THE COLINAS GROUP, INC.
HYDROGEOLOGISTS & ENGINEERS

April 10, 2014

Mr. F. Thomas Lubozynski, P.E.
Central District
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Subj: Sumter County Closed Class I Landfill
Stabilization Assessment Report
Long-Term Care Permit No. 22926-003-SF/14
WACS Facility I.D. #53008
Sumter County, Florida
TCG Project No. P-505

Dear Mr. Lubozynski:

The referenced LTC permit for the Sumter County Closed Class I Landfill is set to expire on June 15, 2014. In accordance with permit Specific Condition No. 22 the permittee must alternately submit either an application for renewal of the LTC permit or a Stabilization Assessment Report to the Florida Department of Environmental Protection (Department) no later than sixty days prior to permit expiration (by April 15, 2014).

The Colinas Group, Inc. (TCG) has prepared this submittal on behalf of Sumter County Board of County Commissioners (Sumter County) to provide information required by the Department for a Stabilization Assessment Report for the closed landfill. This submittal includes:

- Stabilization Report Sumter County, Sumter County Landfill Technical Memorandum prepared by Mr. Bob Mackey P.E, S2L, Inc. dated April 8, 2014, presented as Attachment I.
- Sumter County Closed Class I Landfill Water Quality Evaluation Report (Technical Report) Quarter II 2011 – Quarter I 2014 prepared by Mr. Richard L. Potts, Jr, P.G., The Colinas Group, Inc. dated April 2014, presented as Attachment II.

377 MAITLAND AVENUE, SUITE 2012, ALTAMONTE SPRINGS, FL 32701 • (407) 622-8176 • FAX: (407) 622-8196

Sumter County understands that submittal of the Stabilization Assessment Report presented herein satisfies the application for permit renewal deadline set forth in the facility LTC permit. The County further understands that should the Department determine that the closed landfill does not meet stabilization criteria in accordance with rule requirements, renewal of the LTC permit will be required.

Now almost 24 years since closure in 1990, Sumter County prefers not to renew the LTC permit. The County is however, fully committed to its obligation to protect the citizens, water resources and the environment of Sumter County. Should the Department determine that continued environmental monitoring of the closed landfill is warranted, TCG recommends that Sumter County and the Department explore alternate means of continued monitoring without the force of a LTC permit.

We trust that the attached Stabilization Assessment Report is suitable for the Department's consideration in evaluating whether environmental monitoring should continue at this facility. If you have any questions concerning the contents of the submitted technical reports please do not hesitate to contact either the undersigned or Mr. Scott Cottrell, P.E, Director of Sumter County Public Works Division, [scott.cottrell@sumtercountyfl.gov] at your convenience.

Very truly yours,
THE COLINAS GROUP, INC.

4/10/14

RICHARD L. POTTS, JR.
LICENSE
No. PG1113
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST

Richard L. Potts, Jr., P.G.
Principal Consultant
FL P.G. Reg. No. 1113
rickpotts@cfl.rr.com

cc: Scott Cottrell, P.E. (Sumter County PWD)
Bob Mackey, P.E. (S2L, Inc.)

SUMTER COUNTY CLOSED CLASS I LANDFILL

STABILIZATION ASSESSMENT REPORT

ATTACHMENT I

Prepared by:
S2L, Inc.
April 8, 2014

S2Li

S2L, INCORPORATED
531 Versailles Drive, Suite 202
Maitland, Florida 32751-7301
407-475-9163 Fax 407-475-9169

ROBERT E MACKEY LICENSE No 40176 STATE OF FLORIDA PROFESSIONAL ENGINEER
4/8/14

Technical Memorandum

TO: Rick Potts, P.G.

FROM: Bob Mackey BM

DATE: April 8, 2014

RE: Stabilization Report
Sumter County, Sumter County Landfill

62-701.620(6) identifies the following issues be addressed within a Stabilization Report:

- Technical Report
- Subsidence
- Barrier Layer Effectiveness
- Stormwater Management
- Landfill Gas (LFG) Production and Management

Leachate production and management are also to be addressed for landfills utilizing a bottom liner system, which is not present at the Sumter County site. The Colinas Group (TCG) is addressing the Technical Report. The purpose of this Memorandum is to address the remaining four issues.

On March 12, March 17, and April 7, 2014, S2L, Incorporated (S2Li) performed a site review of the Sumter County Closed Class I Landfill. The landfill is located in Central Sumter County, Florida, at 819 CR 529, Lake Panasoffkee, FL 33538. The current permit information is as follows:

WACS ID No.:	CD/60/53008
Permit No.:	22926-003-SF
Date of Issue:	06/28/2004
Expiration Date:	06/15/2014
County:	Sumter
Lat/Long:	28º 44' 36" N/82º 05' 19" W
Sec/Town/Rge:	15/20S/22E
Permit Type:	Long-Care Permit

The Class I landfill footprint includes the following (See Figure 1):

- Southern Asphalt Area, used (in part) for bin storage,
- Northern Asphalt Area, previously used for a compost operation, and
- Grass covered landfill in the eastern half of the site, excluding the northern (approximately one-quarter), which is a dry stormwater retention area.

The asphalt caps to the landfill were installed over 20 years ago.

Southern Asphalt Area

S2Li's first visit occurred immediately after a storm event. Access to the top of the closed landfill can be achieved from the primary paved entrance road just north of the large onsite building, traveling west to east (Photo 1). There is also a minor access road located in the center southern edge of the paved area. The overall integrity of this asphalt area was good, considering its age of service and issues to be denoted in the following text (Photos 2, 3 and 4). This landfill area was designed to drain to a lined pond off the southwest corner of the asphalt storage area (Figure 1 and Photo 5).

Due to the decomposition of the underlying waste over time, the existing asphalt contours include several ridges and valleys (Photos 1, 2 and 3). These ridges and valleys are aligned in a north-south direction. Cracks were observed in the asphalt cap along the ridges. No cracks were found within the valleys. These cracks were recently sealed to mitigate the possible stormwater intrusion into and through these openings in the asphalt cap (Photos 6, 7 and 8). Water was found ponding within the valleys (Photos 9, 10 and 12). Although the County has constructed asphalt channels (Photo 11) in an attempt to allow the water to flow from an upper valley to a lower valley, this effort has had minimal effect in promoting drainage off the asphalt cap. The County has also filled some of the valleys through the placement of additional asphalt (Photo 9), also with minimal effect.

S2Li believes that cracks that may form along the ridges of the asphalt will not have a significant impact on the current integrity of the asphalt cap, although the sealant may be expected to degrade over time. The purpose of the asphalt cap is to keep rainwater from percolating into the waste and promote runoff to the stormwater pond (Photo 5). It is unlikely that cracks within the asphalt extend completely through the cap cross-section. S2Li believes the cracks will only extend through the asphalt layer and not through the asphalt subbase, typically composed of limerock.

Although asphalt will promote stormwater runoff, it is not completely impermeable. Ponding in the valleys will allow more water to seep through the asphalt layer, through its subbase, and into the underlying waste. The additional water seeping into the waste in the area of the valleys increases waste decomposition. This decomposition has occurred at a greater rate than that experienced as a result of the lower seepage rates in the area of the ridges. This results in increased settlement of waste under the asphalt valleys, and a continually expanding depth of the valleys.

During the second visit to the site, S2Li observed most of the ponded water was no longer present. Although water evaporation could be the major cause of liquid removal, continued seepage of water through the asphalt might have also contributed to its removal from the valleys. Within the valleys could be found a mixture of silt and fine gravel (Photo 13). The probable source of the silt is casual dirt blown onto the asphalt area and washed down to the valleys during a storm event. Most of the material consisted of fine gravel. Upon close examination, this fine gravel appears to be asphalt particles, indicating a slight deterioration of the asphalt over time. The only valley that still had water present (Photo 14) was the deepest valley, which enables it to pond more water. This deepest valley also had more silt versus gravel present along its bottom.

There are no LFG vents extending through the Southern Asphalt Area. Based on S2Li's review of the LFG monitoring data from December 2009 through December 2013, explosive gas was not detected in any of the off-hill monitoring locations serving this area.

Northern Asphalt Area

The Northern Asphalt Area (Figure 1) had only minor undulations across the area, with slight ponding of water and minimal cracking (Photos 15 and 16). This area was formerly used for a composting operation. It was contoured to collect stormwater and allow it to flow to the long lined pond off its southwest corner (Photo 17). During the composting operation, water was pumped from this pond and sprayed on the compost pile. This pond and pump are no longer being operated. Once this pond fills with stormwater, it drains to an adjacent lined cell to its north through a depression in its northern berm (Photo 19). Both these lined areas show damage and deterioration of their containment ability and vegetative growth at numerous locations (Photos 17 through 21). These lined areas can be considered non-functional as containment systems. However, they are outside the landfill footprint and do not appear to be impacting the waste disposal area. The integrity of the Northern Asphalt Area appears good.

Based on S2Li's review of the landfill data from December 2009 through December 2013, explosive gas was not detected in any of the monitoring locations serving this area.

Please note that the southwest lined stormwater pond displayed no damage or deterioration of the liner and appeared to be functioning properly. Due to the presence of dead branches within the pond's fenced in area, there is indication that maintenance of this pond has not been recently performed (Photo 22).

Eastern Grass Cap Area

The largest landfill mound area is the eastern portion of the closed Class I landfill. This area was well vegetated. There was one location along the southern face that was recently repaired to address erosion (Photo 23). No evidence of buried waste was seen within the eroded area. S2Li found evidence of a single buried tire (Photo 24) at the toe of the southern landfill perimeter. All other areas of the landfill mound appeared well covered with no waste visible.

S2Li observed several monitoring wells (Photos 25 and 26) and piezometers (Photo 27) around the perimeter of the landfill mound. North of the landfill mound is a well vegetative dry retention area in good condition, with no erosion present (Photo 28). There was also no erosion found within the stormwater swales that channel water to the dry retention area (Photo 29).

The landfill mound appeared to have maintained its gradual contours with no appreciable differential settlement. Any pooling found on top of the landfill mound appeared extremely small in area and probably a result of the earlier storm event. There were extremely few areas of stressed vegetation (Photo 30) and these were small in their dimensional area. S2Li observed passive LFG vents of various heights (Photos 31 and 32). With increased vegetative growth, many of these LFG vents could be visually obscured by the vegetation. This could result in damage to the LFG vents during mowing operations, if such operations are continued. Based on S2Li's field observations and a December 2013 figure attached ("Year 2013 Annual Landfill Gas Migration Monitoring), several of the LFG vents are missing, supporting the above assessment.

Although it is clear that LFG is still being produced based on data obtained from within the passive vents serving the Eastern Grass Cap Area, based on S2Li's review of the LFG monitoring data from December 2009 through December 2013, explosive gas was not detected in any of the perimeter monitoring locations serving this area.

S2Li's assessment of the Eastern Grass Cap landfill area is that vegetative cap is of remarkability high quality and sound integrity.

Conclusion

The current integrity of the asphalt areas and grassed landfill cap area is good. Both landfill caps are protecting the underlying waste and minimizing its impact to the surrounding area. Relatively few maintenance issues could be addressed, such as removal of the dead branches in the southwest pond area and labeling and locking of the groundwater monitoring wells. The Eastern Grass Cap Area appears stable relative to subsidence, barrier layer effectiveness, stormwater management, and LFG production and management.

S2Li does have some concerns regarding the Southern Asphalt Area. Although it is currently functioning as a protective layer, the asphalt's ability to continue to function as designed is expected to slowly degrade over time. Ponding water will accelerate the deterioration of the asphalt by removing or degrading the oils within the asphaltic matrix. This will cause a gradual increase of seepage through the asphaltic barrier to the landfill. These low areas will eventually exhibit a texture resembling that of a gravel layer rather than an asphaltic binder.

Sometime in the distant future, the areas relying on an asphalt barrier will require further remediation in order to maintain the integrity of the closed Class I landfill.

Therefore, the Southern Asphalt Area may be considered stable with respect to LFG production and management and stormwater management, and the asphalt cap remains an effective barrier layer, but the long term ability of the cap to accommodate future settlement remains in question.

S2Li appreciates the opportunity to perform the above Stabilization Report service. If you have any questions, please feel free to contact me anytime at 407-475-9163.

FIGURES

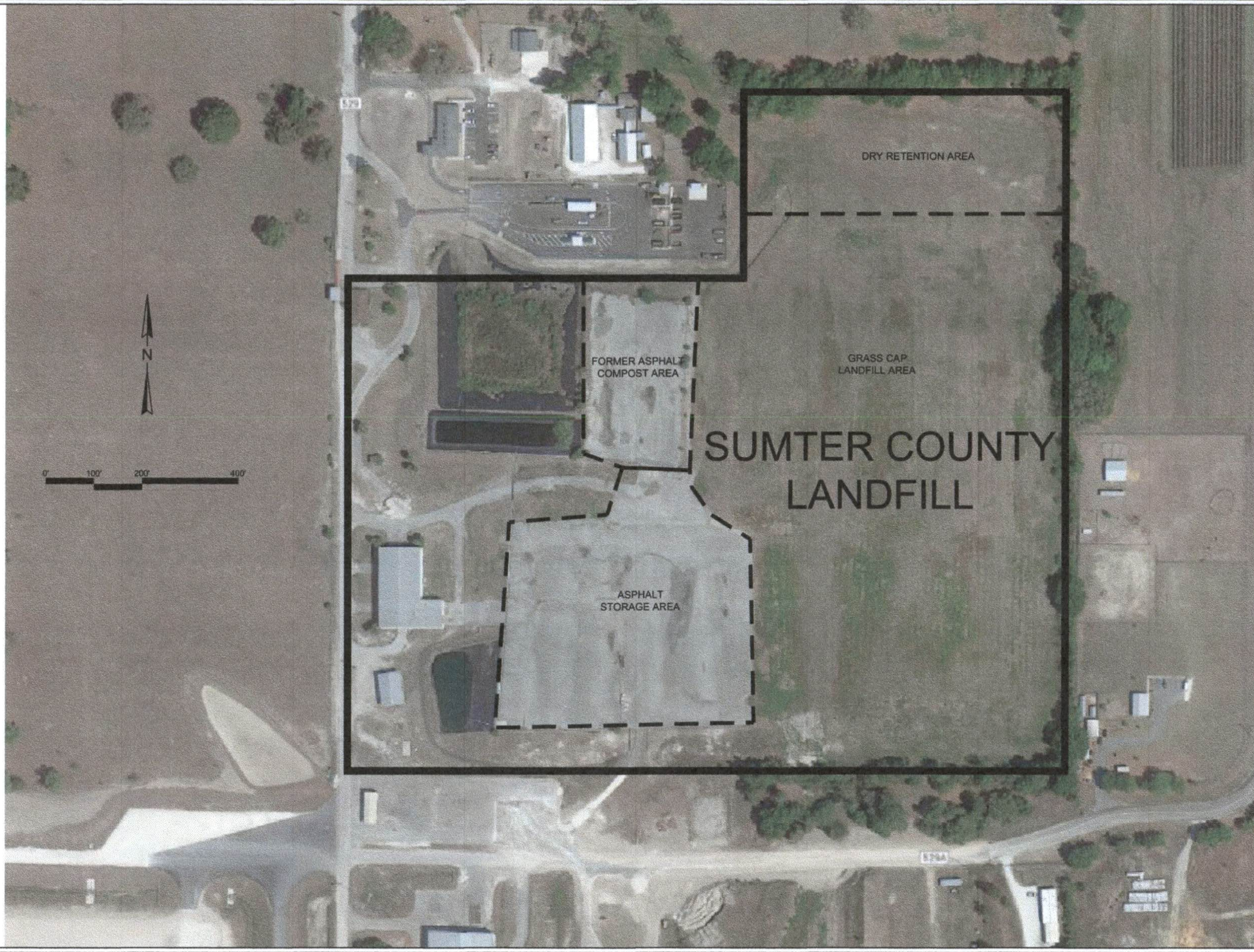


FIGURE NO. 1

S2Li
531 Versailles Drive, Suite 202
Maitland, Florida 32751
(407) 475-9163 FAX 475-9169
Certification of Authorization # 7831

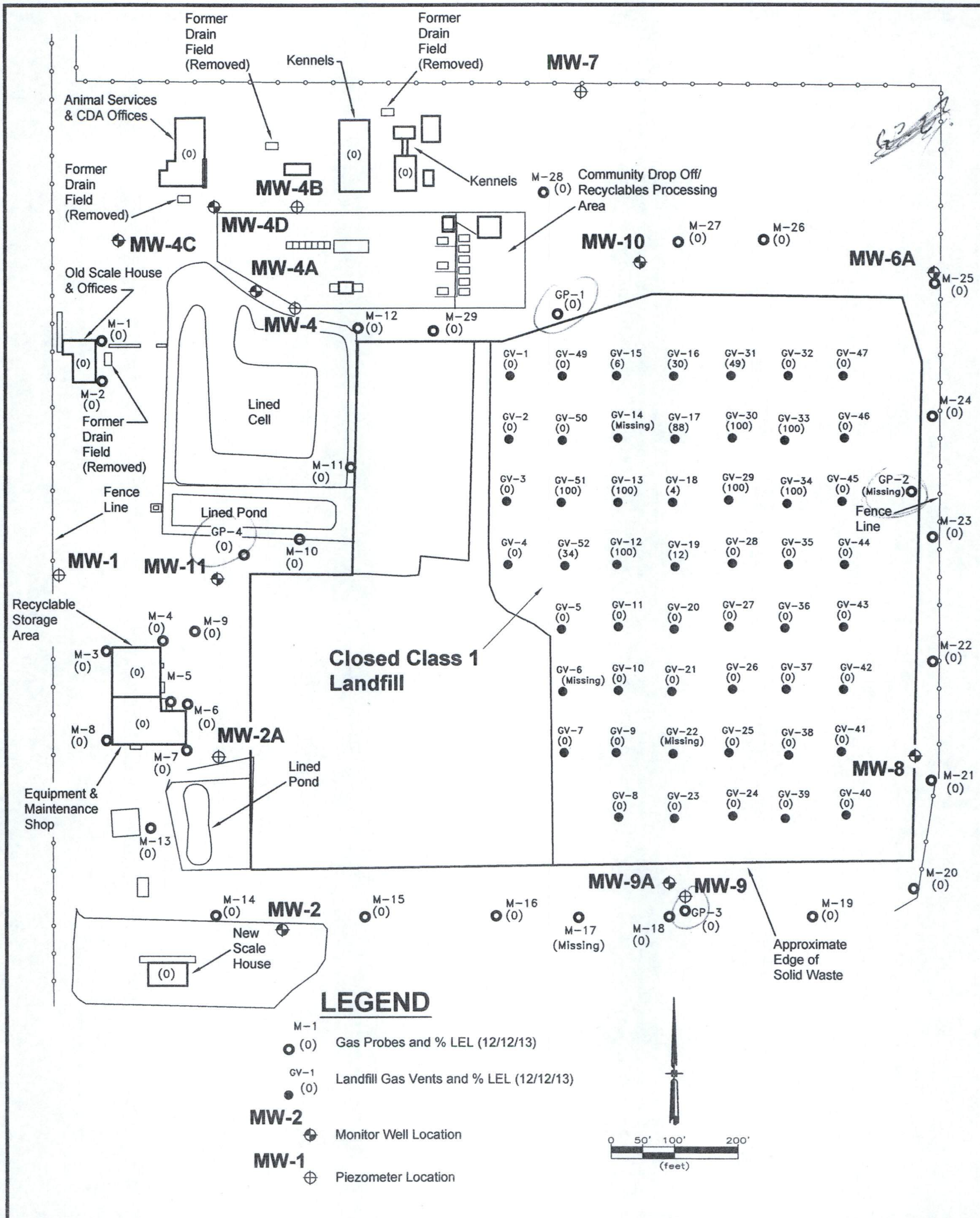
SITE PLAN
SUMTER COUNTY LANDFILL
SUMTER COUNTY

REV. No.	DATE	DRAWN BY	CHKD BY	REMARKS

Signature Date

ROBERT E. MACKEY, P.E.
Florida Registration # 40176

Z:\DRAWING FILES\14-541\Aerial.dwg Mar 26,2014 - 2:19 pm



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-483 DATE: DECEMBER 2013 SCALE: 1" = 200'	SUMTER COUNTY CLOSED CLASS I LANDFILL YEAR 2013 ANNUAL LANDFILL GAS MIGRATION MONITORING SUMTER COUNTY, FLORIDA	FIGURE 1

REPORT PHOTOGRAPHS

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Photo 30

Photo 31

Photo 32

SUMTER COUNTY CLOSED CLASS I LANDFILL

STABILIZATION ASSESSMENT REPORT

ATTACHMENT II

Prepared by:
The Colinas Group, Inc.
April 2014

SUMTER COUNTY
CLOSED CLASS I LANDFILL
WATER QUALITY EVALUATION REPORT
(TECHNICAL REPORT)
QUARTER II 2011 - QUARTER I 2014

Prepared for:

SUMTER COUNTY
BOARD OF COUNTY COMMISSIONERS
Sumter County, Florida

Prepared by:

THE COLINAS GROUP, INC.
377 Maitland Avenue, Suite 2012
Altamonte Springs, Florida 32701

4-03-14

Richard L. Potts, Jr., P.G.

RICHARD L. POTTS, JR. LICENSE NO. PG1113 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

April 2014

SUMTER COUNTY
CLOSED CLASS I LANDFILL
WATER QUALITY EVALUATION REPORT
(TECHNICAL REPORT)
QUARTER II 2011 – QUARTER I 2014

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* * * * *

SUMTER COUNTY
CLOSED CLASS I LANDFILL
WACS ID No. 53008
WATER QUALITY EVALUATION REPORT
(TECHNICAL REPORT)
Quarter II 2011 - Quarter I 2014

INTRODUCTION

Sumter County currently maintains an unlined closed Class I landfill as authorized in Long-Term Care (LTC) Permit No.22926-003-SF issued by the Florida Department of Environmental Protection (Department) on June 28, 2004. Solid waste disposal operations were ceased in 1988 and the landfill was capped and officially closed on May 24, 1990. The permit is due to expire on June 15, 2014.

Water quality monitoring issues at the Sumter County Closed Landfill (SCCL) were the focus of a Consent Order (OGC File No. 04-0131) issued to Sumter County in 2004. The primary concern was groundwater with nitrate-nitrogen exceeding the Primary Drinking Water Standards MCL at two monitoring wells, primarily at one Compliance Well (MW-4) located along the northwest margin of the solid waste disposal area. As directed by the Department, Sumter County completed Preliminary Contamination Assessment (PCA) actions in 2011. In addressing specific Consent Order issues, additional monitoring wells were added to the facility monitoring network as a result of the PCA findings and included in the regular quarterly monitoring program.

The LTC permit was recently modified in December 2013 to address lateral expansion of portions of the landfill Zone of Discharge (ZOD) boundary and deletion and addition of specific groundwater monitoring wells. With these changes the landfill is, as of the latest quarterly monitoring event in February 2014, compliant with water quality-based regulatory criteria. Consent Order terms and conditions were deemed satisfied by the Department on January 14, 2014 and the case closed.

As part of the 2013 permit modification the Department determined the SCCL to be an "existing installation" (permit Specific Condition No. 14) that is exempt from compliance with the secondary standards for Class G-II groundwater referenced in Rule 62-520.420(1), F.A.C. at the facility property boundaries. In accordance with Rule 62-520.520(6), F.A.C. all installations discharging to Class G-II groundwaters are prohibited from causing a violation of the secondary drinking water standards at any private or potable well outside the facility zone of discharge.

Purpose and Scope

LTC permit Specific Condition No. 22 provides for application of permit renewal within sixty (60) days of expiration (by April 15,2014). Alternatively, the permittee may submit a Stabilization Report to demonstrate that the facility has "stabilized" as defined in Rule 62-701.200(114), F.A.C., Rule 62-701.620(3),(6), F.A.C. and permit Specific Condition No.2. A water quality monitoring Technical Report is a required component for both an application for LTC permit renewal and a Stabilization Report.

This Technical Report has been prepared to summarize and interpret groundwater quality and elevation data and trends at the SCCL located in Sumter County, Florida. This report is intended to satisfy Specific Condition No. 21b of the LTC permit . The permit condition requires submission of an evaluation of the water quality monitoring data collected at the landfill for the period beginning the second quarter of 2011 and extending to the first quarter of 2014, inclusive. The report provides applicable information listed in Rule 62-701.510(9)(b), F.A.C.

This report presents information from twelve (12) sampling events that occurred at the SCCL over the period Quarter II (May) 2011 through Quarter I (February) 2014. Site monitoring information is presented, in the form of a Technical Report, in accordance with Rule 62-701.510(8)(b) F.A.C. to include:

- Tabular and graphical data presentations that identify detected groundwater monitoring parameters, including water level hydrographs for each monitoring well;
- Analyses of apparent trends of detected parameters;
-
- Comparisons between up-gradient and down-gradient monitoring wells;
- Correlation between related parameters;
- Discussion of erratic or poorly-correlated data;
- Interpretation of groundwater elevation contour maps and groundwater movement, and;
- Evaluation of the adequacy of water quality monitoring location and frequency.

The report presents an evaluation of water quality monitoring results at the SCCL suitable for inclusion as part of a Stabilization Report or an application for renewal of the landfill's LTC permit in the event that stabilization criteria are not met as determined by the Department.

Landfill Site Location

The SCCL is situated in central Sumter County near the intersection of U.S. Interstate Hwy. 75 and County Road 470 approximately two miles west of Sumterville, Florida. Access to the closed landfill, including the County's active Citizens Drop-Off and Recycling facility, is by C.R.529 south off C.R.470 about one-half mile east of I-75. The location of the SCCL in the SE 1/4 of the SE 1/4 of Section 15, Township 20S, Range 22E is shown on the U.S. Geological Survey topographic map presented as Figure 1.

Significant Site Features

The configuration of the closed Class I solid waste disposal area (landfill) and adjacent facilities is shown on Figure 2. The waste disposal area occupies approximately 30 acres of land area. Officially closed in 1990, the western portion of the waste disposal area was capped with soil base and asphalt; the eastern portion was capped with a synthetic liner and soil cover supporting a grass crop.

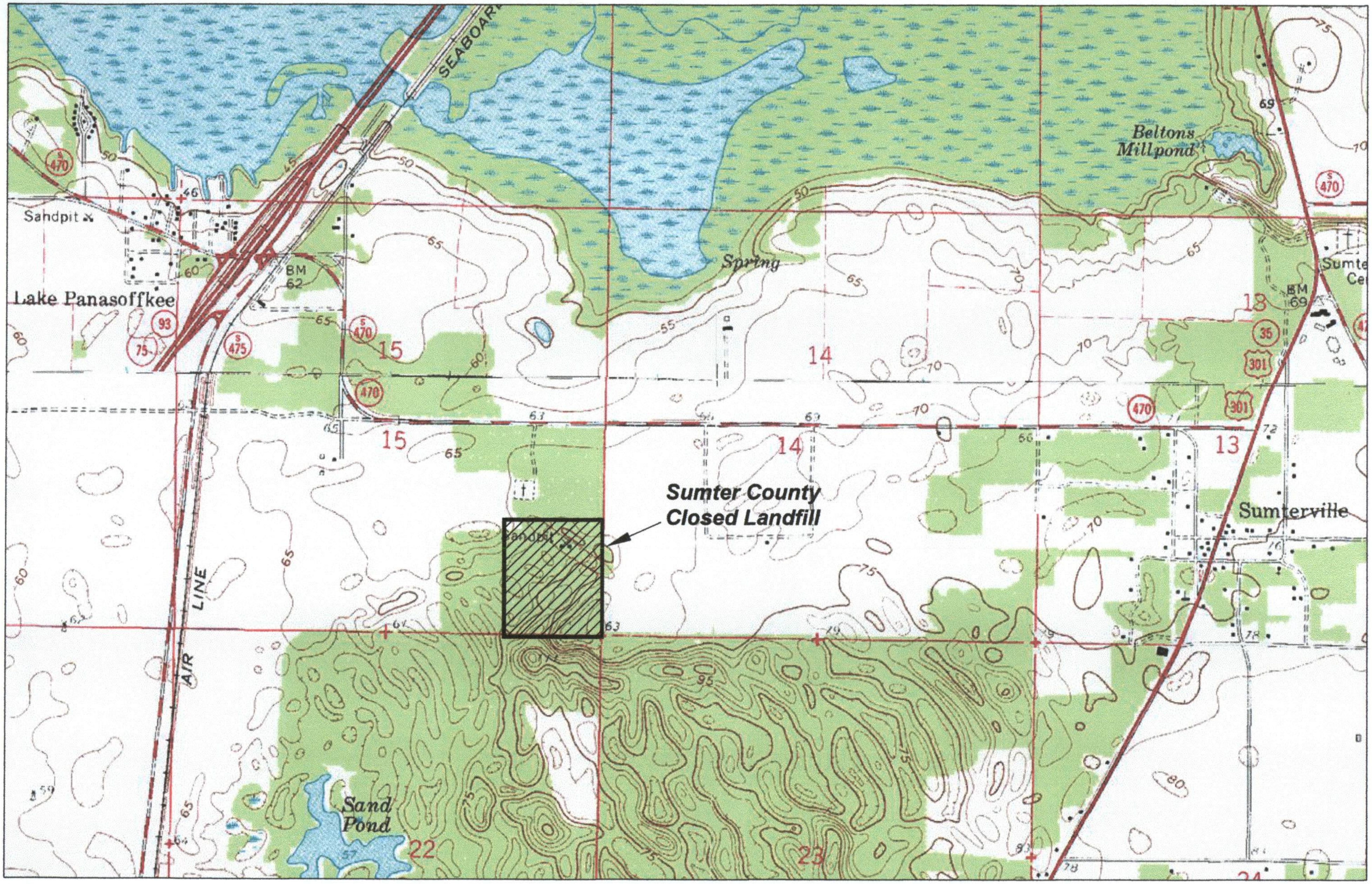
The northwestern portion of the asphalt-covered closed landfill and the paved area now used for a Community Drop-Off Area (CDA) were formerly used for a Class I solid waste composting operation. Stored compost was sprayed with water from an adjacent lined pond with excess water and stormwater allowed to drain back to the pond. When full the lined pond drains by surface flow to a lined cell, originally constructed for solid waste disposal but never used, lying immediately to the north. According to recent observations by S2L, Inc. (see Stabilization Report by S2Li, March 2014) the lined pond and lined cell show liner damage and deterioration and are considered non-functional as water containment systems. The unused lined waste cell supports heavy vegetation growth.

The former landfill scale house/offices building and other nearby county services buildings to the northeast were originally served by five separate septic tanks systems. Sumter County removed the septic tanks and drainfields in 2008 when sanitary sewer service became available from the City of Bushnell Waste Water Treatment Facility located to the south of the landfill property. The former locations of the septic tank facilities are shown on Figure 2.

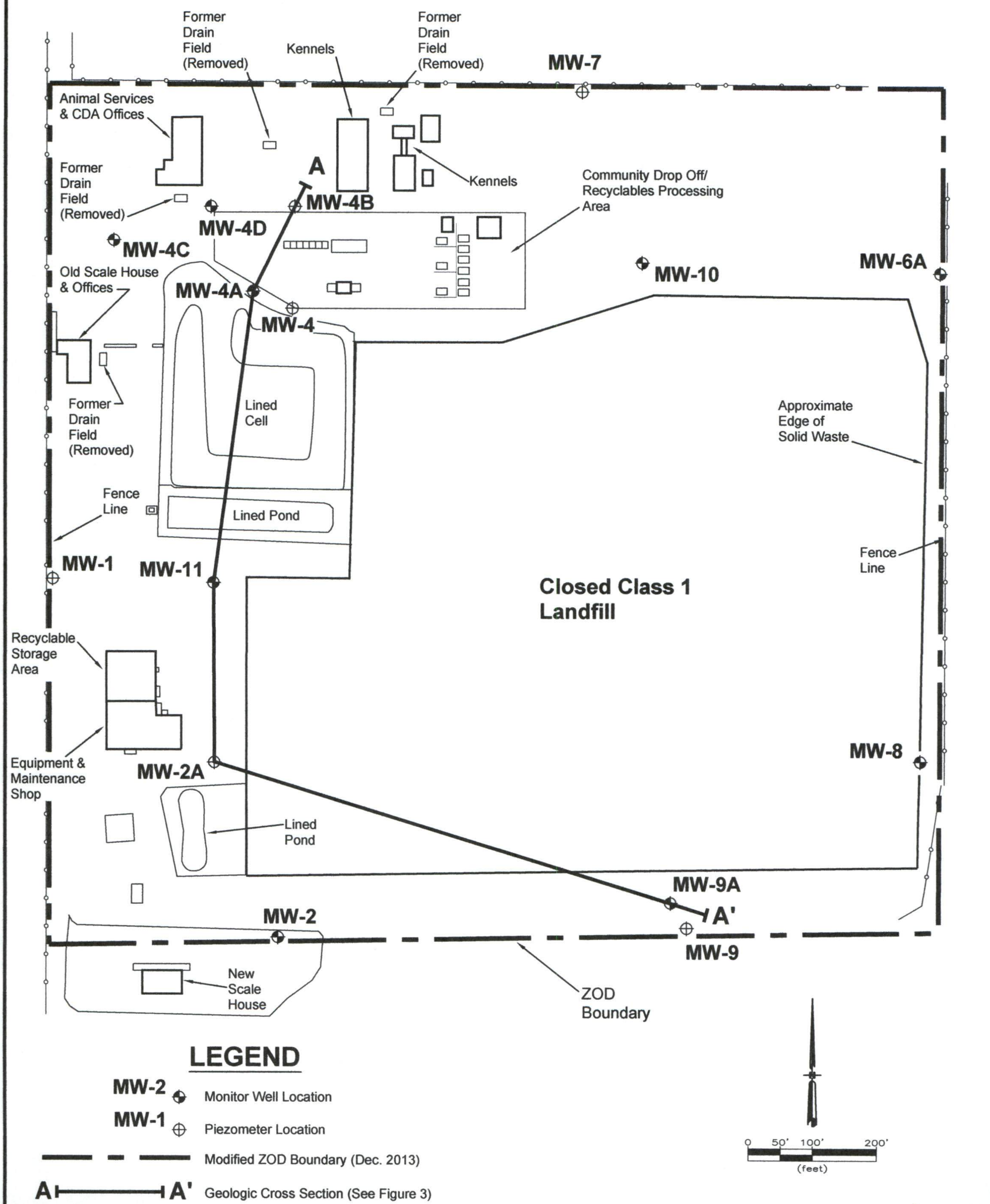
Site Geologic Characteristics

Near-surface geologic conditions at the landfill were explored during installation of monitoring wells and piezometers provided as part of site investigations related to PCA actions over the period 2004 - 2006. Three distinct and laterally-continuous lithologic beds were encountered at each of the test boring locations:

Bed 1: Surficial layer of fine quartz sand. Minor stringers and lenses of silty/clayey sand less than 2 to 3 feet thick noted at several borings within the upper sand section. Unit thickness ranges from 18 - 25 feet.



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-505 DATE: APRIL 2014 SCALE: 1" = ~ 1660'	SITE LOCATION MAP SUMTER COUNTY CLOSED LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-505 DATE: MARCH 2014 SCALE: 1" = 200'	MONITORING WELL LOCATIONS AND MODIFIED ZONE OF DISCHARGE BOUNDARY SUMTER COUNTY CLOSED LANDFILL	FIGURE 2

Bed 2: Clayey sand to sandy clay to clay underlying the surficial sands. Test boring at MW-4B encountered a 5-foot thick lens of fine sand between depths of 20 - 25 feet below land surface (bls). Unit thickness ranging approximately 10 -15 feet.

Bed 3: Micritic, fossiliferous limestone underlying Bed 2. Depths to top of rock ranging from 32 - 40 feet bls.

A generalized geologic cross-section along transect line A-A' (Figure 2) depicting geologic formations encountered at wells installed under the direction of The Colinas Group as part of PCA actions is presented on Figure 3. Water level elevations shown in the wells are taken from the February 2014 quarterly water quality monitoring report.

WATER QUALITY MONITORING PROGRAM

Groundwater Monitoring Wells

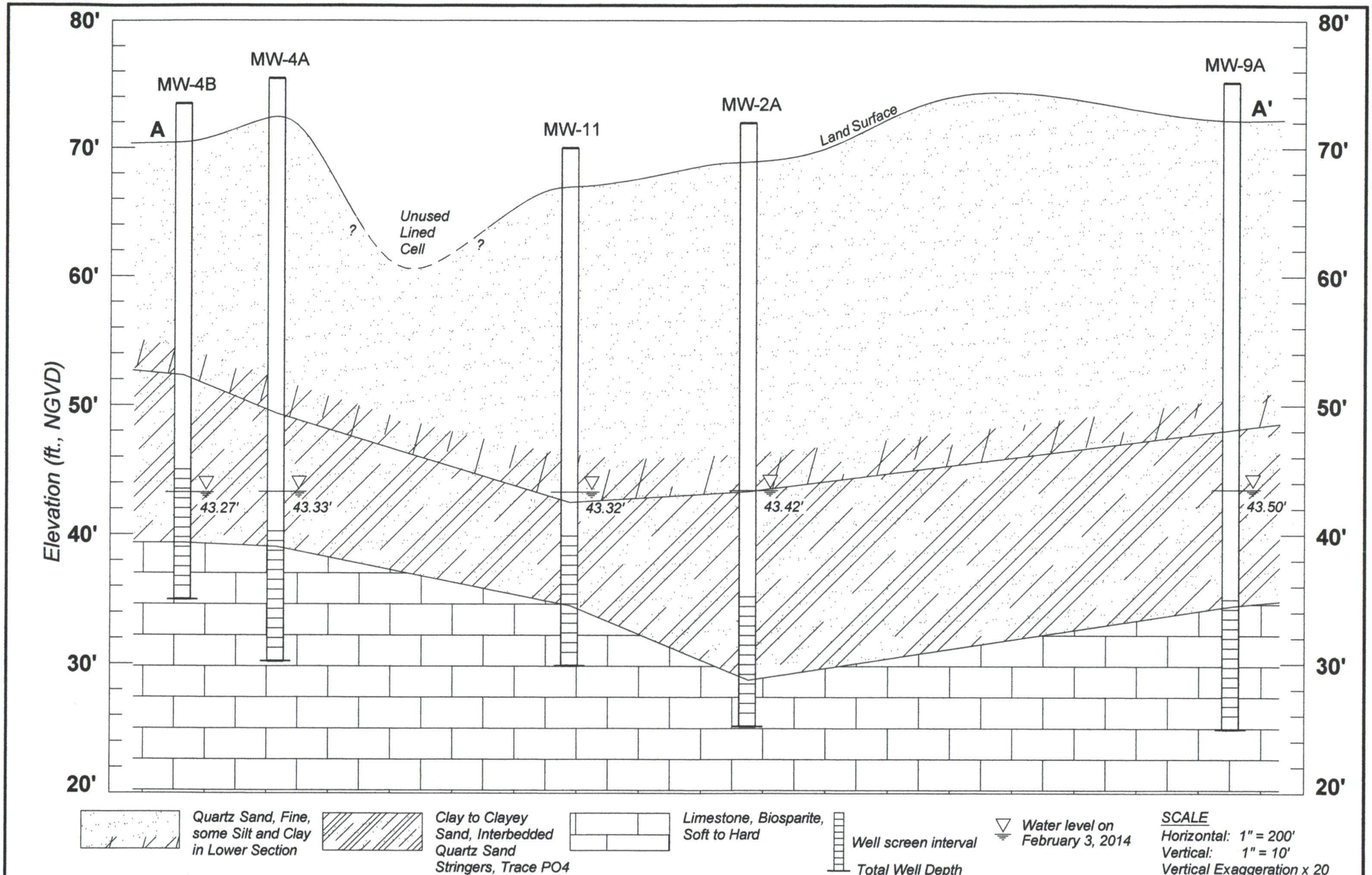
The groundwater monitoring network at the landfill consists of fifteen (15) monitoring wells and piezometers. Of these, nine (9) are active groundwater monitoring wells and six (6) are used as piezometers for water level measurement. Locations of wells and piezometers arrayed around the perimeter of the closed landfill, are shown on Figure 2.

Five (5) of the piezometers are former groundwater monitoring wells (MW-1, MW-4, MW-4B, MW-7 and MW-9) since converted to piezometer use. The remaining piezometer (MW-2A) was installed as part of Preliminary Contamination Assessment actions begun at the landfill in 2004.

Monitoring wells MW-4A and MW-4B were installed as part of Preliminary Contamination Assessment actions in January 2006 and reported in the Preliminary Contamination Assessment Report (PCAR) prepared for the landfill in 2006. The wells were added to the landfill monitoring plan in May 2006 and recently converted to use as piezometers in the December 2013 LTC permit modification.

Monitoring well MW-6A is listed in the landfill LTC permit as a Background Well. MW-8, also situated along the eastern perimeter of the landfill, is listed as a Detection Well in the permit even though the well consistently appears to be located hydraulically up-gradient of the waste disposal area, as demonstrated by groundwater contour maps prepared as part of quarterly monitoring reports.

New monitoring wells MW-4C and MW-4D, constructed in 2011 as the final phase of PCA actions, were added to the monitoring plan in the December 2013 permit modification in conjunction with expansion of the landfill's ZOD boundary to the north and west of the solid waste disposal area. Existing monitoring wells MW-4 and MW-4B were discontinued for sampling purposes and designated as piezometers.



The Colinas Group, Inc.
377 Maitland Avenue
Suite 2012
Altamonte Springs, Florida 32701

PROJ. NO.:	P-505
DATE:	MARCH 2014
SCALE:	NOTED

GEOLOGIC CROSS-SECTION
SUMTER COUNTY CLOSED LANDFILL

FIGURE 3

The configuration of the current ZOD boundary is shown on Figure 2. The western limit of the ZOD is coincident with the landfill property boundary. The southern limit of the ZOD is located 100 feet from the edge of landfill waste.

A summary of the current groundwater monitoring network of wells and piezometers is tabulated below:

Well ID	WACS No.	Use	Aquifer Monitored	Total Depth (ft.bls)	Screen Interval (ft.bls)
MW-1	4534	P	Floridan	unk	unk
MW-2	4535	D	Floridan	40	unk
MW-2A	21974	P	Floridan	47	37 - 47
MW-4	4537	P	Floridan	37	32 - 37
MW-4A	21975	D	Floridan	41	31 - 41
MW-4B	21976	P	Floridan	37	27 - 37
MW-4C	28669	C	Floridan	42	32 - 42
MW-4D	28670	C	Floridan	42	32 - 42
MW-6A	4557	B	Floridan	48	43 - 48
MW-7	4564	P	Floridan	unk	unk
MW-8	4592	D	Floridan	41	36 - 41
MW-9	4593	P	Floridan	46	41 - 46
MW-9A	21211	D	Floridan	47	37 - 47
MW-10	21212	D	Floridan	42	32 - 42
MW-11	21213	D	Floridan	42	32 - 42

D - Detection Well B - Background Well C - Compliance Well P - Piezometer Unk - Unknown

Monitoring Parameters and Frequency

The groundwater monitoring network is sampled on a recurring quarterly basis. Analytical chemical parameters for the first three quarters of each year are listed in permit Specific Condition No.16c:

Aluminum	Fluoride	Nitrate
Ammonia, total	Gross alpha	Radium 226+228
Antimony	Iron	Silver
Cadmium	Lead	Sodium
Chloride	Manganese	Thallium
Chromium	Mercury	Total dissolved solids (TDS)

An expanded list of analytical parameters is required by permit Specific Condition No.16d during the fourth quarter of each year. The expanded list includes the above listed constituents plus the parameters listed in *40 CFR Part 258, Appendix I.*

WATER QUALITY MONITORING SUMMARY

Field Parameters

Measurements of certain parameters are taken in the field by sampling personnel during sample collection. Field parameters measured include:

pH
Dissolved oxygen (DO)
Groundwater temperature
Specific conductance
Turbidity

These data are useful as indicators of monitoring well performance and sampling procedure as well as indicators of general water quality characteristics.

Test results for field parameters are summarized in Table I in Appendix I to this report. Results are taken from the quarterly groundwater monitoring reports submitted to the FDEP over the period Quarter II (May) 2011 through Quarter I (February) 2014. Graphs of selected constituents over time at individual monitoring wells are presented in Appendix II.

As indicated on Table I, monitoring well MW-2 was not sampled in May 2013. The well, finished in a below-grade vault, was inadvertently covered by new pavement during recent site improvement activities and could not be located during the routine sampling event. The wellhead was located later using a metal detector, the pavement removed and the well returned to service for the next sampling event in August 2013.

The range of pH values measured in groundwater from the monitoring wells is considered reasonably typical for groundwaters in west-central Florida. Groundwater produced by most of the monitoring wells is slightly acidic to slightly basic. Lower pH values are reported for detection wells MW-2, MW-9A, MW-10 and MW-11. Higher values are reported for well MW-4B, ranging from pH of 8.61 to 9.27. Groundwater samples from upgradient monitoring wells MW-6A and MW-8 were slightly basic.

Field-measured DO concentrations in groundwater samples are plotted graphically in Appendix II. Four (4) monitoring wells (MW-2, MW-4B, MW-6A and MW-8) demonstrate consistent elevated DO concentrations above 20% saturation over the quarterly sampling events. Highest DO levels are reported for upgradient monitoring well MW-6A. Dissolved oxygen concentrations in samples from the remaining monitoring wells were, with one exception, below 20% saturation.

Specific conductance measurements are plotted in Appendix II for the groundwater monitoring wells at the landfill. As shown, specific conductance varies somewhat between monitoring wells and is relatively consistent at each well over the period of record. Highest specific conductance is routinely reported for detection well MW-9A.

For the most part, the temperatures reported for groundwater samples appear consistent between wells and between sampling event data sets. Groundwater temperatures varied from season to season through a relatively small range.

As indicated in Table I, fluid turbidity was measured and reported at values less than 20 NTUs in all groundwater samples collected from facility monitoring wells over the monitoring period. Most turbidity measurements are reported at less than 10 NTUs.

Laboratory Analytical Parameters

Concentrations of monitoring parameters detected above laboratory method detection limits (MDLs) in groundwater samples from each of the monitoring wells are taken from monitoring reports submitted by Sumter County to the FDEP and summarized in Table II in Appendix I to this report. The summary for each of the monitoring wells includes quarterly sampling results for the period Quarter II 2011 through Quarter I 2014.

The analytical results summary in Table II includes parameters that were detected at least one time in groundwater samples collected over the monitoring period. Analytical constituents that were never reported above laboratory MDLs are excluded. Analytical results shown in highlighted bold-face type indicate that the reported concentration exceeds the FDEP regulatory level for that specific parameter.

Table II includes laboratory results of analyses for eighteen individual chemical and radiological parameters. Most of these parameters were detected by the laboratory at low concentrations, well below respective Groundwater Cleanup Target Levels (GCTLs) presented in Chapter 62-777, F.A.C. Eight of the eighteen parameters were either consistently detected or exceeded regulatory levels during one or more sampling events at one or more monitoring wells over the monitoring period.

Wells MW-4 and MW-4B were deleted from the facility monitoring plan and designated as piezometers in the December 2013 permit modification. These wells were not sampled in the Quarter I (February) 2014 monitoring event.

Aluminum

Aluminum was detected in groundwater samples from six of the monitoring wells; consistently at two (MW-4B and MW-9A), at generally declining concentrations at three others (MW-4, MW-10 and MW-11), and infrequently at well MW-4A. Aluminum concentrations regularly exceeded the secondary MCL (200 ug/l) at MW-9A throughout most of the monitoring period.

Chloride
Chloride concentrations at all wells are low and well below the MCL of 250 mg/l. Two wells, MW-4A and MW-9A, produced samples with chloride nominally higher than the other monitoring wells, ranging from 20 mg/l to 27 mg/l over the period of record. Average chloride concentrations reported for these two wells is somewhat higher than at background wells and remaining detection wells.

Iron
Iron is consistently reported below either below the laboratory minimum detection limit (MDL) or less than the secondary MCL of 300 ug/l in background well MW-6A, upgradient well MW-8 and most of the other monitoring wells throughout the period of record. Iron concentrations slightly above the MCL are reported for detection well MW-10. Higher iron values are consistently reported for detection well MW-9A.

Gross Alpha
This radiological constituent was routinely detected at most monitoring wells over the monitoring period with higher concentrations generally reported at Detection Wells MW-9A, MW-10 and MW-11. As indicated in Table II, the primary MCL for gross alpha (15 pCi/l) was nominally exceeded in one sampling event at detection wells MW-10 and MW-11. Laboratory results presented in Table II are corrected for the negative range of analytical error inherent in the laboratory analyses.

Manganese
Manganese is generally either not detected or detected at very low concentrations at most monitoring wells. The exceptions are monitoring wells MW-9A and MW-10. Manganese is consistently reported at concentrations above the secondary MCL of 50 ug/l at MW-9A. Manganese concentrations below the MCL are consistently reported at MW-10.

Nitrate Nitrogen
Nitrate nitrogen was reported above the primary MCL (10 mg/l) in all but one of the samples collected from well MW-4A (11 mg/l - 15 mg/l). Nitrate reported for the November 2011 sampling event at this well is an anomaly in the data set and is considered suspect, as is the concentration reported for the same sampling event at MW-11. Although below the MCL, nitrate concentrations in background well MW-6A, upgradient well MW-8 and remaining detection wells, excepting MW-9A, are reported at concentrations considered elevated above typical naturally-occurring levels of nitrate in groundwater.

As indicated on Table II, Background Well MW-6A consistently produced groundwater samples with elevated nitrate concentrations, ranging from 5.0 mg/l to 6.6 mg/l over the monitoring period. Lower nitrate values are reported for up-gradient monitoring well MW-8 (1.7 mg/l - 2.1 mg/l). Nitrate values similar to those at Background Well MW-6A are reported for former Compliance Well MW-4 and Detection Well MW-11.

Radium 226 + 228

These isotopes of radium were detected at each of the landfill monitoring wells, either periodically or consistently, over the monitoring period as indicated in Table II. One sample from Detection Well MW-9A nominally exceeded the primary MCL (5 pCi/l) for combined radium 226 + radium 228 at a reported concentration of 5.8 pCi/l in August 2013. As with gross alpha, values presented are corrected for the negative range of laboratory error.

Sodium

Sodium is reported in groundwater samples from most wells at very low concentrations generally between ranging between 2 mg/l - 11 mg/l. Background well MW-6A and upgradient well MW-8 consistently produced similar low sodium values. Wells MW-4 and MW-4A, and to a lesser extent MW-9A, consistently produce sodium values markedly higher than the other monitoring wells. Sodium concentrations reported over the period of record at MW-4 ranged from 28 mg/l - 41 mg/l, and at MW-4A from 19 mg/l - 26 mg/l, well below the primary MCL of 160 mg/l, but considered somewhat elevated for natural groundwater in the landfill area.

Total Dissolved Solids

TDS was measured slightly above the secondary MCL (500 mg/l) in ten samples from MW-9A and once at MW-10. Lowest TDS levels are consistently reported at former monitoring well MW-4B. With the exception of one sampling event at former monitoring well MW-4, reported TDS values are less than the MCL at other monitoring wells.

New monitoring wells MW-4C and MW-4D (see Figure 2) were added to the landfill monitoring plan in the permit modification in December 2013. Originally installed as part of the final phase of PCA actions at the landfill in November 2011, both wells were initially sampled in February 2012 and results reported to the Department in the Quarter I 2012 Groundwater Monitoring Report.

Upon inclusion in the LTC monitoring plan at the end of 2013, both wells were sampled a second time in February 2014 and results reported to the Department in the Quarter I 2014 Groundwater Monitoring Report for the SCCL. Field testing results and laboratory analytical results for constituents detected in either sampling event at MW-4C and MW-4D are presented in Table III.

VOC Parameters

An expanded list of analytical parameters is sampled and analyzed during the fourth quarter of each year at the SCCL. The expanded list includes the normal quarterly sampling constituents plus nine additional metals and the volatile organic compounds (VOCs) listed in *40 CFR Part 258, Appendix I*.

Laboratory results for the expanded list of constituents sampled during Quarter IV of each year included in this reporting period are summarized in Table IV in Appendix I. As indicated the additional metals parameters were detected by the laboratory at trace concentrations relative to respective MCLs. Only two VOC constituents, acetone and carbon disulfide, both common laboratory contaminants, were detected at trace concentrations in four separate samples from three wells, including Background Well MW-6A.

CONSTITUENT TREND ANALYSES

Apparent trends of concentrations versus time for selected parameters monitored in groundwater at the Sumter County landfill are depicted graphically for each active monitoring well in Summary Charts attached in Appendix II. Graphs of individual parameters include a trend line through the plotted data calculated by linear regression and depicting the orientation (increasing or decreasing) and the slope (magnitude of flux) of the data trend over time. Constituent graphs include:

Aluminum	Manganese
Gross Alpha	Nitrate, as N
Radium 226 + Radium 228	

The trend analysis graphs indicate apparent trends of stable, increasing and decreasing concentrations of specific analyzed constituents over time at the SCCL. Trends for specific parameters at specific monitoring wells are apparent. Data plots on the Summary Charts when constituents were reported below detection limits were approximated by assigning a value of 50% of the laboratory MDL for the particular parameter for graphing purposes.

<u>Aluminum</u>
Forecast trends for aluminum are stable at three wells (MW-2, MW-6A and MW-8) where the constituent was reported below the laboratory MDL in each of the twelve sampling events. Trends for aluminum at the remaining six wells are declining over the monitoring period with projected concentrations expected below the secondary MCL for this constituent.

<u>Gross Alpha</u>
Increasing forecast trends for gross alpha radioactivity are apparent at six monitoring wells (MW-2, MW-4B, MW-6A, MW-8, MW-9A and MW-10), through both low and high relative values compared to the MCL for this constituent. Increasing low-value gross alpha trends are noted at upgradient wells MW-6A and MW-8. Increasing forecast trends at higher values are apparent at well MW-9A and, at levels approaching the MCL, at MW-10.

<u>Manganese</u>
Stable to declining trends for manganese are noted at seven of the nine monitoring wells (MW-2, MW-4, MW-4A, MW-10, MW-11 and up-gradient wells MW-6A and MW-8). As shown on the charts in Appendix II, values for manganese are low to

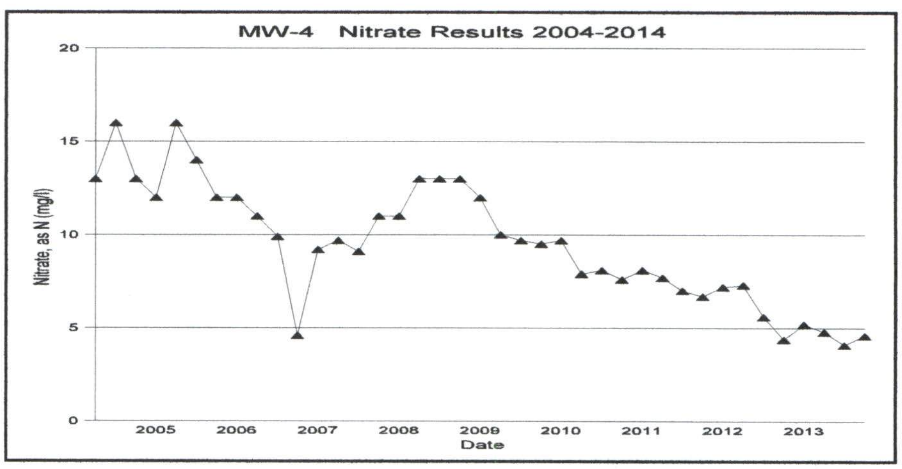
very low at these wells compared to the 50 mg/l secondary MCL. A trend of increasing manganese at concentrations exceeding the MCL is noted for MW-9A. A similar increasing trend through a range of very low values is apparent at MW-4B.

Nitrate Nitrogen

An overall trend of stable to declining nitrate concentrations in groundwater is evident throughout the landfill monitoring network. The lone exception is well MW-9A, exhibiting an increasing forecast trend through a range of very small nitrate values (0.10 mg/l - 0.82 mg/l) well below the MCL and concentrations reported in other up-gradient and down-gradient monitoring wells at the SCCL.

Slightly increasing trends shown on the Summary Charts for wells MW-4A and MW-11 are the result of anomalous, and suspect, nitrate concentrations reported for both wells in the November 2011 sampling event. Ignoring the suspect data, or substitution of nitrate values equivalent to immediately preceding and subsequent laboratory values results in apparent trends of declining concentrations at both wells.

A significant trend of declining nitrate concentrations at former Compliance Well MW-4, the prime impetus for earlier PCA actions at the SCCL, continues the trend noted in the previous Technical Report prepared for the period 2008 - 2011 (TCG, July 2011: Water Quality Evaluation Report (Quarter IV 2008 - Quarter I 2011) Sumter County Closed Class I Landfill). Nitrate values reported for MW-4 since 2004 are presented in the graph below.



Radium 226 + Radium 228

Forecast trends for radium 226 + radium 228 are generally increasing at most wells over the monitoring period, typically at low to very low values compared to the composite primary MCL (5 pCi/l) for these radionuclides. Increasing trends are noted for wells MW-9A and MW-11 through values approaching the MCL. Stable forecast trends are apparent at Background Well MW-6A and up-gradient well MW-8 at very low concentrations.

CORRELATION OF RELATED PARAMETERS

The relationships between groundwater pH and dissolved oxygen (DO), specific conductance and total dissolved solids (TDS) and sodium and chloride are shown graphically on the Summary Charts presented in Appendix II for each monitoring well. As shown, consistent correlative trends between these parameters, either directly or inversely, are apparent over the reporting period.

Fluctuations in groundwater pH, although generally small, are apparent on graphs of pH vs.DO. Variations in pH values over the period of record are likely related to periods of rainfall and subsequent recharge to the groundwater monitoring zone at the landfill. Periods of relatively high groundwater recharge from rainfall tend to decrease pH in the monitoring zone at and near the top of the underlying limestone formation. Increasing pH probably reflects the effect of reduced local recharge.

Conversely, DO concentrations in groundwater can be expected to increase during periods of high rainfall and decline during extended dry periods and reduced recharge. This inverse relationship is apparent at most of the landfill monitoring wells.

Specific conductance is plotted versus TDS for each of the monitoring wells. A direct correlation between the two parameters is noted for most of the monitoring wells. A poor correlation is noted for Background Well MW-6A.

Correlation of the typically associated constituents sodium and chloride is good at most monitoring wells, including wells MW-4 and MW-4A which both report comparably higher values for these constituents as compared to other monitoring wells. Correlation at wells with lower values reported for sodium and chloride is less apparent.

COMPARISON OF MONITORING WELLS

As indicated in Table II, elevated DO levels are consistently reported at up-gradient wells MW-6A and MW-8. Groundwater pH at these wells is typically slightly slightly basic, ranging from 7.00 to 7.92 pH units over the monitoring period. Slightly lower, acidic pH values are typical for groundwater samples from down-gradient detection wells MW-9A, MW-10 and MW-11.

Metals constituents aluminum, cadmium, iron, lead, mercury and thallium are rarely, if ever, detected at the up-gradient wells while frequently detected at most down-gradient monitoring wells. Other constituents, such as antimony, chromium and fluoride, are detected up-gradient at similar concentrations to down-gradient wells. Chloride, sodium and manganese concentrations reported at MW-6A and MW-8 are generally low with significantly higher levels of these constituents detected at several down-gradient detection wells.

Nitrate-nitrogen at concentrations exceeding the primary MCL at former Compliance Well MW-4 was the primary factor leading to PCA actions ordered by the Department in 2004. Comparisons of selected constituent concentrations over time reported for monitoring well MW-4 and nearby wells MW-4A and MW-4B are presented graphically on Comparison Charts in Appendix III.

With the exception of aluminum, plots of the other parameters, groundwater pH, DO, specific conductance/TDS, sodium/chloride and nitrate nitrogen, illustrate a similarity in water chemistry between wells MW-4 and MW-4A. Marked differences in concentrations of these constituents at MW-4B suggest a nearby local source of fresh groundwater recharge from rainfall.

GROUNDWATER FLOW

Hydrographs, constructed from water level measurements taken over the reporting period, are presented for each monitoring well and piezometer in Appendix IV. The trend of seasonal rising and falling water levels in the wells is consistent across the 12-quarter data set and between individual monitoring wells and piezometers. Highest water table elevations are reported in August of each year at each well/piezometer. The magnitude and duration of water level fluctuations is remarkably similar between wells over the hydrograph period.

Groundwater contour maps have been prepared for each sampling event as part of routine monitoring and reporting requirements for the landfill. Copies of the contour maps for the period Quarter II 2011 through Quarter I 2014 are included in Appendix V.

Generally, the contour maps depict relatively stable groundwater flow conditions over the reporting period. The maps consistently indicate a local high on the water table surface centered on monitoring well MW-8 at the southeastern margin of the closed landfill. Apparent groundwater flow is from this high to lower groundwater levels toward the west and northwest of the landfill.

A slight northeast-trending trough on the water table surface is apparent in the western portion of the site on the contour maps for May and August of 2011. This featured ceased to exist in subsequent maps upon re-surveying of top of well casing elevations by Sumter County in October 2011. Casing elevations were corrected by factors of 0.03 ft. to 0.67 ft. throughout the monitoring well/piezometer network.

Hydraulic gradients across the landfill site are very shallow, with head difference measured between wells along the eastern side (upgradient) and the western (downgradient) side of the landfill ranging from 0.78 ft. to 1.66 ft. over the monitoring period. The average hydraulic gradient on the water table surface over the period is calculated at 0.0007 ft/ft.

Site-specific hydraulic conductivity, or permeability, test data are not available for the SCCL. Consequently, bulk groundwater flow velocity at the landfill cannot be estimated with any degree of confidence.

EVALUATION OF WATER QUALITY MONITORING REQUIREMENTS

The groundwater monitoring requirements specified in the Long-Term Care Permit for the Sumter County Closed Class I Landfill and the array of monitoring wells appear to allow for a good assessment of groundwater movement and water quality conditions at the facility. The current array of monitoring well locations around the perimeter of the closed waste disposal cell appears to be suitable to intercept groundwater containing contaminants generated by the closed waste disposal facility.

Evaluations of field and laboratory analytical data for the previous 2.75 -year monitoring period indicate that current sampling procedures and field testing methods are suitable for the site and facility conditions. Water quality data appear consistent from sampling event to sampling event over the reporting period with relatively few spurious, anomalous or suspect data.

SUMMARY AND CONCLUSIONS

This report was prepared by The Colinas Group for the Sumter County Closed Landfill (SCCL) in compliance with the requirements of the Technical Report set forth in Chapter 62-701, F.A.C. and the specific conditions of the landfill's Long-Term Care (LTC) permit. Solid waste disposal operations were ceased in 1988 and the landfill was capped and officially closed on May 24, 1990.

A Consent Order was issued by the Florida Department of Environmental Protection (Department) on March 17, 2004 to address, among other issues, exceedances of water quality standards at monitoring wells MW-2 and MW-4. Groundwater monitoring data from prior quarterly sampling events indicated that the primary concern at the landfill was the persistent detection of nitrate nitrogen in groundwater samples from Compliance Well MW-4 at concentrations exceeding the Florida Primary Drinking Water Standards Maximum Contaminant Level (MCL) of 10 mg/l.

Sumter County completed Preliminary Contamination Assessment actions ordered by the Department, installed additional monitoring wells and continued quarterly groundwater monitoring and reporting in accordance with the LTC permit conditions. The LTC permit was modified in December 2013 to incorporate additional monitoring wells into the facility monitoring plan and provide for expansion of portions of the landfill Zone of Discharge boundary. The Consent Order was deemed satisfied and the case closed by the Department on January 14, 2014.

Field and laboratory groundwater monitoring results and water level measurements for the period Quarter II (May) 2011 through Quarter I (February) 2014 were compiled and evaluated to prepare this Technical Report. Analytical and hydrographic data presented in this report were gathered from quarterly groundwater monitoring reports routinely submitted to the Department by Sumter County over the subject period of record. Supplemental geologic and water quality data are taken from Well Completion Report records and other site reports submitted to the Department since 2004.

Monitored constituents that exceeded respective MCLs at least once at any well over the 2011-2014 Technical Report period include: Aluminum, iron, manganese, nitrate-nitrogen, total dissolved solids (TDS) and the radionuclides gross alpha and radium 226 and 228. Aluminum, iron , manganese and TDS concentrations in groundwater at solid waste facilities are regulated by the Florida Secondary Drinking Water Standards MCLs; nitrate-nitrogen and gross alpha and radium 226/228 are regulated by the Florida Primary Drinking Water Standards MCLs.

Aluminum exceeding the secondary MCL was detected at five of the facility down-gradient (Detection and Compliance) monitoring wells in the early portion of the reporting period with levels declining through the remainder to either less than the MCL or below the laboratory minimum detection limit at all but one well. Forecast trends for aluminum at all wells project sub-MCL results for this constituent.

Exceedances of the secondary MCL for iron are limited to Detection Wells MW-9A and MW-10, installed close to the buried waste. Iron levels at MW-9A appear to be rising over the monitoring period and decreasing at MW-10. Exceedances for manganese and TDS are limited to MW-9A, with minor increases forecast at this well. In the last sampling event in February 2014 aluminum, iron, manganese and TDS exceeded MCLs only at MW-9A.

The Department has determined the SCCL to be an “existing installation” exempt from compliance with the secondary standards for Class G-II groundwater referenced in Rule 62-520.420(1), F.A.C. at the facility property boundary.

Nitrate-nitrogen was reported persistently, excluding one suspect sample result, at concentrations nominally exceeding the primary MCL at Detection Well MW-4A, ranging between 11 mg/l to 15 mg/l. the primary MCL for nitrate is 10 mg/l. Excluding the one suspect (low) sample result, the forecast trend for nitrate at the well is declining to lower values. Nitrate levels at new Compliance Wells MW-4C and MW-4D, located immediately down-gradient from MW-4A, were below the MCL and near historical background levels reported at Background Well MW-6A.

Well MW-4A was installed as part of PCA actions to investigate the extent of exceeding nitrate concentrations down-gradient from former Compliance Well MW-4. Nitrate values exceeding the MCL have historically been routinely reported at MW-4. Since 2009 nitrate has been consistently reported below the MCL at MW-4 through a steadily declining range of values now reported at and near background levels.

Reduction of nitrate levels at MW-4 since 2004 may well be the result of cessation of waste composting and storage practices near the well in 2005 and the discontinued use and removal of nearby septic tank systems in 2008. Both are considered potential sources of nitrate enrichment to groundwaters at and near the northwest portion of the landfill solid waste disposal area. Near-surface geologic characteristics, namely a thick unsaturated zone and deep water table and slopes on the underlying bedded clay sediments, are conducive to lateral migration of nitrogen-bearing recharge waters from the point of origin.

Gross alpha exceeded the primary MCL in one sampling event at Detection Well MW-10 and in one event at Detection Well MW-11 over the monitoring period. Background gross alpha levels reported at up-gradient wells MW-6A and MW-8 are increasing through the monitoring period but at fairly low values compared to the MCL. Increasing trends for gross alpha at higher values are noted at Detection Well MW-9A and, at values approaching the MCL, at MW-10. Declining gross alpha levels below the MCL are forecast at MW-11.

Radium 226 and radium 228 exceeded the composite primary MCL in one sampling event at Detection Well MW-9A. Background radium 226/228 levels are stable through the monitoring period. Trends of increasing levels to values approaching the MCL are apparent at MW-9A, exceeding the MCL in August 2013, and at Detection Well MW-11.

None of the additional metals parameters analyzed annually as part of the expanded sampling list were detected at concentrations approaching respective MCLs during the three annual sampling events included in this Technical Report. Apart from a few spurious and suspect detections of acetone and carbon disulfide at trace concentrations, no volatile organic compounds (VOCs) were detected at any of the facility monitoring wells in three consecutive annual monitoring events over the nearly three-year monitoring period.

RECOMMENDATIONS

This Technical Report should be submitted to the Florida Department of Environmental Protection Central District Office as part of a Stabilization Report for determination by the Department as to whether continued groundwater monitoring at the SCCL is warranted. The Stabilization Report is due to the Department on or before April 15, 2014, sixty days prior to the Landfill's Long-Term Care Permit expiration date of June 15, 2014.

In the event that the Department determines the need for continued groundwater monitoring at the SCCL and renewal of the facility Long-Term Care permit, Sumter County should request certain reductions in monitoring requirements based on the results of this and previous Technical Reports. Recommended modifications to the monitoring plan include:

1. Elimination of Detection Well MW-8 owing to its demonstrated location up-gradient of the landfill solid waste disposal area. Located approximately 750 feet from Background Well MW-6A, the well is not needed to meet the spacing requirement for background wells in Rule 62-701.410(3)(d)3, F.A.C.

2. Routine monitoring parameters either never detected or consistently detected at concentrations well below appropriate regulatory standards at the SCCL should be discontinued from future monitoring. Parameters recommended for

deletion from the landfill monitoring plan include: ammonia-nitrogen, chloride, chromium, fluoride, lead, mercury, silver, sodium and thallium.

3. For the same reasons, sampling for the parameters included in the expanded annual sampling event list should be eliminated. Those parameters recommended for deletion include the VOCs listed in *40 CFR Part 258, Appendix I* and the following metals: arsenic, barium, beryllium, cobalt, copper, nickel, selenium, vanadium and zinc. In short, the permit requirement for annual monitoring of the expanded parameter list should be deleted.

The above recommended modifications to the landfill monitoring plan will significantly reduce recurring costs to Sumter County in the event that groundwater monitoring is continued into the future. Considering the length of time that has passed since landfill closure in 1990, and based on historical groundwater monitoring results and results presented in this Technical Report, the recommended monitoring plan modifications are considered appropriate in maintenance of adequate protection to the environment in general and to the public health, safety and welfare.

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APPENDIX I

FIELD AND LABORATORY
TEST RESULTS SUMMARY TABLES

TABLE I
FIELD PARAMETER RESULTS SUMMARY
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	Sample Date	Monitoring Well ID								
			MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Temp.	C	5/11	25.54	25.87	26.27	25.77	24.76	23.80	25.06	25.09	25.59
		8/11	27.76	26.42	26.24	25.83	24.23	24.12	25.20	24.70	26.81
		11/11	27.32	26.70	26.69	25.81	24.44	24.32	25.06	25.07	25.95
		2/12	26.55	26.17	26.42	25.69	24.46	24.5	25.23	25.18	25.95
		5/12	27.91	26.05	26.55	25.71	24.92	24.38	25.19	25.41	25.75
		8/12	26.93	27.25	26.35	25.99	24.97	24.43	25.18	25.90	26.26
		11/12	25.89	26.04	26.25	25.61	24.68	23.66	25.22	24.66	24.88
		2/13	26.76	26.23	26.31	25.62	24.70	24.01	25.49	24.04	25.00
		5/13	ns	26.05	26.17	25.41	24.99	23.77	25.31	24.59	24.99
		8/13	27.49	26.60	26.14	25.35	24.72	24.32	25.26	25.13	26.03
		11/13	27.34	26.32	25.94	25.60	24.86	24.39	25.06	25.30	25.89
		2/14	26.01	ns	25.99	ns	24.76	23.54	25.22	24.12	25.04
Dissolved Oxygen	mg/L	5/11	**5.02**	1.26	0.89	**5.67**	**7.54**	**4.78**	0.67	1.47	1.56
		8/11	**5.00**	0.89	0.44	**6.30**	**7.64**	**4.78**	0.44	1.47	1.68
		11/11	**5.00**	0.86	0.57	**5.11**	**6.72**	**3.48**	0.62	1.64	0.79
		2/12	**3.86**	0.70	0.29	**4.97**	**6.56**	**3.96**	0.21	1.48	0.40
		5/12	**4.62**	0.77	0.59	**4.11**	**6.88**	**4.85**	0.41	0.37	0.73
		8/12	**5.61**	0.42	0.65	**6.08**	**6.68**	**3.98**	0.23	0.29	1.55
		11/12	**5.60**	0.61	0.51	**6.74**	**6.91**	**4.49**	0.58	0.35	1.55
		2/13	**6.42**	1.21	0.49	**6.00**	**7.32**	**4.55**	0.41	0.62	1.15
		5/13	ns	0.69	0.67	**3.45**	**6.93**	**4.75**	0.25	0.43	0.96
		8/13	**5.58**	0.93	1.01	**7.37**	**7.22**	**5.01**	0.82	0.82	**1.94**
		11/13	**5.75**	0.63	0.92	**6.56**	**7.11**	**6.62**	0.22	0.89	1.38
		2/14	**5.02**	ns	1.07	ns	**6.76**	**4.00**	0.99	1.20	1.27
pH	su	5/11	6.94	7.07	6.88	**8.69**	7.57	7.00	**6.39**	6.84	**6.28**
		8/11	6.74	7.13	6.91	**8.61**	7.47	7.04	**6.47**	6.53	**6.32**
		11/11	7.04	7.21	7.06	**9.27**	7.80	7.34	6.53	6.94	6.58
		2/12	6.88	7.23	7.09	**9.12**	7.86	7.36	6.55	6.98	6.59
		5/12	6.74	7.20	7.11	**8.69**	7.83	7.30	**6.45**	6.99	6.55
		8/12	6.75	7.28	7.19	**9.05**	7.78	7.41	**6.46**	6.90	**6.20**
		11/12	6.87	7.40	7.15	**9.11**	7.84	7.36	6.53	6.87	**6.19**
		2/13	7.03	7.24	6.93	**8.93**	7.73	7.28	**6.48**	6.88	**6.22**
		5/13	ns	7.28	7.01	**8.61**	7.77	7.30	6.50	6.89	**6.28**
		8/13	6.76	7.12	7.00	**8.93**	7.71	7.24	**6.42**	6.74	**6.05**
		11/13	7.05	7.29	7.15	**9.16**	7.92	7.47	6.55	6.98	**6.28**
		2/14	6.68	ns	7.08	ns	7.81	7.43	6.50	7.00	**6.39**
Specific Conductance	umhos/cm	5/11	210	587	673	126	257	345	898	540	532
		8/11	243	583	662	129	254	339	895	536	513
		11/11	333	583	665	139	255	347	913	530	559
		2/12	233	568	665	142	249	343	911	515	556
		5/12	192	549	649	148	265	341	908	540	555
		8/12	282	542	620	115	271	338	904	629	327
		11/12	261	520	618	115	255	339	912	636	304
		2/13	259	526	624	119	255	342	927	642	334
		5/13	ns	512	618	133	258	345	915	623	346
		8/13	205	508	603	115	258	324	928	582	311
		11/13	214	500	585	117	246	314	896	558	324
		2/14	206	ns	592	ns	254	308	924	539	370
Turbidity	NTU	5/11	0.55	8.21	4.45	6.07	9.20	2.44	14.1	18.2	12.8
		8/11	1.00	5.51	3.03	8.01	5.14	1.51	10.1	5.66	15.0
		11/11	1.08	3.94	7.10	4.45	7.11	2.38	3.00	9.16	14.8
		2/12	0.39	3.90	7.67	9.71	10.5	6.22	14.1	8.38	14.7
		5/12	1.21	5.52	3.12	2.13	10.5	3.29	13.5	6.50	14.0
		8/12	1.20	3.13	2.63	11.7	16.5	0.53	6.39	8.04	3.64
		11/12	0.34	3.45	4.0	8.52	12.4	4.49	12.4	8.26	2.40
		2/13	3.33	0.29	2.32	4.7	10.6	0.24	13	6.55	5.42
		5/13	ns	1.43	2.74	2.53	12.4	0.25	11.8	3.49	5.88
		8/13	0.41	0.53	5.26	2.37	16.5	0.29	10.5	4.38	2.13
		11/13	0.69	0.77	1.76	3.01	8.93	0.36	12	3.3	9.14
		2/14	0.4	ns	1.51	ns	13.3	0.71	11.6	8.48	6.1

Notes: **BOLD** lettering Indicates: Exceedance of FDEP 20% saturation dissolved oxygen limit

Exceedance of pH range (6.5 - 8.5)

ns means well not sampled

TABLE II
SUMMARY OF QUARTERLY LABORATORY DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Ammonia, as N	mg/L	2.8	5/11							0.40		
			8/11			0.032				0.361		
			11/11							0.27		
			2/12							0.34		
			5/12							0.46		
			8/12	0.32	0.64	1.0	1.1	0.75	0.73	1.3	0.67	0.61
			11/12	0.066	0.041	0.066	0.061	0.038	0.059	0.614	0.134	0.055
			2/13	0.083	0.084	0.066	0.072	0.081	0.067	0.636	0.115	0.089
			5/13	ns	0.034	0.056	0.072	0.020	0.104	0.590	0.029	
			8/13		0.019	0.016			0.02	0.549	0.018	
			11/13		0.02				0.01	0.66		
			2/14							0.83		
Aluminum	ug/L	200	5/11		**280**		**460**			**550**	**610**	**420**
			8/11		190		**340**			**260**	**250**	**720**
			11/11		160	79	**460**			140	**530**	**1100**
			2/12		**460**	64	**640**			**570**	420	**860**
			5/12		190		130			**360**	**360**	**720**
			8/12		68		**810**			**420**	**360**	**210**
			11/12				**490**			**250**	140	
			2/13				**260**			**210**	170	
			5/13	ns			160			**500**		
			8/13				130			70		
			11/13				190			**250**		79
			2/14							**210**	140	
Antimony	ug/L	6	5/11	0.47	0.22	0.11	0.13		0.073	0.11	0.22	0.10
			8/11	0.43	0.25	0.10	0.16		0.077	0.13	0.44	0.82
			11/11	1.0	0.48	0.24	0.23	0.15	0.20	0.20	0.37	1.1
			2/12	0.49	0.21	0.099	0.15		0.11		1.1	0.46
			5/12	0.20	0.11		0.54	0.074			0.16	0.095
			8/12	1.1	0.23	0.41	0.29	0.17	0.14	0.16	0.29	0.10
			11/12	1.1	0.58	0.24	0.21	0.16	0.1	0.25	3.4	0.30
			2/13	2.3	1.9	1.6	1.6	1.5	1.5	1.5	2.6	4.1
			5/13	ns	0.27	0.12	1.6	0.083	0.080	0.11	0.19	0.23
			8/13	0.82	0.59	0.17	0.15	0.079		0.085	0.18	0.23
			11/13	0.51	0.24	0.12	0.14	0.090	0.081	0.11	0.3	0.61
			2/14	0.44		0.098		0.095	0.14	0.12	0.68	0.24
Cadmium	ug/L	5	5/11							1.4		1.7
			8/11		0.36					2.0	0.51	2.8
			11/11		0.39					1.4	0.49	2.7
			2/12		0.34					1.5	0.48	2.6
			5/12							0.83	0.35	2.3
			8/12							0.92	0.5	1.9
			11/12							0.74	0.44	1.8
			2/13							0.81	0.53	1.9
			5/13	ns						1.2	0.52	2.4
			8/13		0.35					0.95	0.47	1.9
			11/13							0.92	0.61	2.3
			2/14							1.1	1.7	2.7
Chloride	mg/L	250	5/11	6.8	20	27	4.2	8.6	8.7	24	7.4	3.8
			8/11	5.4	19	27	3.9	8.3	8.2	24	6.9	3.0
			11/11	6.7	17	25	3.9	8.2	8.2	22	7.0	3.5
			2/12	4.9	18	25	4.5	7.9	7.8	21	6.9	3.8
			5/12	4.7	17	26	4.5	7.9	7.9	20	7.2	3.8
			8/12	5.9	16	25	5.5	9.4	9.1	22	8.8	5.2
			11/12	5.0	14	23	4.1	8.1	8.0	21	7.2	3.6
			2/13	4.4	13	23	4.1	8.2	8.5	23	7.1	4.2
			5/13	ns	13	23	5.1	8.9	8.7	21	7.9	4.6
			8/13	2.3	12	23	4.2	8.2	7.5	20	6.8	2.4
			11/13		11	24	2.0	6.3	5.9	22	7.8	4.8
			2/14	5.3		22		8.3	8.8	23	9	5

TABLE II
SUMMARY OF QUARTERLY LABORATORY DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Chromium	ug/L	100	5/11		17	1.5	3.9	8.2	3.6	9.4	7.7	7.5
			8/11	1.3	10	2.1	4.5	8.9	4.1	5.4	4.8	8.6
			11/11	0.86	7.3	1.1	3.7	7.2	3.1	4.2	7.2	9.6
			2/12	1.2	3.3	1.8	4.7	6.5	4.1	11	4.9	8.0
			5/12	0.81	3.4	1.9	3.4	8.2	3.6	7.6	1.3	7.6
			8/12	0.67	1.4	1.5	3.3	5.7	3.4	4.4	1.1	2.4
			11/12	0.84	1.8	1.4	3.0	5.3	3.2	3.8	0.72	1.4
			2/13	0.63	1.1	1.2	2.5	3.3	3.1	5.9	0.74	1.5
			5/13	ns	0.7	1.1	2.4	6.4	3.0	4.3		1.6
			8/13		0.78	1.3	1.7	3.7	3.1	1.6		0.98
			11/13		0.97	1.2	2.0	3.3	3.0	7.9		1.3
			2/14	0.53		1.4		3.8	3.9	5.8	1.1	2
Fluoride	mg/L	4	5/11		0.04					0.09		0.09
			8/11	0.24	0.26		0.28			0.30	0.27	0.30
			11/11	0.17	0.20		0.19	0.18	0.17	0.21	0.21	0.24
			2/12	0.15	0.13		0.14			0.16	0.15	0.18
			5/12	0.13	0.12		0.13	0.13	0.11	0.16	0.14	0.18
			8/12		0.14						0.14	0.16
			11/12	0.21	0.19		0.17	0.17	0.17	0.21	0.19	0.22
			2/13	ns	0.16		0.13		0.16	0.19	0.17	0.19
			5/13									
			8/13		0.16		0.13	0.14	0.15	0.15	0.19	0.20
			11/13	0.13	0.12						0.08	0.09
			2/14	0.09				0.07			0.14	0.13
Gross Alpha	pCi/L	15	5/11		6.0	2.2	0.7		0.5	8.9	9.0	11.6
			8/11		3.2	2.6	0.8			6.3	7.1	**15.8**
			11/11		5.1	2.2	1.2			5.7	4.4	10.2
			2/12		3.7	1.7	0.2			7.6	7.7	10.1
			5/12	1.0	2.2	3.4	2.2	1.2	2.0	10.0	10.0	13.0
			8/12	1.4	5.3	3.8	0.9	0.6	0.4	9.7	**15.3**	8.9
			11/12	1.7	4.2	1.2	0.5		0.7	8.8	14.0	7.5
			2/13	0.5	4.4	1.8				10.7	12.0	4.7
			5/13	ns	4.3	1.4	3.5	3.6	2.8	7.8	12.5	9.3
			8/13	0.4	5.0		0.3		0.2	5.8	7.7	9.7
			11/13	0.5	3.9	2.0	1.0	0.4	0.5	6.4	9.5	4.9
			2/14	0.7		1.2		0.4	0.2	11.2	10.6	6.7
Iron	ug/L	300	5/11		130					**940**	**570**	100
			8/11		87					**1200**	**470**	220
			11/11		71					**930**	**510**	190
			2/12		51		46		76	**940**	**360**	180
			5/12						44	**860**	140	120
			8/12				41			**1200**	**430**	
			11/12		730		43			**1500**	**420**	
			2/13		57					**1700**	**430**	
			5/13	ns						**1300**	**340**	
			8/13							**1700**	130	
			11/13							**1600**	93	
			2/14							**1500**	89	
Lead	ug/L	15	5/11		0.52		0.26			0.55	0.67	0.62
			8/11		0.20		0.30			0.36	0.30	1.2
			11/11	0.083	0.095		0.12			0.10	0.32	0.84
			2/12		0.36		0.23				0.28	0.75
			5/12		0.11		0.58			0.22	0.19	0.57
			8/12				0.34			0.29	0.15	0.11
			11/12	0.16			0.25			0.36	0.20	0.10
			2/13	0.13	0.12	0.11	0.19	0.12	0.085	0.41	0.47	0.31
			5/13	ns		0.13				0.52	0.15	0.21
			8/13				0.081	0.082		0.29	0.096	
			11/13							0.17		
			2/14	0.14					0.084	0.53	0.23	0.15

TABLE II
SUMMARY OF QUARTERLY LABORATORY DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Manganese	ug/L	50	5/11	0.26	5.2	2.1		0.89	0.57	**91**	23	3.60
			8/11	1.7	6.0	3.8		0.87	0.46	**96**	20	4.0
			11/11	8.3	7.1	5.3	0.33	1.1	0.87	**88**	20	4.1
			2/12	0.48	4.9	4.7	0.27	0.73	3.3	**91**	17	5.6
			5/12		3.3	1.8			0.58	**81**	13	3.6
			8/12	1.4	5.9	1.7		0.76		**97**	21	2.5
			11/12		9.6	2.0		0.26		**97**	24	1.2
			2/13	1.4	5.8	1.8				**96**	22	2.1
			5/13	ns	5.1	2.2		0.78		**95**	21	2.1
			8/13	1.0	3.8	1.3	0.5	1.4	0.65	**100**	17	1.9
			11/13	0.6	6.3	1.6		0.41	1.3	**100**	17	6.4
			2/14	3.3		1.7		0.49	0.94	**100**	17	5.1
Mercury	ug/L	2	5/11			0.033	0.040	0.028	0.019	0.55	0.033	0.084
			8/11							0.31		0.096
			11/11							0.29		0.062
			2/12							0.22		0.082
			5/12		0.022					0.082		0.046
			8/12							0.059		0.041
			11/12	0.017	0.016					0.064	0.038	0.044
			2/13							0.071		0.032
			5/13	ns						0.10		0.037
			8/13							0.058		
			11/13							0.015	0.02	
			2/14							0.058		0.16
Nitrate, as N	mg/L	10	5/11	2.8	7.7	**14**	3.3	6.6	2.1	0.24	2.5	4.8
			8/11	3.3	7.0	**13**	3.2	6.1	2.0	0.28	2.3	5.5
			11/11	1.4	6.7	4.2	4.4	5.8	2.0		3.0	0.22
			2/12	1.8	7.2	**13**	4.3	5.8	1.9	0.10	2.8	4.9
			5/12	2.6	7.3	**15**	3.9	5.8	1.9	0.32	1.8	4.8
			8/12	2.1	5.6	**12**	2.5	5.9	2.1	0.38	1.7	5.2
			11/12	1.5	4.4	**12**	2.1	5.5	2.0	0.37	1.5	4.8
			2/13	1.5	5.2	**13**	2.0	5.4	1.9	0.34	1.2	4.8
			5/13	ns	4.8	**12**	2.2	5.5	1.9	0.49	1.4	4.8
			8/13	1.4	4.1	**11**	1.9	5.0	1.7		1.9	4.6
			11/13	2.0	4.6	**12**	2.2	5.2	1.8	0.22	1.6	4.8
			2/14	1.5		**12**		5.2	1.7	0.82	1.8	4.6
Radium 226	pCi/L	Combined Radium 226 and Radium 228 is 5	5/11	1.0	0.9	0.8	0.3	0.2	0.6	3.0	1.6	3.0
			8/11	0.4	2.2	0.8	0.1	0.8	0.3	3.8	1.4	3.4
			11/11	0.2	0.8	0.5	0.1	0.2		2.4	1.5	2.1
			2/12	0.5	0.8	0.7	0.1	0.4	0.3	2.7	1.7	2.1
			5/12		1.3	1.0		0.2	0.7	4.5	1.9	3.4
			8/12		1.5	1.0				3.5	1.8	3.1
			11/12	0.5	1.3	0.7				2.7	1.6	2.0
			2/13		2.0	2.3	1.3			3.7	2.8	3.6
			5/13	ns	1.9	1.9	1.0	1.3	1.1	4.2	4.2	4.2
			8/13	0.5	0.9	0.5	0.1	0.1	0.5	**5.8**	1.3	4.3
			11/13		1.2	0.7	0.2	0.5	0.4	3.7	1.4	2.3
			2/14	0.6		1.4				4.6	1.8	4.6
Silver	ug/l	100	5/11									
			8/11									0.082
			11/11									
			2/12									0.075
			5/12				0.071					
			8/12	0.15		0.063		0.064		0.063		
			11/12									0.079
			2/13									
			5/13	ns								
			8/13									
			11/13									
			2/14	0.15					0.11		0.11	

TABLE II
SUMMARY OF QUARTERLY LABORATORY DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Sodium	mg/L	160	5/11	0.085	40	26	9.6	3	5.2	20	6.9	9.1
			8/11	3.4	41	26	9.2	3.2	5.3	21	6.9	8.3
			11/11	2.5	39	25	11	3.1	5.2	20	6.4	8.6
			2/12	3.1	36	26	10	3.2	5.1	21	6.1	8.9
			5/12	3.8	33	25	9.2	3.3	5	19	6.3	8.8
			8/12	2.7	38	24	8.9	3.1	5.1	21	8.1	8.0
			11/12	2.7	36	23	8.8	3.0	5.2	21	8.1	7.5
			2/13	3.0	32	23	8.5	3.1	5.2	21	8.1	8.6
			5/13	ns	29	21	8.4	2.9	4.8	20	7.4	8.4
			8/13	2.3	29	21	6.0	2.9	4.5	23	6.4	6.6
			11/13	2.1	28	19	7.4	2.8	4.3	21	6.3	7.0
			2/14	2.0		19		2.9	4.3	22	5.7	7.0
Thallium	ug/L	2	5/11			0.17				0.13	0.14	
			8/11		0.11	0.26				0.21	0.11	0.14
			11/11		0.1	0.23				0.19	0.091	0.16
			2/12		0.11	0.24					0.078	0.14
			5/12		0.10	0.23	0.072			0.15		0.11
			8/12									
			11/12		0.10	0.20				0.18	0.081	0.19
			2/13	0.16	0.19	0.30	0.10	0.14	0.12	0.28	0.27	0.26
			5/13	ns	0.13	0.27		0.075		0.19	0.068	0.14
			8/13	0.082	0.11	0.20				0.22	0.067	0.11
			11/13	0.07	0.11	0.20				0.21	0.16	0.15
			2/14	0.56		0.26			0.65	0.18	0.24	0.23
Total Dissolved Solids	mg/L	500	5/11	120	350	420	72	190	210	**540**	300	300
			8/11	140	340	470	88	200	210	**540**	320	250
			11/11	170	310	380	74	180	200	**510**	290	300
			2/12	150	340	430	98	200	210	**560**	300	330
			5/12	170	350	430	96	210	220	**590**	320	320
			8/12	250	500	340	120	120	360	490	**590**	310
			11/12	150	290	350	70	120	150	400	350	190
			2/13	130	270	340	70	140	190	**520**	370	190
			5/13	ns	330	380	100	160	220	**570**	370	190
			8/13	140	310	370	82	160	200	**530**	320	200
			11/13	130	300	350	66	140	200	**510**	320	200
			2/14	130		350		190	210	**570**	320	230

Note: **BOLD** lettering indicates exceedance of the Maximum Contamination Limit (MCL). Blank indicates non-detect/below method detection limit. ns-not sampled.

TABLE III

SUMMARY OF LABORATORY AND FIELD RESULTS
WELLS MW-4C AND MW-4D
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

Parameter	Units	MW-4C (Feb 2012)	MW-4D (Feb 2012)	MW-4C (Feb 2014)	MW-4D (Feb 2014)
pH	su	7.09	8.15	7.39	**9.23**
DO	mg/l	1.32	**3.5**	1.43	1.55
Sp. Cond.	umhos	522	369	436	308
Turbidity	NTU	11.2	12.6	9.95	**31.3**
Aluminum	ug/l	**700**	**1900**	94	**1700**
Cadmium	ug/l	0.34	< 0.32	< 0.32	< 0.32
Chloride	mg/l	11	11	13	6.4
Chromium	ug/l	11 (v)	9.9 (v)	0.97	10
Fluoride	mg/l	0.17	< 0.078	0.14	0.12
Gross Alpha	pCi/l	7.5 ± 1.6	2.3 ± 1.6	10.8 ± 1.7	3.0 ± 1.1
Iron	ug/l	130	150	< 38	78
Lead	ug/l	< 0.76	< 0.76	0.15	1.8
Manganese	ug/l	48	1.3	0.34	0.60
Mercury	ug/l	< 0.014	< 0.014	< 0.010	0.031
Nitrate, as N	mg/l	5.3	7.4	7.0	4.8
Ra226 + Ra228	pCi/l	0.9 ± 0.8	0.4 ± 0.7	4.1 ± 1.3	0.8 ± 0.4
Sodium	mg/l	17 (v)	11 (v)	11	21
TDS	mg/l	320	260	280	230

Notes: **Bold** lettering indicates parameter exceeded field limits or MCL.

TABLE IV
SUMMARY OF ANNUAL APPENDIX I METALS AND VOC DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)

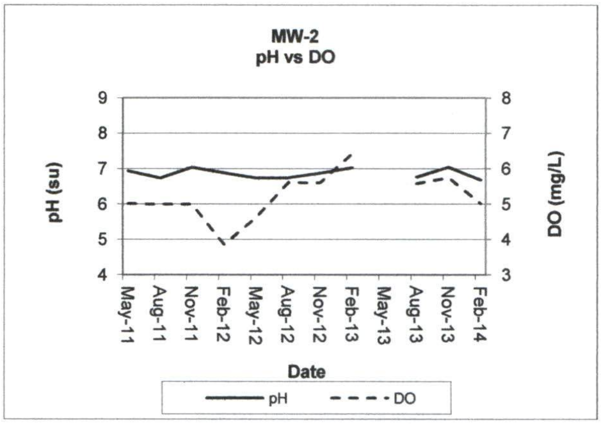
Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Acetone	ug/l	6,300	11/11									
			11/12				41					
			11/13									
Arsenic	ug/l	10	11/11							0.67		
			11/12							0.61		
			11/13							0.80		
Barium	ug/L	2,000	11/11	19	8.9	13	4.0	2.4	3.9	11	13	11
			11/12	13	7.1	12	4.3	2.6	3.6	13	14	4.8
			11/13	14	6.9	12	3.7	2.3	3.4	16	11	5.2
Beryllium	ug/l	4	11/11				0.13					0.34
			11/12	0.15	0.22	0.14	0.3	0.13	0.16	0.16		0.24
			11/13									0.16
Carbon Disulfide	ug/l	700	11/11									
			11/12			0.39	0.56	0.62				
			11/13									
Cobalt	ug/L	140	11/11		1.1					18		
			11/12		0.6					20		
			11/13		0.6					24		
Copper	ug/L	1,000	11/11	1.3	1.6	0.49	0.25	0.13	0.15	1.2	0.45	2.0
			11/12	1	1.7	0.66	0.75	0.51	0.25	1.8	0.63	1.4
			11/13	0.97	1.3	1.4	0.7	14	0.19	3.2	0.39	1.8
Nickel	ug/L	100	11/11							5.5		
			11/12		1.6					7.4		
			11/13							12		
Selenium	ug/l	50	11/11									
			11/12									
			11/13									
Vanadium	ug/L	49	11/11	0.88	11	5.7	17	7.8	8.8	1.2	11	13
			11/12	0.93	12	6	17	7.8	8.5	2.4	11	8.1
			11/13	0.99	11	5.5	13	7.6	8.3	2.9	10	7.7
Zinc	ug/L	5000	11/11	3.7	4.5	4.2	3	3.8	4.2	8.4	5	7.7
			11/12	15	15	14	14	14	15	20	15	17
			11/13	12	12	13	12	11	11	16	13	15

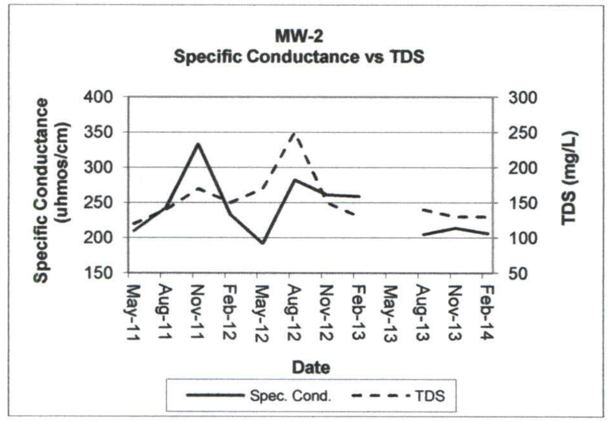
Note: **BOLD** lettering indicates exceedance of the Maximum Contaminant Limit (MCL). Blank indicates non-detect/below laboratory method detection limit.

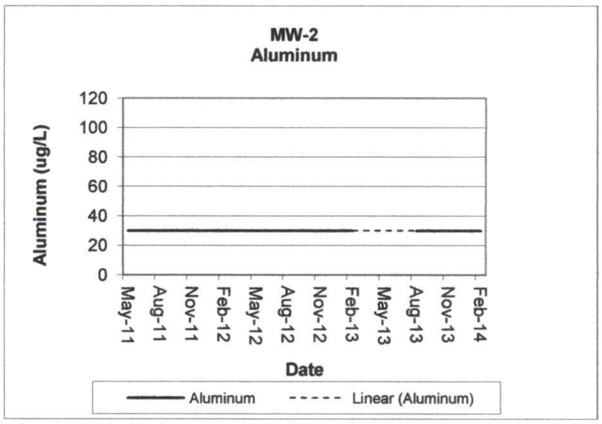
APPENDIX II

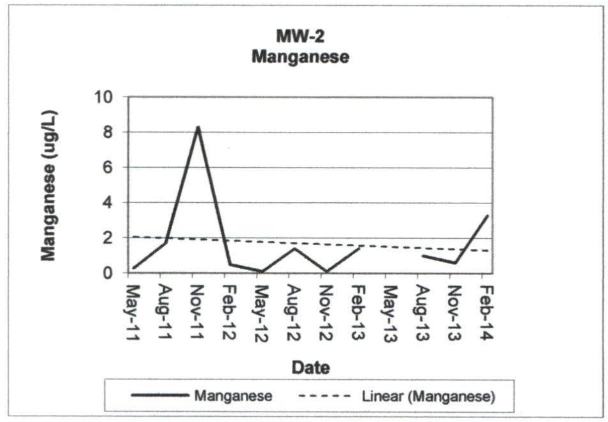
MONITORING WELL
SUMMARY CHARTS

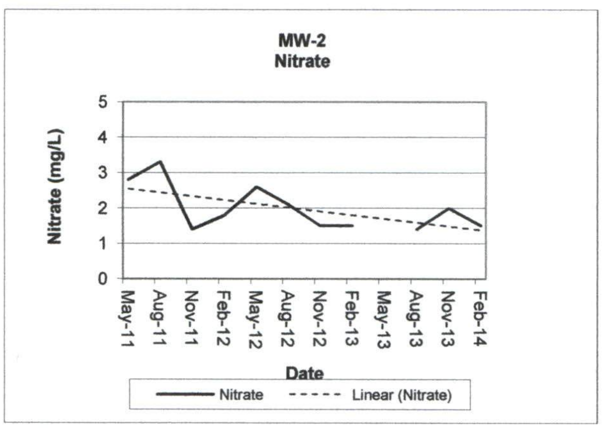
MW-2

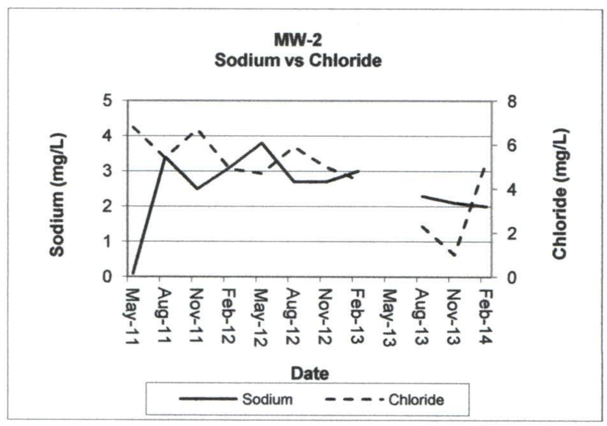


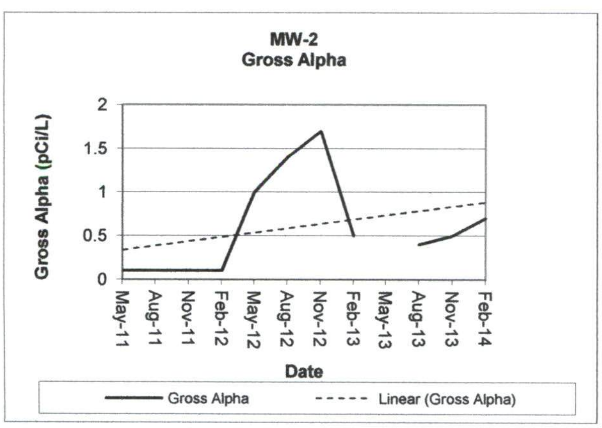


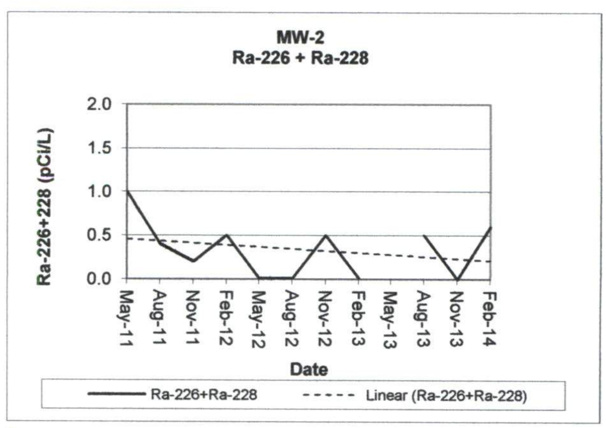






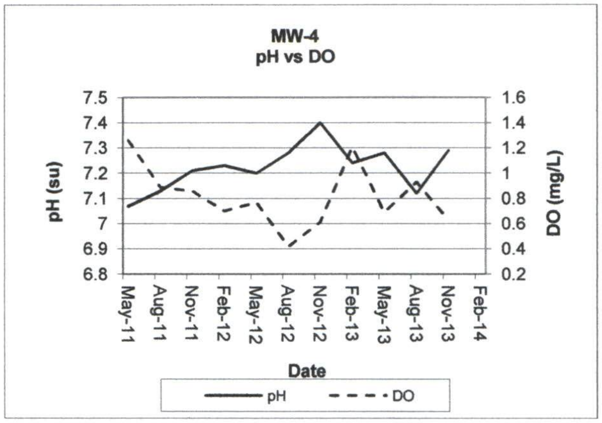


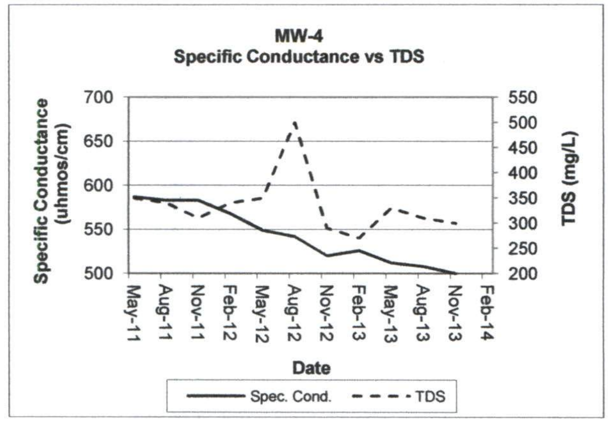


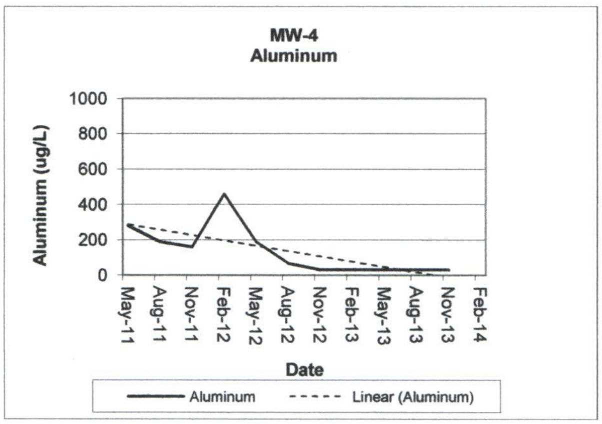


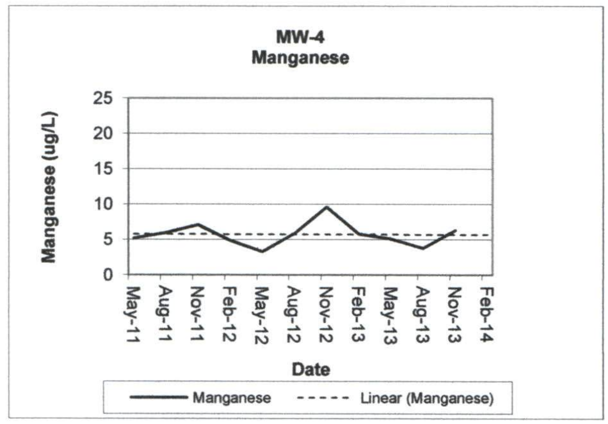
SUMMARY CHART: Well MW-2

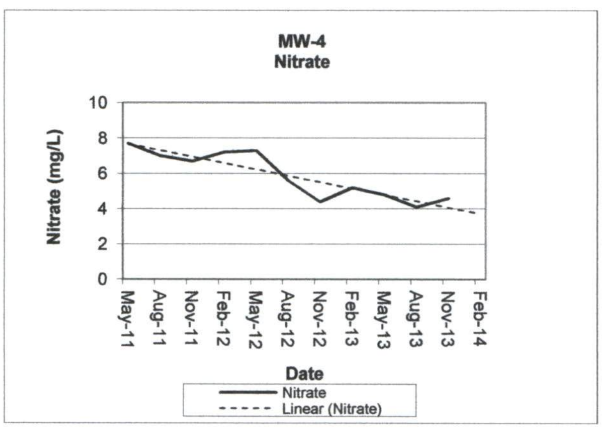
MW-4

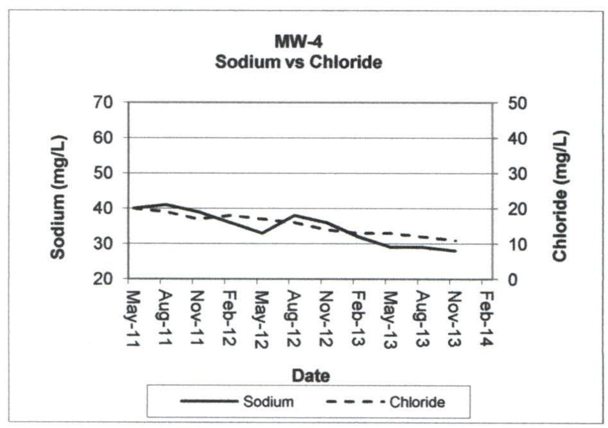


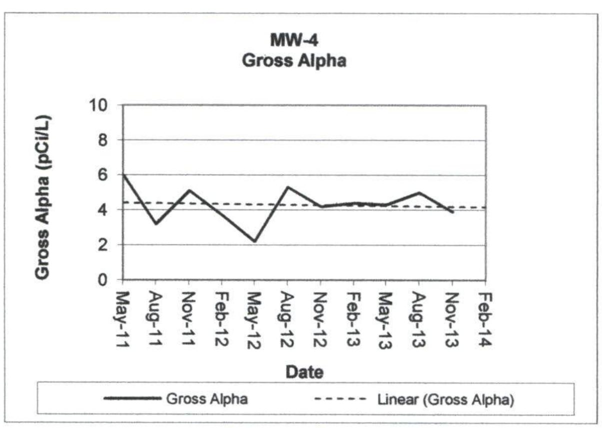


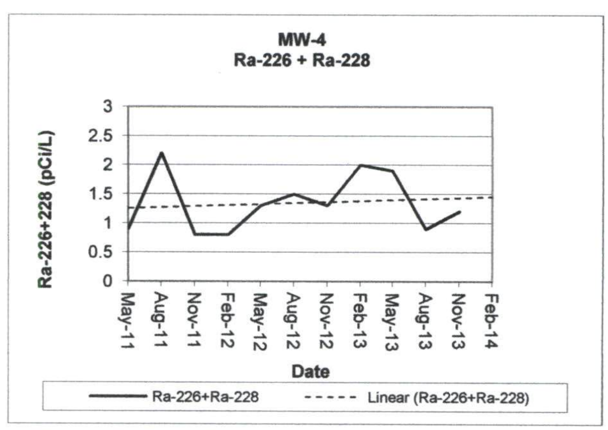






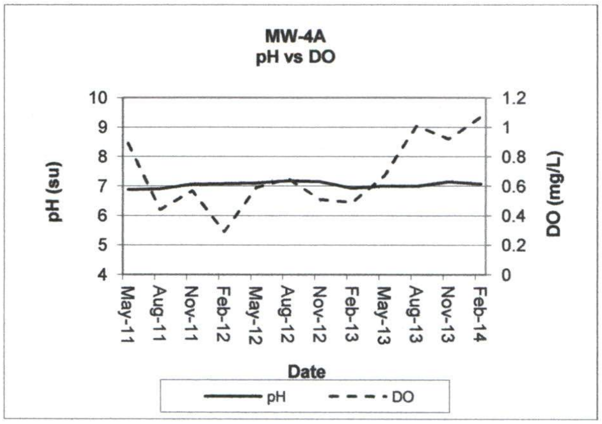


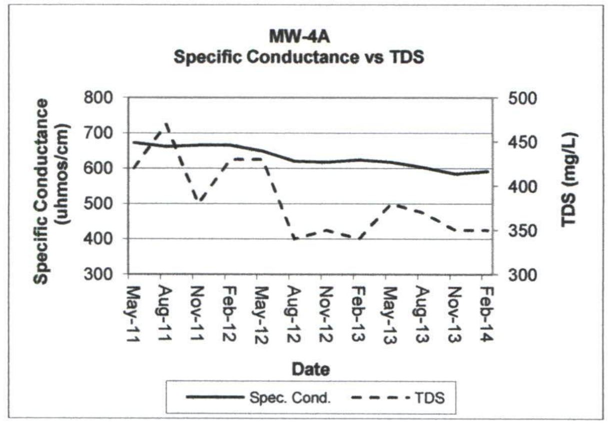


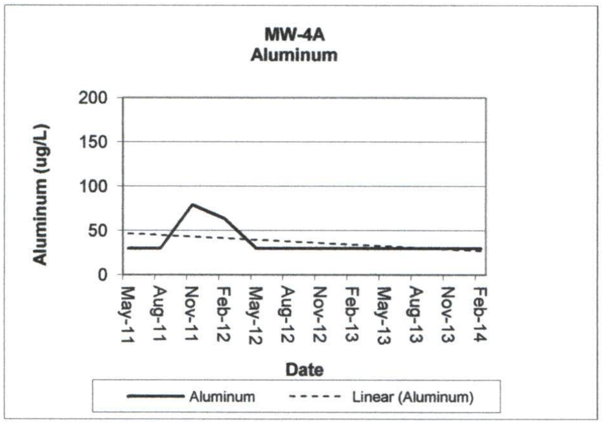


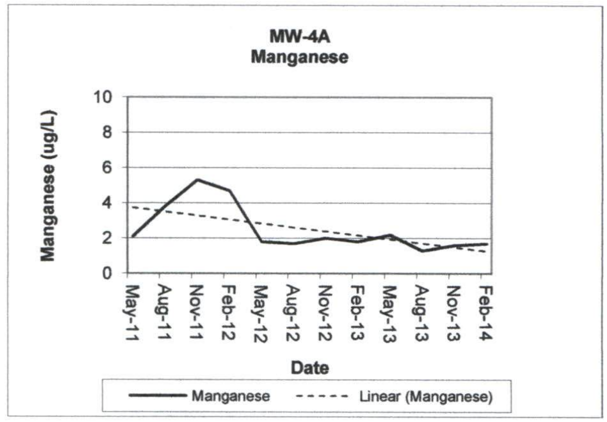
SUMMARY CHART: Well MW-4

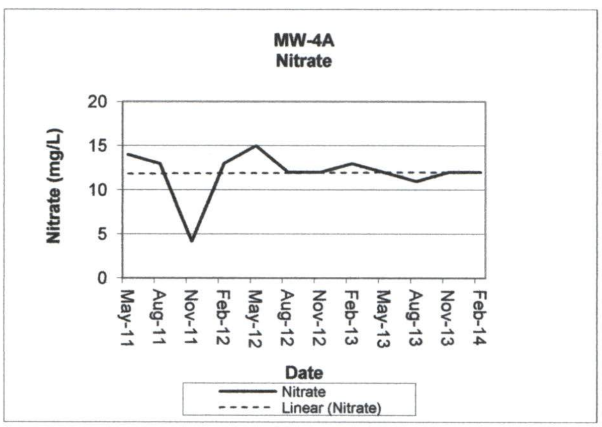
MW-4A

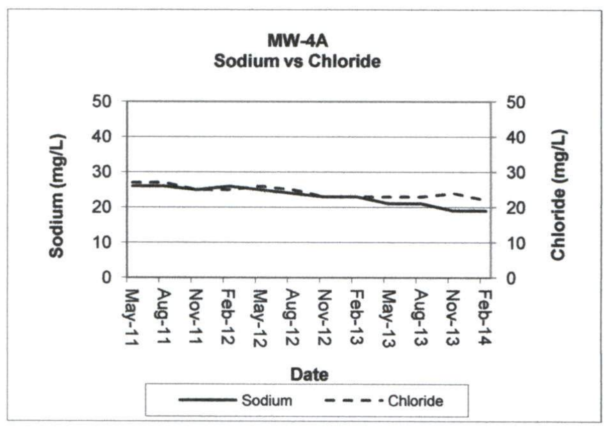


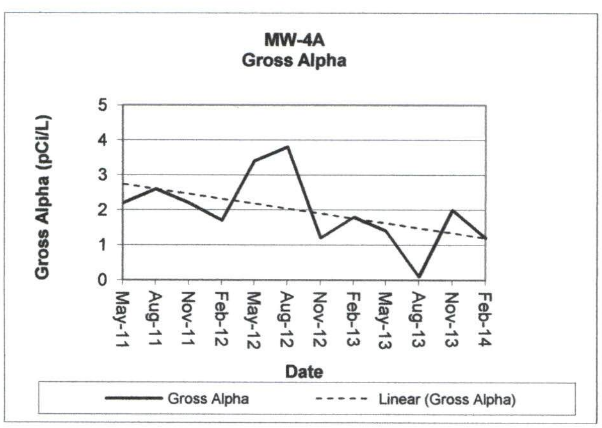


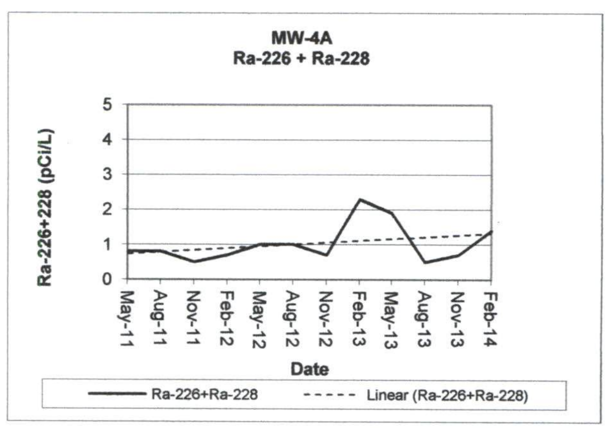






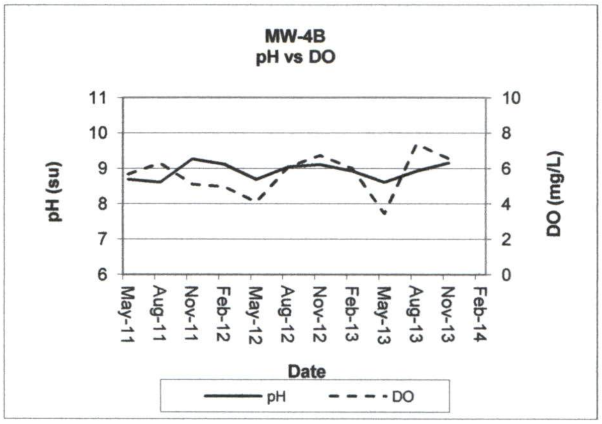


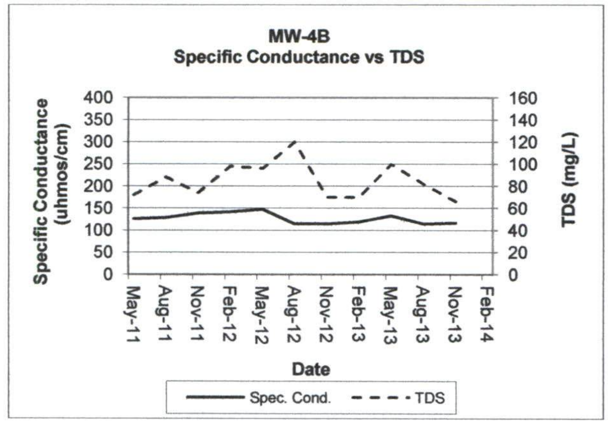


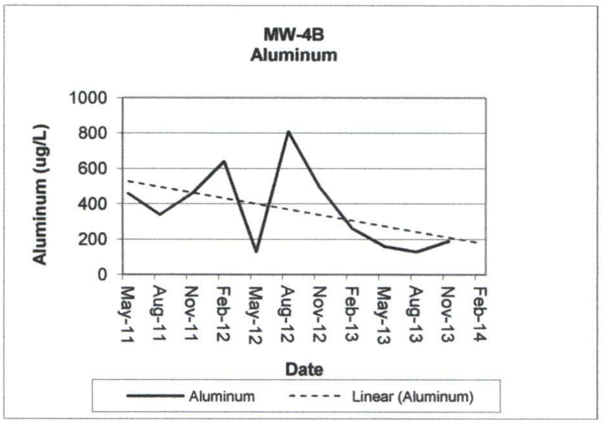


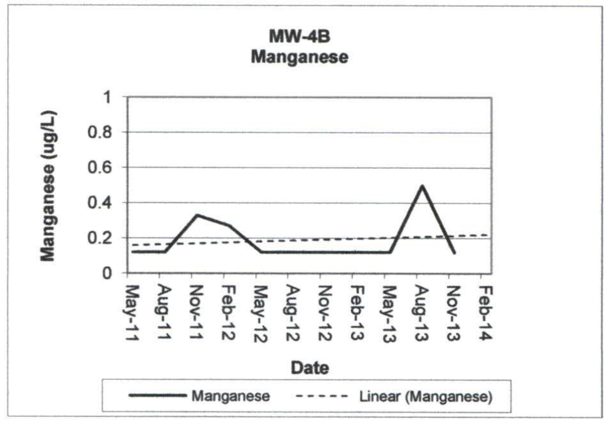
SUMMARY CHART: Well MW-4A

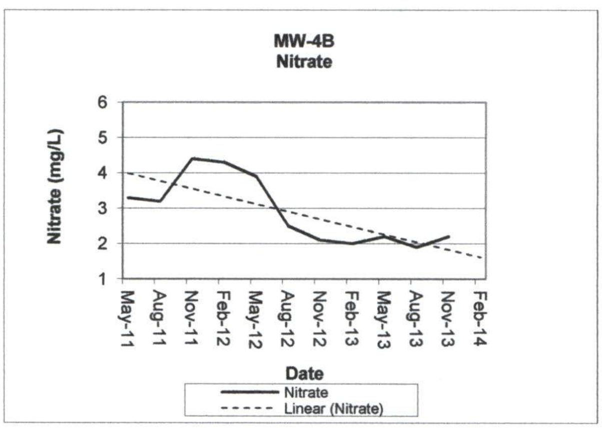
MW-4B

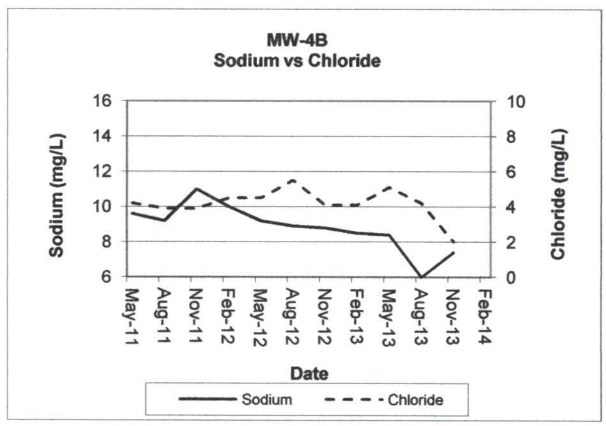


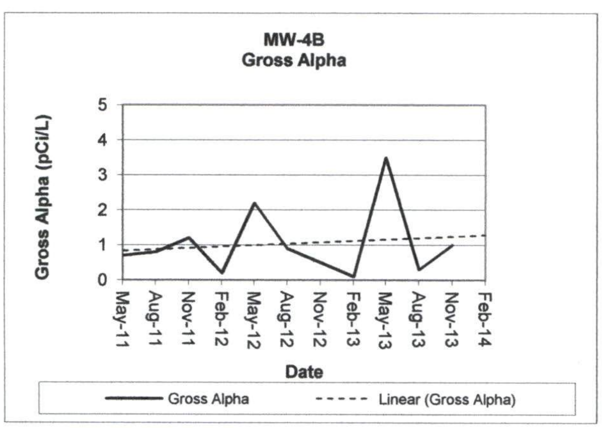


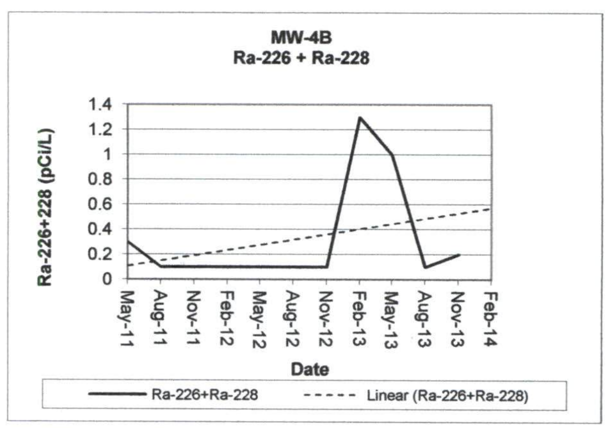






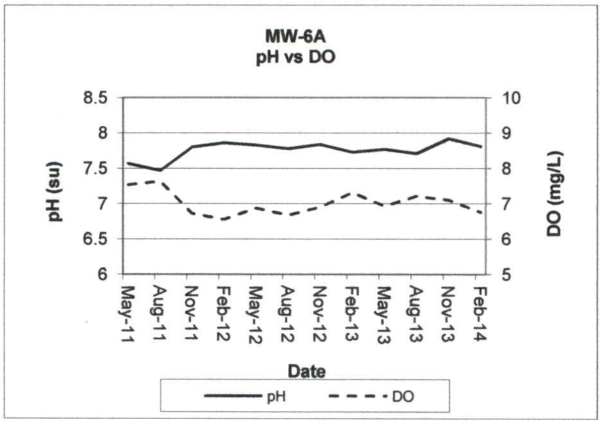


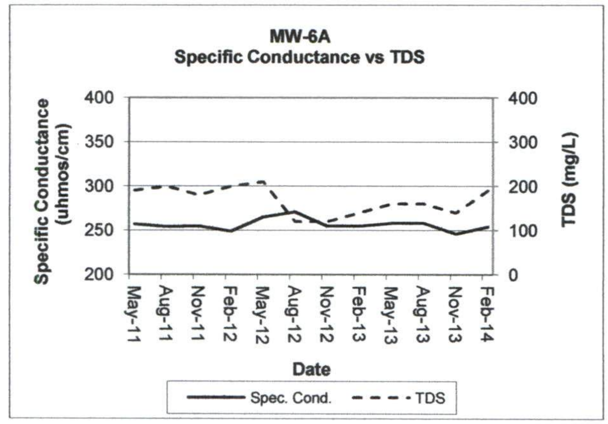


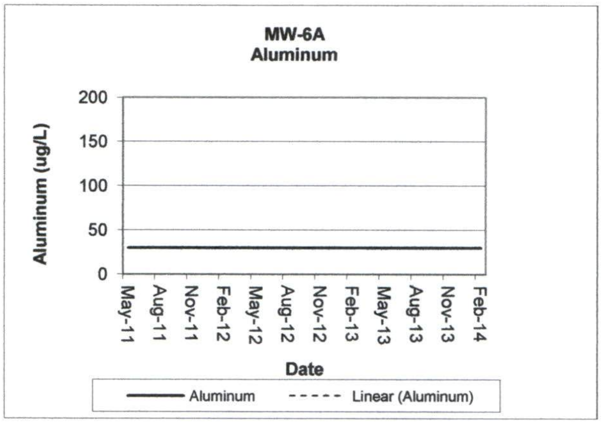


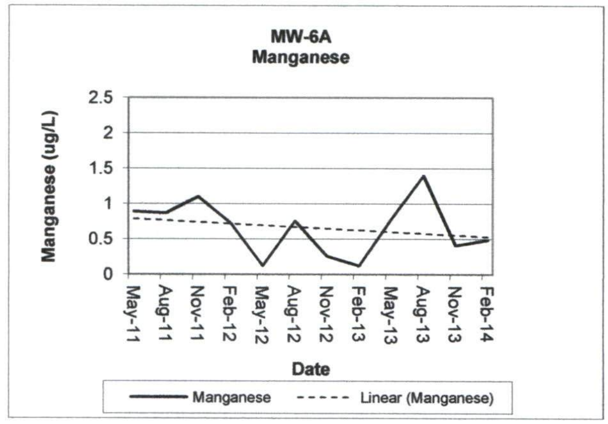
SUMMARY CHART: Well MW-4B

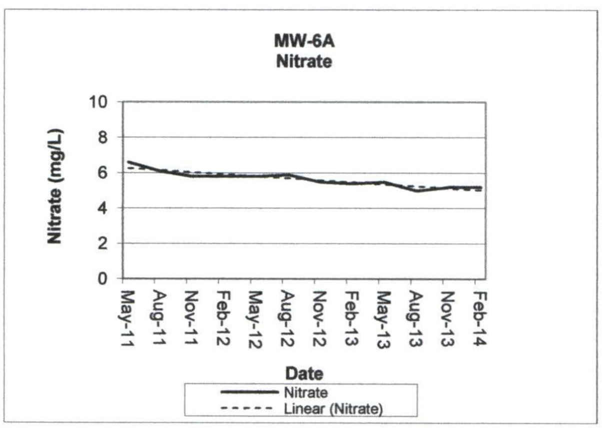
MW-6A

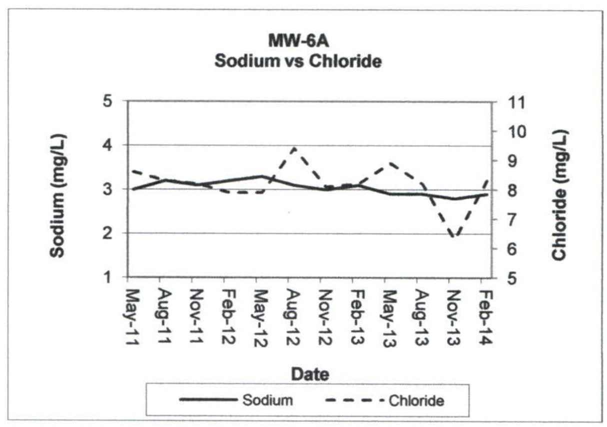


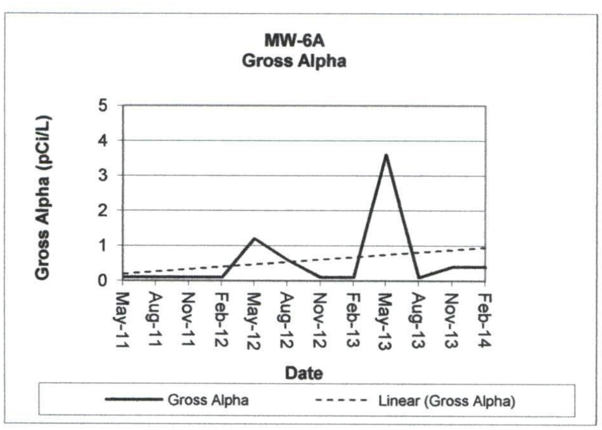


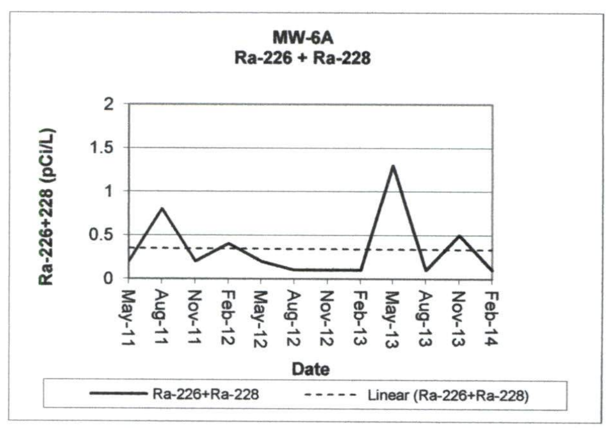






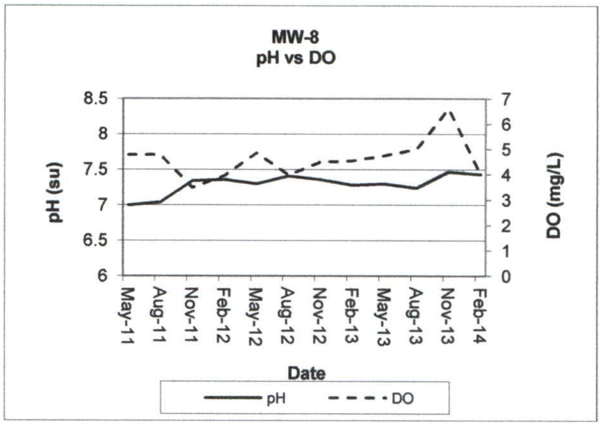


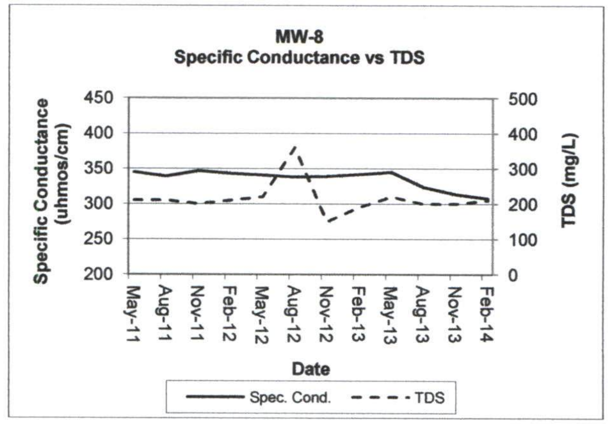


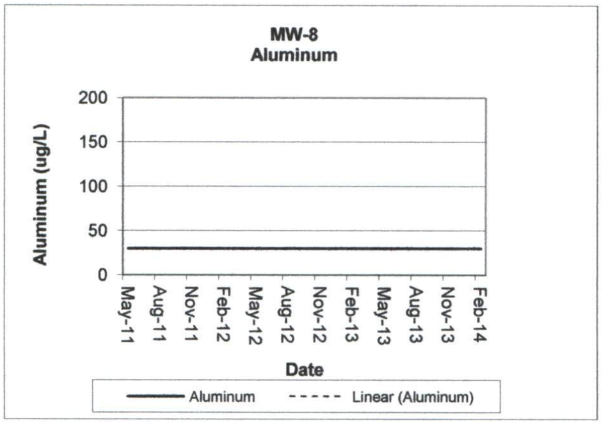


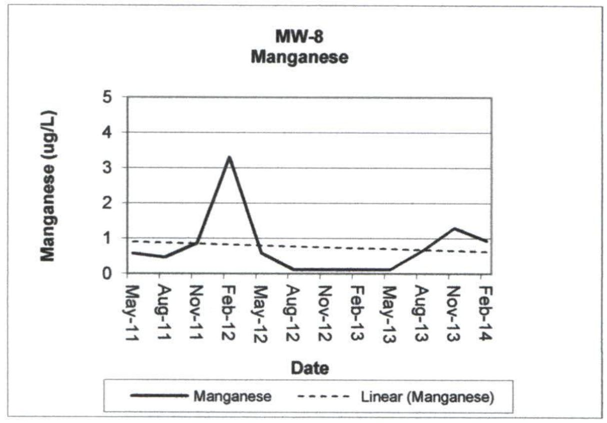
SUMMARY CHART: Well MW-6A

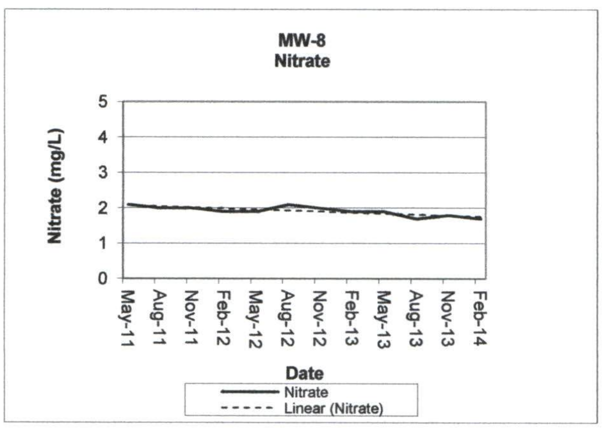
MW-8

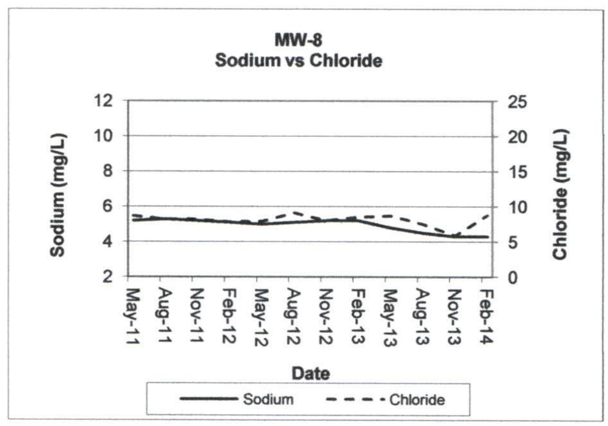


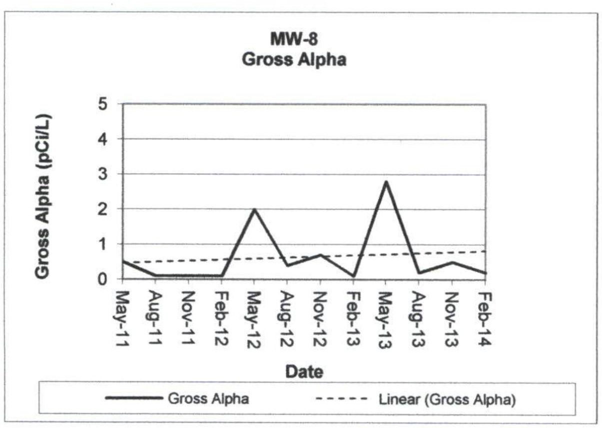


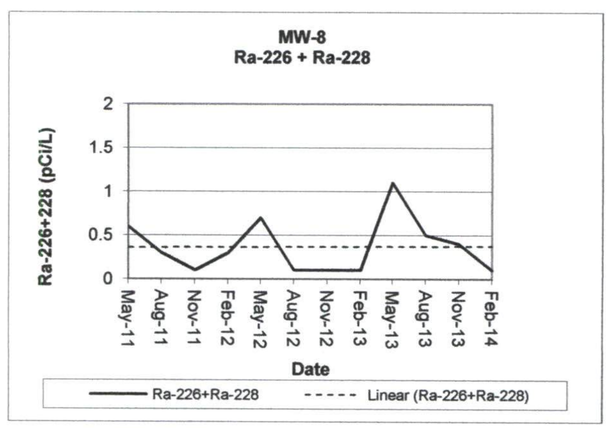






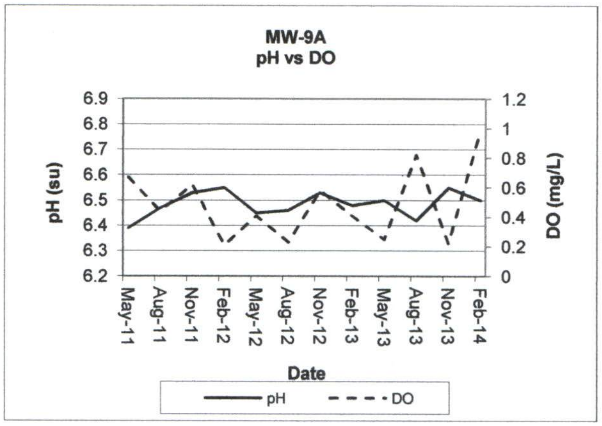


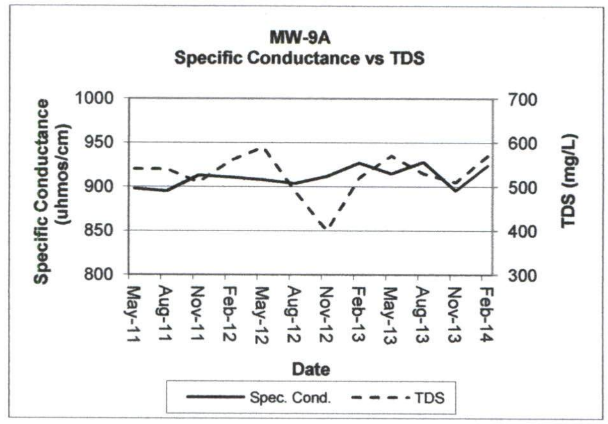


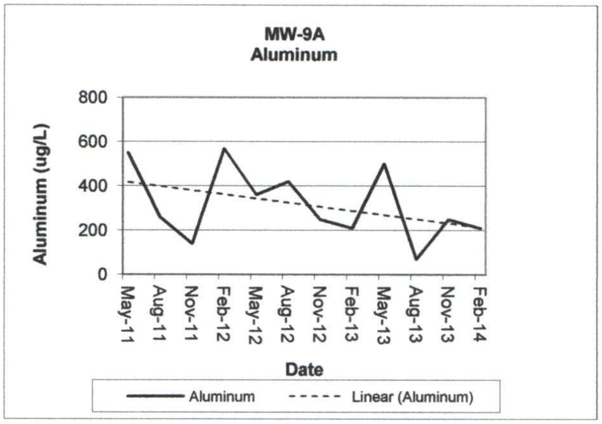


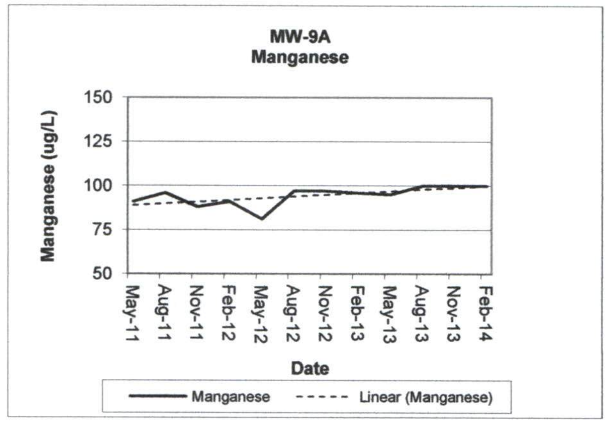
SUMMARY CHART: Well MW-8

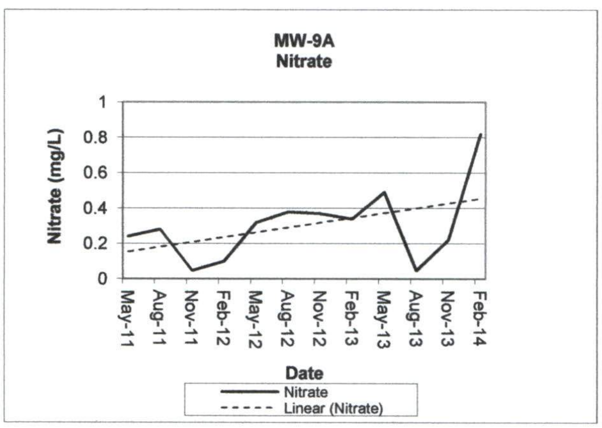
MW-9A

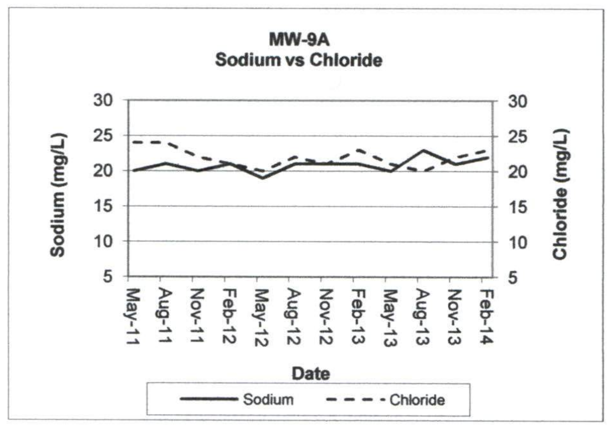


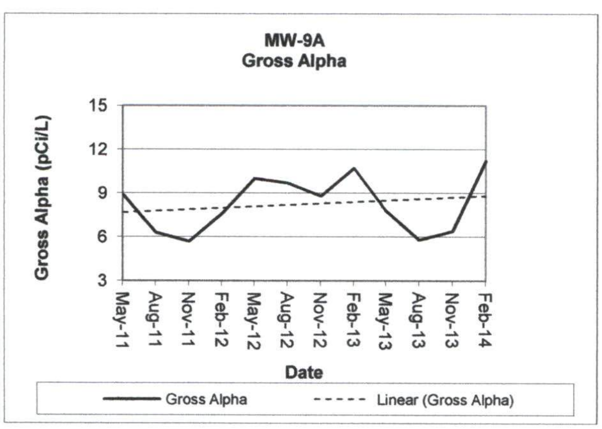


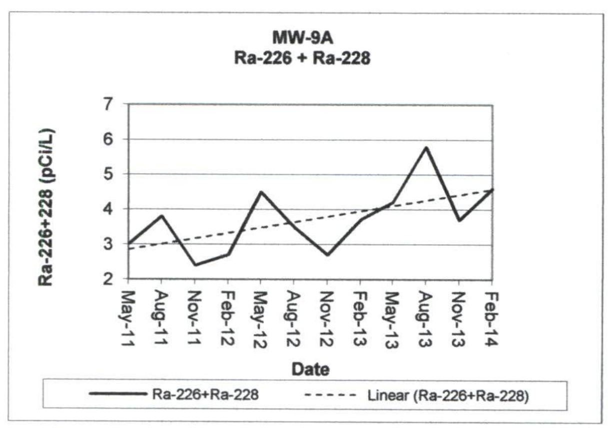






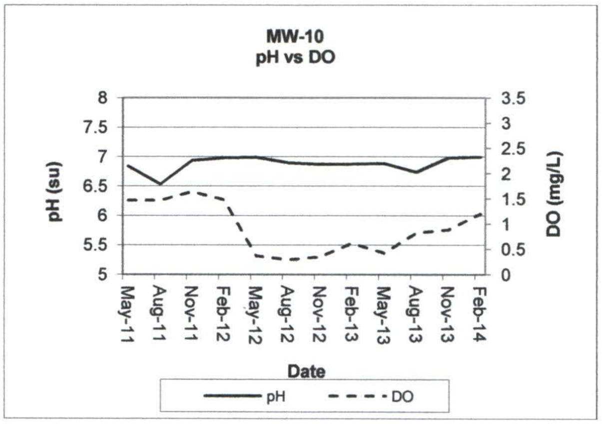


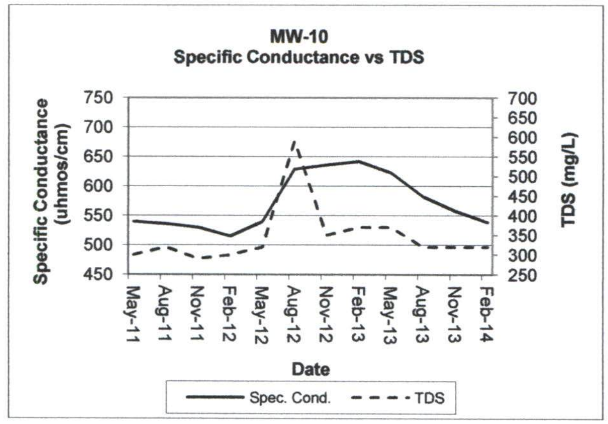


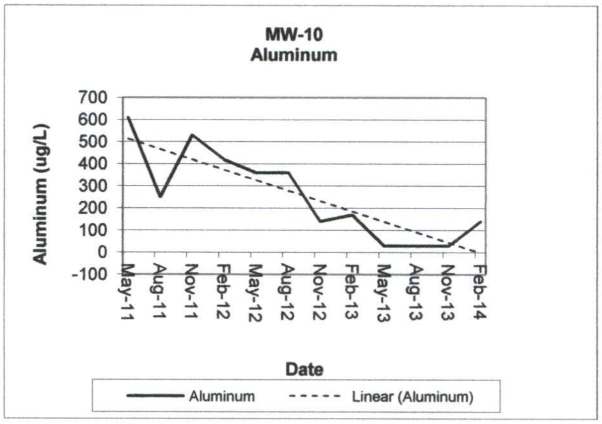


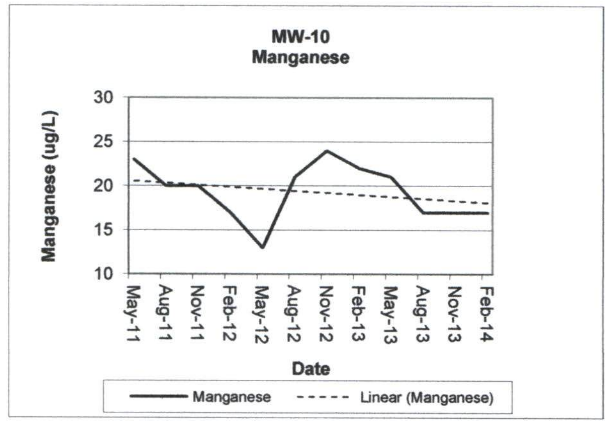
SUMMARY CHART: Well MW-9A

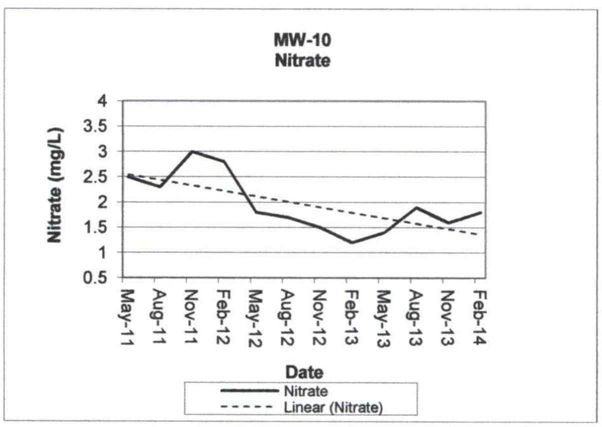
MW-10

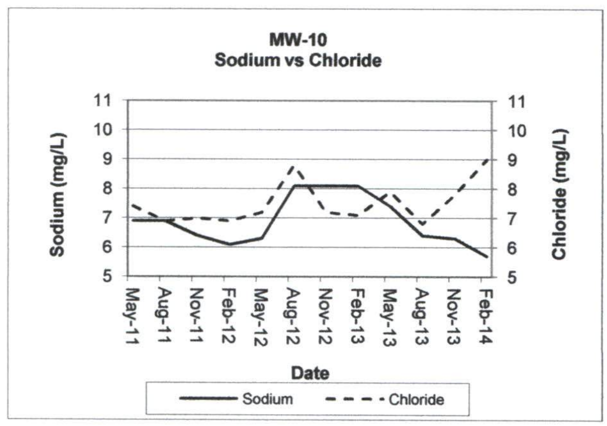


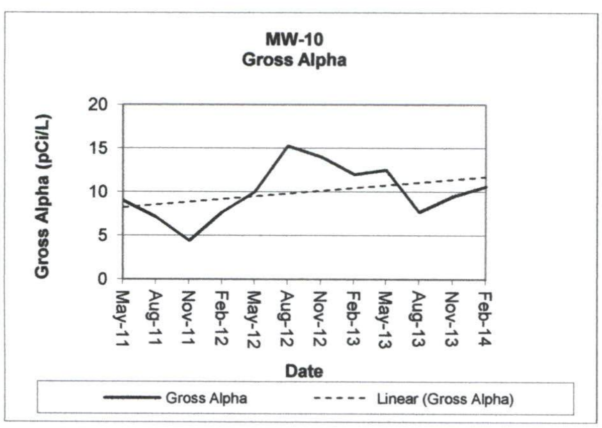


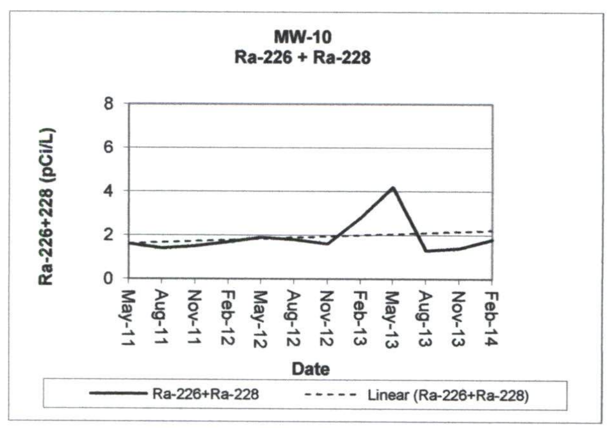






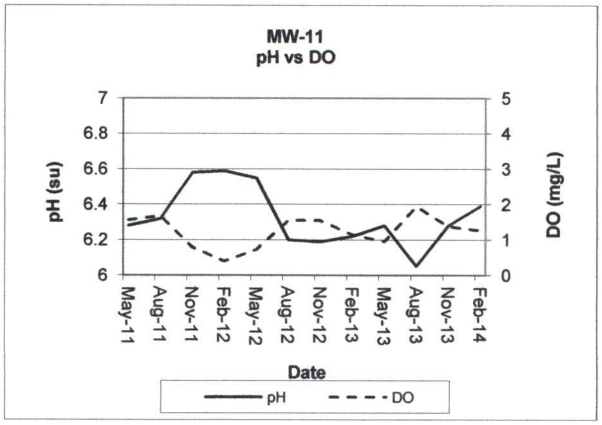


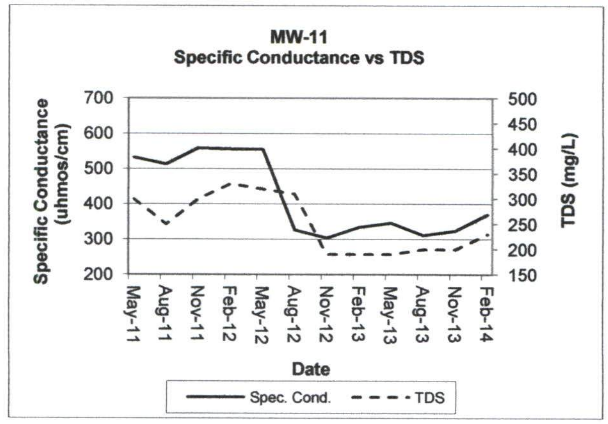


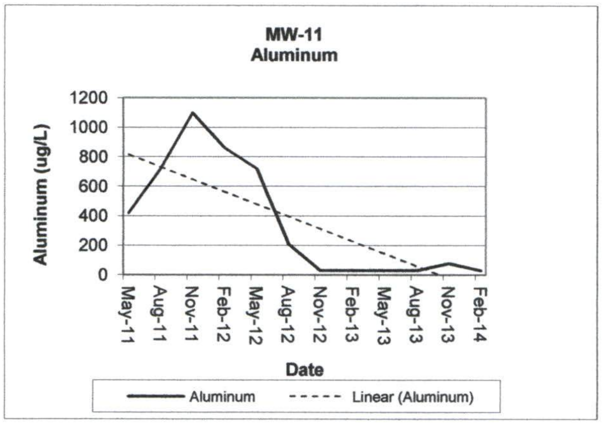


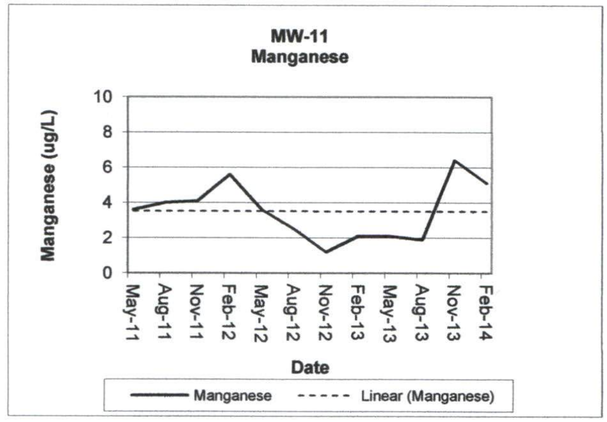
SUMMARY CHART: Well MW-10

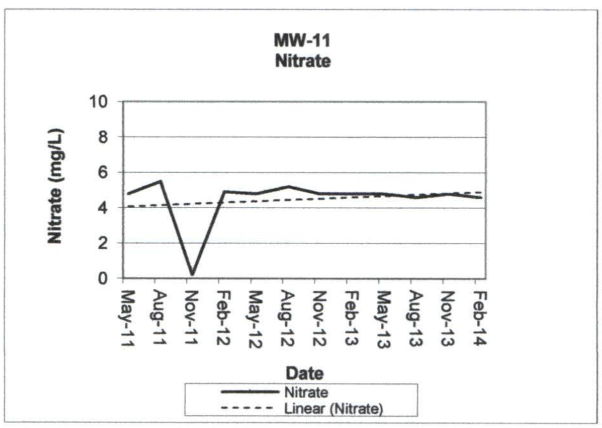
MW-11

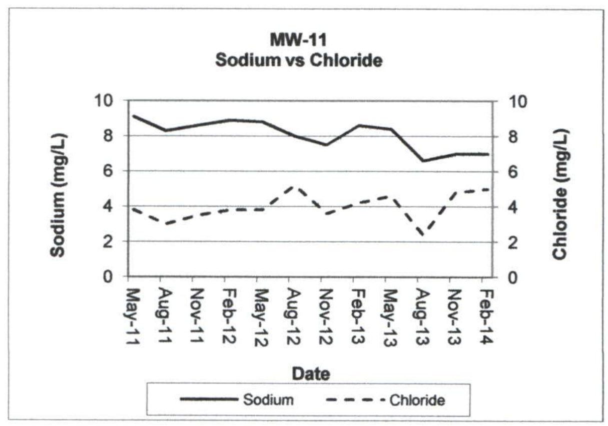


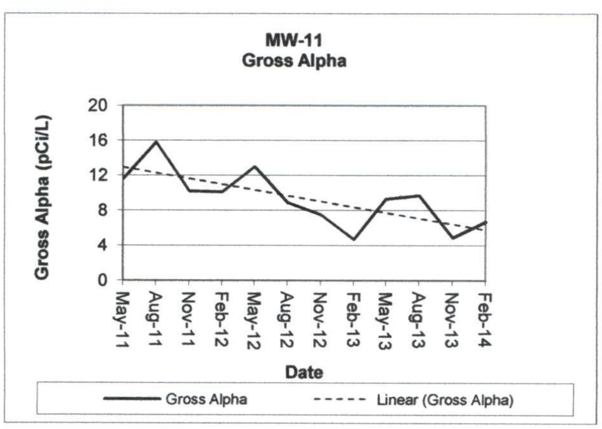


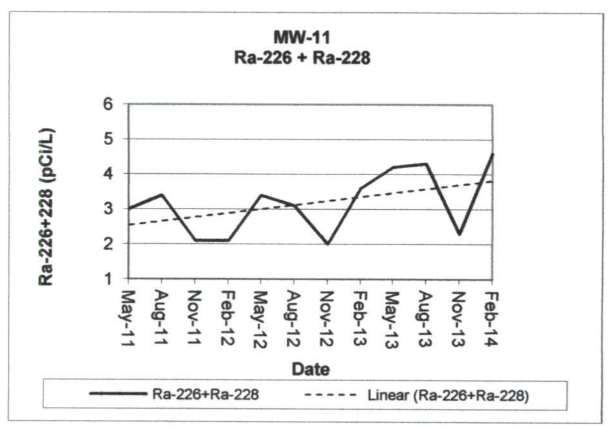










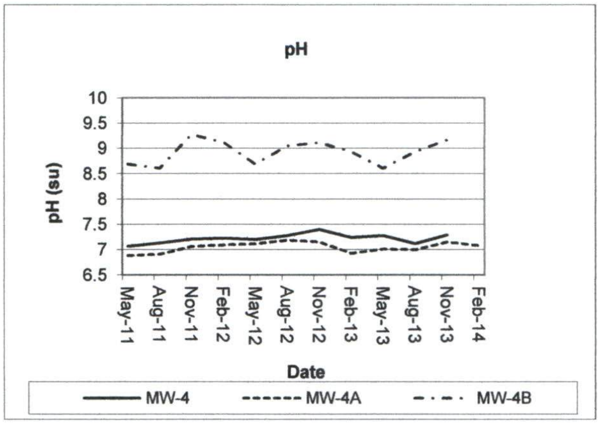


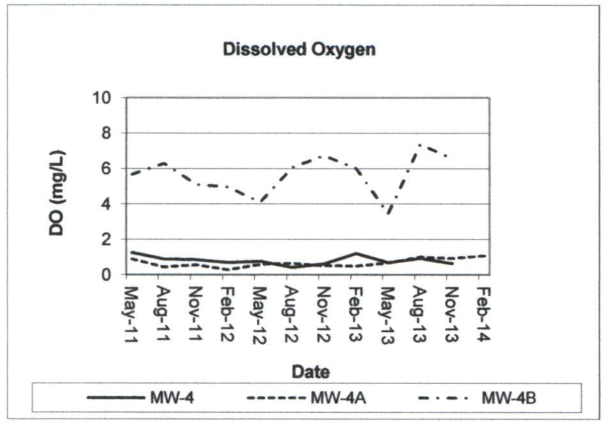
SUMMARY CHART: Well MW-11

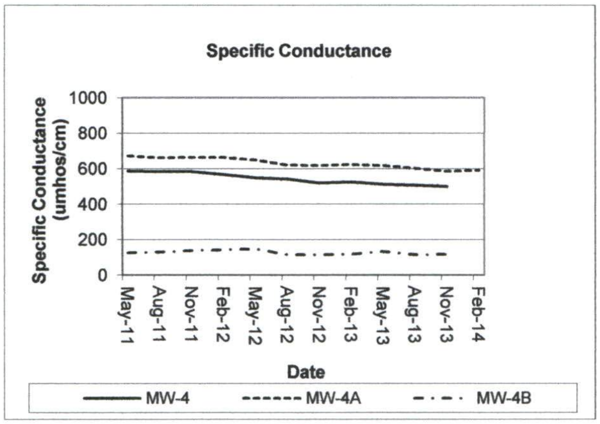
APPENDIX III

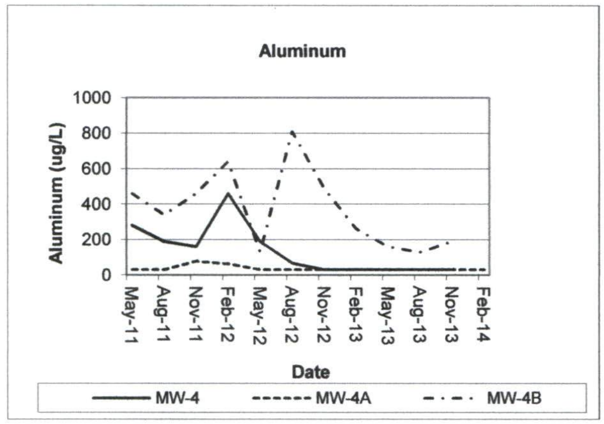
MONITORING WELL COMPARISON CHARTS

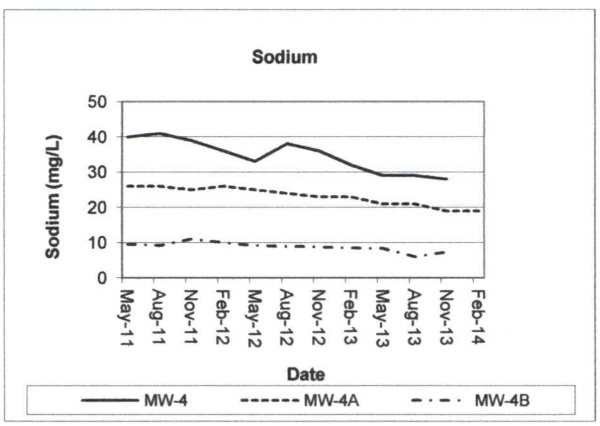
MW-4/MW-4A/MW-4B

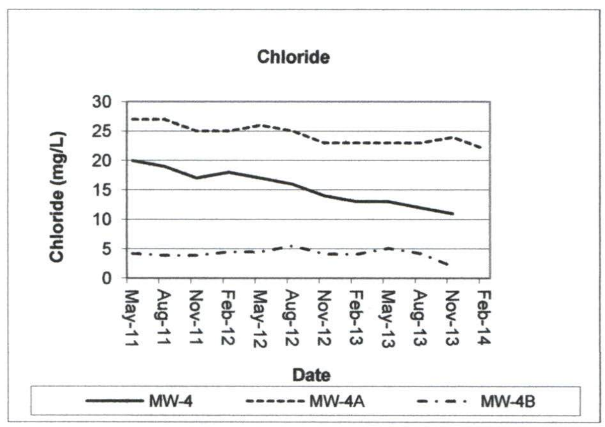


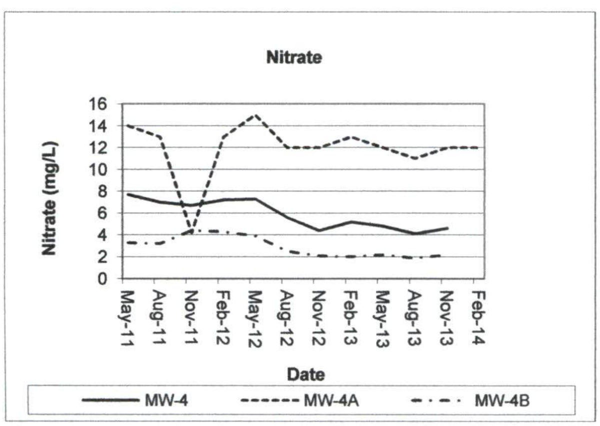


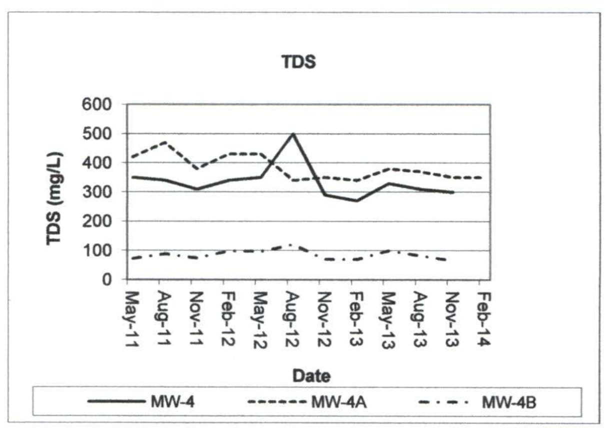








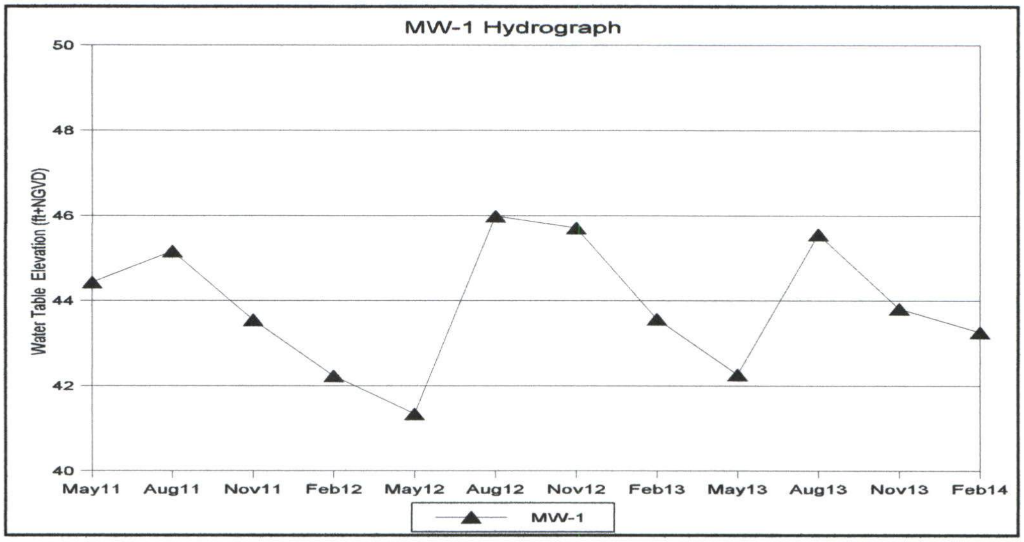


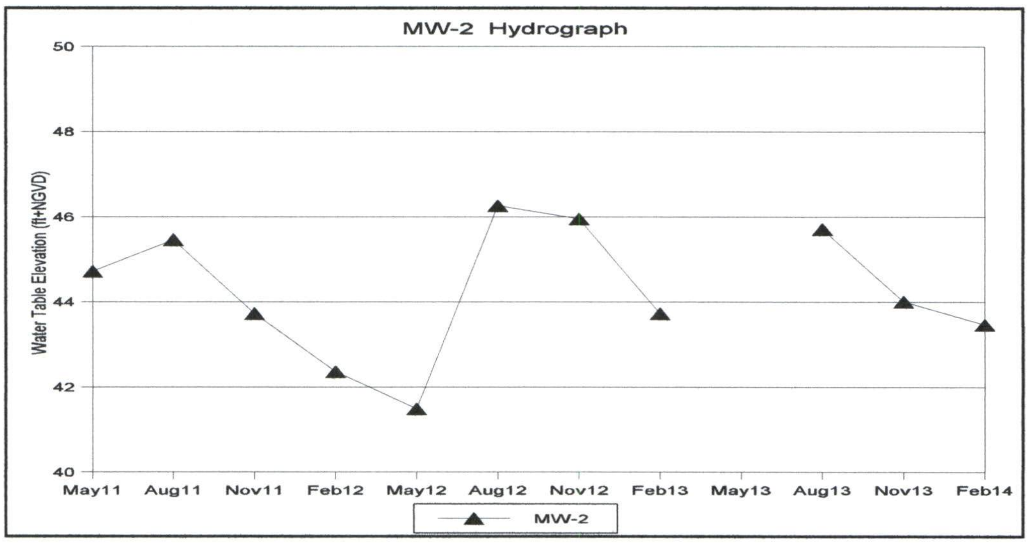


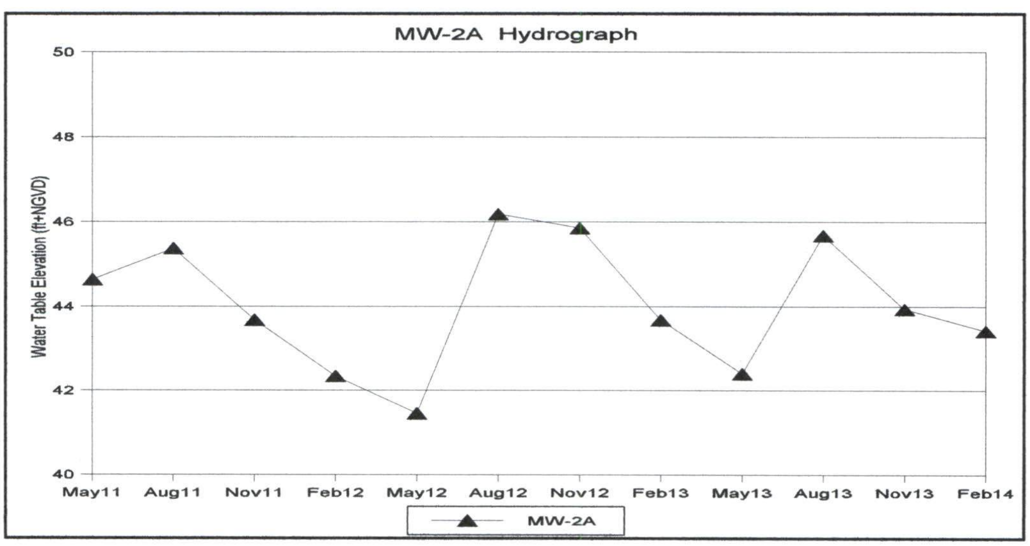
COMPARISON CHARTS: MW-4, MW-4A and MW-4B

APPENDIX IV

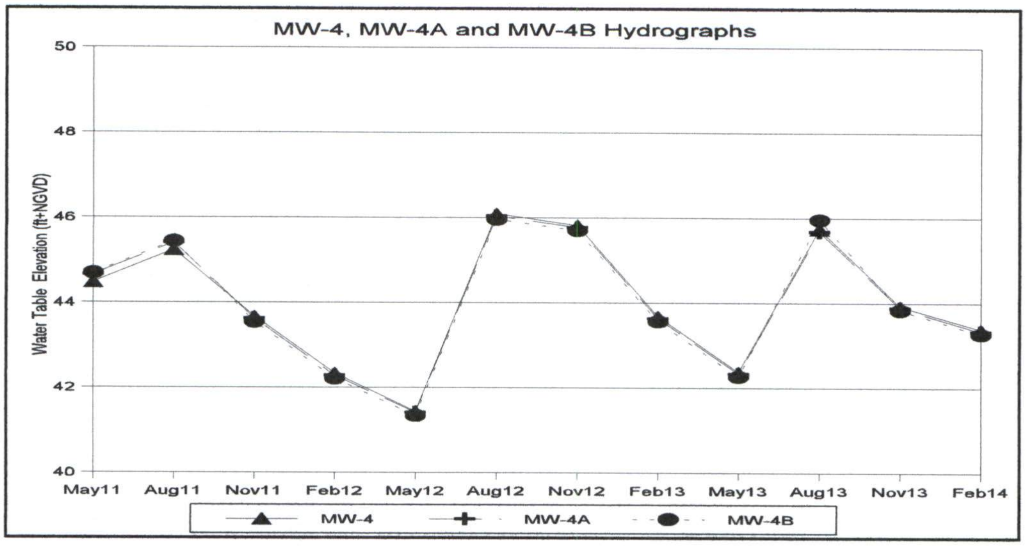
MONITORING WELL / PIEZOMETER HYDROGRAPHS

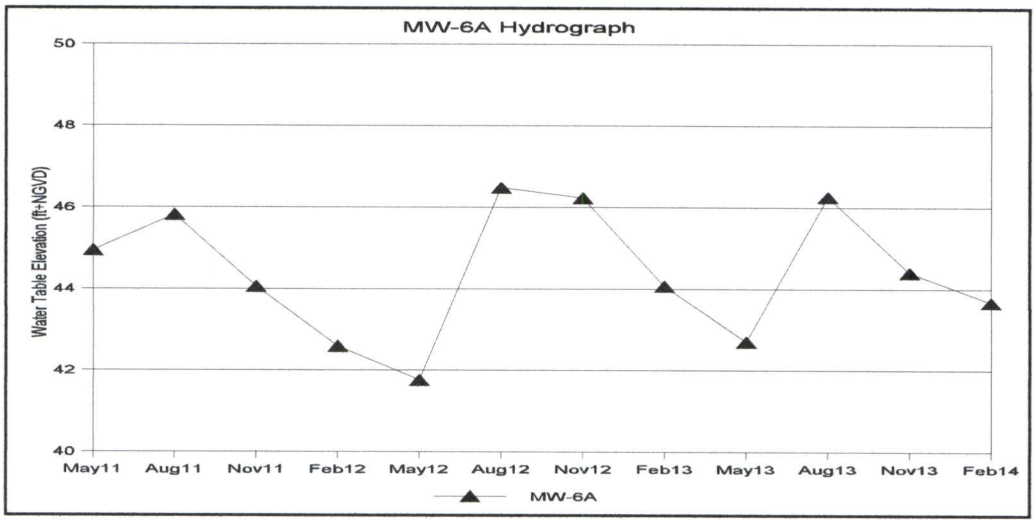


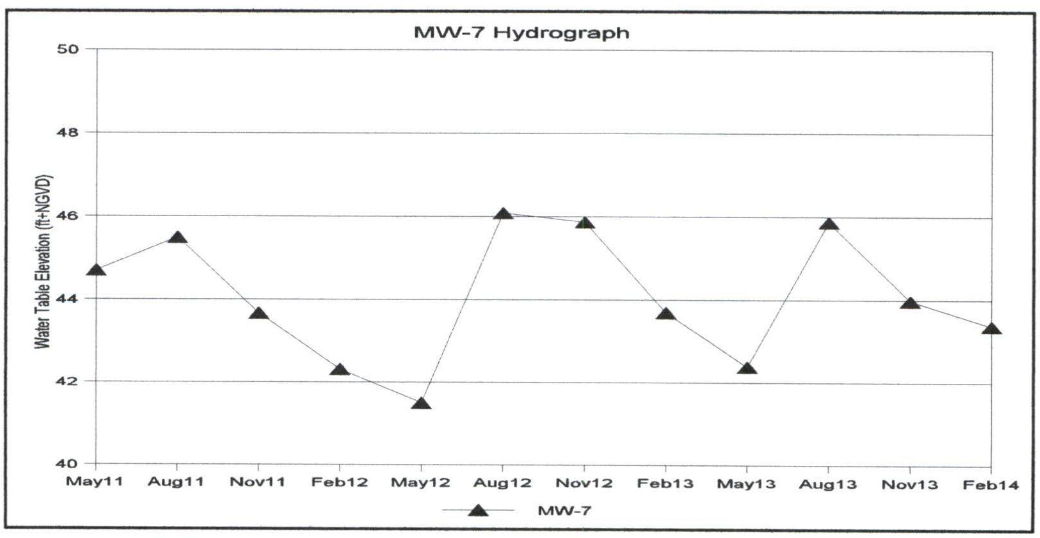




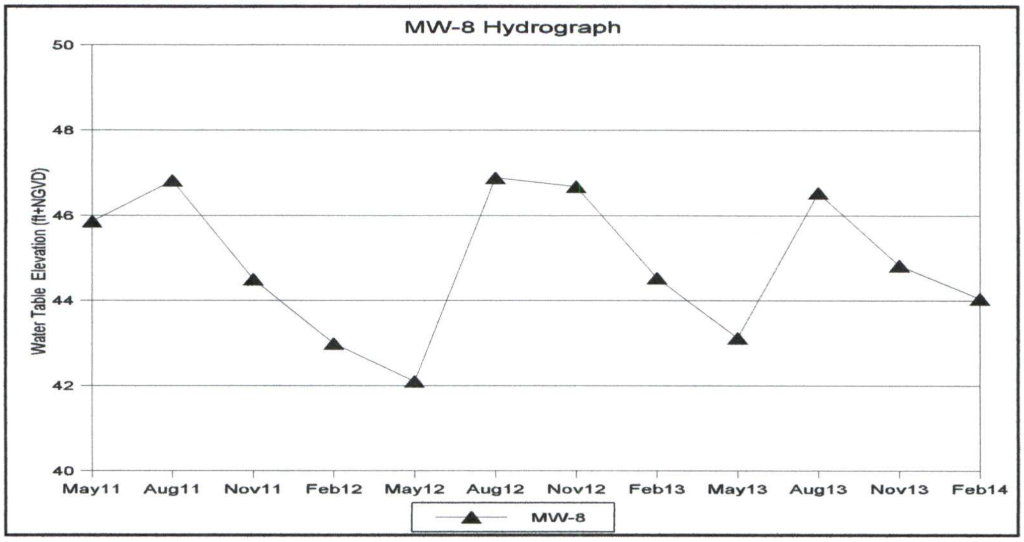
Sumter County Closed Landfill - MW-1 Through MW-2A Hydrographs

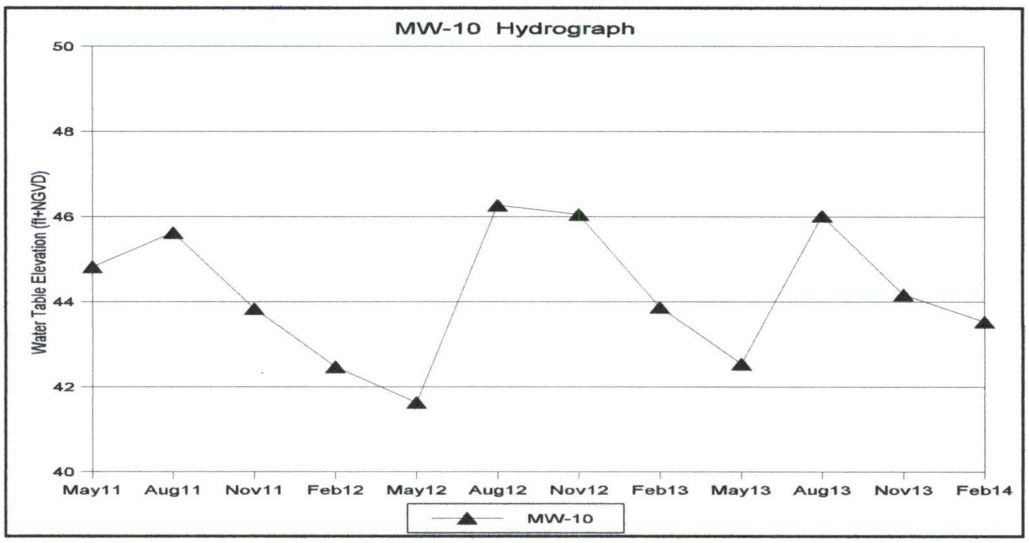


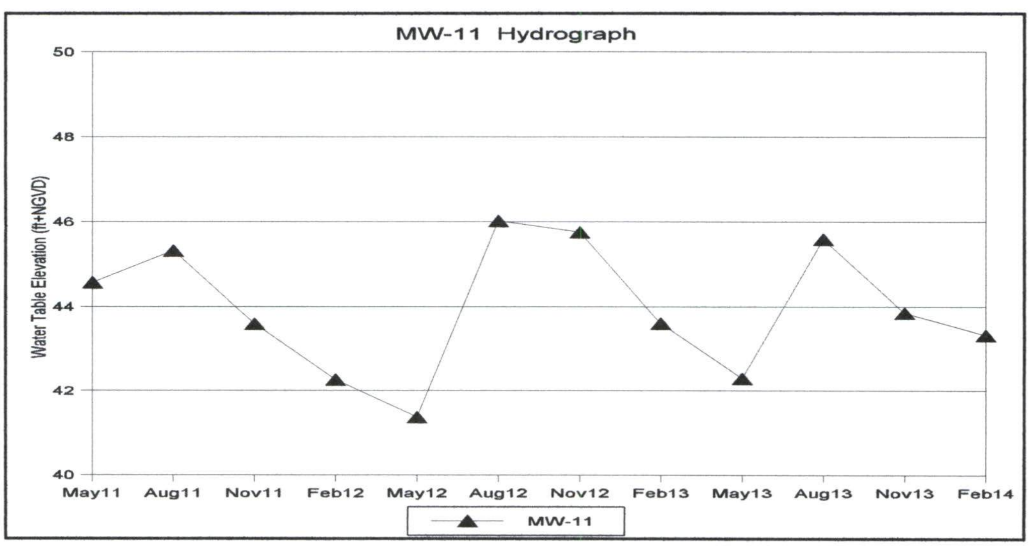




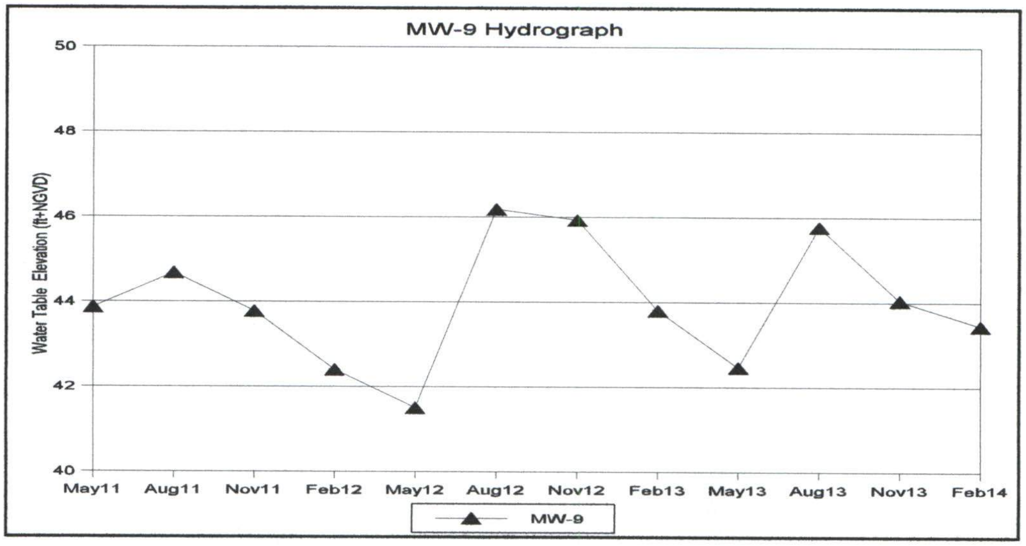
Sumter County Closed Landfill - MW-4 Through MW-7 Hydrographs

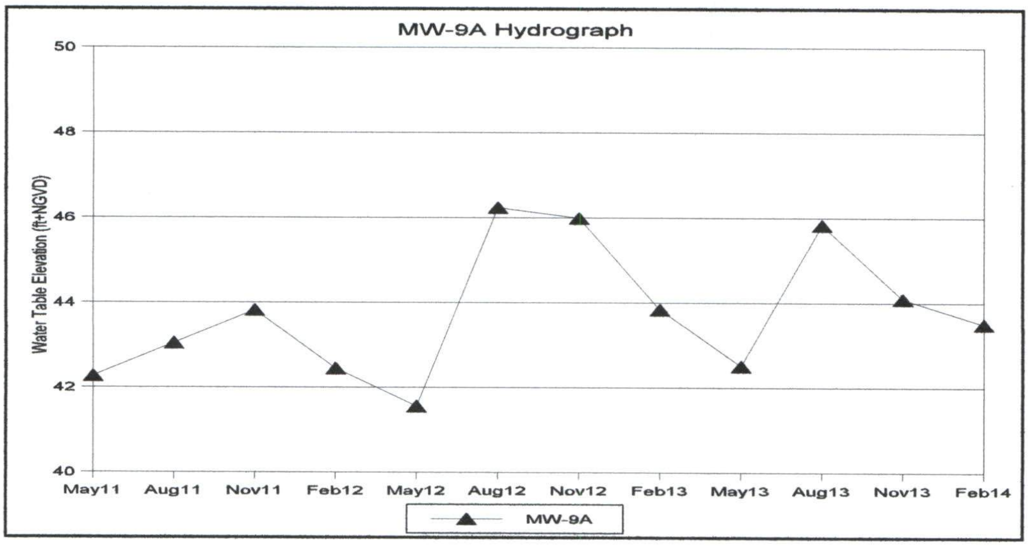






Sumter County Closed Landifll - MW-8, MW-10 and MW-11 Hydrographs

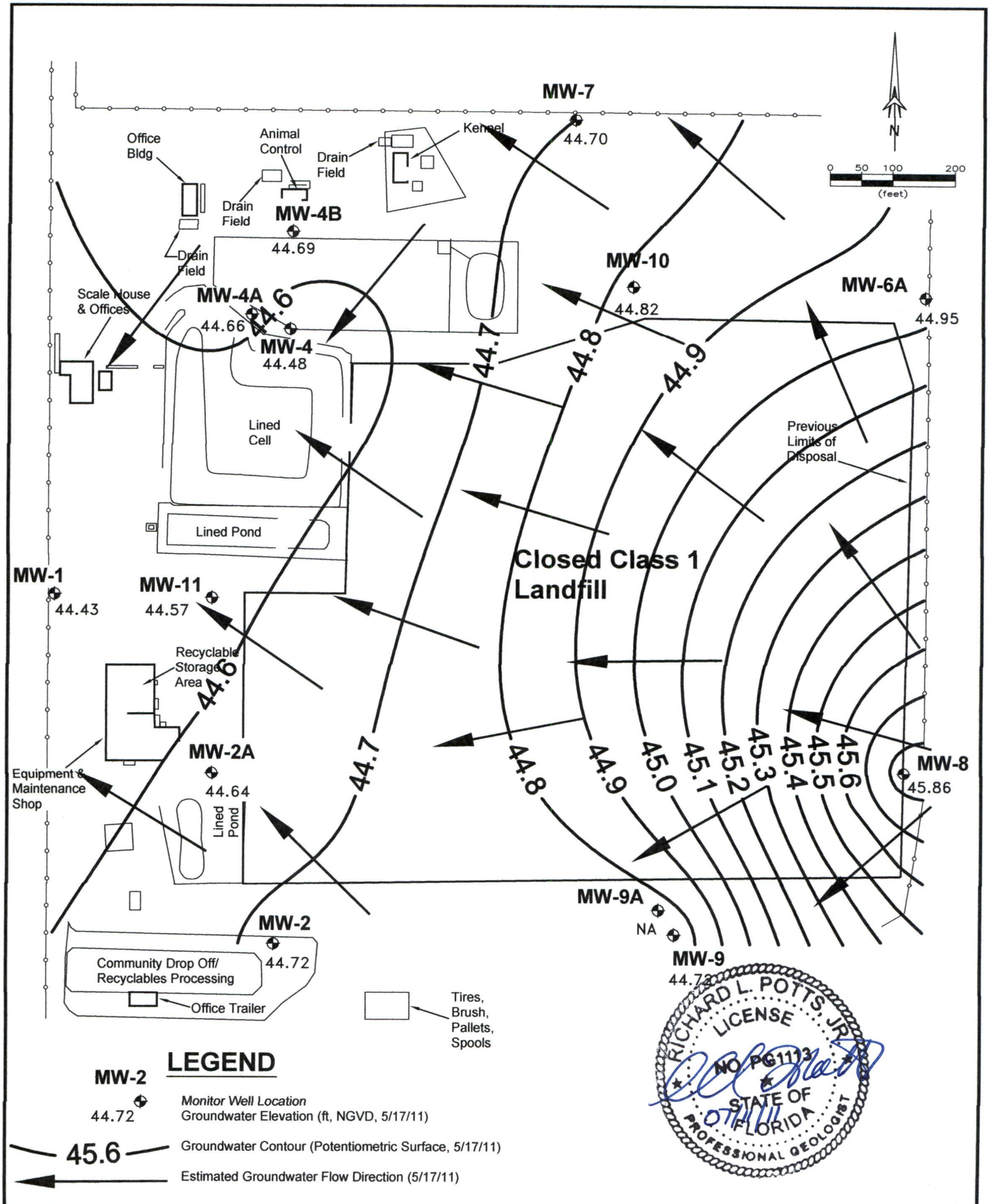




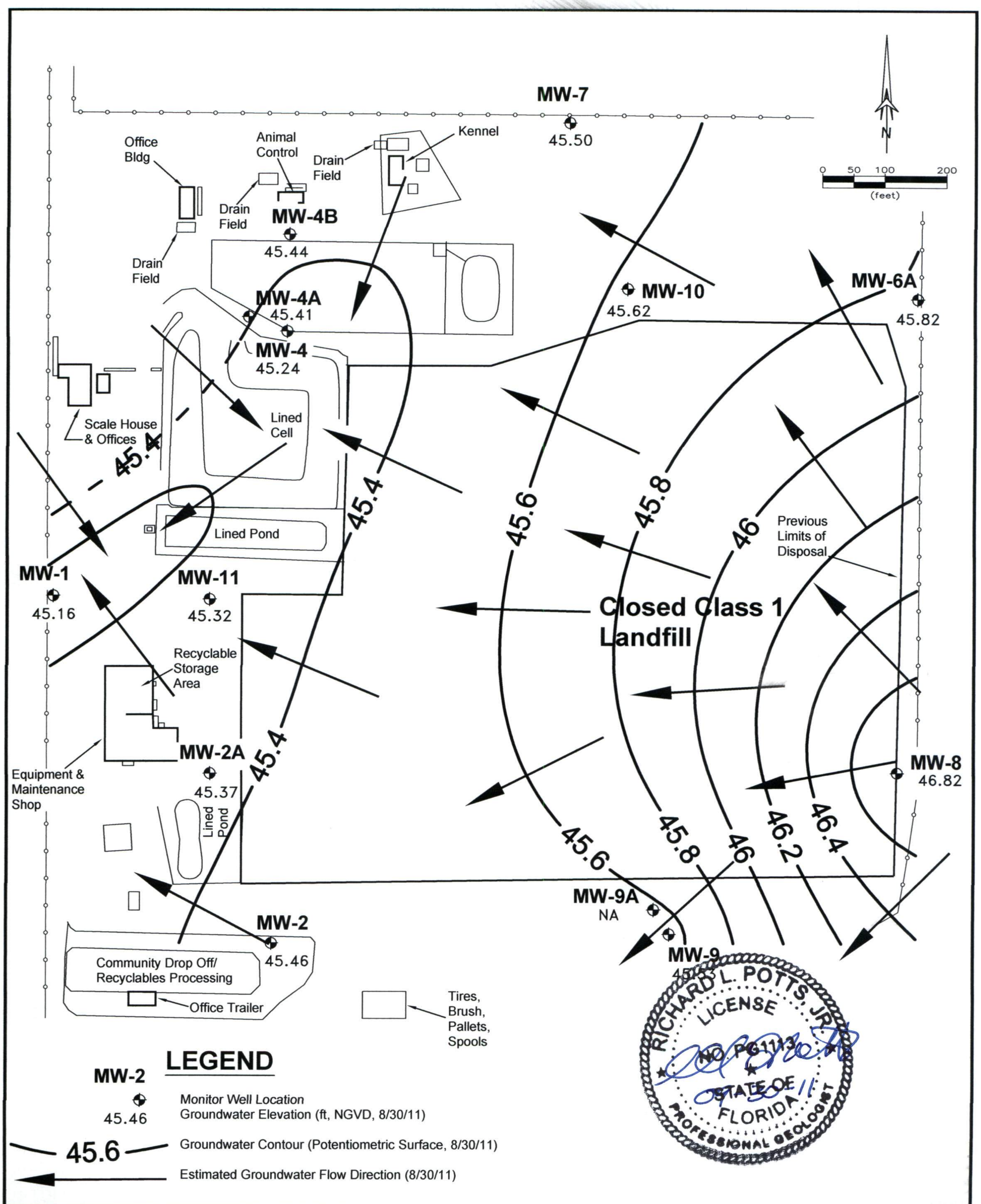
Sumter County Closed Landfill - MW-9 and MW-9A Hydrographs

APPENDIX V

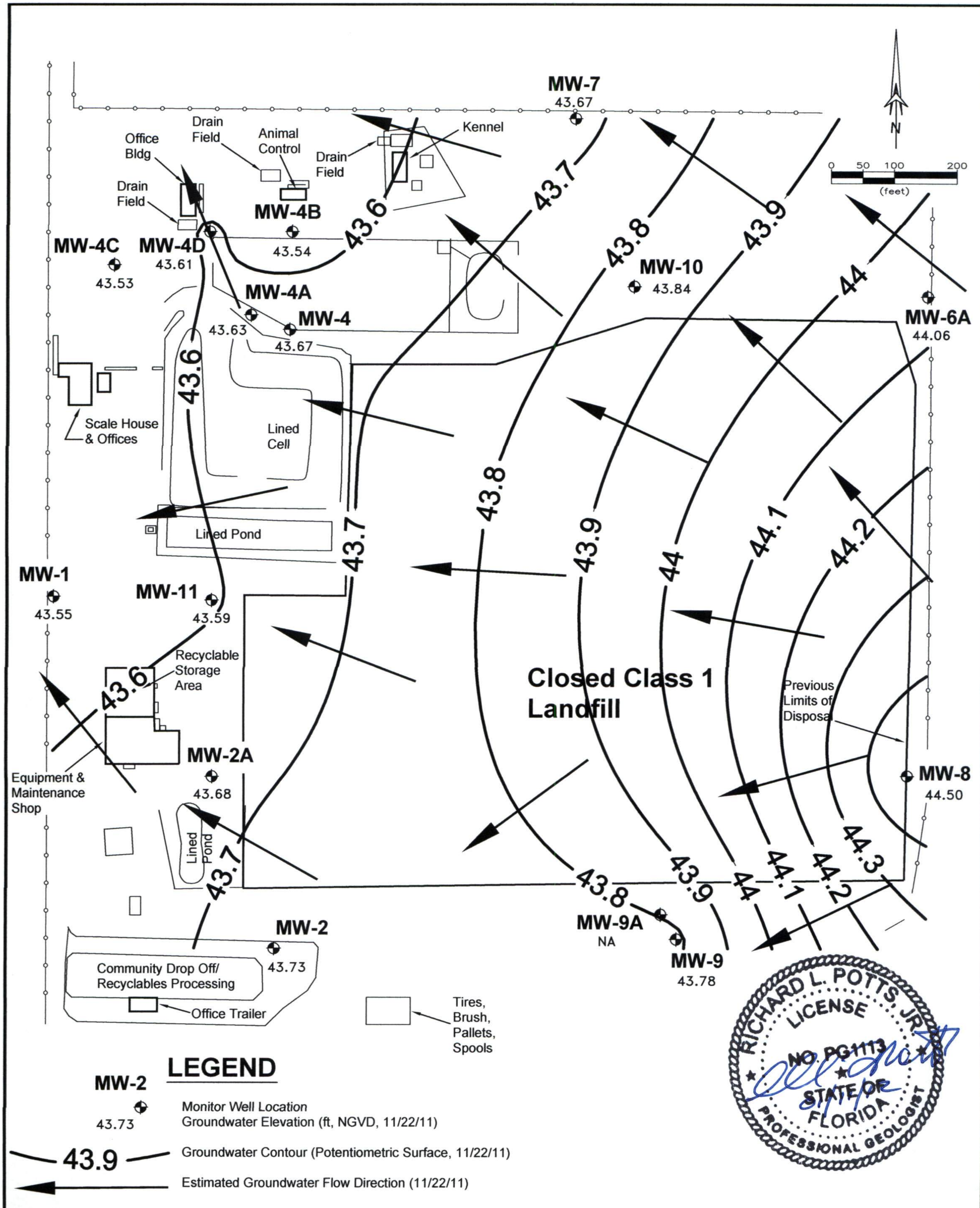
GROUNDWATER CONTOUR MAPS



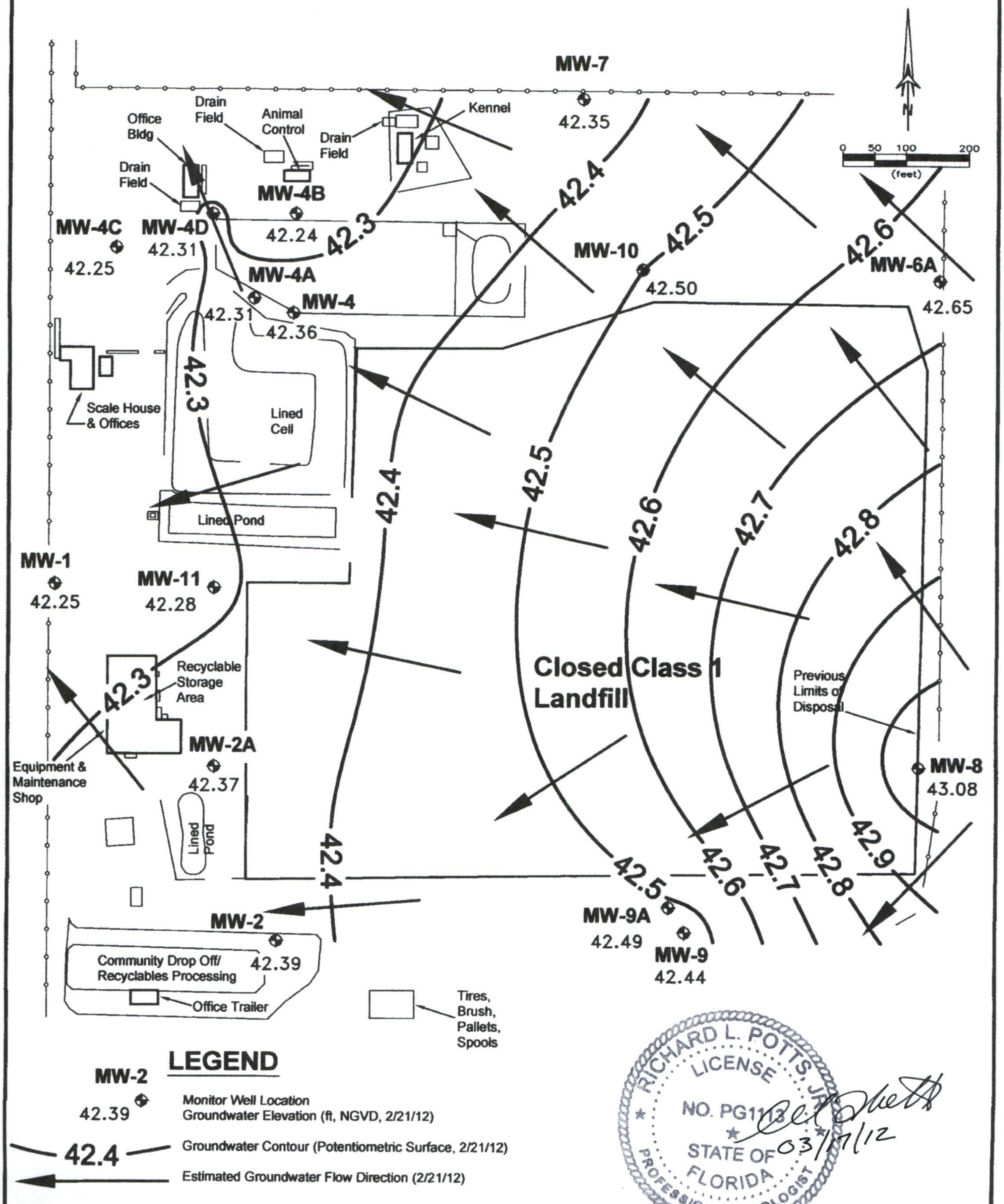
The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-431 DATE: JUNE 2011 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER II (MAY) 2011 SUMTER COUNTY LANDFILL	FIGURE 1



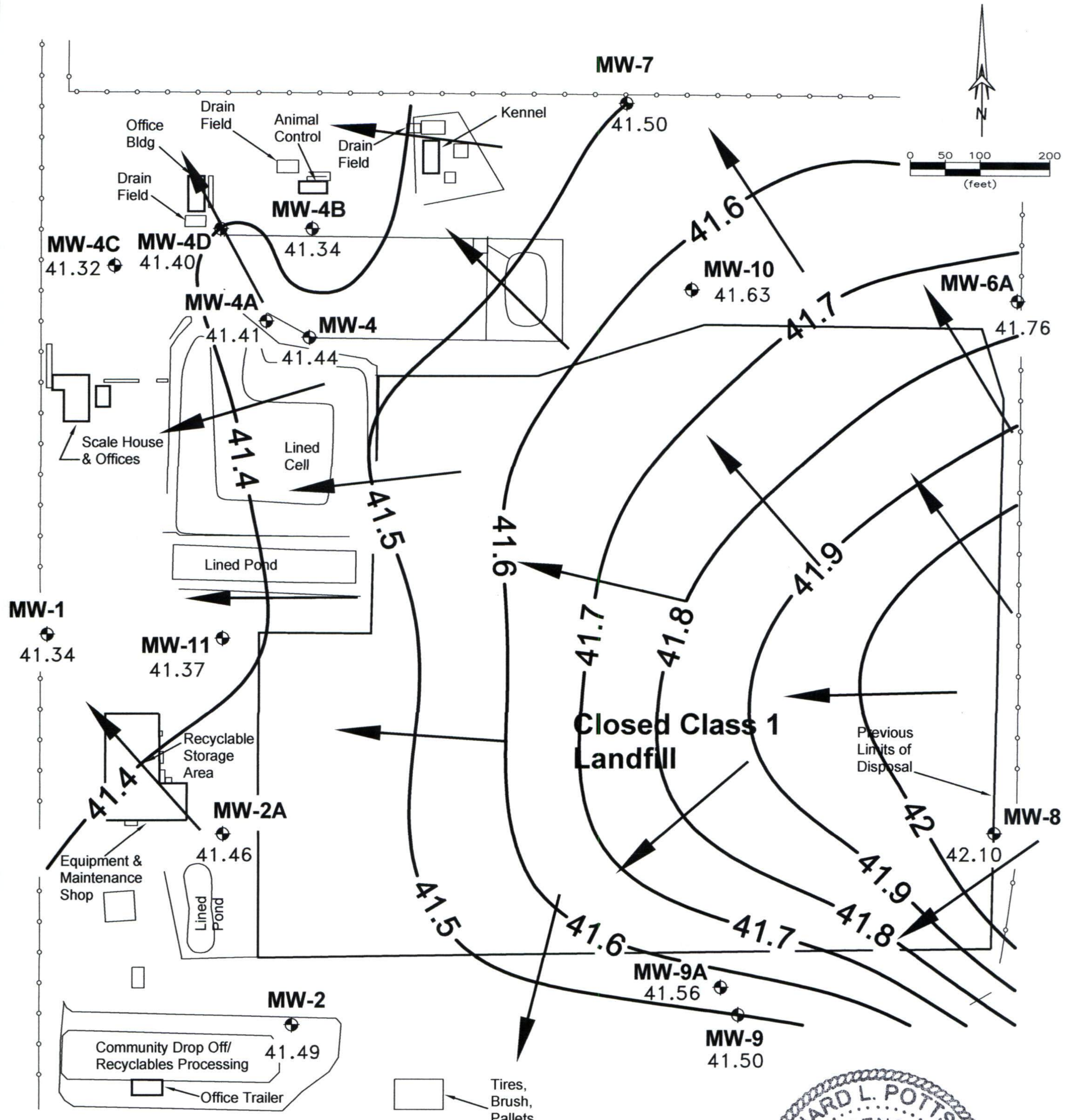
The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-453 DATE: SEPTEMBER 2011 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER III (AUGUST) 2011 SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-453 DATE: NOVEMBER 2011 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP NOVEMBER 22, 2011 SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-453 DATE: MARCH 2012 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER I (FEBRUARY) 2012 SUMTER COUNTY LANDFILL	FIGURE 1



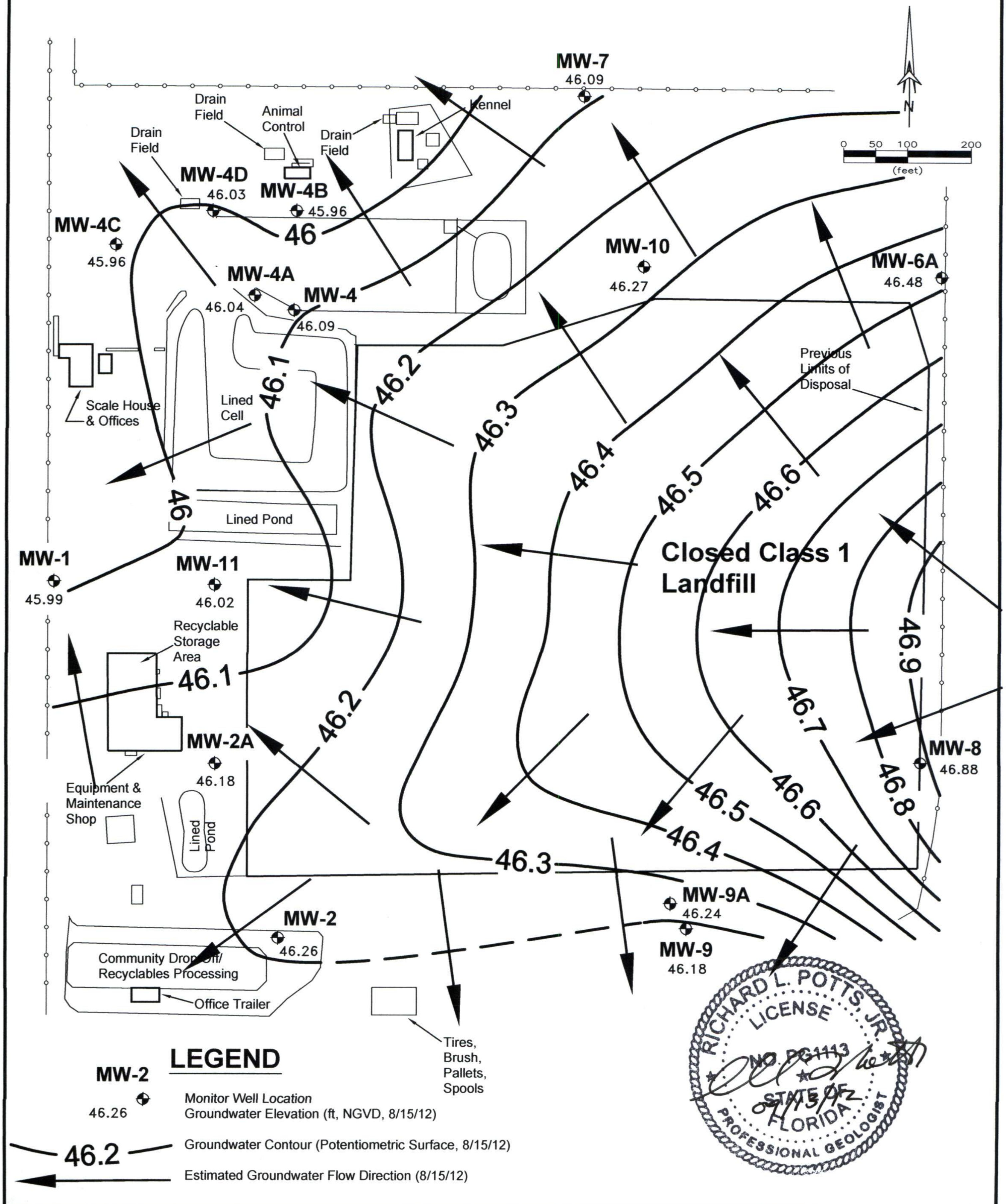
LEGEND

MW-2 41.49 — Monitor Well Location; Groundwater Elevation (ft, NGVD, 5/23/12)

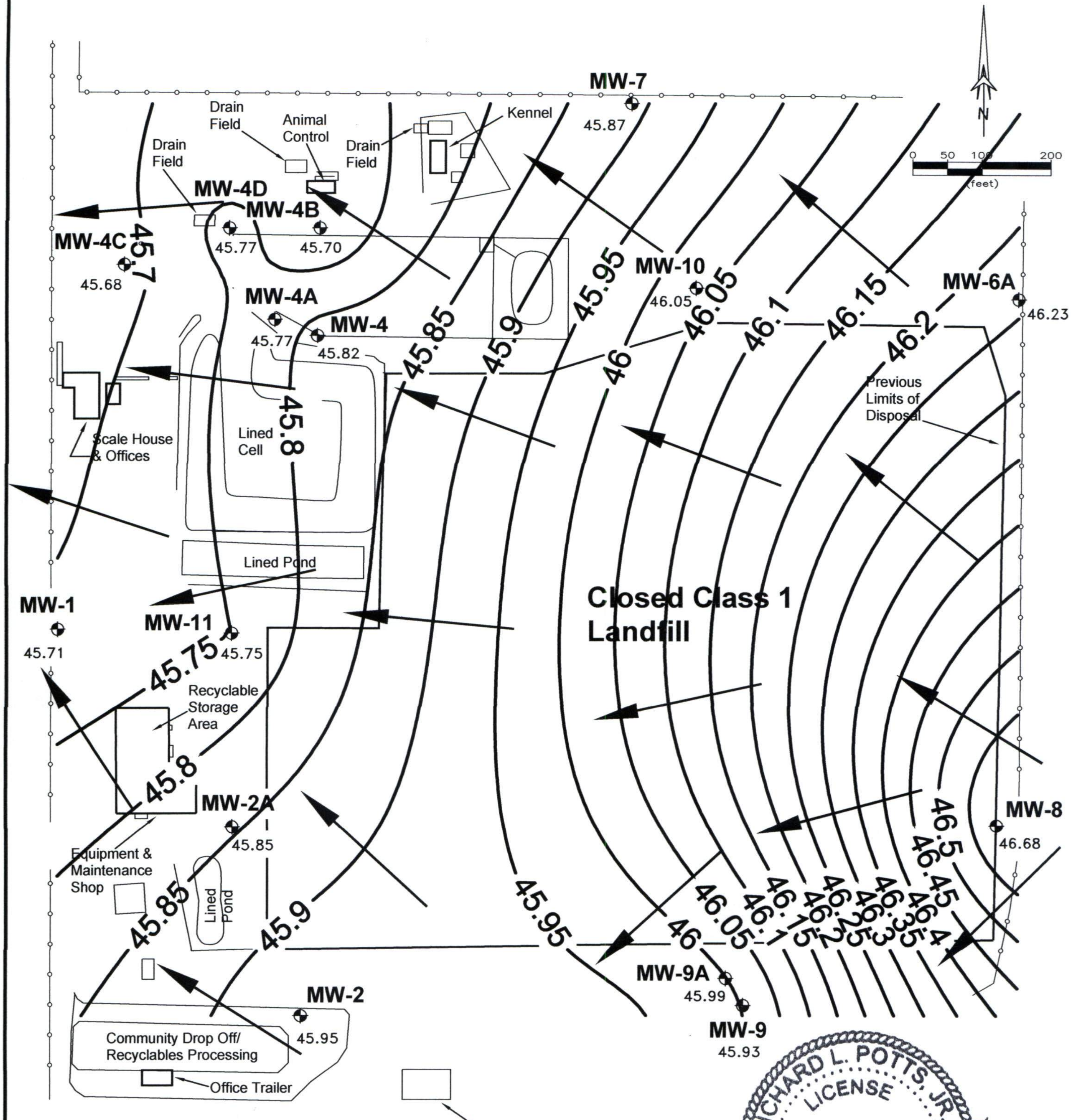
41.5 — Groundwater Contour (Potentiometric Surface, 5/23/12)

← Estimated Groundwater Flow Direction (5/23/12)

The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-468 DATE: JUNE 2012 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER II (MAY) 2012 SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-468 DATE: AUGUST 2012 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER III (AUGUST) 2012 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

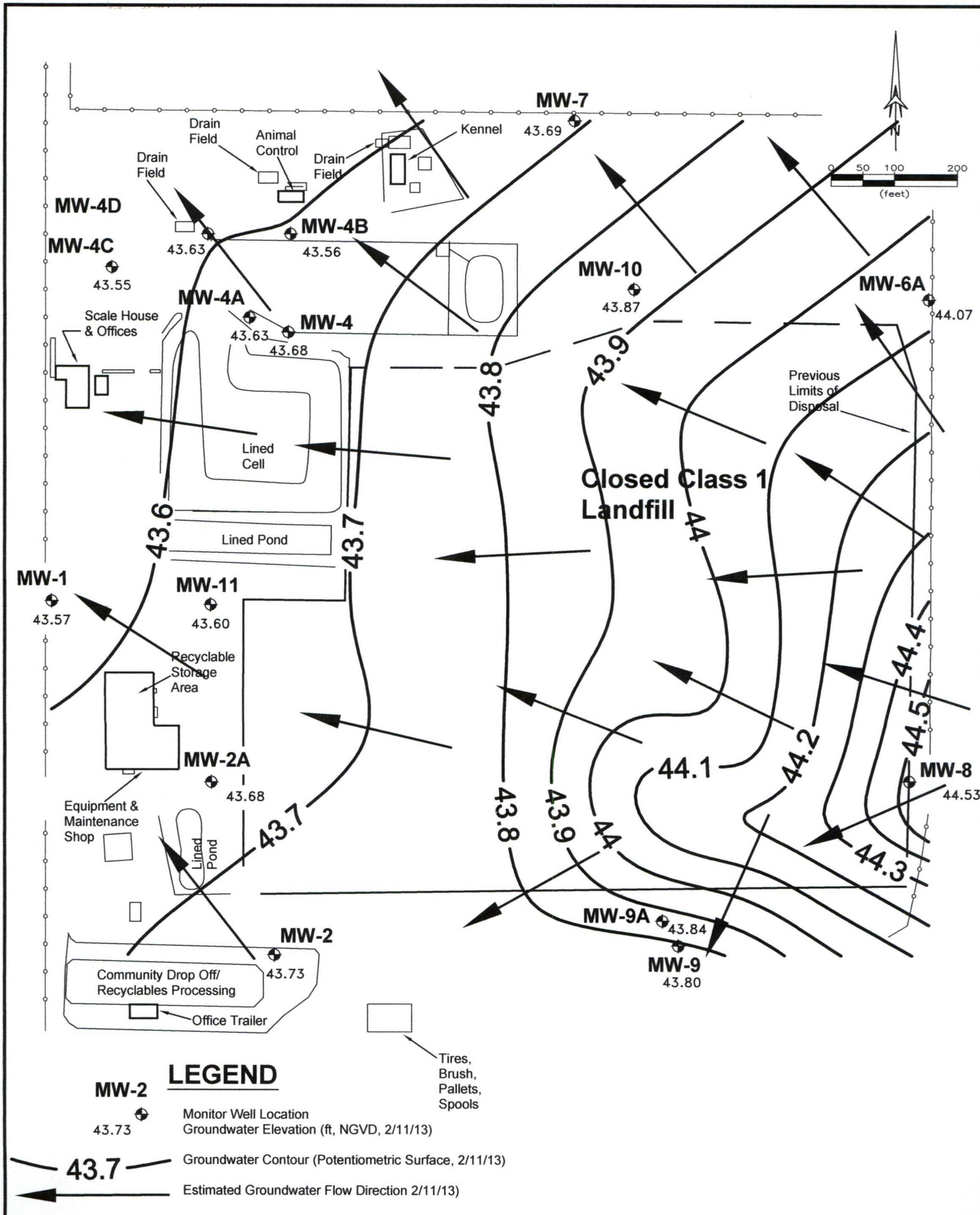
MW-2
45.95 — *Monitor Well Location*
Groundwater Elevation (ft, NGVD, 11/19/12)

46.2 — Groundwater Contour (Potentiometric Surface, 11/19/12)

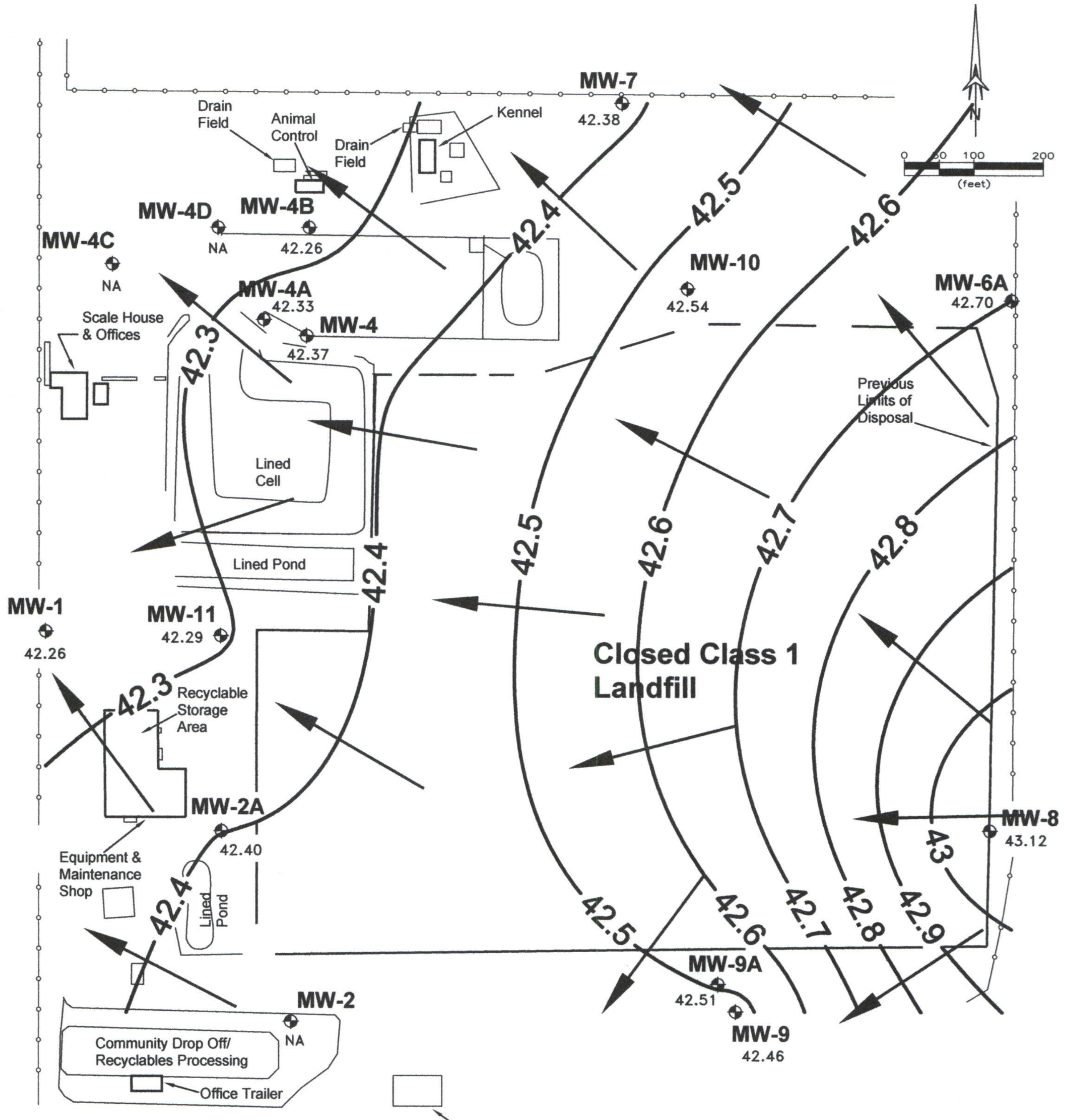
← Estimated Groundwater Flow Direction (11/19/12)

RICHARD L. POTTS, JR.
LICENSE
NO. PG1113
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST
1/7/13

The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-468 DATE: DECEMBER 2012 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER IV (NOVEMBER) 2012 SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-468 DATE: MARCH 2013 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER I (FEBRUARY) 2013 SUMTER COUNTY LANDFILL	FIGURE 1



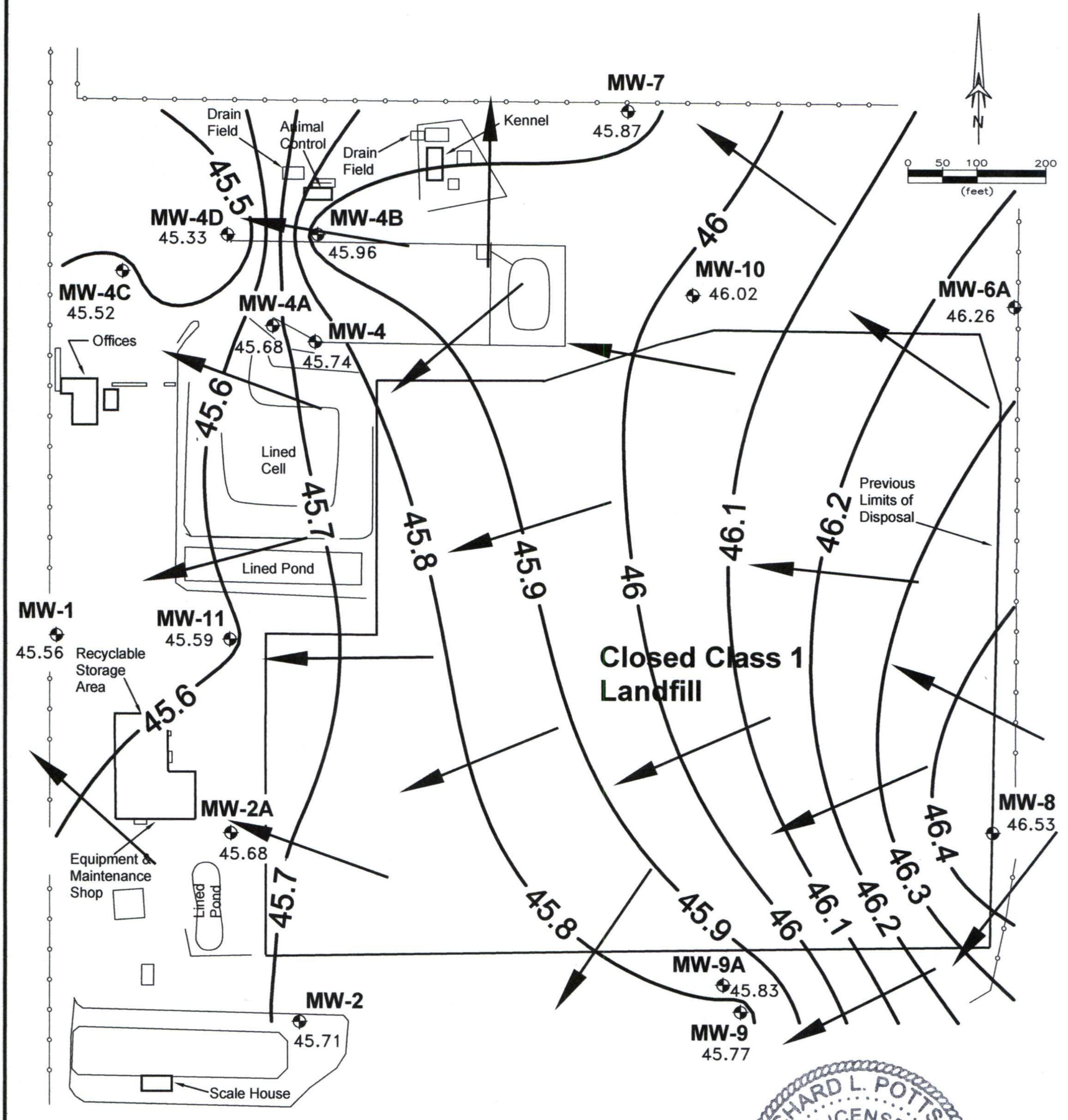
LEGEND

MW-2A 42.40 — Monitor Well Location, Groundwater Elevation (ft, NGVD, 5/10/13)

42.7 — Groundwater Contour (Potentiometric Surface, 5/10/13)

Estimated Groundwater Flow Direction 5/10/13)

The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-483 DATE: MAY 2013 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER II (MAY) 2013 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

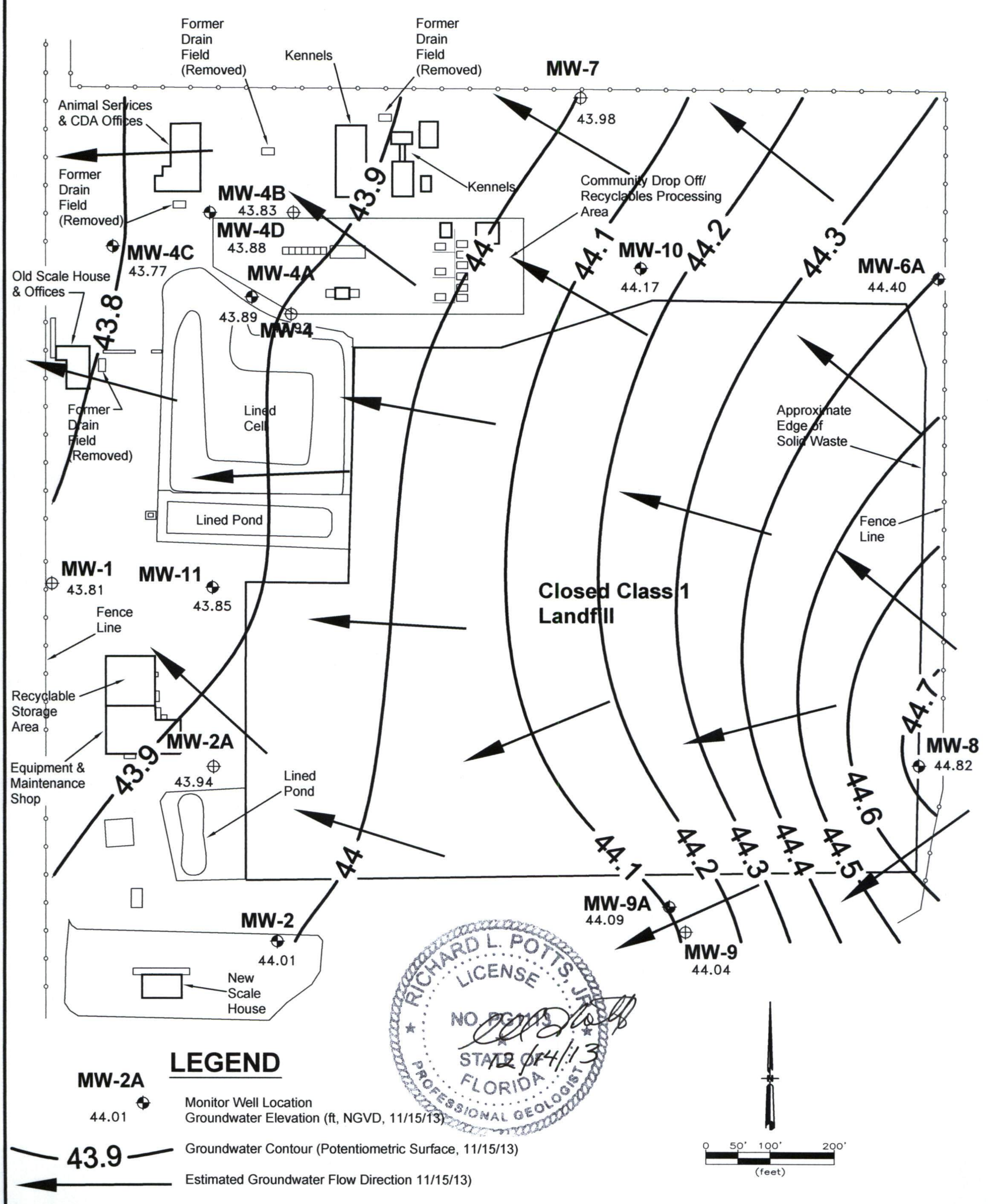
MW-2A 45.68 — Monitor Well Location, Groundwater Elevation (ft, NGVD, 8/8/13)

45.7 — Groundwater Contour (Potentiometric Surface, 8/8/13)

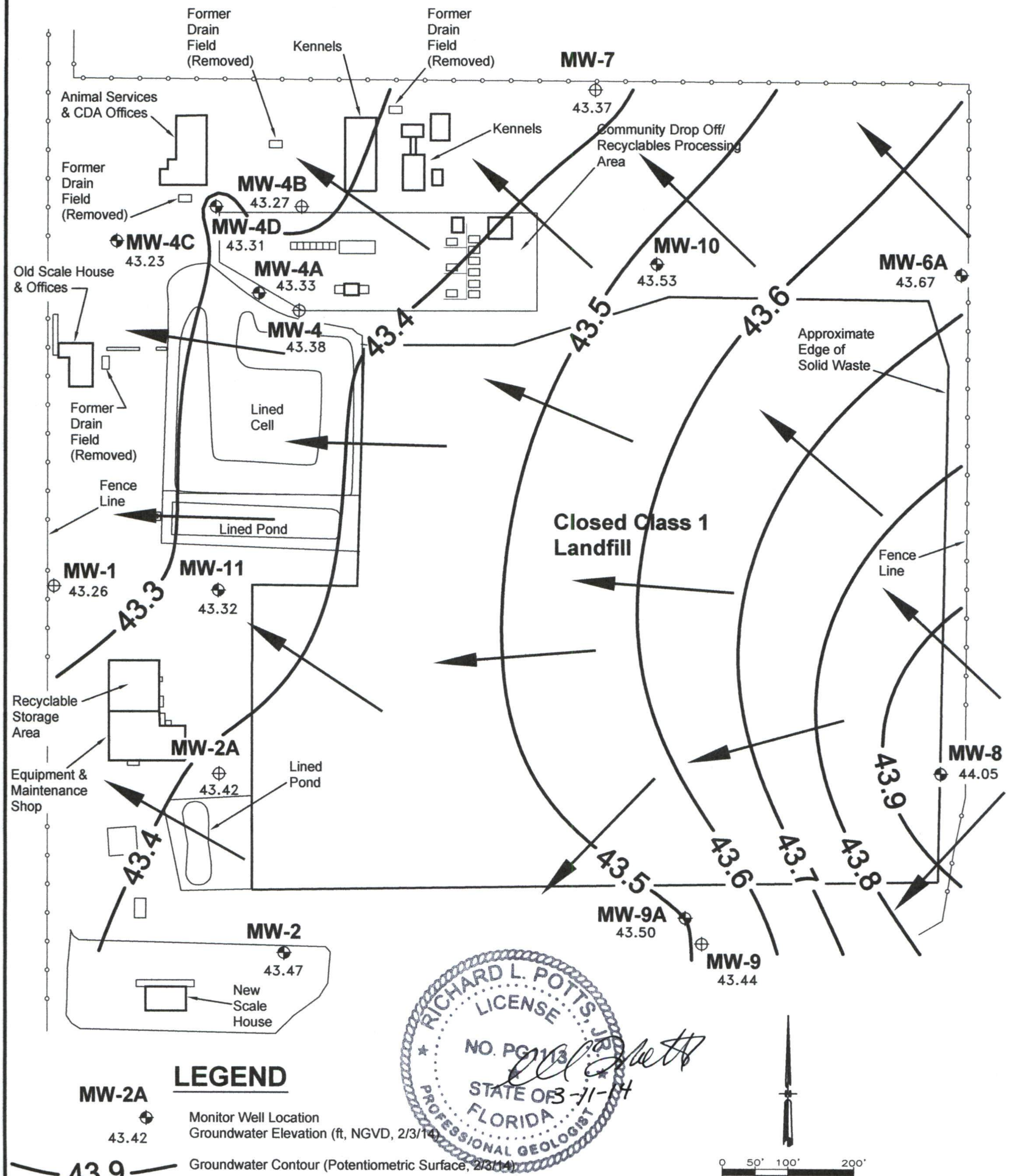
← Estimated Groundwater Flow Direction 8/8/13

RICHARD L. POTTS, JR. LICENSE NO. PG 11[illegible] FLORIDA PROFESSIONAL GEOLOGIST 09/17/13

The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-483 DATE: SEPTEMBER 2013 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER III (AUGUST) 2013 SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-483 DATE: DECEMBER 2013 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER IV (NOVEMBER) 2013 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

MW-2A 43.42 — Monitor Well Location, Groundwater Elevation (ft, NGVD, 2/3/14)

43.9 — Groundwater Contour (Potentiometric Surface, 2/3/14)

Estimated Groundwater Flow Direction (2/3/14)

The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-483 DATE: FEBRUARY 2014 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER I (FEBRUARY) 2014 SUMTER COUNTY LANDFILL	FIGURE 1