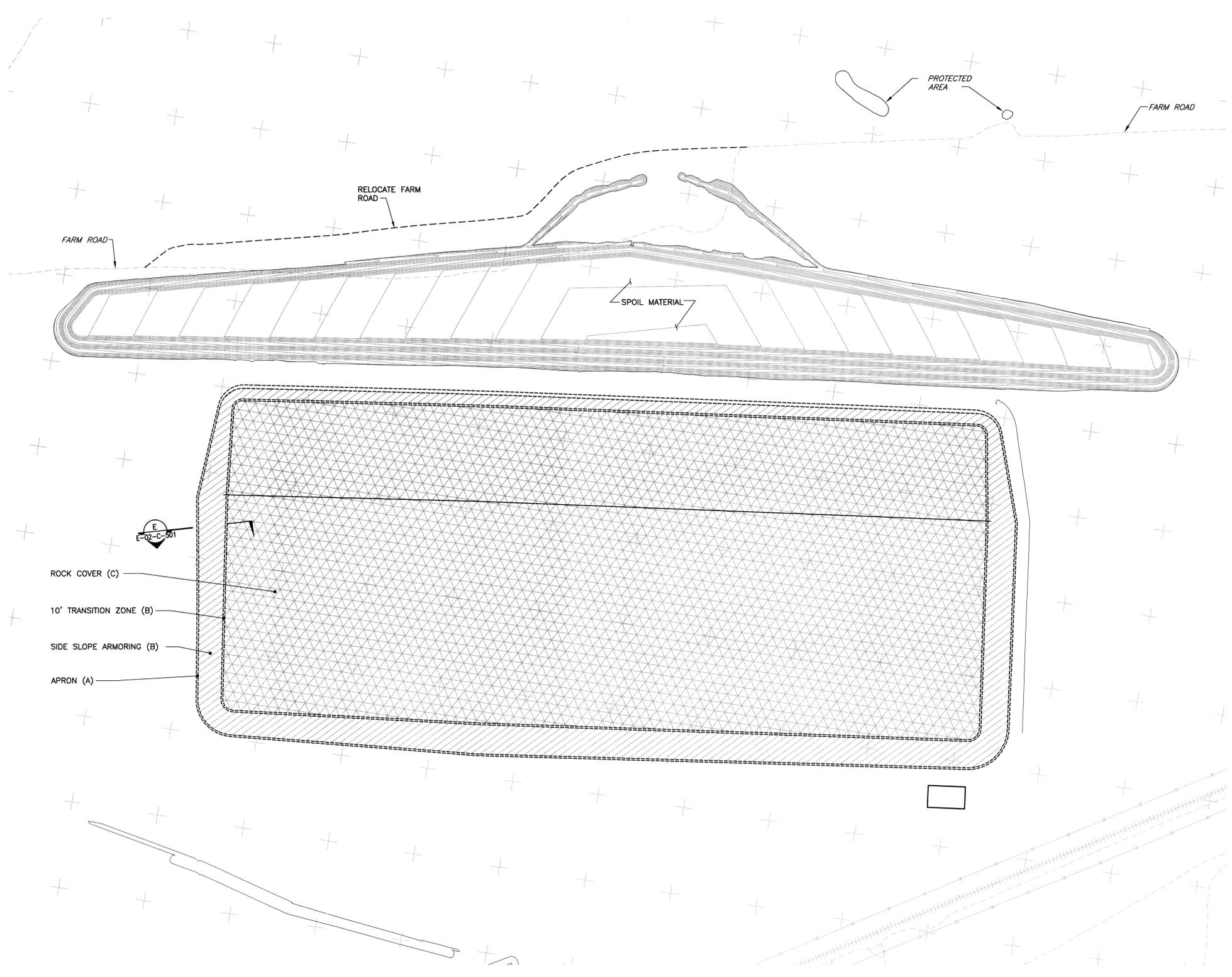
EnergySolutions / Jacobs
Under GDC Contract No. DE-AM09-05SR22406

MOAB UMTRA PROJECT

OVERALL CELL CAP PLAN/
FENCING PLAN

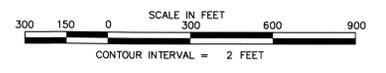
PROJECT NO. E-02-C-104

SHEET 1 OF 1



- ROCK COVER (C)
- 10' TRANSITION ZONE (B)
- SIDE SLOPE ARMORING (B)
- APRON (A)

E
E-02-C-501



QUALITY LEVEL 2

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JACOBS PROJECT NO. 3502600



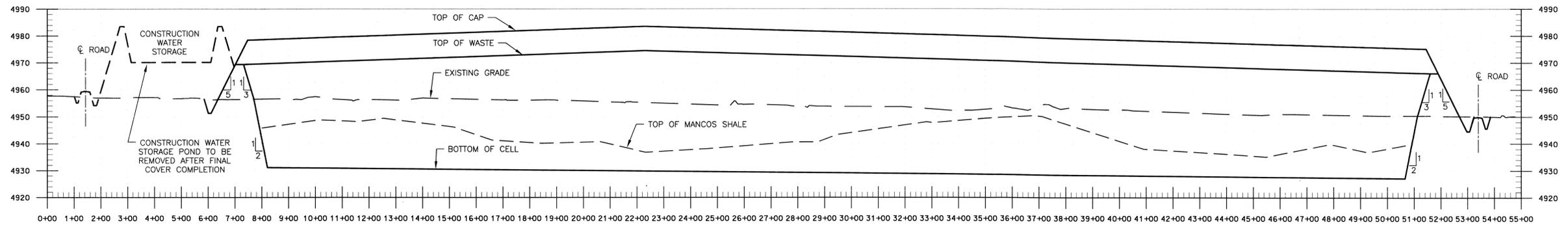
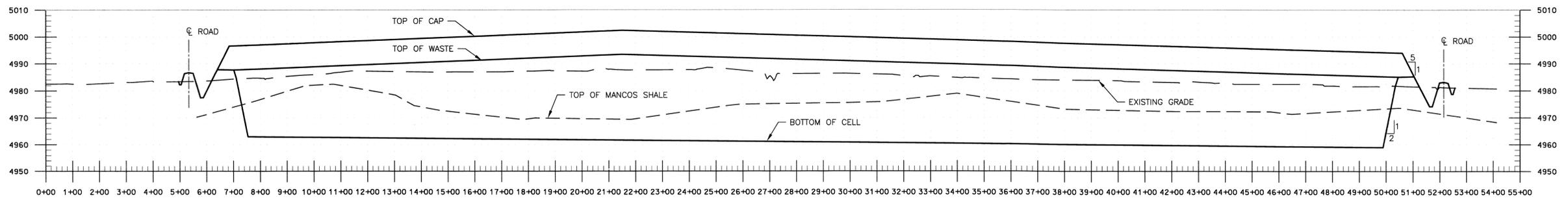
REVISION NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	PROJECT MGR	APPROVAL
1	04/23/08	Added Quality Assurance Level Notes	JGA	LLE	FMP	
0	12/17/07	Issued For Construction	LLE	FMP		

Work Performed By: **U.S. DEPARTMENT OF ENERGY**
Grand Junction, Colorado

EnergySolutions / Jacobs
Under GSE Contract No. DE-AM09-05SR22406

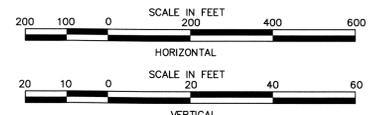
PROJECT LOCATION	APPROVALS	DATE
RAP DISPOSAL CELL DESIGN	DESIGNED BY	L ENGLAND 12/17/07
	CHECKED BY	F PARTON 12/17/07
	APPROVED BY	W BARTON 12/17/07
	PROJECT MANAGER	F PARTON 12/17/07
REFERENCE	DESIGNED BY	M OAKS 12/17/07
	CHECKED BY	D SMITH 12/17/07

PROJECT NO. E-02-C-105
SHEET 1 OF 1



THIS DRAWING CONTAINS
 QUALITY LEVEL 2 ITEMS

NQA-1 QUALITY LEVEL:
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 JACOBS PROJECT NO: 3502600



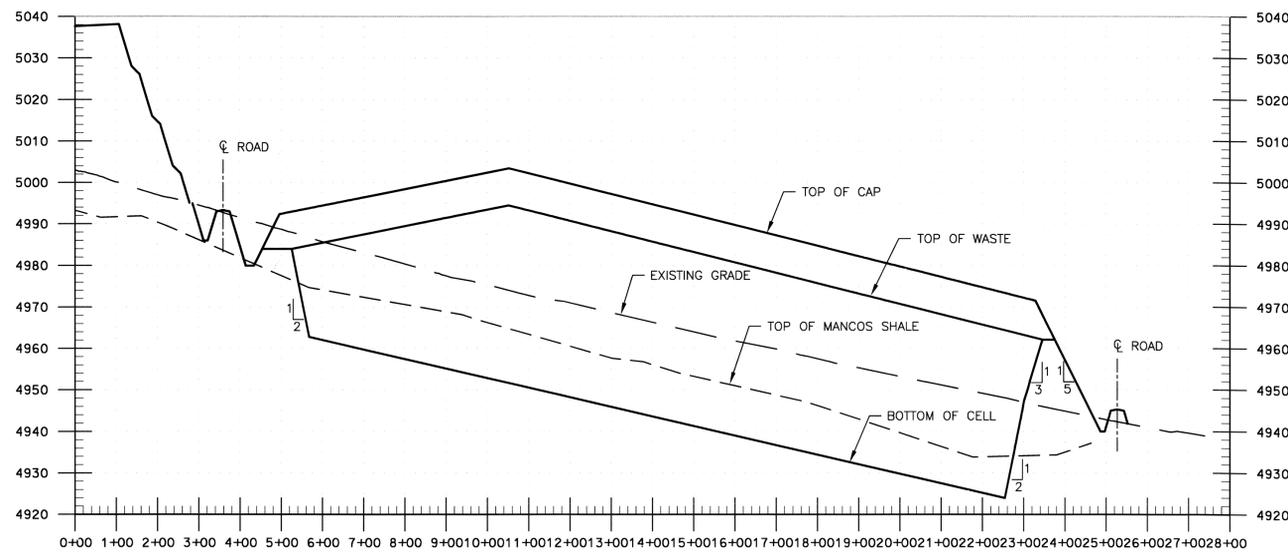
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0	12/17/07	Issued For Construction	LLE	FMP	-	-

Work Performed by

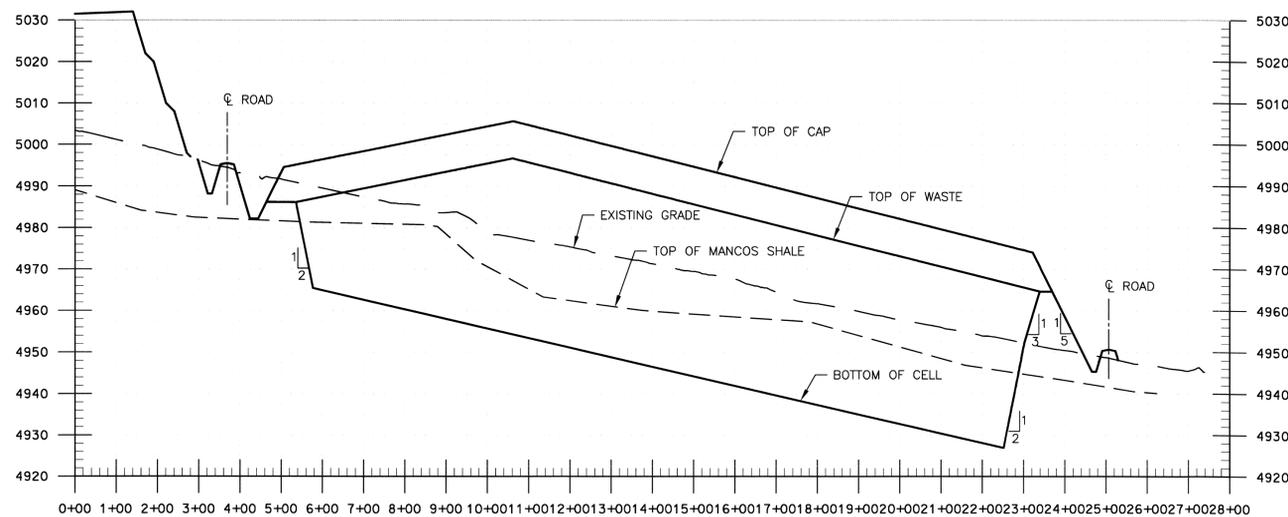
PROJECT LOCATION	GRAND JUNCTION, COLORADO		PROJECT NO.	MOAB UMITRA PROJECT	
DESIGNED BY	L ENGLAND	DATE	12/17/07	DISPOSAL CELL CROSS SECTIONS	
DRAWN BY	F PARTON	DATE	12/17/07		
CHECKED BY	W BARTON	DATE	12/17/07		
PROJECT MANAGER	F PARTON	DATE	12/17/07		
PROJECT MANAGER	M OAKS	DATE	12/17/07	PROJECT NO.	E-02-C-300
PROJECT MANAGER	D SMITH	DATE	12/17/07	DATE	12/17/07

Under DOE Contract No. DE-AM09-05SR22406

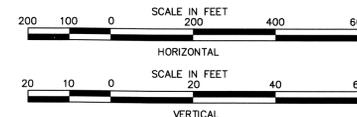
1 of 1



D SECTION
 E-02-C-102 SCALE: HORIZONTAL 1"=200'
 E-02-C-103 VERTICAL 1"=20'
 E-02-C-104



C SECTION
 E-02-C-102 SCALE: HORIZONTAL 1"=200'
 E-02-C-103 VERTICAL 1"=20'
 E-02-C-104



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1	04/23/08	Added Quality Assurance Level Notes	JGA	FMP	MLC
0	12/17/07	Issued For Construction	LLE	FMP	-

Work Performed by

PROJECT LOCATION	U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	
DESIGNED BY	L ENGLAND	12/17/07
PROJECT NO.	F PARTON	12/17/07
PROJECT NO.	W BARTON	12/17/07
PROJECT NO.	F PARTON	12/17/07
PROJECT MANAGER	M OAKS	12/17/07
PROJECT NO.	D SMITH	12/17/07

Under DCE Contract No. DE-AM09-05SR22406

MOAB UMTRA PROJECT

DISPOSAL CELL CROSS SECTIONS

PROJECT NO. E-02-C-301

1 of 1

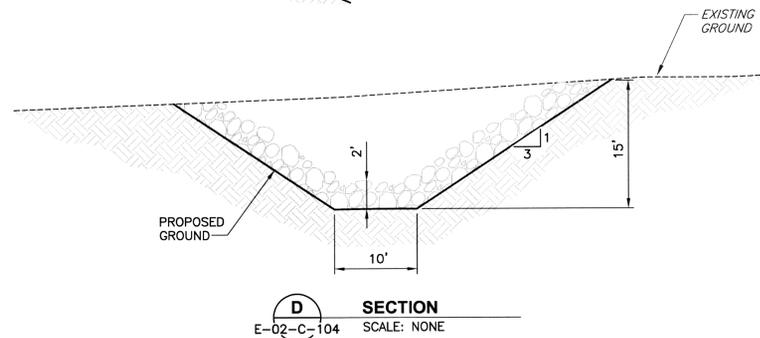
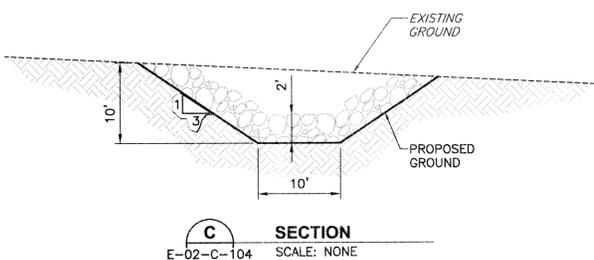
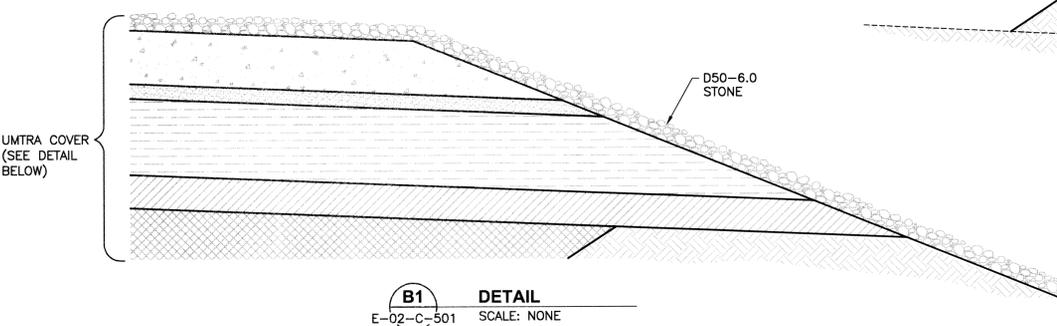
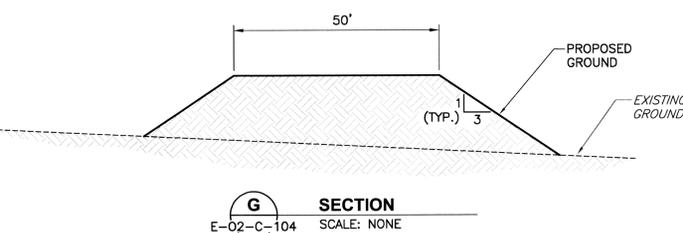
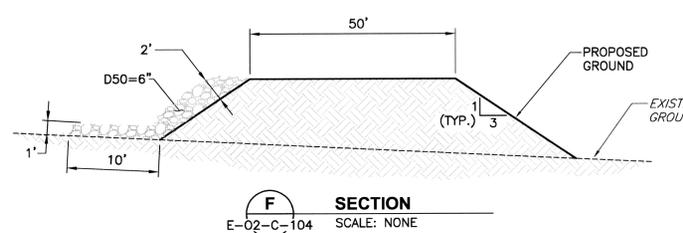
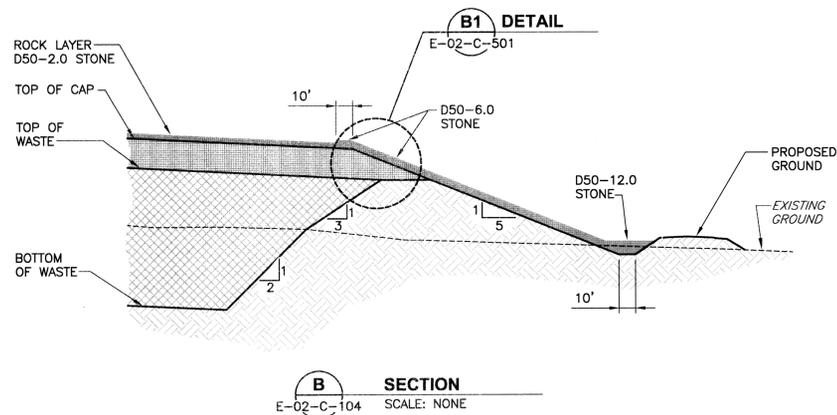
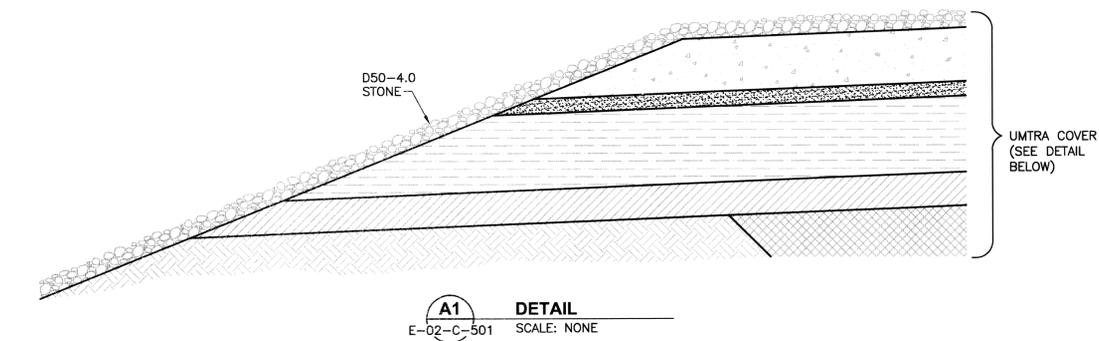
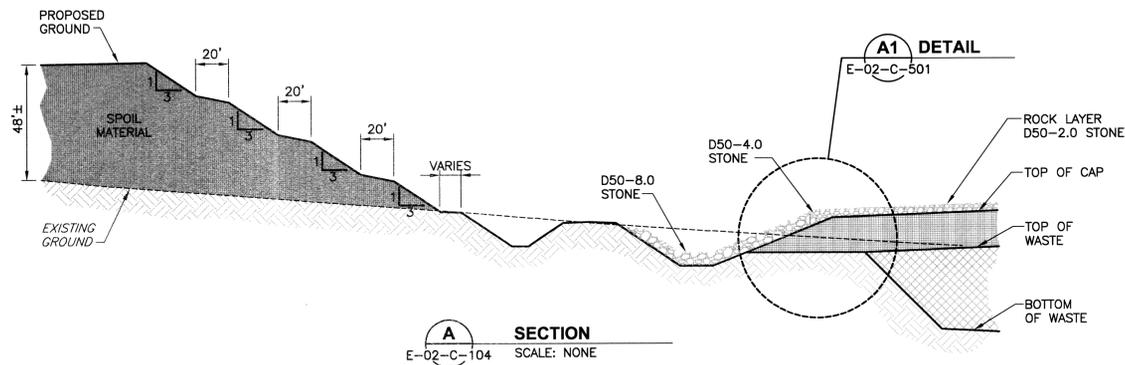
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 Tel: 865-220-4800 Fax: 865-220-6170
 JACOBS PROJECT NO: 350J2600

SEAL

FRANKLIN M. PARTON JR.
 PROFESSIONAL ENGINEER
 STATE OF TENNESSEE



NORTH

	AREA (ACRES)	Q/UNIT WIDTH (INCHES)	D50* (INCHES)	D50 (USED) (INCHES)	THICKNESS (INCHES)
A	1.95	0.55	8.2	8.0	24.0
B	7.0	0.55	4.0	4.0	8.0
C	55.85	0.54	1.2	2.0	4.0

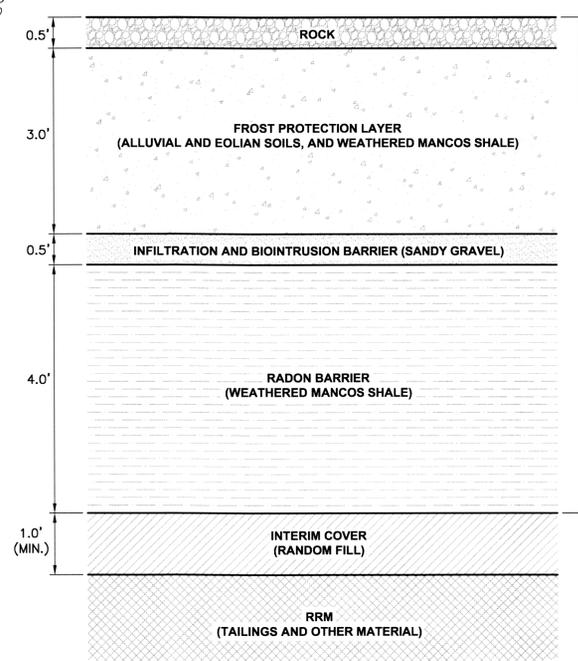
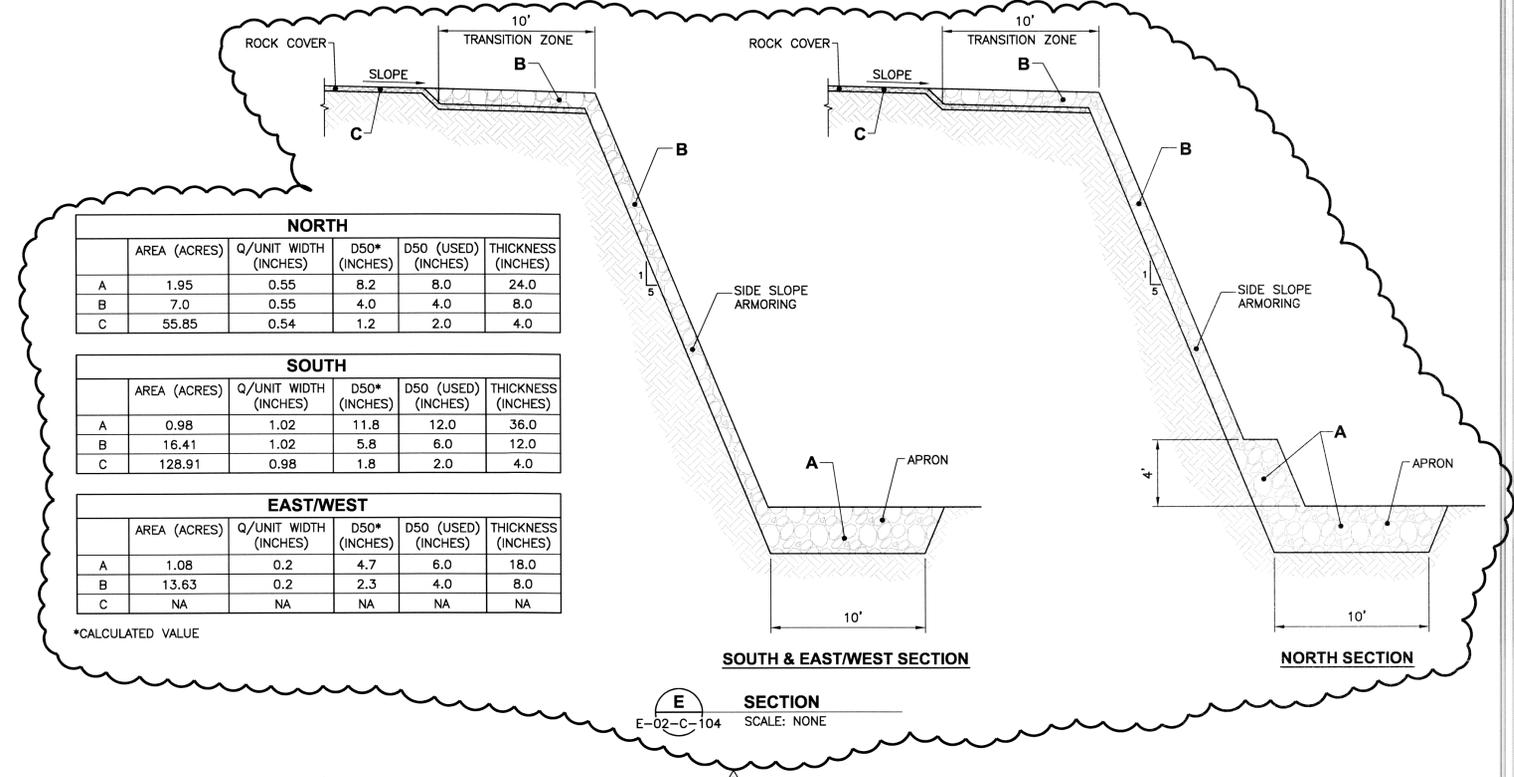
SOUTH

	AREA (ACRES)	Q/UNIT WIDTH (INCHES)	D50* (INCHES)	D50 (USED) (INCHES)	THICKNESS (INCHES)
A	0.98	1.02	11.8	12.0	36.0
B	16.41	1.02	5.8	6.0	12.0
C	128.91	0.98	1.8	2.0	4.0

EAST/WEST

	AREA (ACRES)	Q/UNIT WIDTH (INCHES)	D50* (INCHES)	D50 (USED) (INCHES)	THICKNESS (INCHES)
A	1.08	0.2	4.7	6.0	18.0
B	13.63	0.2	2.3	4.0	8.0
C	NA	NA	NA	NA	NA

*CALCULATED VALUE



Final Cover

	Volume (CY)	Volume (MCY)
Waste	1120000	11.2
Interim Cover	298144	0.298
Radon Barrier	1192576	1.193
Infiltration Barrier	149072	0.149
Frost Protection Layer	894432	0.894

	Vol (CF) D ₉₀ 12 in	Vol (CF) D ₉₀ 8 in	Vol (CF) D ₉₀ 6 in	Vol (CF) D ₉₀ 4 in	Vol (CF) D ₉₀ 2 in
Total Vol A	130680	169884	71874	598224	2683296.0
Total Vol B					
Total Vol C					
Total (CF)	130680	169884	796258	598224	2683296
Total (ton)	6077	7900	36561	27817	156973

Each Additional 50' Expansion West

	Volume (CY)
Waste	123044
Interim Cover	3406
Radon Barrier	13622
Infiltration Barrier	1703
Frost Protection Layer	10217

	Vol (CF) D ₉₀ 12 in	Vol (CF) D ₉₀ 8 in	Vol (CF) D ₉₀ 6 in	Vol (CF) D ₉₀ 4 in	Vol (CF) D ₉₀ 2 in
Total Vol A	189	296	298	63	852
Total Vol B					
Total Vol C					
Total (CF)	189	296	298	63	852
Total (ton)	9	14	14	3	50

THIS DRAWING CONTAINS QUALITY LEVEL 2 ITEMS

QA-1 QUALITY LEVEL:
ALL EARTHWORK ACTIVITIES FOR THE DISPOSAL CELL AT CRESCENT JUNCTION, INCLUDING: THE CELL EXCAVATION, CONSTRUCTION OF THE PERIMETER EMBANKMENTS, RRM PLACEMENT, WASTE CELL SPOIL MATERIAL EMBANKMENT, AND PERIMETER DITCHES ARE DESIGNATED AS QUALITY LEVEL 2.

UMTRA COVER DESIGN

NOTE:

- REVISION 1 - ADDED UNITS OF MEASUREMENT TO ROCK COVER COLUMNS AND REVISED SECTION A.

ENERGYSOLUTIONS
We're part of the solution

JE JACOBS
125 Broadway Ave., Oak Ridge, Tennessee 37830
Tel: 865-320-4800 Fax: 865-220-6170
MCS05 PROJECT NO. 35D0900

SEAL

REGISTERED PROFESSIONAL ENGINEER
No. 078543-0002
FRANKLIN W. PARTON, JR.
STATE OF UTAH

3	07/9/08	Revised Sect. E & moved Det. 1 to E-02-C-500	LLE	FMP	WOB	[Signature]
2	04/24/08	Added Quality Assurance Level Notes	LLE	FMP	FMP	M OAKS
0	12/17/07	Issued For Construction	LLE	FMP	-	-

U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO

EnergySolutions / Jacobs
Under DOE Contract No. DE-AM09-05SR22406

PROJECT LOCATION: RAP DISPOSAL CELL DESIGN

APPROVALS:

DESIGNED BY	L ENGLAND	DATE	12/17/07
DRAWN BY	F PARTON	DATE	12/17/07
CHECKED BY	W BARTON	DATE	12/17/07
PROJECT MANAGER	F PARTON	DATE	12/17/07
APPROVED BY	M OAKS	DATE	12/17/07
PROJECT NO.	E-02-C-501		

MOAB UMTRA PROJECT
DETAILS - 2

PROJECT NO. E-02-C-501
SHEET 1 OF 1