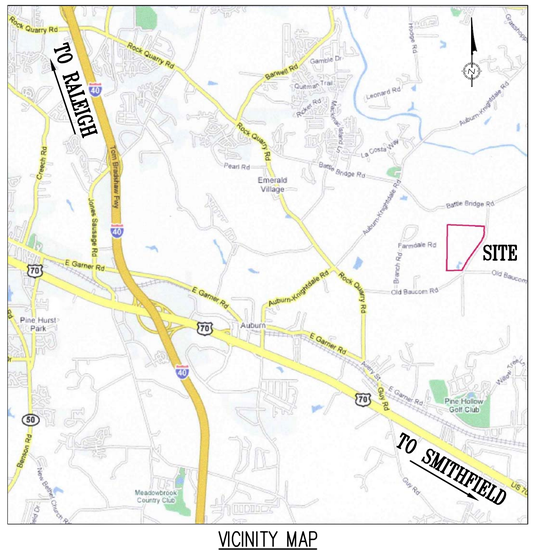
WCA WASTE CORPORATION, INC.
MATERIAL RECOVERY, LLC
BROWNFIELD ROAD C&D LANDFILL
PHASE 2 PERMIT MODIFICATIONS (PERMIT #92-31)
WAKE COUNTY, NORTH CAROLINA

JUNE 2008



VICINITY MAP
N.T.S.

SITE OWNER
MATERIAL RECOVERY, LLC

SITE ADDRESS
2600 BROWNFIELD ROAD
RALEIGH, NORTH CAROLINA, 27610

SITE CONTACT
DENNIS GEHL
TEL. (919)-779-3339

LIST OF DRAWINGS

SHEET NO'S	DRAWING NO'S	DRAWING TITLE
1	--	COVER SHEET W/VICINITY MAP
2	S1	REGIONAL CHARACTERIZATION MAP (2 MILE RADIUS, 1"= 2000')
3	S2	LOCAL AREA MAP (1"= 300')
4	S3	LOCAL AREA PHOTO (2000 FOOT RADIUS, 1"= 400')
5	S4	OVERALL FACILITY PLAN
6	S5	SITE BOUNDARY AND TEST BORING LOCATIONS
7	E1	CDLF PHASE 2 BASE GRADE CONTOURS
8	E2	INCREMENTAL FILL GRADES BY CELL SEQUENCE
9	E3	CDLF PHASE2 FINAL COVER CONTOURS
10	E4	GROUND WATER CONTOURS W/BASE GRADES
11	E5	BEDROCK CONTOURS W/BASE GRADES
12	X1	HYDROGEOLOGICAL CROSS SECTION A-A' (SHEET 1 OF 4)
13	X2	HYDROGEOLOGICAL CROSS SECTION B-B' (SHEET 2 OF 4)
14	X3	HYDROGEOLOGICAL CROSS SECTION C-C' (SHEET 3 OF 4)
15	X4	HYDROGEOLOGICAL CROSS SECTION D-D' (SHEET 4 OF 4)
16	EC1	FINAL CLOSURE SEDIMENT & EROSION CONTROL PLAN
17	EC2	SEDIMENT EROSION CONTROL DETAILS SHEET 1 OF 3
18	EC3	SEDIMENT EROSION CONTROL DETAILS SHEET 2 OF 3
19	EC4	SEDIMENT EROSION CONTROL DETAILS SHEET 3 OF 3
20	EC5	SEDIMENT & EROSION CONTROL SCHEDULES & NARRATIVE TEXT
21	MP1	GROUND WATER AND METHANE MONITORING PLAN

David Garrett & Associates

Engineering and Geology

5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

NORTH CAROLINA LICENSED PROFESSIONAL ENGINEER DAVID GARRETT
6-22-2008

NORTH CAROLINA LICENSED PROFESSIONAL GEOLOGIST DAVID GARRETT
6-22-2008

FILE NAME
WCA-2-COVER

E:\H&H-CAD\CAD\DGARRETT\WCA-2\SHEETS\PH2 CDLF PERMIT\dwgs dg\COVER SHT.dwg DATE: JUN 19, 2008 TIME: 10:34 AM

REFERENCE NOTES:

1. EXISTING TOPOGRAPHIC MAPPING OF THE IMMEDIATE C&D LANDFILL AREA PROVIDED BY AMI ENGINEERING, INC. COMPILED FROM AERIAL PHOTOGRAPHY TAKEN BY WESTERN AIR MAP DATED FEBRUARY 20, 2008.

2. EXISTING TOPOGRAPHIC MAPPING OF AREA SURROUNDING THE C&D LANDFILL PROVIDED BY SPATIAL DATA CONSULTANTS, INC., OF HIGH POINT, NORTH CAROLINA FROM AERIAL PHOTOGRAPHY DATED MARCH 27, 2001.

3. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC. & MARGARET TALTON" PREPARED BY TRC TRIANGLE, DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 1508, WAKE COUNTY REGISTER OF DEEDS.

LEGEND

- 800 — EXIST. INDEX CONTOURS
- EXIST. INTERMEDIATE CONTOURS
- EXIST. STREAM
- FACILITY BOUNDARY

0 300' 600' 900'
1" = 300'

DATE	NO.	REVISION

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

SEAL

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER DAVID GARRETT 6-22-2008

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL
PH2 PERMIT MODIFICATIONS (#92-31)
WAKE COUNTY, NORTH CAROLINA

DRAWING TITLE:
LOCAL AREA MAP

DESIGNED BY: G.D.G.	DRAWN BY: A.W.H.
CHECKED BY: G.D.G.	PROJECT NO.: WCA-2
SCALE: AS SHOWN	DATE: JUNE 2008
FILE NAME: LOCAL AREA MAP	
SHEET NO. 3	DRAWING NO. S2

E:\H&H-CAD\CAD\DGARRETT\WCA-2\SHEETS\PH2 CDLF PERMIT\dwgs dg\LOCAL AREA MAP.dwg DATE: JUN 19, 2008 TIME: 10:49 AM

REFERENCE NOTES:

1. AERIAL PHOTOGRAPHY IS FROM WAKE COUNTY GIS DEPARTMENT, COMPILED FROM WAKE COUNTY ORTHO PHOTOGRAPHY QUADS. CIRCA 2005.

2. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC. & MARGARET TALTON" PREPARED BY TRC TRIANGLE, DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 1508, WAKE COUNTY REGISTER OF DEEDS.

0 400' 800' 1200'
1" = 400'

DATE	NO.	REVISION

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

SEAL

SEAL

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL
PH2 PERMIT MODIFICATIONS (#92-31)
WAKE COUNTY, NORTH CAROLINA

DRAWING TITLE:
LOCAL AREA PHOTO
(2000 FOOT RADIUS)

DESIGNED BY: G.D.G.	DRAWN BY: A.W.H.
CHECKED BY: G.D.G.	PROJECT NO.: WCA-2
SCALE: AS SHOWN	DATE: JUNE 2008
FILE NAME: LOCAL AREA PHOTO	
SHEET NO. 4	DRAWING NO. S3

E:\H&H-CAD\DGARRETT\WCA-2\SHEETS\PH2 COLF PERMIT\dwgs dg\LOCAL AREA PHOTO.dwg DATE: JUN 19, 2008 TIME: 10:52 AM

DATE	NO.	REVISION

REFERENCE NOTES:

1. EXISTING TOPOGRAPHIC MAPPING OF THE IMMEDIATE C&D LANDFILL AREA PROVIDED BY AMI ENGINEERING, INC. COMPILED FROM AERIAL PHOTOGRAPHY TAKEN BY WESTERN AIR MAP DATED FEBRUARY 20, 2008.

2. EXISTING TOPOGRAPHIC MAPPING OF AREA SURROUNDING THE C&D LANDFILL PROVIDED BY SPATIAL DATA CONSULTANTS, INC., OF HIGH POINT, NORTH CAROLINA FROM AERIAL PHOTOGRAPHY DATED MARCH 27, 2001.

3. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC. & MARGARET TALTON" PREPARED BY TRC TRIANGLE, DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 1508, WAKE COUNTY REGISTER OF DEEDS.

4. ADJOINING PROPERTY OWNERS ARE FROM WAKE COUNTY GIS DEPARTMENT.

CITY OF RALEIGH
D.B. 9885, PG. 449

UNNAMED TRIBUTARY

PROPERTY LINE

90' CP&L R/W

FACILITY BOUNDARY

200' BUFFER

PBR GROUP, LLC.
D.B. 11514, PG. 905

EXISTING 3-36" CMP PIPES

UNNAMED TRIBUTARY

EXIST. SED. BASIN

CELL A

WASTE LIMITS

EXIST. RISER & OUTLET PIPES

FACILITY BOUNDARY

CELL B

PROPOSED PHASE 2

EXISTING PHASE 1

CELL C

EXIST. POND

SCALES

SCALE HOUSE

DARYL J. GARRETT
RAMONA C. GARRETT
D.B. 9619, PG. 189

CITY OF RALEIGH
D.B. 9885, PG. 449

EXISTING ACCESS RD.

200' BUFFER

STEPHEN JOHN NASH
APRIL A. NASH
D.B. 11735, PG. 1132

200' BUFFER

RIPARIAN BUFFER LINES
SEE DETAIL E/EC3

PROPERTY LINE

UNNAMED TRIBUTARY

CONCRETE STOCKPILE

FACILITY BOUNDARY

BROWNFIELD RD. SR2350
(60' PUBLIC R/W)

FUTURE SOUTH DISPOSAL AREA

PROPERTY LINE

POLLY S. QUINN
D.B. 2030, PG. 567

LEGEND

- EXIST. INDEX CONTOURS
- EXIST. INTERMEDIATE CONTOURS
- EXIST. STREAM
- FACILITY BOUNDARY

0 150' 300' 450'
1" = 150'

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

SEAL

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER DAVID G. GARRETT 6-22-2008

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL
PH2 PERMIT MODIFICATIONS (#92-31)
WAKE COUNTY, NORTH CAROLINA

DRAWING TITLE:
OVERALL FACILITY PLAN

DESIGNED BY: G.D.G.	DRAWN BY: A.W.H.
CHECKED BY: G.D.G.	PROJECT NO.: WCA-2
SCALE: AS SHOWN	DATE: JUNE 2008
FILE NAME: OVERALL FACILITY PLAN	
SHEET NO.: 5	DRAWING NO.: S4

E:\V&H-CAD\CAD\GARRETT\WCA-2\SHEETS\PH2 COLF PERMIT\dwgs dg\OVERALL FACILITY PLAN.dwg DATE: JUN 19, 2008 TIME: 10:54 AM

DATE	NO.	REVISION

REFERENCE NOTES:

1. EXISTING TOPOGRAPHIC MAPPING OF THE IMMEDIATE C&D LANDFILL AREA PROVIDED BY AMI ENGINEERING, INC. COMPILED FROM AERIAL PHOTOGRAPHY TAKEN BY WESTERN AIR MAP DATED FEBRUARY 20, 2008.

2. EXISTING TOPOGRAPHIC MAPPING OF AREA SURROUNDING THE C&D LANDFILL PROVIDED BY SPATIAL DATA CONSULTANTS, INC., OF HIGH POINT, NORTH CAROLINA FROM AERIAL PHOTOGRAPHY DATED MARCH 27, 2001.

3. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC. & MARGARET TALTON" PREPARED BY TRC TRIANGLE, DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 1508, WAKE COUNTY REGISTER OF DEEDS.

4. ADJOINING PROPERTY OWNERS ARE FROM WAKE COUNTY GIS DEPARTMENT.

BORING COORDINATE TABLE			
BORING NO.	NORTHING	EASTING	ELEVATION
G-1	713,468.9362	2,147,667.0280	280.167
G-2	713,619.0143	2,147,567.0593	264.390
G-3	713,327.9136	2,147,204.5083	270.174
G-4	713,747.1101	2,147,230.7166	259.085
G-5	713,368.7000	2,147,144.8679	275.646
G-6	713,135.3243	2,147,201.5062	265.115
G-7	713,210.5509	2,147,464.7685	280.610
G-8	713,223.6226	2,147,774.8128	273.644
G-9	713,240.6844	2,147,901.1522	265.901
G-10	713,354.9477	2,147,865.0735	265.860
G-11	713,424.0771	2,147,895.8026	260.896
G-12	713,567.1720	2,147,814.1749	256.142
G-13	713,675.6477	2,147,944.4780	243.565
G-14	713,927.0230	2,147,582.5588	235.950
G-15	714,242.3339	2,147,002.0152	231.505
G-16	714,004.8035	2,147,283.6417	240.979
G-17	714,002.5776	2,146,996.7421	250.762
G-18	713,626.2039	2,147,382.1048	270.447
G-19	713,745.3637	2,147,047.5627	257.908
G-20	713,545.2608	2,147,127.8421	265.524
G-21	713,715.6858	2,147,710.2257	250.345
G-22	713,651.7943	2,147,108.9598	261.389
G-23	713,079.3980	2,147,426.9354	269.236
C-7	713,462.8211	2,147,537.9721	285.468
C-8	713,358.9446	2,147,614.3731	293.146
C-9	713,227.4751	2,147,058.1095	265.218
C-10	713,326.8322	2,147,488.1088	290.098
P-7	713,445.8350	2,147,361.1524	281.696
P-26	714,395.6500	2,145,988.7500	186.420
P-27	714,032.3700	2,147,908.4400	218.250
MW-1	712,428.1600	2,148,022.7900	278.170
MW-2	714,532.7100	2,147,104.3900	270.550
MW-3	714,658.3600	2,146,547.7800	216.300
MW-4	714,419.8400	2,146,093.3300	199.030
MW-5	713,760.6700	2,146,090.6000	200.790
MW-7	712,829.7300	2,146,999.0000	239.030

LEGEND

- EXIST. INDEX CONTOURS (800)
- EXIST. INTERMEDIATE CONTOURS
- EXIST. STREAM
- FACILITY BOUNDARY
- MW-4 — EXISTING MONITORING WELL
- P-18 — EXISTING PIEZOMETER WELL
- B-6 — TEST BORING
- T-20 — TEST PIT
- WELL-18 — EXISTING TEST WELL

0 150' 300' 450'

1" = 150'

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

SEAL

NORTH CAROLINA REGISTERED GEOLOGIST DAVID GARRETT 0-22-2008

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL (#92-31)
PH2 PERMIT MODIFICATIONS
WAKE COUNTY, NORTH CAROLINA

DRAWING TITLE:
SITE BOUNDARY & TEST BORING LOCATIONS

DESIGNED BY:	DRAWN BY:
G.D.G.	A.W.H.
CHECKED BY:	PROJECT NO.:
G.D.G.	WCA-2
SCALE:	DATE:
AS SHOWN	JUNE 2008
FILE NAME	
BOUNDARY & TEST BORING LOCATIONS	
SHEET NO.	DRAWING NO.
6	S5

E:\YA8H-CAD\CAD\GARRETT\WCA-2\SHEETS\PH2 CDLF PERMIT\dwgs dg\BOUNDARY & TEST BORING LOCATIONS.dwg DATE: JUN 19, 2008 TIME: 3:07 PM

DATE	NO.	REVISION

EXIST. 3-36" CMP PIPES

EXIST. SED. BASIN

EXIST. RISER & OUTLET PIPES

CELL A

CELL B

CELL C

EXISTING PHASE 1

EXISTING WASTE LIMITS

UNNAMED TRIBUTARY

FACILITY BOUNDARY

200' BUFFER

RIPARIAN BUFFER LINES
SEE DETAIL E / EC3

PERIMETER BERM & ACCESS ROAD
SEE DETAIL I / EC2

NOTE:
CONTRACTOR SHALL GRADE PERIMETER BERM ACCESS ROAD AT 2% CROSS SLOPE TO DRAIN INTO PERIMETER DITCH

PROPOSED PHASE 2

SLOPE VARIES

3:1

4.1% SLOPE

EXIST. POND

EXISTING ACCESS RD.

N714,500
N714,000
N713,500
N713,000
E2,146,000
E2,146,500
E2,147,000
E2,147,500
E2,148,000

0 80' 160' 240'
1" = 80'

REFERENCE NOTES:

1. EXISTING TOPOGRAPHIC MAPPING OF THE IMMEDIATE C&D LANDFILL AREA PROVIDED BY AMI ENGINEERING, INC. COMPILED FROM AERIAL PHOTOGRAPHY TAKEN BY WESTERN AIR MAP DATED FEBRUARY 20, 2008.

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3. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC. & MARGARET TALTON" PREPARED BY TRC TRIANGLE, DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 1508, WAKE COUNTY REGISTER OF DEEDS.

4. ADJOINING PROPERTY OWNERS ARE FROM WAKE COUNTY GIS DEPARTMENT.

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

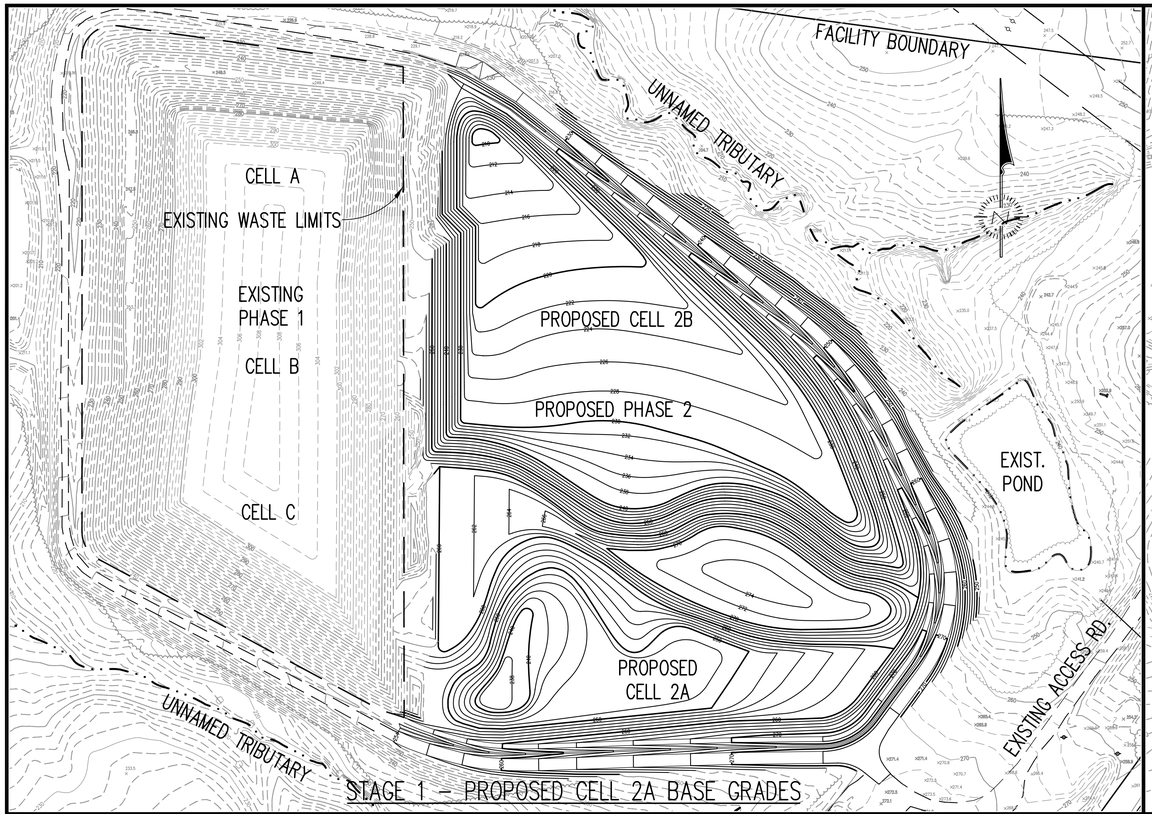
SEAL

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL (#92-31)
PH2 PERMIT MODIFICATIONS
WAKE COUNTY, NORTH CAROLINA

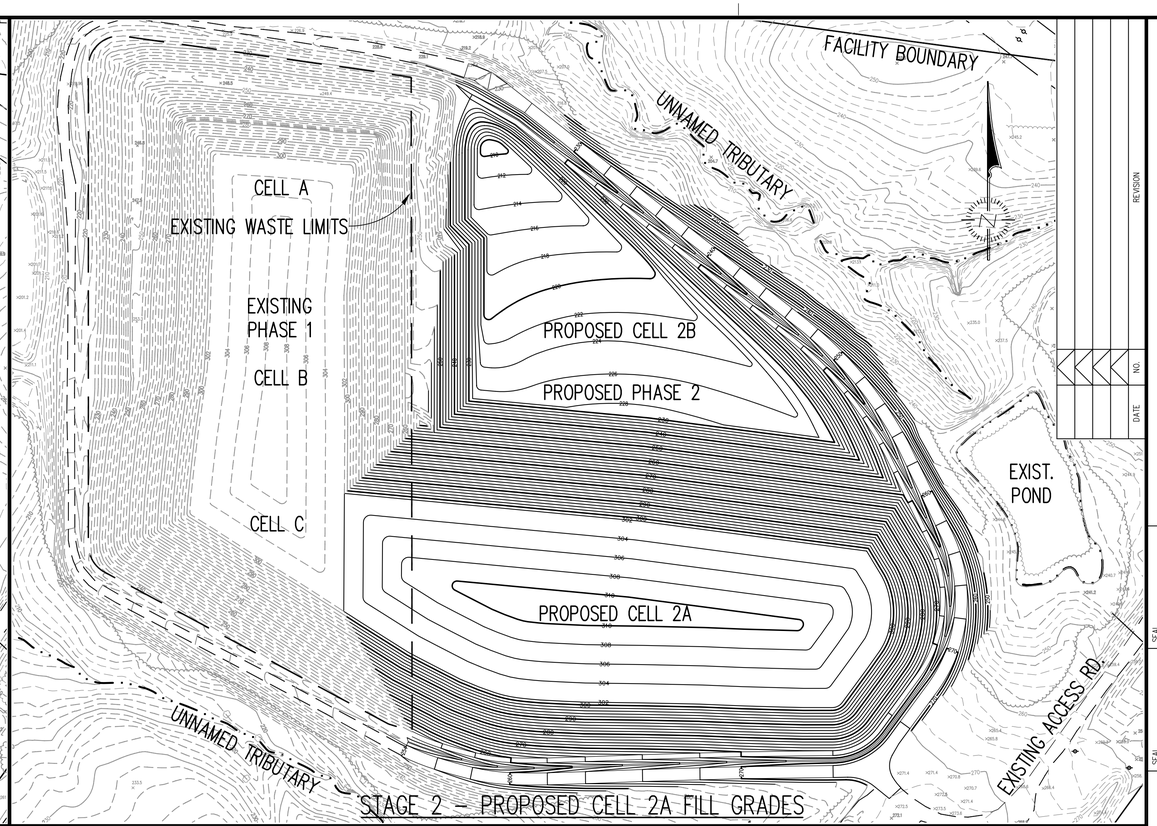
DRAWING TITLE:
CDLF PHASE 2
BASE GRADE CONTOURS

DESIGNED BY:	DRAWN BY:
G.D.G.	A.W.H.
CHECKED BY:	PROJECT NO.:
G.D.G.	WCA-2
SCALE:	DATE:
AS SHOWN	JUNE 2008
FILE NAME	
PH2 BASE GRADE CONTOURS VER-B	
SHEET NO.	DRAWING NO.
7	E1

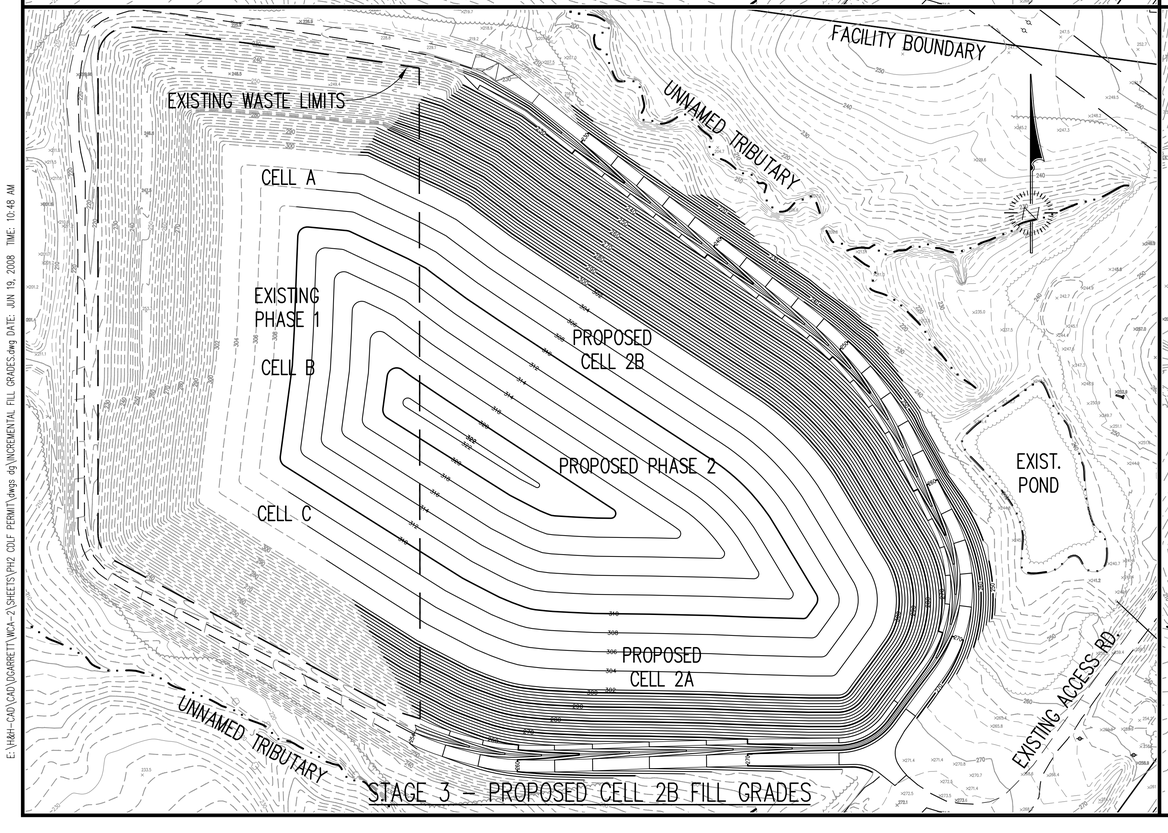
E:\YAH-CAD\CAD\GGARRETT\WCA-2\SHEETS\PH2 CDLF PERMIT\dwgs dg\PH2 BASE GRADE CONTOURS VER-B.dwg DATE: JUN 19, 2008 TIME: 3:58 PM



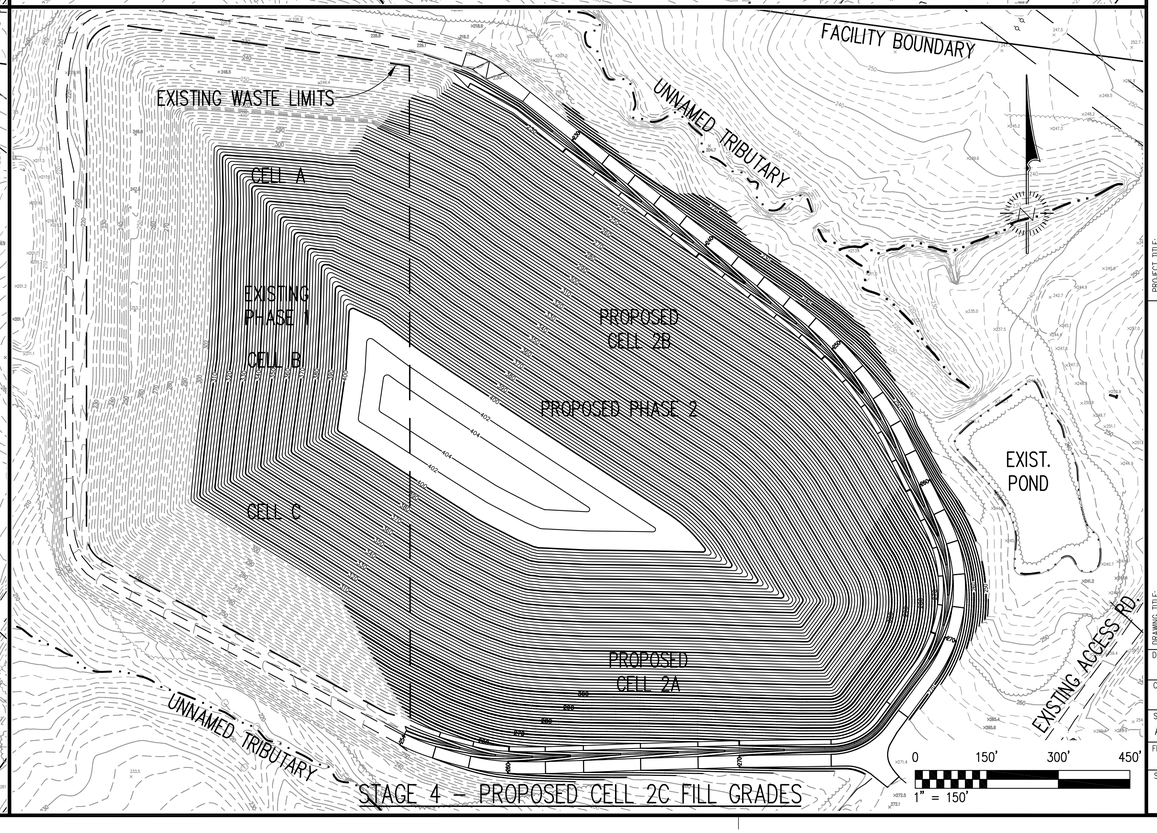
STAGE 1 – PROPOSED CELL 2A BASE GRADES



STAGE 2 – PROPOSED CELL 2A FILL GRADES



STAGE 3 – PROPOSED CELL 2B FILL GRADES



STAGE 4 – PROPOSED CELL 2C FILL GRADES

E:\WA4-CAD\CAD\GARRETT\WCA-2\SHEETS\PH2 CDLF PERMIT\dwgs dg\INCREMENTAL FILL GRADES.dwg DATE: JUN 19, 2008 TIME: 10:48 AM

REVISION		
NO.	DATE	

David Garrett & Associates
Engineering and Geology
5105 Harbour Towne Drive, Raleigh, North Carolina 27604
Email: david_garrett_pe@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)

SEAL

PROJECT TITLE:
WCA WASTE CORPORATION, INC.
BROWNFIELD RD. C&D LANDFILL
PH2 PERMIT MODIFICATIONS (#92-31)
WAKE COUNTY, NORTH CAROLINA

DRAWING TITLE:
CDLF PHASE 2
INCREMENTAL FILL GRADES
BY CELL SEQUENCE

DESIGNED BY: G.D.G.	DRAWN BY: A.W.H.
CHECKED BY: G.D.G.	PROJECT NO.: WCA-2
SCALE: AS SHOWN	DATE: JUNE 2008
FILE NAME: INCREMENTAL FILL GRADES	
SHEET NO. 8	DRAWING NO. E2