"Simpson Tract"
Non-Riverine Wetland Restoration Project

Beaufort County, NC
Tar-Pamlico River Basin
(Cataloging Unit #03020104)

Annual Monitoring Report – Year 2
(Task 8)

NC EEP Contract #D05027-1

Prepared For:

North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

December 2008

Submitted By:

Wetlands Resource Center
3970 Bowen Road
Canal Winchester, Ohio 43110

Project Manager:
Cal Miller
Office: 614-864-7511
Cell: 614-327-7034
Email: wetlandresource@aol.com

Prepared By:

LMG
LAND MANAGEMENT GROUP INC.
Environmental Consultants

Wilmington, N.C.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

Prior to project implementation, the Simpson Tract Property was managed for silvicultural production. The site consisted entirely of mono-culture pine stands with sparse hardwood colonization. Under contract with the EEP, Wetland Resource Center (WRC) restored 30.0 acres of non-riverine wetland which drain into the Pungo Creek (a tributary of the Pungo River) in Beaufort County, NC.

The entire 30.0 acre area has been planted with an appropriate mixture of tree and shrub species at an average density of 616 stems/acre. Planting was completed in February 2007. A total of fifteen (15) 0.10-acre permanent plots corresponding to a total of 1.5 acres (equivalent to 5% of the restoration area) were established throughout the project area. Annual monitoring will be conducted near the end of the growing season (September-October) for a period of five years. Vegetative planting will be deemed successful if survivorship of plantings and volunteers of desirable species meets or exceeds a target stem density of 320 stems/acre.

Annual vegetative monitoring was conducted on September 30-31, 2008. During this monitoring event a total of 756 woody stems were counted across the fifteen plots. The observed stems represented either planted species or acceptable volunteers. The woody stem count correlates to an average of 505 stems per acre, which provides a sufficient density to meet the stated success criteria. Hydrologic monitoring has been on-going since the initiation of restoration work. Restoration of appropriate wetland hydrologic conditions has been achieved, with each of the six monitoring wells registering water table depths within 12" of the surface for durations exceeding 32 consecutive days (12.5% of the growing season).

The following monitoring report summarizes the project and includes more specific information related to the vegetative and hydrologic conditions of the site. In addition, contingency measures related to vegetative success are identified.

1.0 NARRATIVE

Introduction

As approved by the EEP, WRC implemented the restoration of 30.0 acres of non-riverine wetland habitat located at the headwaters of Pungo Creek, a fourth-order tributary of the Pungo River within the Tar-Pamlico River Basin (USGS 8-digit Hydrologic Unit 03020104; DWQ Subbasin 03-03-07). The project area is part of the "Simpson Tract" located approximately 10 miles south of Plymouth in Beaufort County, NC (refer to Figures 1-6). This tract was intensively managed for silvicultural production prior to implementation of restoration activities. The project will provide for the re-establishment of characteristic tree and shrub species adjacent to open field ditches on the north side of Rodman Road.

Mitigation Goals and Objectives

The proposed restoration project is intended to provide suitable, high-quality non-riverine wetland restoration as compensatory mitigation for wetland impacts authorized through the EEP. The objective of the project is to restore appropriate vegetation and diffuse flow conditions to help reduce non-point source discharge of contaminants into adjacent water bodies and increase flood water retention. The primary functions of the restoration project are to provide surface water storage, nutrient uptake, and sediment retention. In addition, the project will provide ancillary benefits to wildlife by providing refuge for resident and migratory species via enhanced niche habitat and increased food-web support.

Pre-Construction Conditions

The 30-acre restoration area is part of a larger tract of land (1,391 acres). Approximately 950 acres have been determined to be non-jurisdictional ("non-wetlands") by the NRCS (USACE concurrence of this determination has also been provided in previous submittals to the EEP). The remaining acreage has been confirmed to be jurisdictional wetlands. The predominant land use of the tract (both jurisdictional and non-jurisdictional areas) is silvicultural production. Prior land use practices (including herbicide, pesticide, and fertilizer application) serve as potential contributors to decreased water quality of adjacent surface waters (i.e. ditches and 'blue-line' streams). The natural vegetative assemblage of the tract has been modified over the years via prescribed drainage improvements (i.e. ditching), bedding, and planting of loblolly pine (*Pinus taeda*). These silvicultural practices have resulted in a community dominated by pine in more mature stands outside of the proposed restoration area. Hardwood species characteristic of headwater swamp communities of the Coastal Plain are either absent entirely or occur only in sparse locations. Typical canopy species of an undisturbed area would include swamp tupelo (*Nyssa biflora*), bald cypress (*Taxodium distichum*), pond pine (*Pinus serotina*), and Atlantic white cedar (*Chamaecyparis thyoides*). Understory species typical of non-

riverine swamp forest communities include American titi (*Cyrilla racemiflora*), sweet bay (*Magnolia virginiana*), red bay (*Persea borbonia*), fetterbush (*Lyonia lucida*), red maple (*Acer rubrum*), and catbrier (*Smilax* species).

Project Implementation

Site preparation commenced in the fall of 2006. During this period, areas of invasive or non-target species were drum-chopped and bush-hogged. Following these activities, an herbicide was applied to reduce competition within the project area. A water soluble herbicide was used and applied by a licensed applicator to reduce impacts to the surrounding open water areas.

In order to re-establish the appropriate hydrologic conditions throughout the restoration area, a total of four (4) 50' long ditch plugs were installed in ditches draining from the project area. Prior to project construction, appropriate 401/404 authorization was received for placement of clay plugs within those ditches.

Earth work was conducted from February 20-21, 2007. Approximately 100 cubic yards of material was used to form the ditch plugs. Ditch plugs were installed at specified locations. Final grading was conducted in the plugged areas to allow for subsidence and compaction of the fill material. All areas that were disturbed by grading activities were seeded with an appropriate erosion control mix. Refer to the previously submitted mitigation plan for photographs of the initial post-construction conditions. Refer to Table 1 for a complete project timeline.

Site planting was completed on February 23, 2007. The planting of approximately 18,000 seedlings was supervised by LMG to ensure proper spacing and planting depths. LMG obtained a mix of hardwood and shrub seedlings which accurately represent the targeted headwater swamp community discussed in the approved restoration plan (Table 2). Seedlings were planted on approximately 8' centers at a depth sufficient to cover the root collar throughout the project area. Following the planting activities, LMG inspected the project area to ensure that seedlings had been installed correctly.

2.0 AS-BUILTS

As defined by the approved restoration plan, a total of fifteen (15) permanent monitoring plots were established, which corresponds to a total of 1.5 acres (equivalent to 5% of the restoration area). A total of six (6) automated wells (RDS, Inc. WM-40s) were also installed to monitor shallow groundwater hydrology and surface inundation within the restoration area. All six wells were paired with vegetation plots.

Three (3) additional wells were installed in reference areas located near the Van Swamp Gameland to the northeast of the project site. These reference sites were selected based on similarities in landscape position, hardwood species assemblages and soil types. Wells were installed in accordance with installation methods outlined in the Wetlands Regulatory Assistance Program (WRAP) Technical Note 00-02. Water levels are being recorded once daily. Data is downloaded from the wells every three months (i.e. once quarterly). Data from well downloads is compiled and graphically displayed to demonstrate the hydroperiods of monitored areas. Refer to the attached survey (Appendix D) of the wetland restoration area for the location and corresponding number of the permanent vegetative monitoring plots and paired hydrologic monitoring equipment on the site.

3.0 MONITORING PLAN

Annual monitoring will be conducted near the end of each growing season for a period of five years. Vegetative monitoring will continue to be conducted at each of the fifteen (15) 0.10-acre permanent plots. Vegetative planting will be deemed successful if survivorship of plantings and volunteers of desirable species[1] meets or exceeds a target stem density of 320 stems/acre. Hydrologic monitoring will deemed successful if static water table at, or within, 12" of the soil surface for 12.5% of the growing season (equivalent to 32 days based upon SCS-established growing season dates) during periods of normal rainfall. Data from the three reference wells will also be included. Monitoring reports will be submitted annually to the EEP (by January 1 of each year). These reports will include results of vegetative monitoring and photographic documentation of site conditions. Monitoring reports will also identify any contingency measures that may need to be employed to remedy any site deficiencies. For instance, deer browse tubes and fencing may need to be used if evidence of significant herbivory or deer browse is observed. In addition, supplemental planting may be necessary in areas of reduced survivorship.

4.0 MONITORING RESULTS (YEAR 2)

Vegetation Monitoring

Monitoring of the on-site vegetation was conducted on September 30-31, 2008. A total of 756 stems were counted throughout the fifteen plots, which correlates to an average of 505 stems/acre within the project area (Table 3). Bald cypress (*Taxodium distichum*) was the most abundant woody species, with a total of 156 individuals. Other planted species such as wax myrtle (*Morella cerifera*) and red bay (*Persea borbonia*) were

[1] Desirable species are considered as noninvasive species characteristic of non-riparian wetland.

also prevalent within the monitored plots. Of the total plots monitored 1, 3, 4, 5, 6, 7, 8, 9, 12, 13 and 14 demonstrated densities exceeding 320 stems/acre. Densities of the remaining plots ranged in between 200 stems/acre and 310 stems/acres. Survivorship of the plots was aided by the success of volunteer species such as loblolly bay (*Gordonia lasianthus*) and sweet pepperbush (*Clethra alnifolia*). The reduced survivorship in the remaining plots may be attributed to the drought conditions that followed the initial planting in February 2007 and continued throughout the summer and fall of 2008. Estimates from the USDA classified Beaufort County as ranging from a D0 (Abnormally Dry) to a D3 (Extreme Drought) county during the growing season of 2008. Refer to Appendix A for photographs of current site conditions and Appendix B for information regarding individual plot totals.

See below for measures to be implemented with respect to adaptive site management.

Hydrologic Monitoring

Monitoring of water table depths has been conducted throughout 2008 (Appendix C). Each of the six monitoring wells documented water tables within 12" of the surface for at least 39 consecutive days between March 14th and November 17th, 2008. This period represents 15.7% of the growing season in Beaufort County. All of the wells exhibited water table depths within 12" of the surface for an even longer duration, exceeding 60 consecutive days. It should be noted that precipitation totals during the majority of the growing season were below the 30% normal rainfall distribution provided in the WETS data tables. Rainfall totals were in the normal range in the beginning of March and the beginning to mid April. Totals peaked above the normal levels for a short period of time at the very end of April. The rainfall totals were in the normal range again from mid July to mid August.

Groundwater levels exhibited a discernable increase following individual precipitation events greater than 0.25". Discharge rates following these events were found to be gradual, average 0.6 inches/day which is consistent with very poorly drained soil units.

Data collected from monitoring wells #10 and #11 (reference) during 2008 did not meet jurisdictional criteria for hydrology. However, abnormally low precipitation coupled with high evapotranspiration rates during the summer months likely contributed to the observed lower water table depths.

5.0 ADAPTIVE MANAGEMENT

Based upon reduced survivorship of planted seedlings across the site, WRC is proposing a supplemental planting for February 2009. This reduced survivorship has likely resulted from persistent drought conditions present throughout the first two growing seasons. While the average stem density of 505 stems/acre is sufficient to meet the stated success criteria in Year 2, natural mortality will likely occur in future years reducing overall stem densities. Therefore, WRC will plant representative species (i.e. bald cypress, swamp tupelo, etc.) at an average density of 200 stems/acre to ensure density targets are met for the remainder of the project. Information regarding specific species and densities will be provided in the Year 3 annual monitoring report.

6.0 CONCLUSION

WRC has completed the implementation of 30.0 acres of non-riverine restoration located in TAR-7 of the lower Tar-Pamlico Basin. At the end of Year 2 monitoring, the vegetative success criteria has been met and the site appears to be progressing towards the target headwater swamp forest community. However, due to excessive drought conditions in 2007 and 2008 survivorship of planted species has declined to 353 stems/acre. While this totals meets the success criteria of 320 stems/acre, natural mortality in future years may continue to reduce overall densities. As a result of these drought conditions, a supplemental planting has been scheduled for February 2009 to ensure that proper stem densities are maintained. Hydrologic conditions since project construction have also become more characteristic of these systems, showing water table depths at or near the surface for significant durations during the growing season. The hydrologic criteria were met during drought conditions due to the poorly drained soil unit found on site. The reversion of land previously managed for silvicultural purposes to wetlands will decrease source nutrient loading and concurrently increase nutrient removal capacity. In addition, the project will provide ancillary benefits to aquatic and wildlife habitat via enhanced niche habitat and increased food-web support. By doing so, the proposed project will help to effectively mitigate for authorized loss of wetlands within the Tar-Pamlico Basin.

Tables

Table 1. Simpson Wetland Restoration Timeline

Task	Project Milestone	Completion Date	COMMENTS
1	Feasibility Study, CE Document, and Public Meeting	July 1, 2005	
2	Record a Conservation Easement on the Site	September 22, 2006	Recorded in Beaufort County Register of Deeds
3	Restoration Plan Approved by EEP	April 2006	Restoration Plan complete
4	Mitigation Site Earthwork Completed	February 15, 2007	Ditch Plug Installation approved by NWP #27
5	Mitigation Site Planting and Installation of Monitoring Devices	February 21, 2007	Approved by EEP
6	Submittal of Mitigation Plan (including as-built drawings)	June, 2007	Approved by EEP
7	Submittal of Monitoring Report #1 to EEP	December 31, 2007	Approved by EEP
8	Submittal of Monitoring Report #2 to EEP	December 31, 2008	
9	Submittal of Monitoring Report #3 to EEP	December 31, 2009	
10	Submittal of Monitoring Report #4 to EEP	December 31, 2010	
11	Submittal of Monitoring Report #5 to EEP	December 31, 2011	

TABLE 2. Simpson Non-riverine Plant List (Planted February 2007)

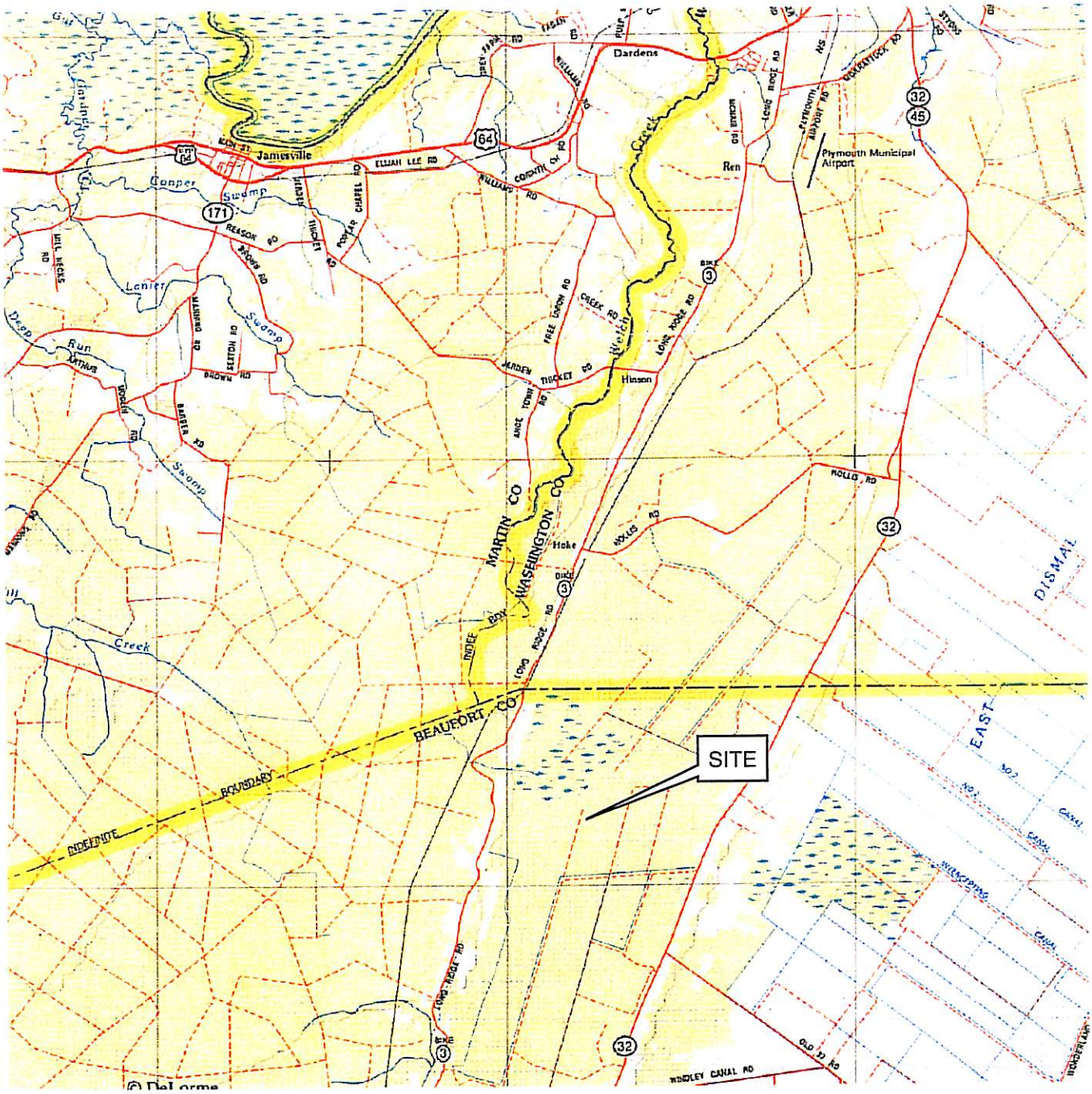
Species	# planted	(% of total)
Bald cypress (*Taxodium distichum*)	4,000	22.86%
White Cedar (*Chamaemycyparis thyoides*)	2,500	14.29%
Black Gum (*Nyssa sylvatica*)	5,000	28.57%
Red Bay (*Persea borbonia*)	3,000	17.14%
Fetterbush (*Lyonia lucida*)	1,000	5.71%
Sweet Bay (*Magnolia virginiana*)	2,000	11.43%
Wax Myrtle (*Myrica cerifera*)	1,000	5.71%
Total Plants	18,500	

Simpson Farm Restoration Wetland

TABLE 3. Monitoring Plot Comparison (Year 2)

SPECIES	PLOT 1	PLOT 2	PLOT 3	PLOT 4	PLOT 5	PLOT 6	PLOT 7	PLOT 8	PLOT 9	PLOT 10	PLOT 11	PLOT 12	PLOT 13	PLOT 14	PLOT 15	TOTAL
Atlantic White Cedar		1							2							3
Bald Cypress	18	6	15	18	22	19	24	1	8		12	10	1		2	156
Black Gum		3	3					2	1				1	1	2	13
Wax Myrtle	15	4		17		18			5	3					13	75
Fetterbush	3		1				1	10	1	6	7	4	1	5	6	45
Sweetbay													1			1
Red Bay	5	1	14	7	2	2	1	5	2		1	6	3	11		60
Galberry										5			30	30		65
Loblolly Bay	6	5	20	8	15	52	14	16	46	17		12	24	26	1	262
Sweet Pepperbush		1						4					45	25	1	76
TOTAL	**47**	**21**	**53**	**50**	**39**	**91**	**40**	**38**	**65**	**31**	**20**	**32**	**106**	**98**	**25**	**756**
Total Counted toward Success	**47**	**21**	**53**	**50**	**39**	**91**	**40**	**38**	**65**	**31**	**20**	**32**	**106**	**98**	**25**	**756**
Stem Density (per ac)	**470**	**210**	**530**	**500**	**390**	**910**	**400**	**380**	**650**	**310**	**200**	**320**	**1060**	**980**	**250**	**504**

Figures



N

SCALE: 1" = 2 miles

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 1.
Vicinity Map

Delorme Gazetteer

Land Management Group, Inc.

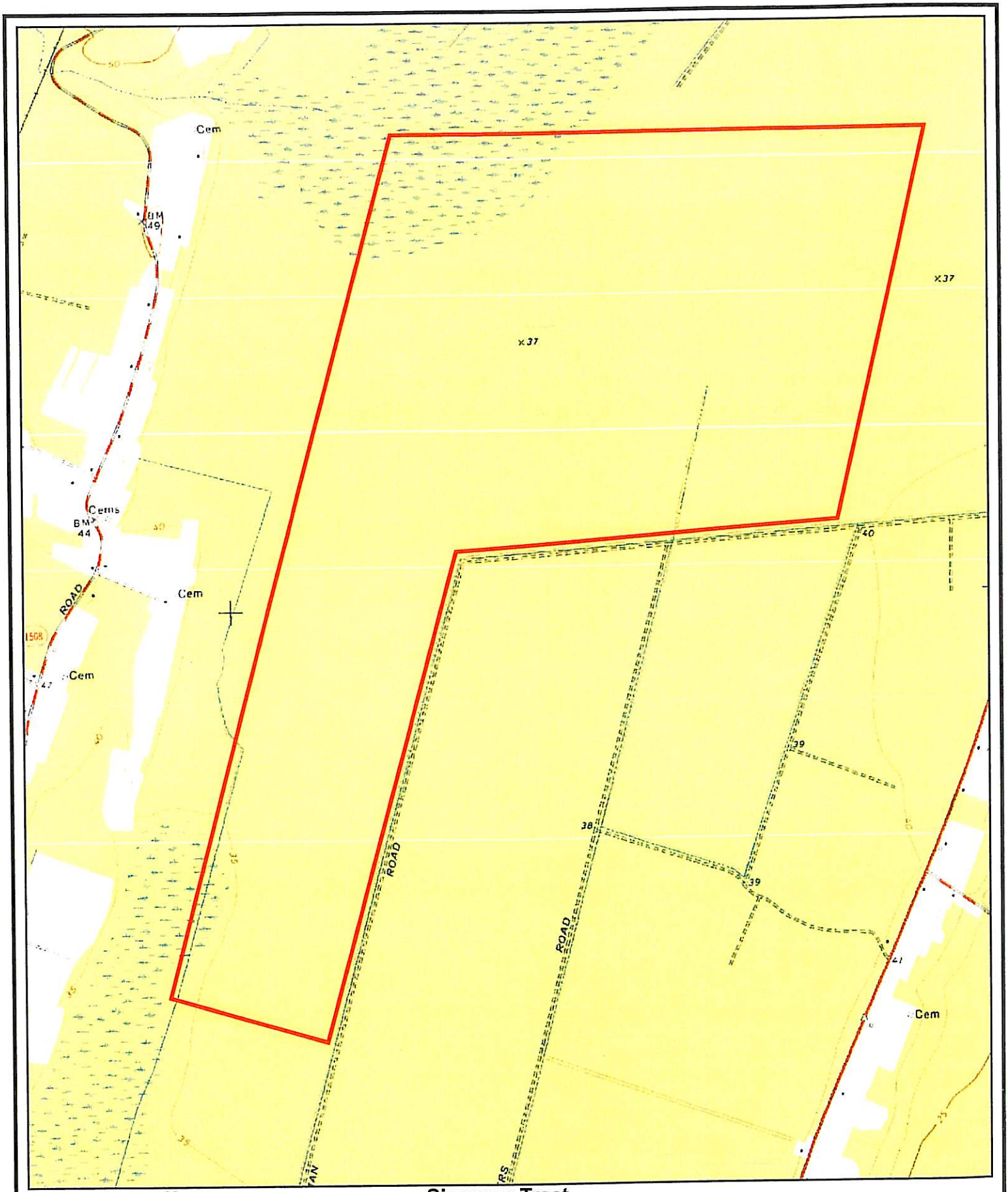
N

0 2,000 4,000 ft

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 2.
USDA Soil Survey

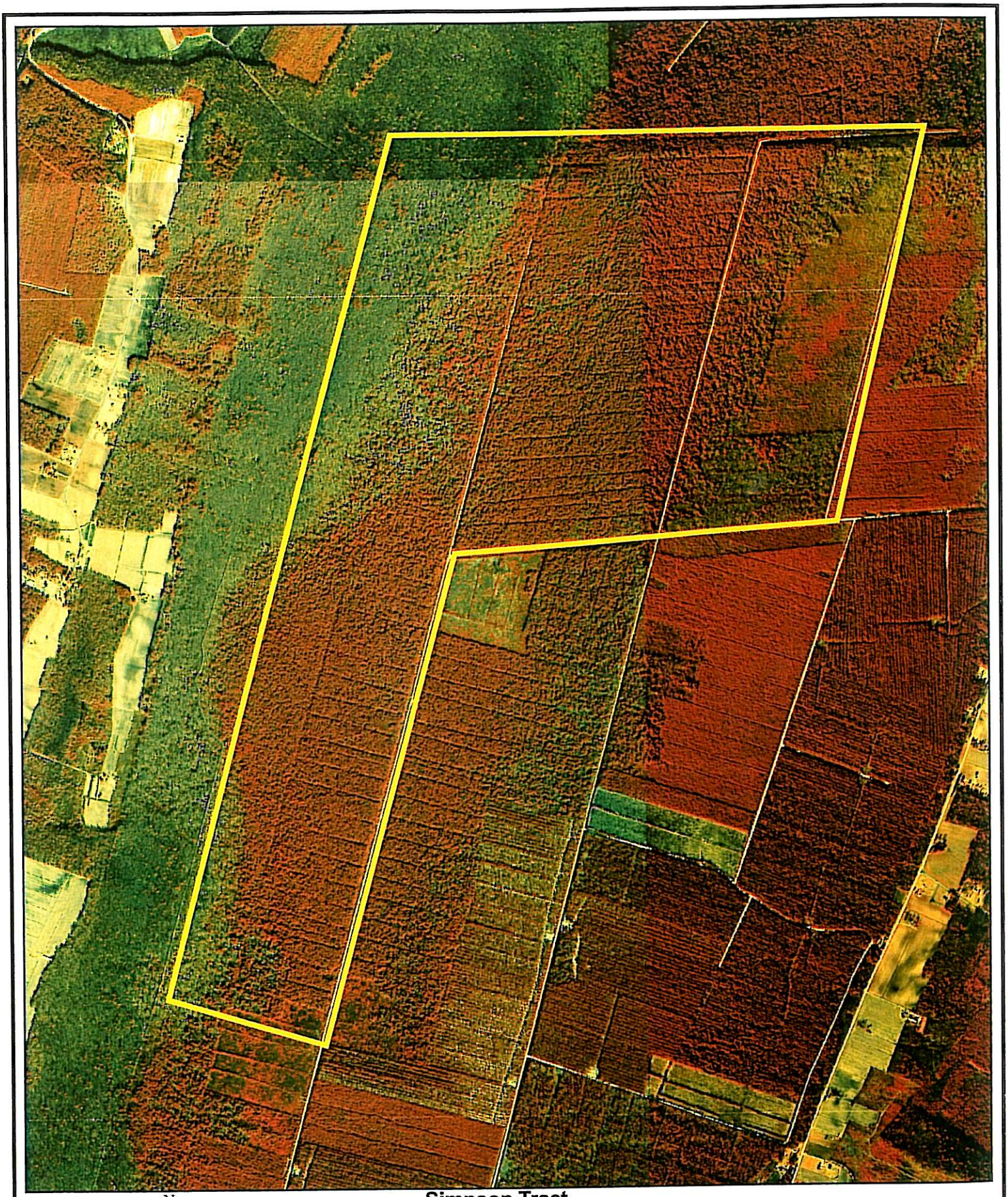
Beaufort County
Land Management Group, Inc.



Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 3.
USGS Topographic Map
Hoke, NC

Land Management Group, Inc.



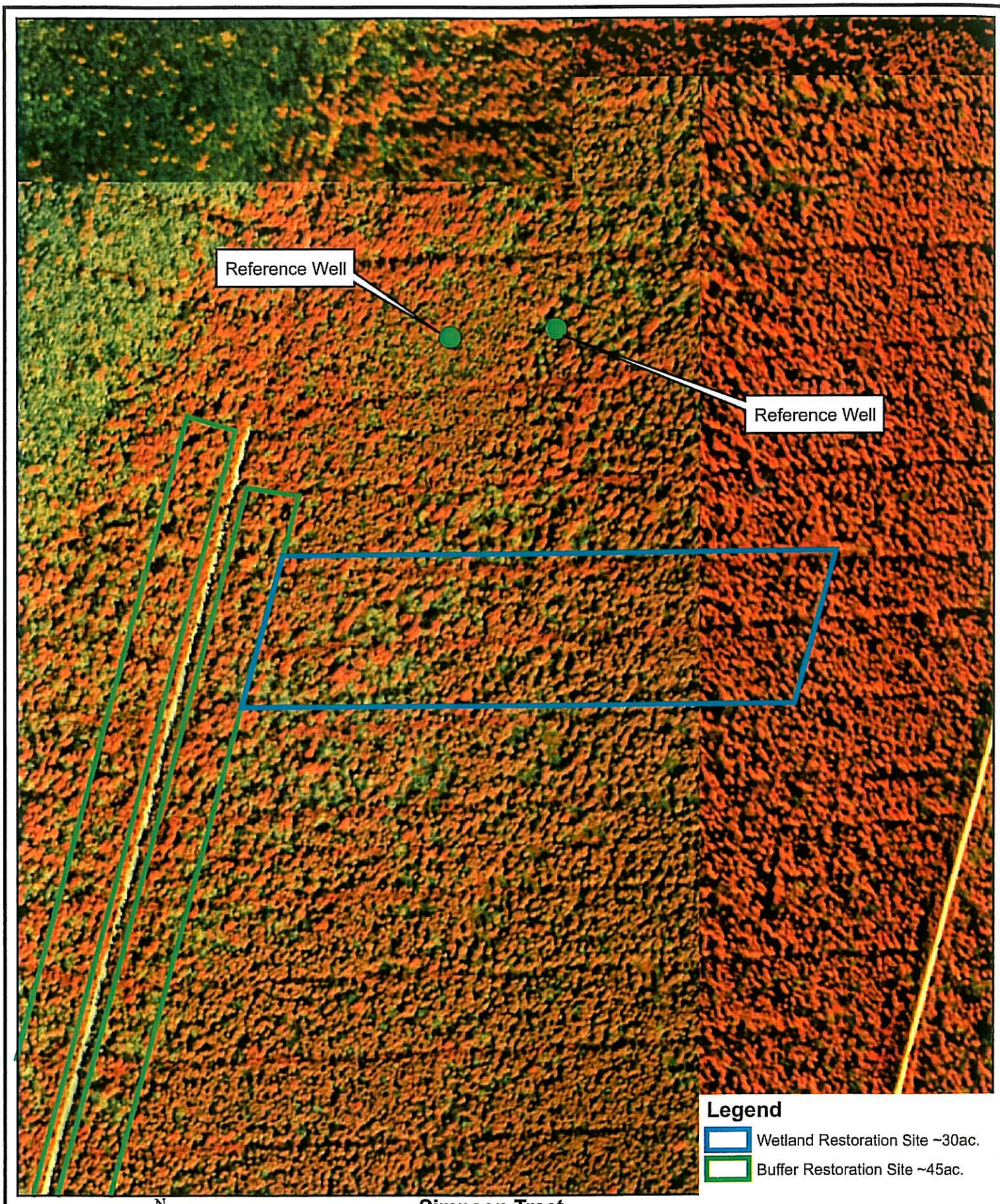
N

0 2,000 4,000 ft

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 4.
1998 Aerial Photography

Land Management Group, Inc.



Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 5.
Wetland and Buffer
Restoration Plan

Land Management Group, Inc.

Appendix A. Site Photographs
(September 2008)

(1)View of maturing Sweet Bay

(2) View of current conditions at Plot 15

Simpson Tract Wetland Restoration Beaufort County, NC	LMG LAND MANAGEMENT GROUP INC. Environmental Consultants December 2008	Site Photographs September 2008 (Annual Monitoring Year 2 of 5)

(3) View of planted Bald Cypress seedling at Plot1

(4) View of current conditions at Plot 13

(5) View of site conditions from plot 13 looking west

(6) View of site conditions looking south

Appendix B. Individual Plot Data Sheets (September 2008)

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 1

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	6	1	Planted	6
Bald Cypress	SA	12	2	Planted	12
Fetterbush	SH	1	1	Planted	1
Fetterbush	SH	2	2	Planted	2
Loblolly Bay	SH	3	1	Volunteer	3
Loblolly Bay	SH	1	2	Volunteer	1
Loblolly Bay	SH	1	3	Volunteer	1
Loblolly Bay	SH	1	4	Volunteer	1
Red Bay	SH	5	1	Planted	5
Wax Myrtle	SH	2	1	Planted	2
Wax Myrtle	SH	7	2	Planted	7
Wax Myrtle	SH	3	3	Planted	3
Wax Myrtle	SH	2	4	Planted	2
Wax Myrtle	SH	1	5	Planted	1
	TOTAL SHRUBS	29		OBSERVED DENSITY (PER PLOT)	47
	TOTAL TREES OF PLANTED SPECIES	18		OBSERVED DENSITY (PER ACRE)	470
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	47			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 2

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Atlantic White Cedar	SA	1	<1	Planted	1
Bald Cypress	SA	6	1	Planted	6
Black Gum	SA	2	1	Planted	2
Black Gum	SA	1	2	Planted	1
Loblolly Bay	SH	1	<1	Volunteer	1
Loblolly Bay	SH	4	1	Volunteer	4
Sweet Pepperbush	SH	1	1	Volunteer	1
Wax Myrtle	SH	2	1	Planted	2
Wax Myrtle	SH	1	2	Planted	1
Wax Myrtle	SH	1	3	Planted	1
Red Bay	SH	1	1	Planted	1
	TOTAL SHRUBS	11		OBSERVED DENSITY (PER PLOT)	21
	TOTAL TREES OF PLANTED SPECIES	10		OBSERVED DENSITY (PER ACRE)	210
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	21			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 3

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	8	1	Planted	8
Bald Cypress	SA	7	2	Planted	7
Black Gum	SA	3	2	Planted	3
Loblolly Bay	SH	19	1	Volunteer	19
Loblolly Bay	SH	1	3	Volunteer	1
Fetterbush	SH	1	1	Planted	1
Red Bay	SH	6	1	Planted	6
Red Bay	SH	6	2	Planted	6
Red Bay	SH	2	3	Planted	2
	TOTAL SHRUBS	35		OBSERVED DENSITY (PER PLOT)	53
	TOTAL TREES OF PLANTED SPECIES	18		OBSERVED DENSITY (PER ACRE)	530
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	53			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 4

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	10	1	Planted	10
Bald Cypress	SA	8	2	Planted	8
Wax Myrtle	SH	4	1	Planted	4
Wax Myrtle	SH	10	2	Planted	10
Wax Myrtle	SH	3	3	Planted	3
Loblolly Bay	SH	6	1	Volunteer	6
Loblolly Bay	SH	2	2	Volunteer	2
Red Bay	SH	3	1	Planted	3
Red Bay	SH	3	2	Planted	3
Red Bay	SH	1	3	Planted	1
	TOTAL SHRUBS	32		OBSERVED DENSITY (PER PLOT)	50
	TOTAL TREES OF PLANTED SPECIES	18		OBSERVED DENSITY (PER ACRE)	500
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	50			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 5

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	7	1	Planted	7
Bald Cypress	SA	14	2	Planted	14
Bald Cypress	SA	1	3	Planted	1
Loblolly Bay	SH	15	1	Volunteer	15
Red Bay	SH	2	2	Planted	2
	TOTAL SHRUBS	17		OBSERVED DENSITY (PER PLOT)	39
	TOTAL TREES OF PLANTED SPECIES	22		OBSERVED DENSITY (PER ACRE)	390
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	39			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 6

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	11	1	Planted	11
Bald Cypress	SA	8	2	Planted	8
Wax Myrtle	SH	4	1	Planted	4
Wax Myrtle	SH	10	2	Planted	10
Wax Myrtle	SH	3	3	Planted	3
Wax Myrtle	SH	1	4	Planted	1
Red Bay	SH	1	1	Planted	1
Red Bay	SH	1	2	Planted	1
Loblolly Bay	SH	26	1	Volunteer	26
Loblolly Bay	SH	10	2	Volunteer	10
Loblolly Bay	SH	1	3	Volunteer	1
Loblolly Bay	SH	3	4	Volunteer	3
Loblolly Bay	SH	5	6	Volunteer	5
Loblolly Bay	SH	5	8	Volunteer	5
Loblolly Bay	SH	1	10	Volunteer	1
Loblolly Bay	SH	1	12	Volunteer	1
	TOTAL SHRUBS	72		OBSERVED DENSITY (PER PLOT)	91
	TOTAL TREES OF PLANTED SPECIES	19		OBSERVED DENSITY (PER ACRE)	910
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	91			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 7

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	10	1	Planted	10
Bald Cypress	SA	14	2	Planted	14
Red Bay	SH	1	1	Planted	1
Fetterbush	SH	1	2	Planted	1
Loblolly Bay	SH	12	1	Volunteer	12
Loblolly Bay	SH	1	3	Volunteer	1
Loblolly Bay	SH	1	4	Volunteer	1
	TOTAL SHRUBS	16		OBSERVED DENSITY (PER PLOT)	40
	TOTAL TREES OF PLANTED SPECIES	24		OBSERVED DENSITY (PER ACRE)	400
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	40			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 8

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	1	2	Planted	1
Black Gum	SA	2	2	Planted	2
Fetterbush	SH	4	1	Planted	4
Fetterbush	SH	6	2	Planted	6
Loblolly Bay	SH	13	1	Volunteer	13
Loblolly Bay	SH	1	2	Volunteer	1
Loblolly Bay	SH	2	3	Volunteer	2
Red Bay	SH	4	1	Planted	4
Red Bay	SH	1	2	Planted	1
Sweet Pepperbush	SH	2	1	Volunteer	2
Sweet Pepperbush	SH	2	2	Volunteer	2
	TOTAL SHRUBS	35		OBSERVED DENSITY (PER PLOT)	38
	TOTAL TREES OF PLANTED SPECIES	3		OBSERVED DENSITY (PER ACRE)	380
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	38			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 9

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	4	1	Planted	4
Bald Cypress	SA	4	2	Planted	4
Black Gum	SA	1	2	Planted	1
Fetterbush	SH	1	1	Planted	1
Wax Myrtle	SH	2	1	Planted	2
Wax Myrtle	SH	1	2	Planted	1
Wax Myrtle	SH	2	3	Planted	2
Loblolly Bay	SH	30	1	Volunteer	30
Loblolly Bay	SH	9	2	Volunteer	9
Loblolly Bay	SH	4	3	Volunteer	4
Loblolly Bay	SH	1	4	Volunteer	1
Loblolly Bay	SH	1	5	Volunteer	1
Loblolly Bay	SH	1	6	Volunteer	1
Red Bay	SH	1	1	Planted	1
Red Bay	SH	1	<1	Planted	1
Atlantic White Cedar	T	2	1	Planted	2
	TOTAL SHRUBS	54		OBSERVED DENSITY (PER PLOT)	65
	TOTAL TREES OF PLANTED SPECIES	11		OBSERVED DENSITY (PER ACRE)	650
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	65			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 10

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Wax Myrtle	SH	2	1	Planted	2
Wax Myrtle	SH	1	2	Planted	1
Fetterbush	SH	3	1	Planted	3
Fetterbush	SH	2	2	Planted	2
Fetterbush	SH	1	3	Planted	1
Galberry	SH	5	3	Volunteer	5
Loblolly Bay	SH	17	1	Volunteer	17
	TOTAL SHRUBS	31		OBSERVED DENSITY (PER PLOT)	31
	TOTAL TREES OF PLANTED SPECIES	0		OBSERVED DENSITY (PER ACRE)	310
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	31			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 11

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	8	1	Planted	8
Bald Cypress	SA	4	2	Planted	4
Fetterbush	SH	7	1	Planted	7
Red Bay	SH	1	2	Planted	1
	TOTAL SHRUBS	8		OBSERVED DENSITY (PER PLOT)	20
	TOTAL TREES OF PLANTED SPECIES	12		OBSERVED DENSITY (PER ACRE)	200
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	20			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 12

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	2	1	Planted	2
Bald Cypress	SA	7	2	Planted	7
Bald Cypress	SA	1	3	Planted	1
Fetterbush	SH	2	<1	Planted	2
Fetterbush	SH	2	1	Planted	2
Loblolly Bay	SH	10	1	Volunteer	10
Loblolly Bay	SH	1	2	Volunteer	1
Loblolly Bay	SH	1	4	Volunteer	1
Red Bay	SH	4	1	Planted	4
Red Bay	SH	1	2	Planted	1
Red Bay	SH	1	3	Planted	1
	TOTAL SHRUBS	22		OBSERVED DENSITY (PER PLOT)	32
	TOTAL TREES OF PLANTED SPECIES	10		OBSERVED DENSITY (PER ACRE)	320
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	32			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 13

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	SA	1	2	Planted	1
Bald Cypress	SA	1	2	Planted	1
Fetterbush	SH	1	4	Planted	1
Galberry	SH	30	3	Volunteer	30
Red Bay	SH	1	1	Planted	1
Red Bay	SH	1	2	Planted	1
Red Bay	SH	1	3	Planted	1
Loblolly Bay	SH	1	1	Volunteer	1
Loblolly Bay	SH	1	3	Volunteer	1
Loblolly Bay	SH	8	4	Volunteer	8
Loblolly Bay	SH	8	5	Volunteer	8
Loblolly Bay	SH	6	6	Volunteer	6
Sweetbay	SH	1	1	Planted	1
Sweet Pepperbush	SH	45	4	Volunteer	45
	TOTAL SHRUBS	104		OBSERVED DENSITY (PER PLOT)	106
	TOTAL TREES OF PLANTED SPECIES	2		OBSERVED DENSITY (PER ACRE)	1060
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	106			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 14

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	SA	1	2	Planted	1
Fetter-Bush	SH	4	1	Planted	4
Fetter-Bush	SH	1	2	Planted	1
Galberry	SH	30	3	Volunteer	30
Loblolly Bay	SH	7	1	Volunteer	7
Loblolly Bay	SH	6	2	Volunteer	6
Loblolly Bay	SH	2	3	Volunteer	2
Loblolly Bay	SH	3	4	Volunteer	3
Loblolly Bay	SH	1	5	Volunteer	1
Loblolly Bay	SH	7	6	Volunteer	7
Red Bay	SH	4	1	Planted	4
Red Bay	SH	7	2	Planted	7
Sweet Pepper-Bush	SH	25	3	Volunteer	25
	TOTAL SHRUBS	97		OBSERVED DENSITY (PER PLOT)	98
	TOTAL TREES OF PLANTED SPECIES	1		OBSERVED DENSITY (PER ACRE)	980
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	98			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 15

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	SA	1	1	Planted	1
Bald Cypress	SA	1	2	Planted	1
Black Gum	SA	2	2	Planted	2
Wax Myrtle	SH	10	1	Planted	10
Wax Myrtle	SH	3	2	Planted	3
Loblolly Bay	SH	1	1	Volunteer	1
Fetterbush	SH	3	1	Planted	3
Fetterbush	SH	3	2	Planted	3
Sweet Pepperbush	SH	1	1	Volunteer	1
	TOTAL SHRUBS	21		OBSERVED DENSITY (PER PLOT)	25
	TOTAL TREES OF PLANTED SPECIES	4		OBSERVED DENSITY (PER ACRE)	250
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	25			

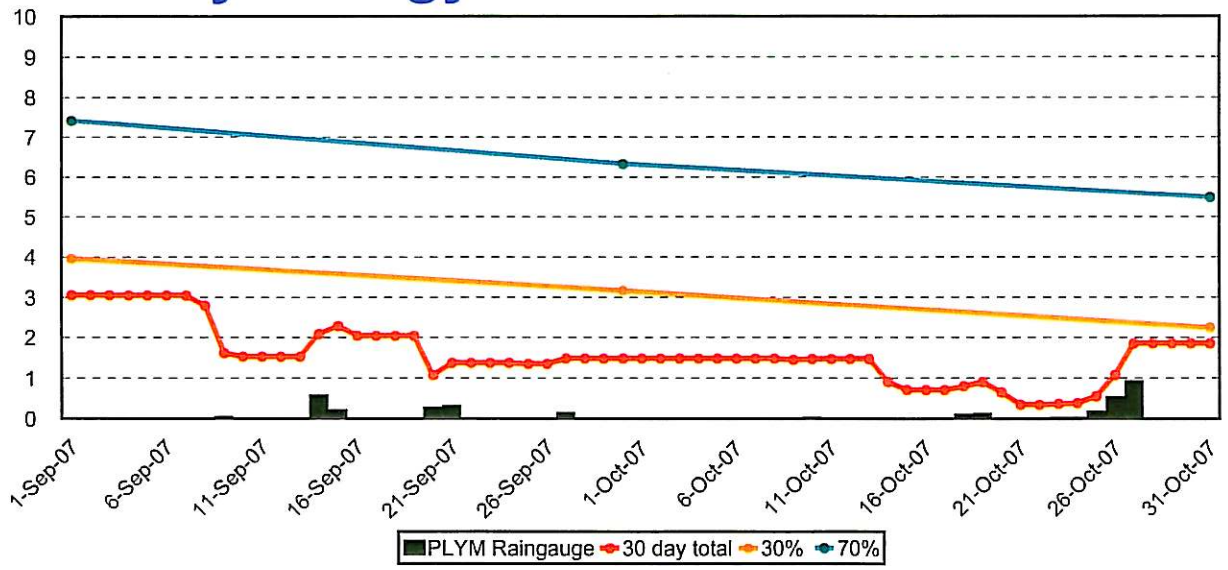
Appendix C. 2008 Hydrographs
Wells 1-6 On-site Wetland Wells
Wells 7-9 Original Reference Wells
Wells 10-11 New Reference Wells (installed May 2007)

Hydrology Assessment

September 2007

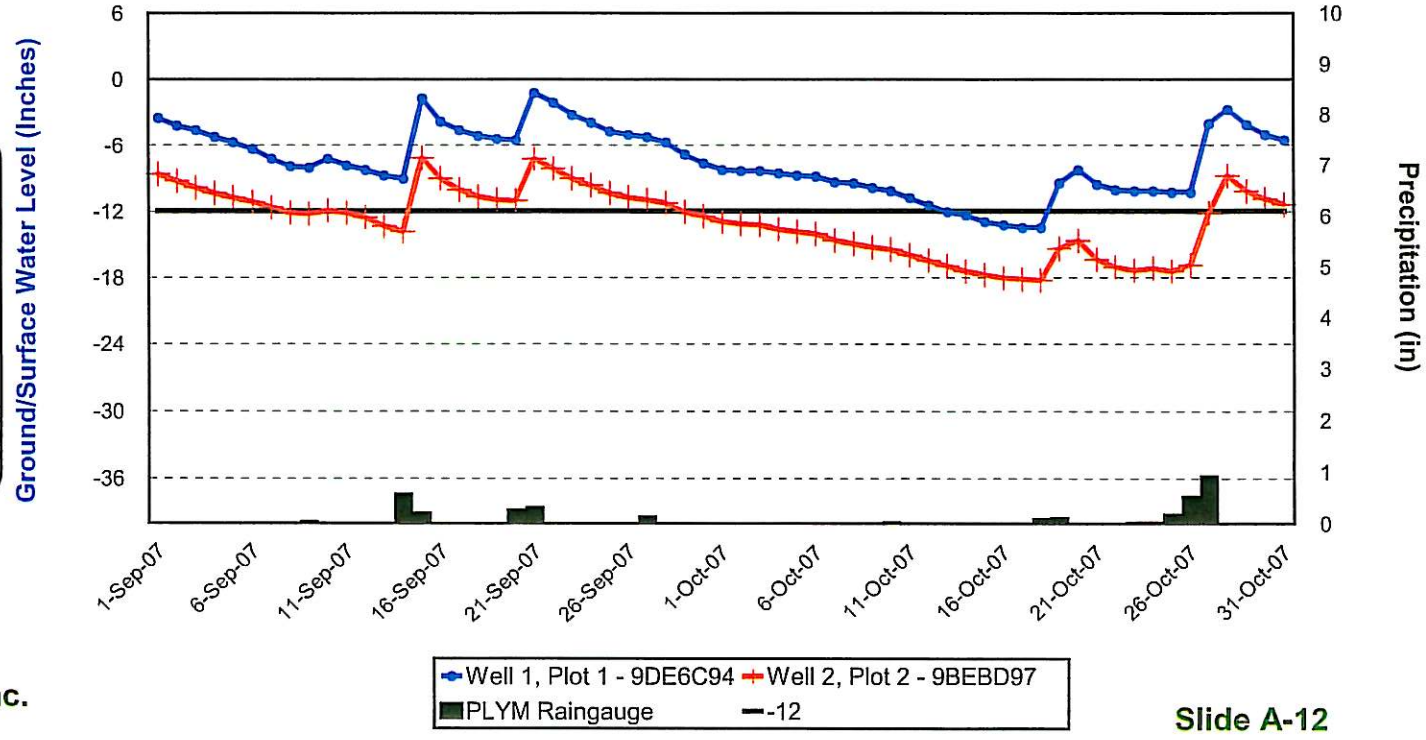
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- September 1, 2007 -
- October 31, 2007
- One reading per day
- at 7:00am



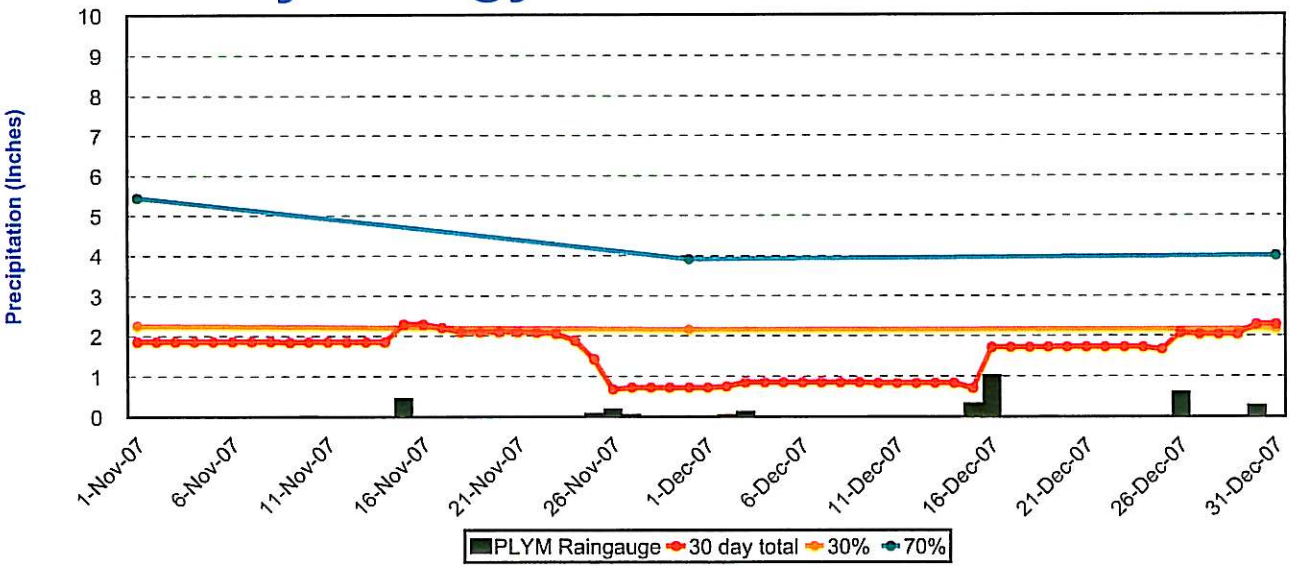
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

December 2007

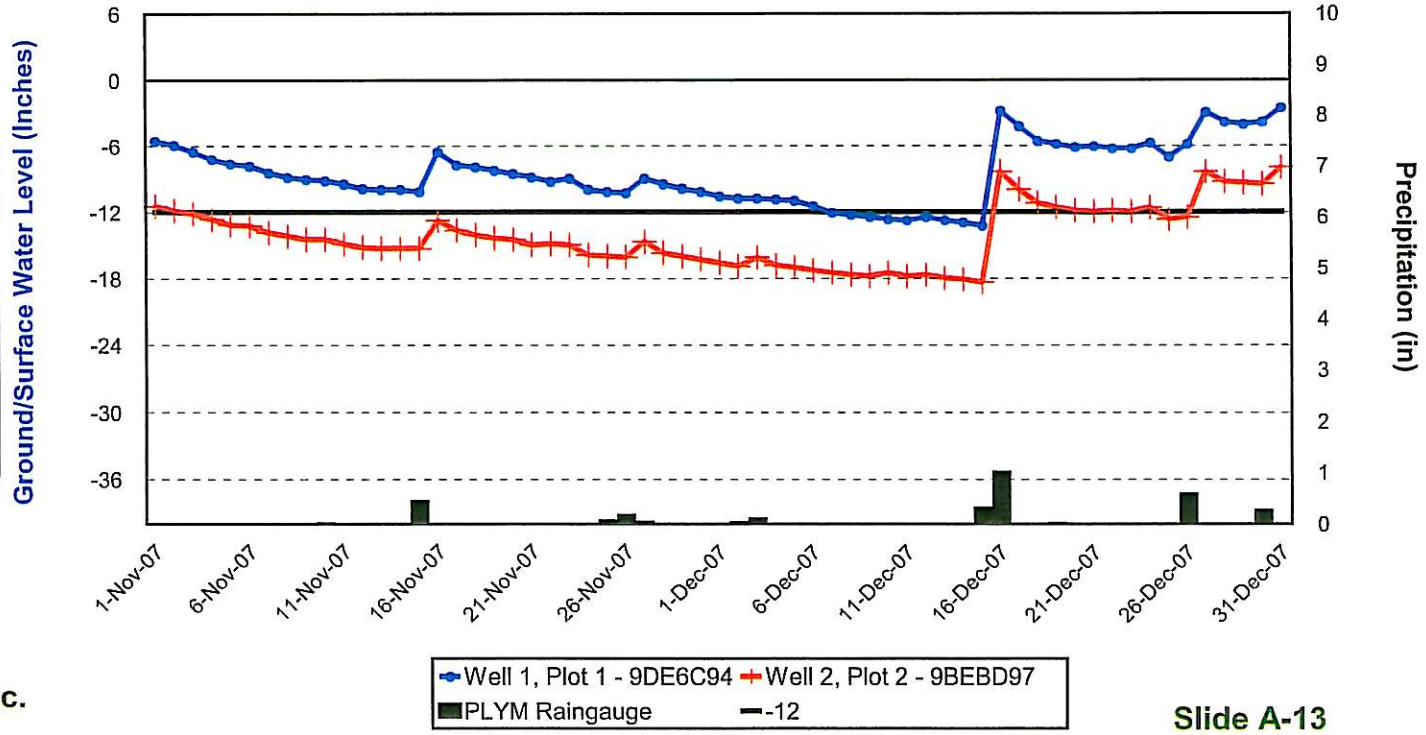
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- November 1, 2007 -
- December 31, 2007
- One reading per day
- at 7:00am



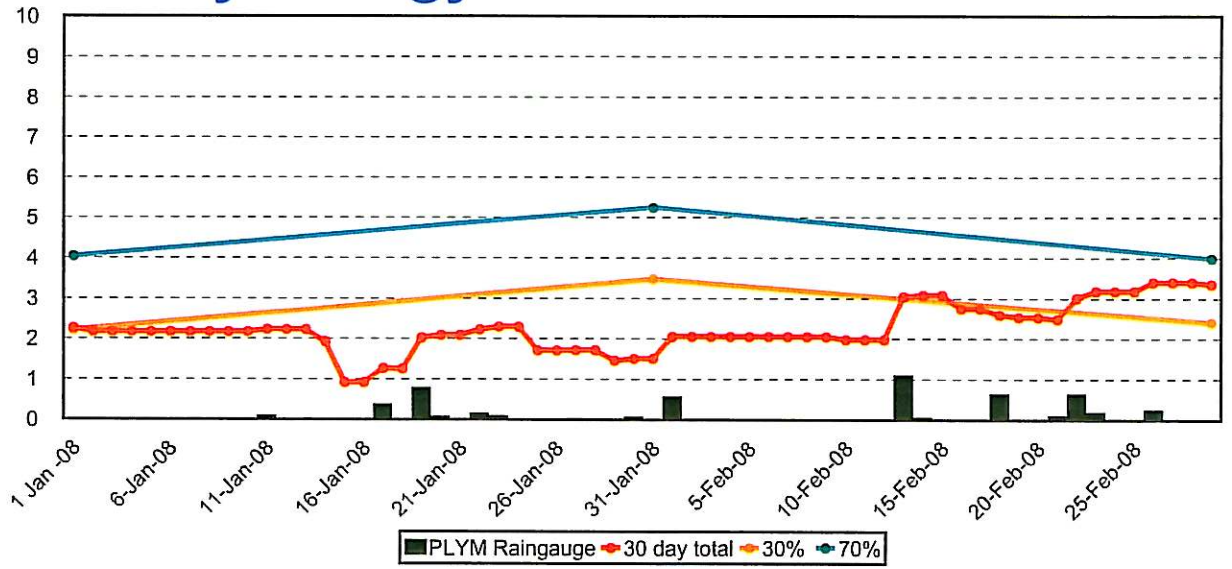
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

February 2008

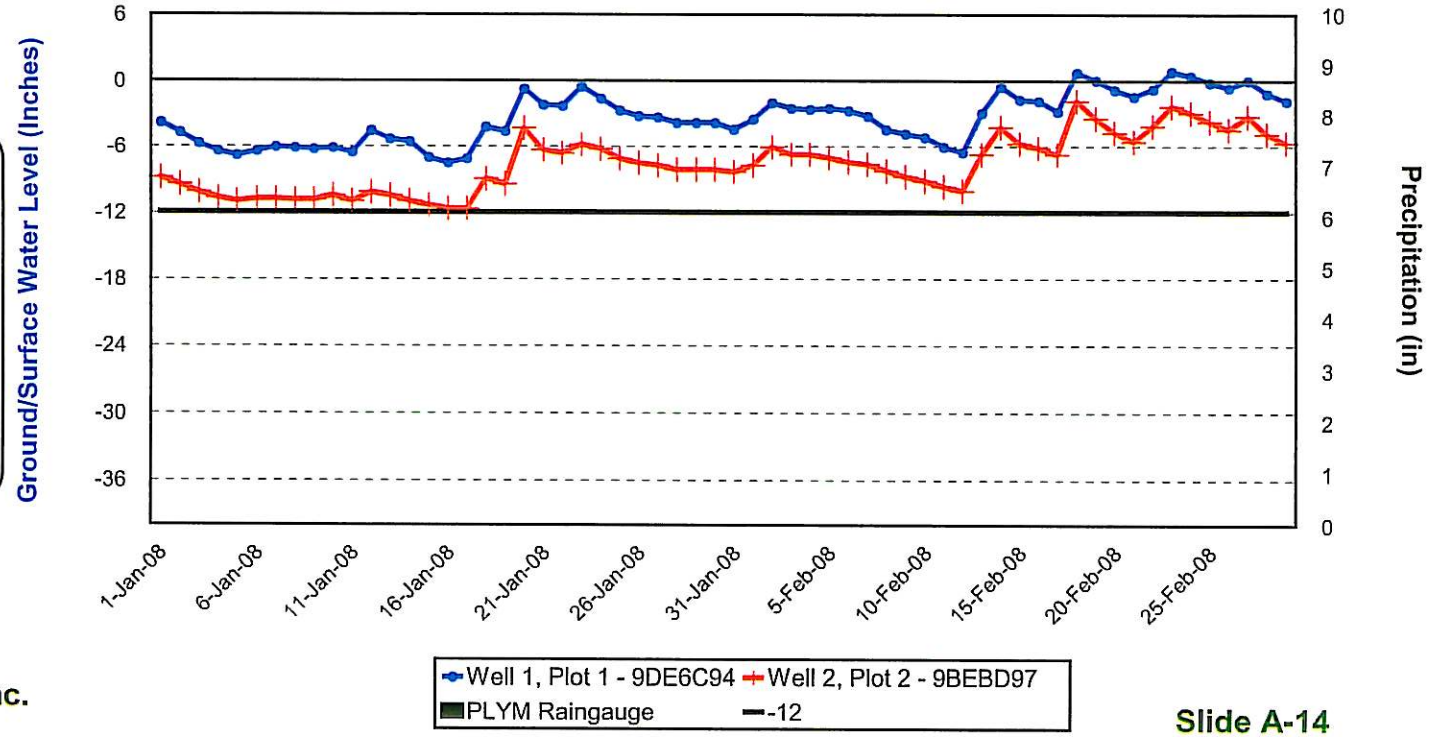
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- January 1, 2008 -
- February 29, 2008
- One reading per day
- at 7:00am



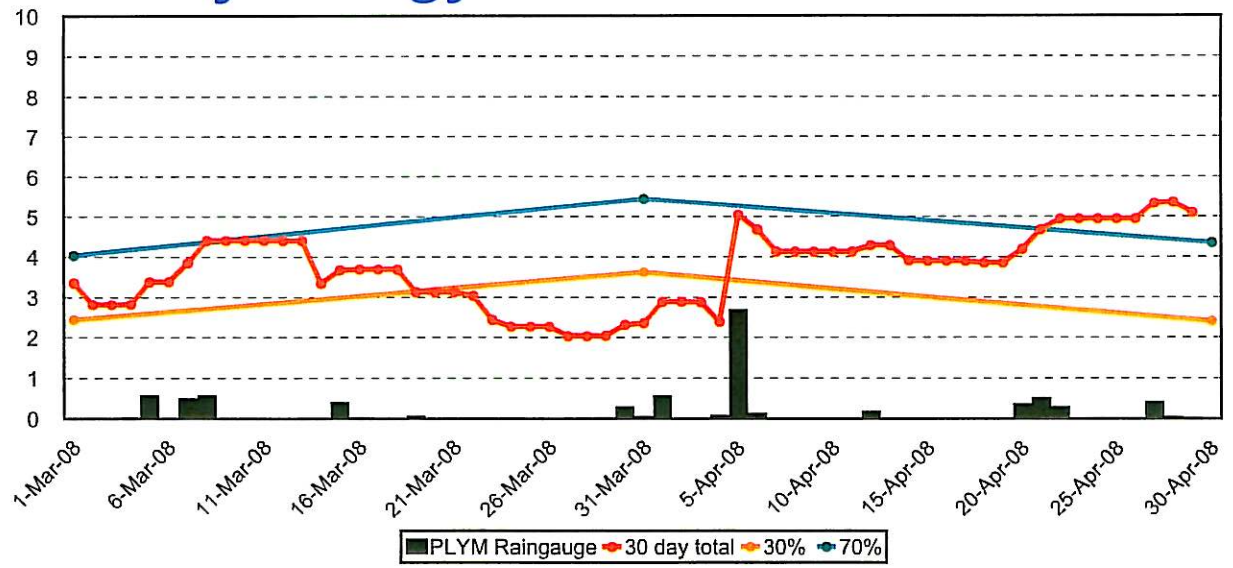
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

April, 2008

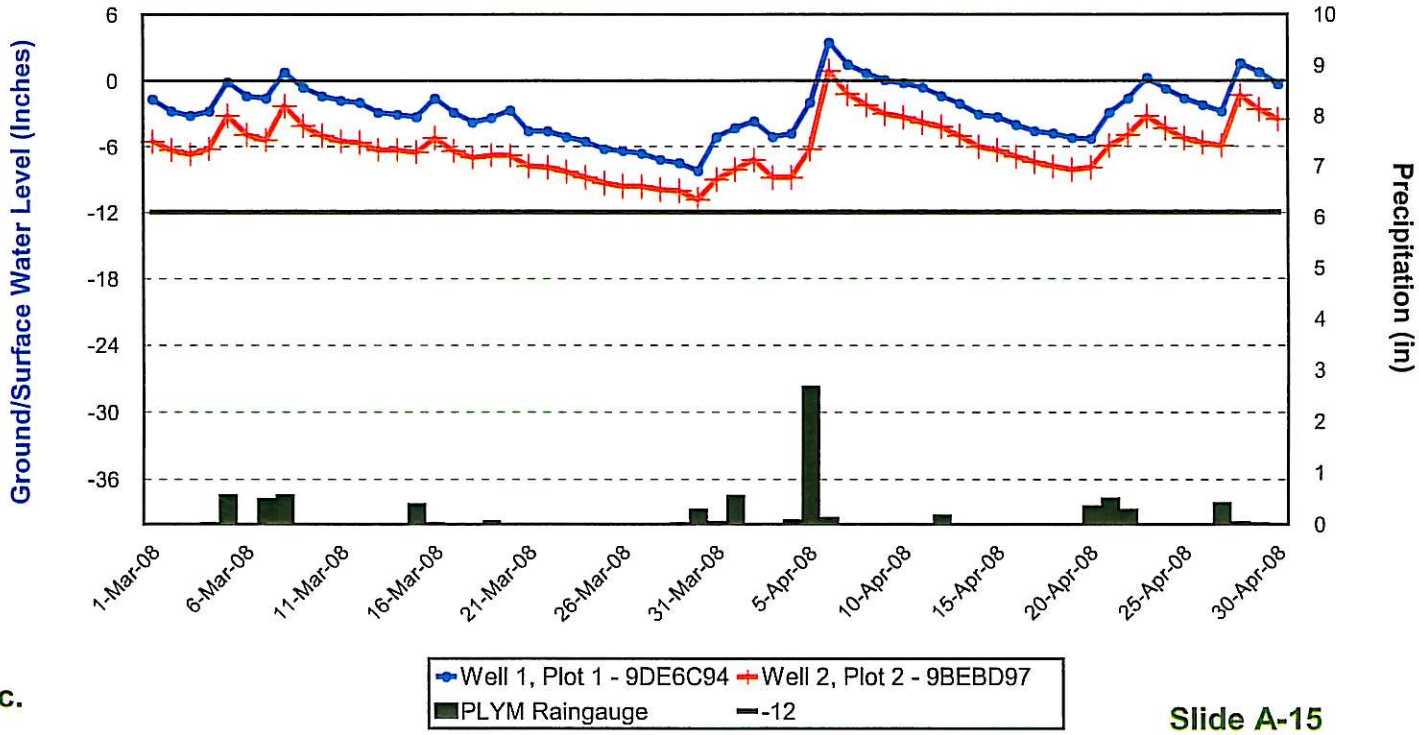
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- March 1, 2008 -
- April 30, 2008
- One reading per day
- at 7:00am

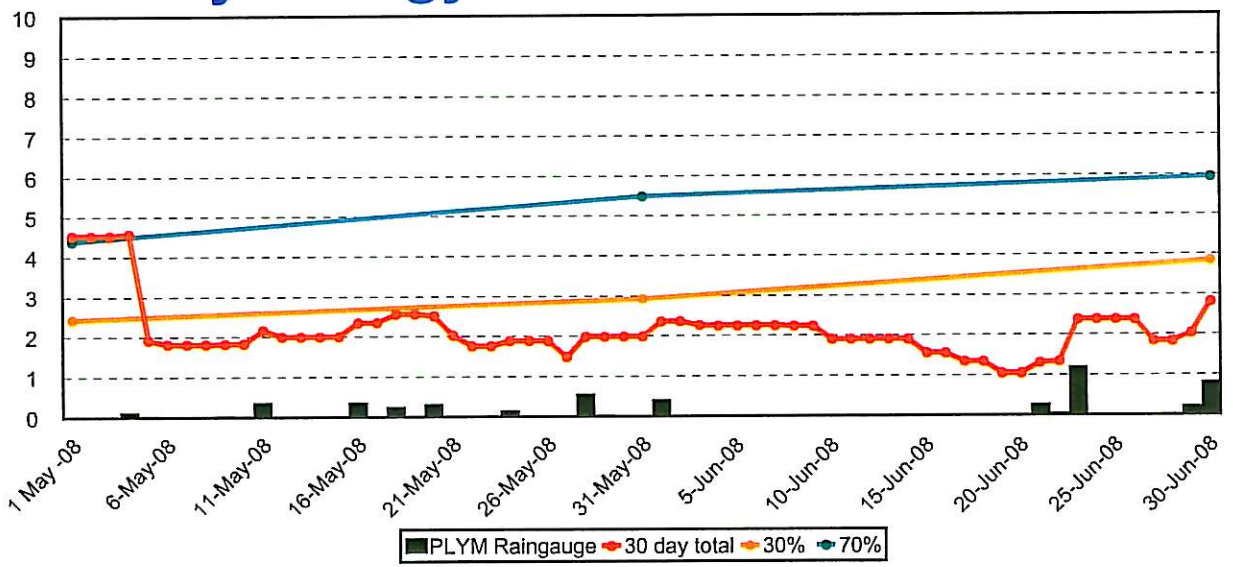


Hydrology Assessment

June, 2008

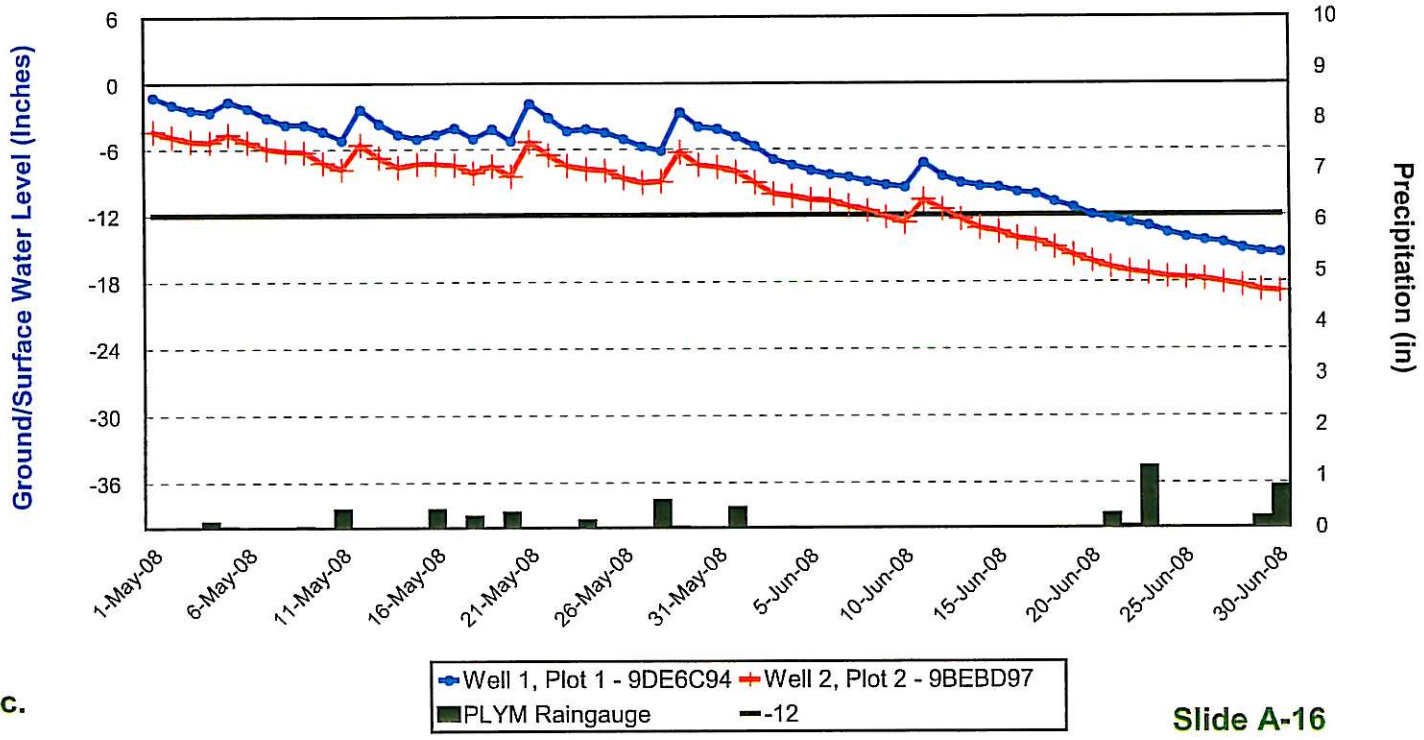
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- May 1, 2008 -
- June 30, 2008
- One reading per day
- at 7:00am



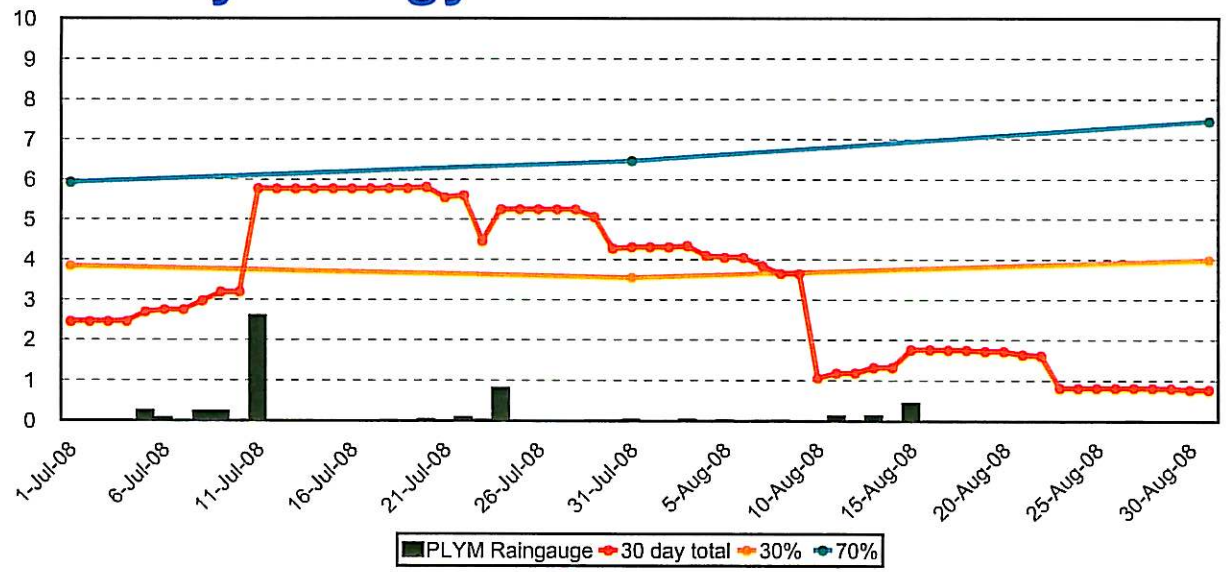
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

August, 2008

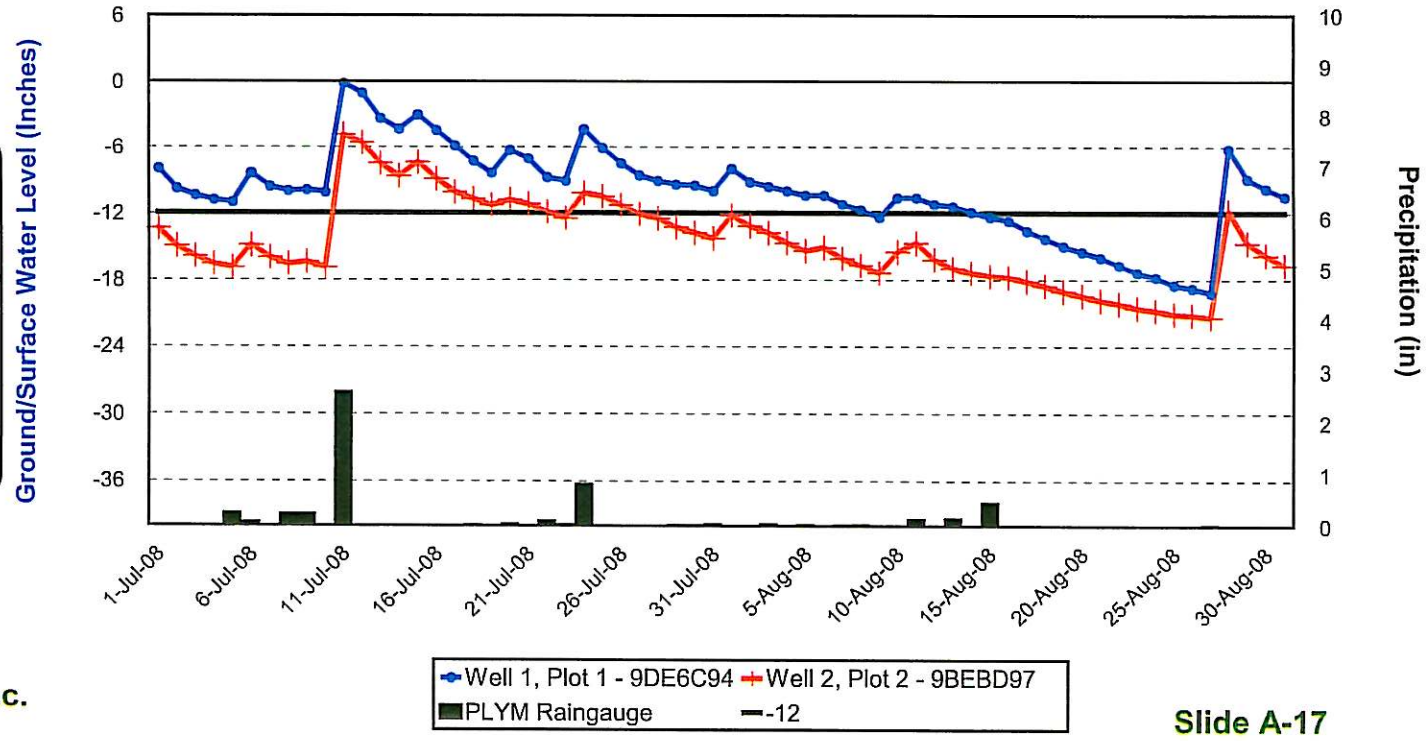
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- July 1, 2008 -
- August 31, 2008
- One reading per day
- at 7:00am



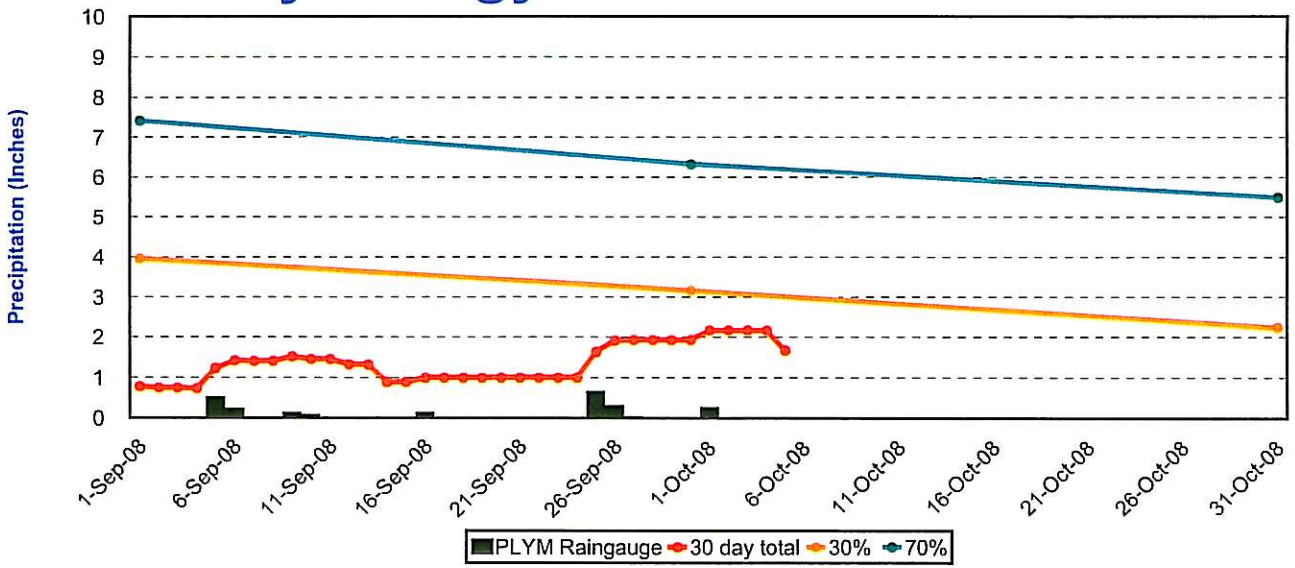
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

October, 2008

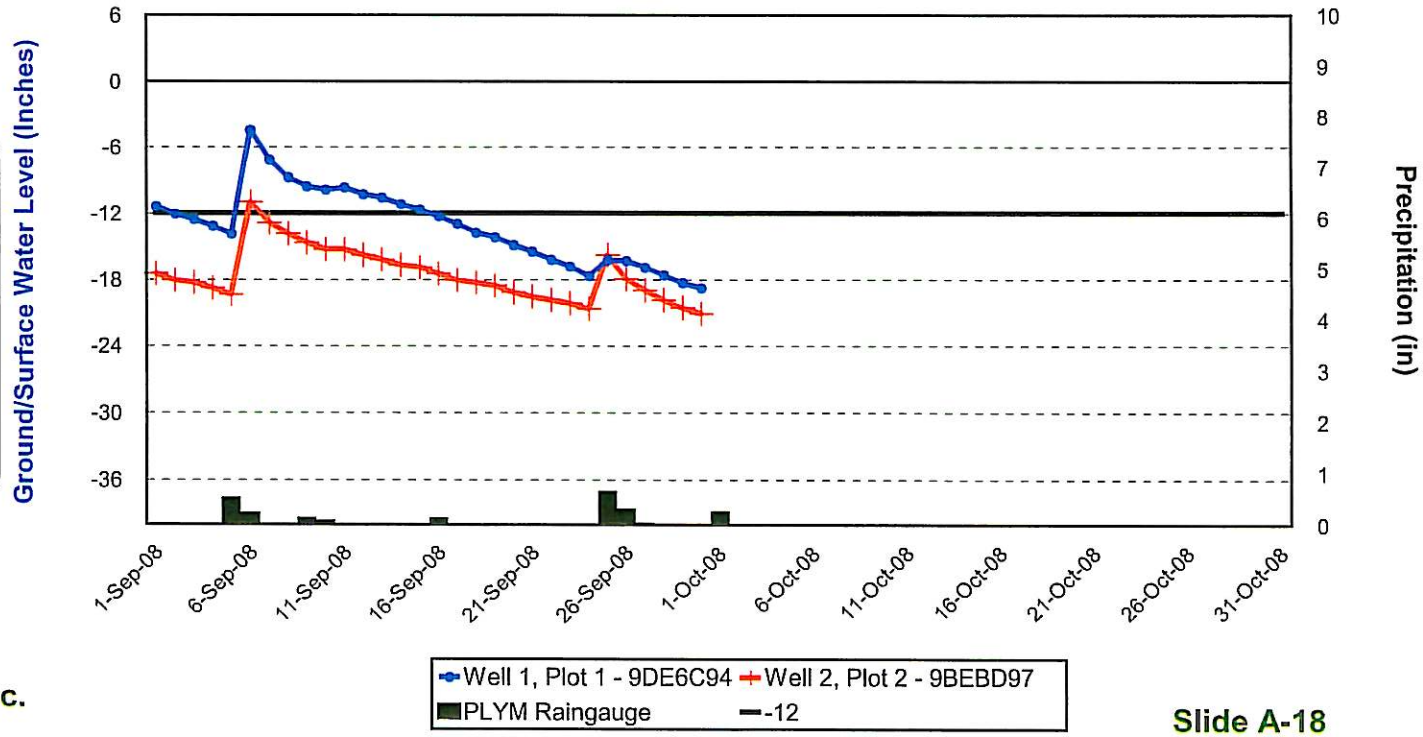
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 1 & 2
- WL 40
- September 1, 2008 - October 31, 2008
- One reading per day
- at 7:00am



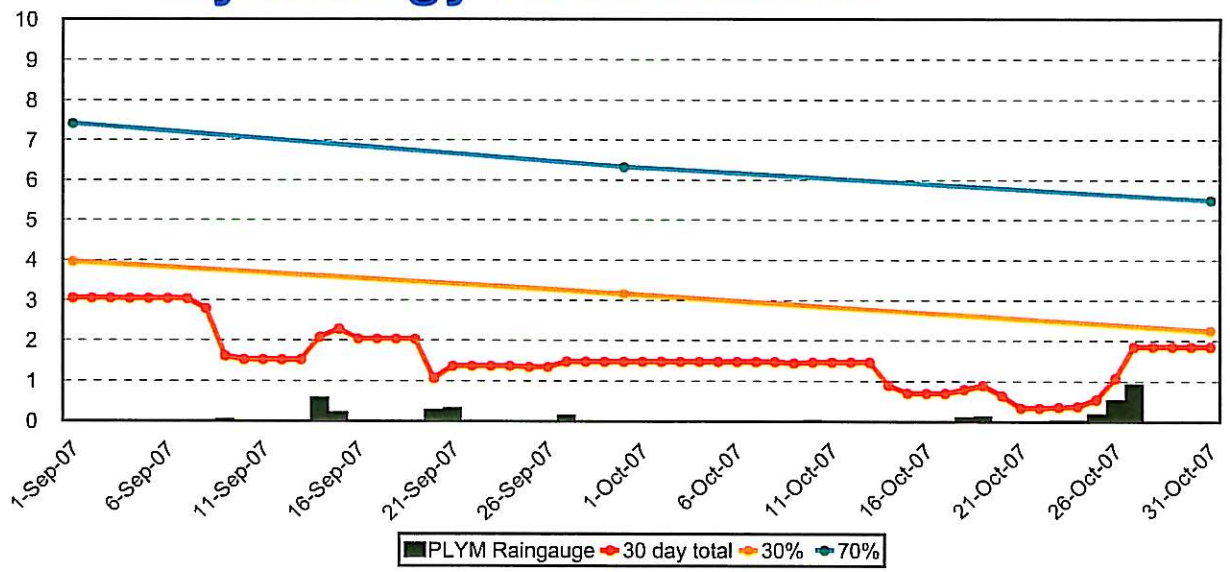
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

September 2007

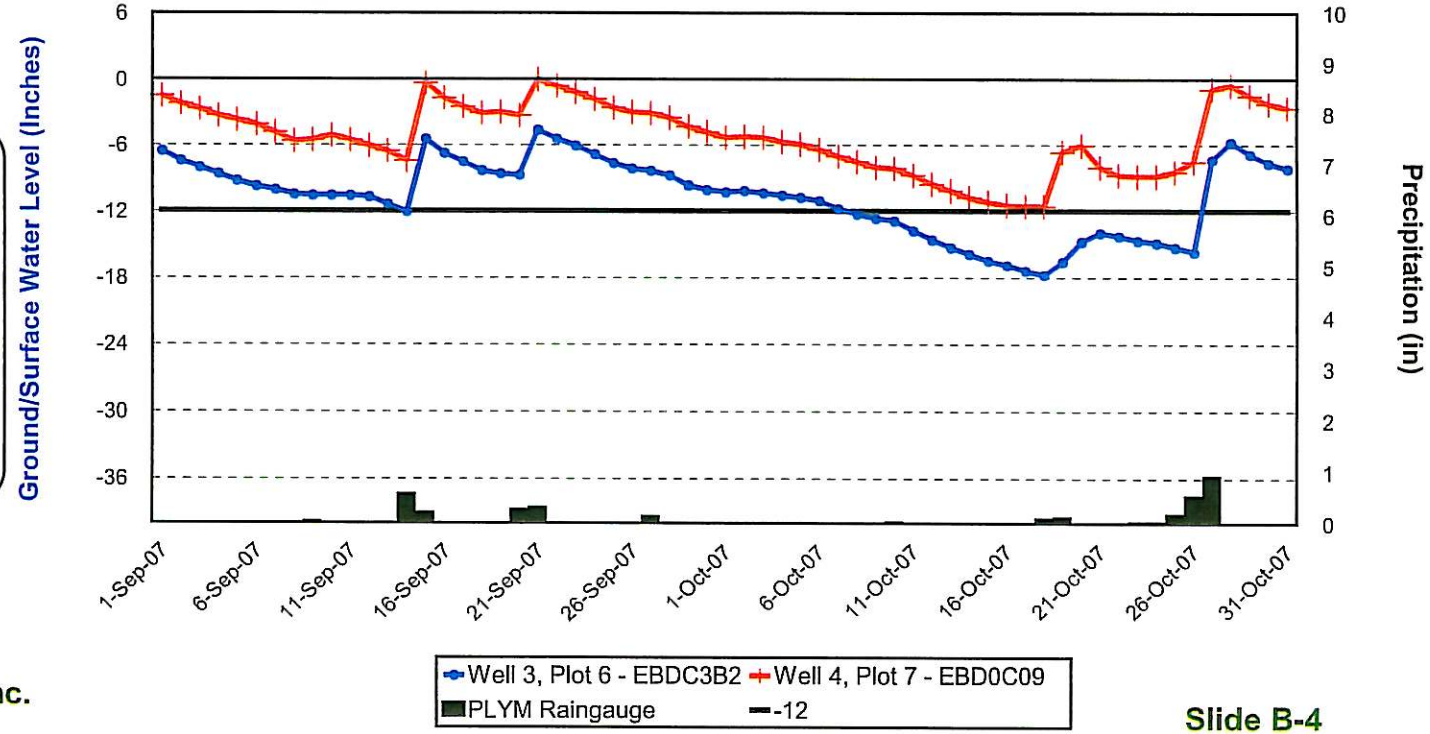
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- September 1, 2007 -
- October 31, 2007
- One reading per day
- at 7:00am



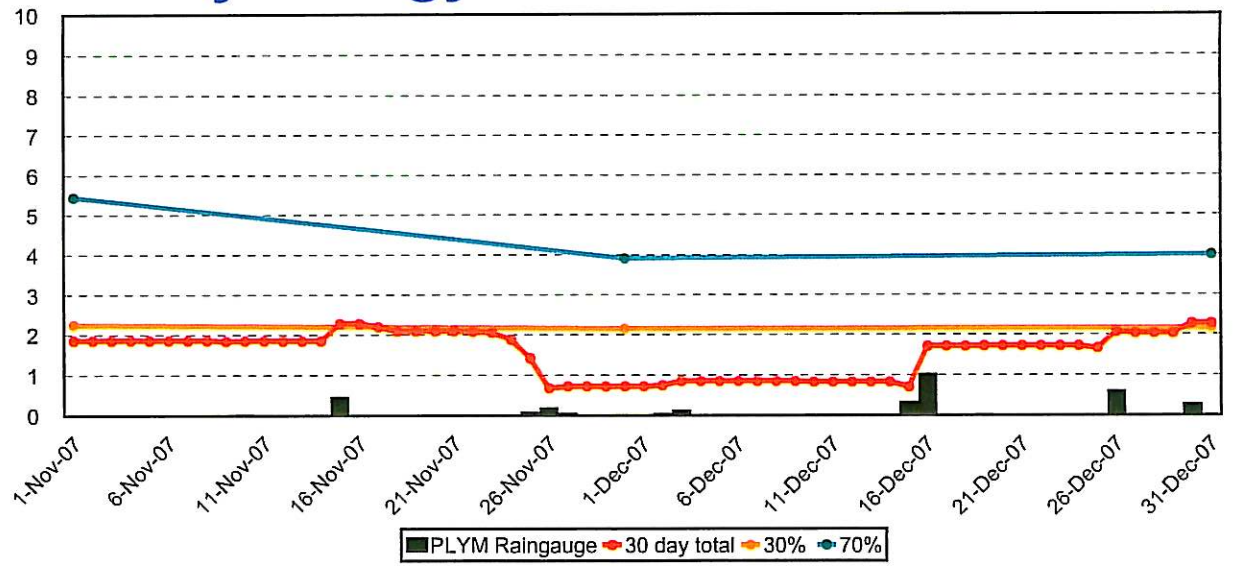
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

December 2007

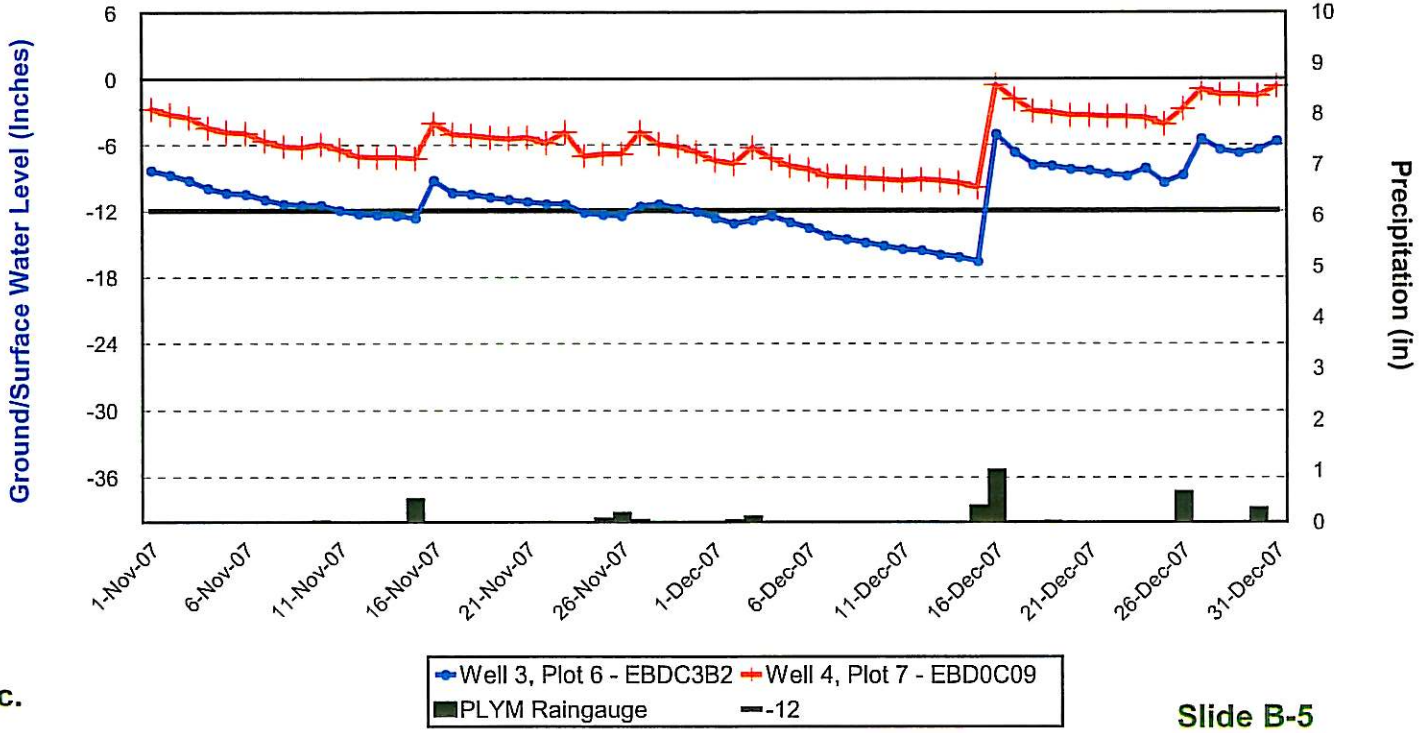
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- November 1, 2007 -
- December 31, 2007
- One reading per day
- at 7:00am



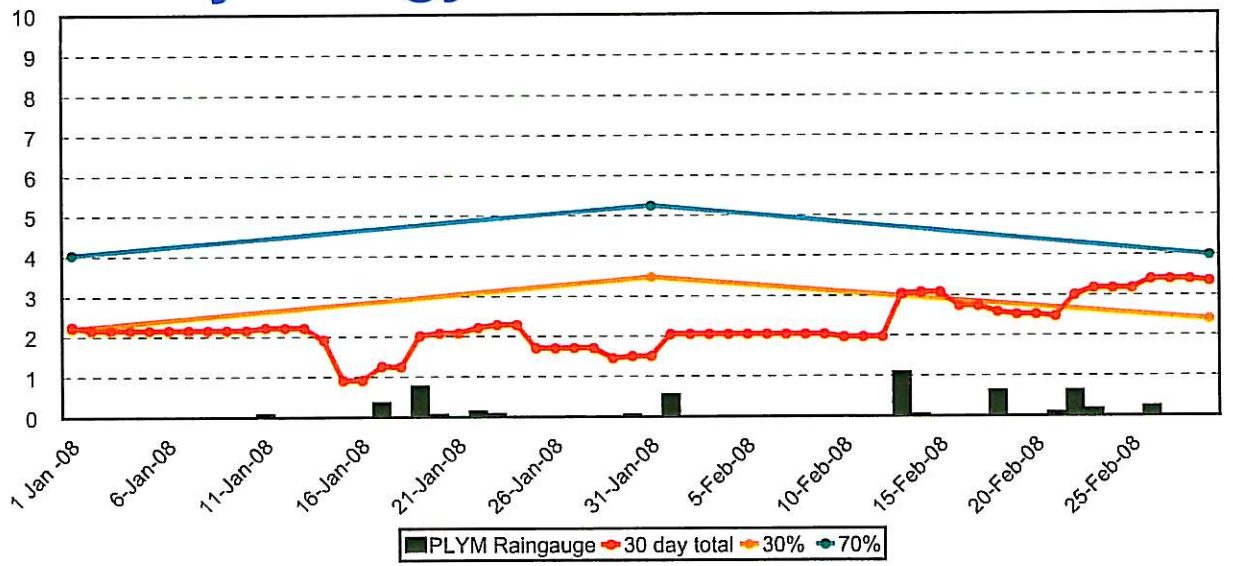
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

February 2008

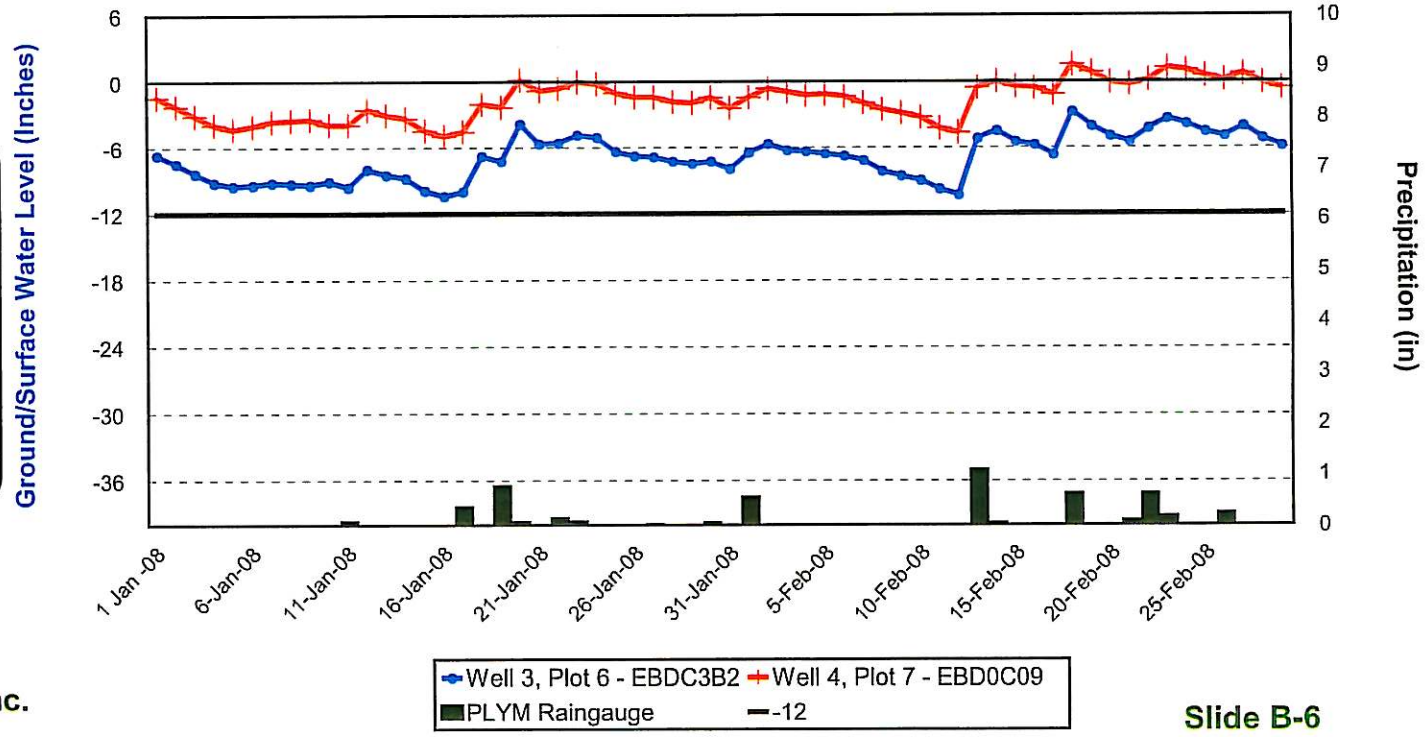
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- January 1, 2008 -
- February 29, 2008
- One reading per day
- at 7:00am



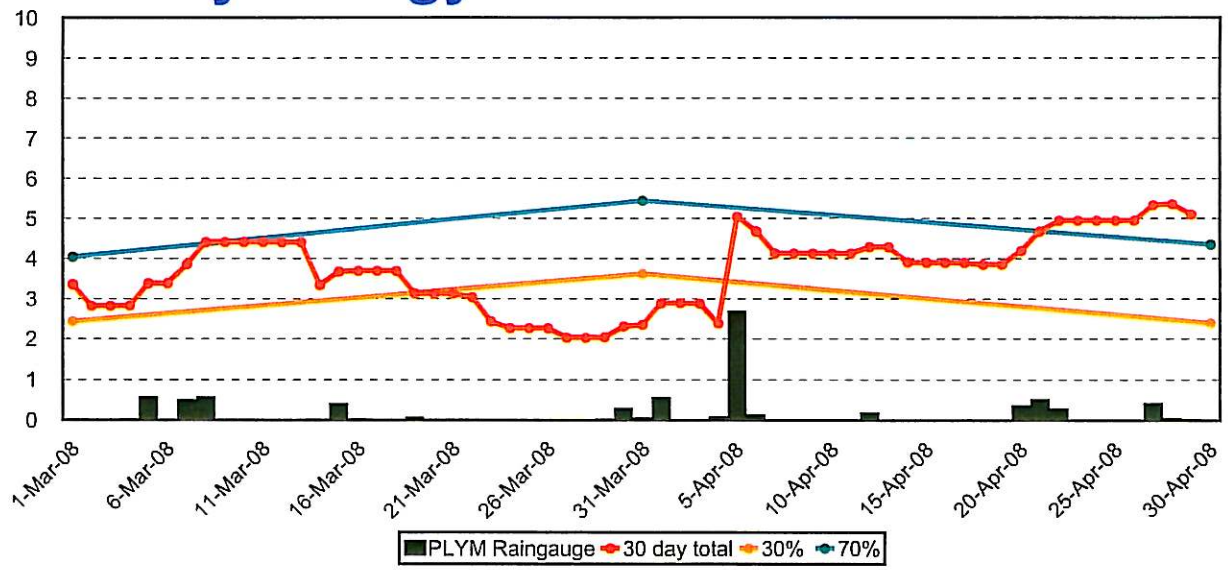
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

April, 2008

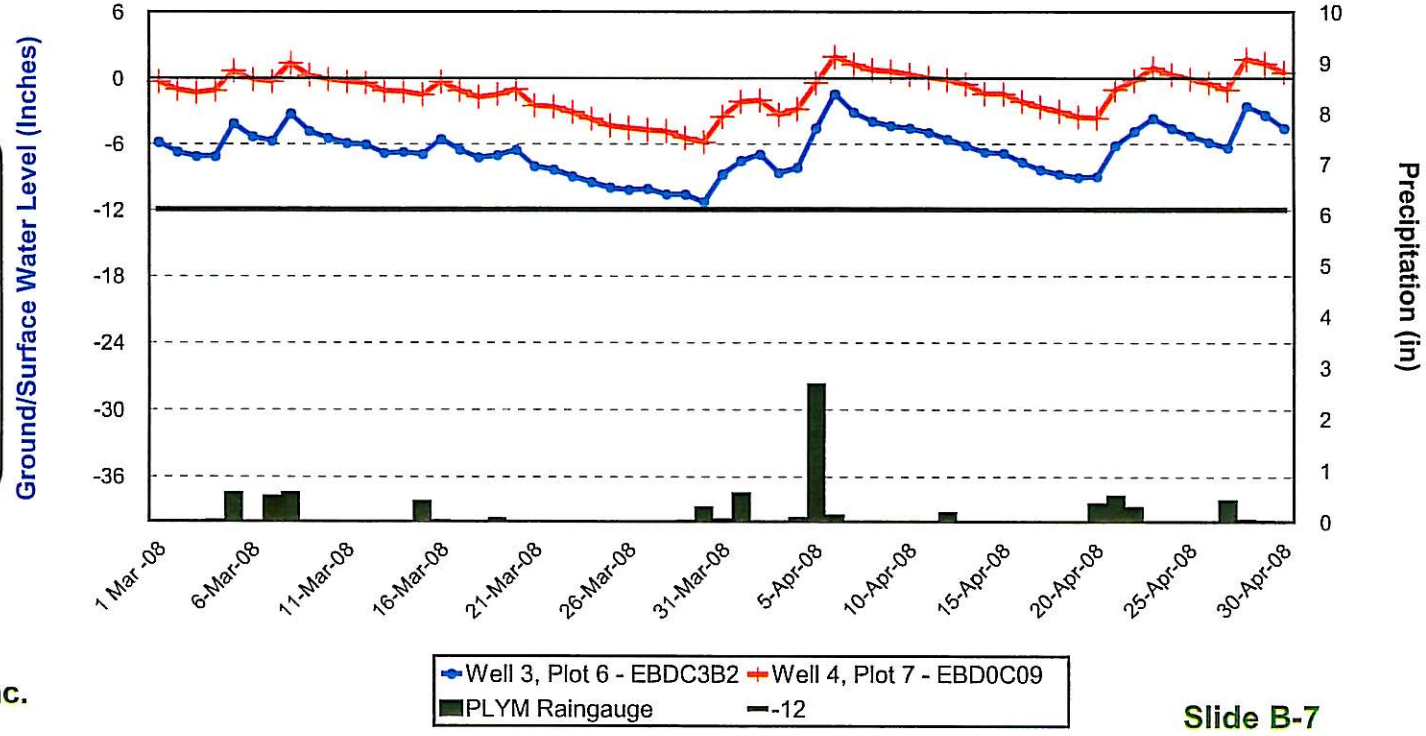
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- March 1, 2008 -
- April 30, 2008
- One reading per day
- at 7:00am



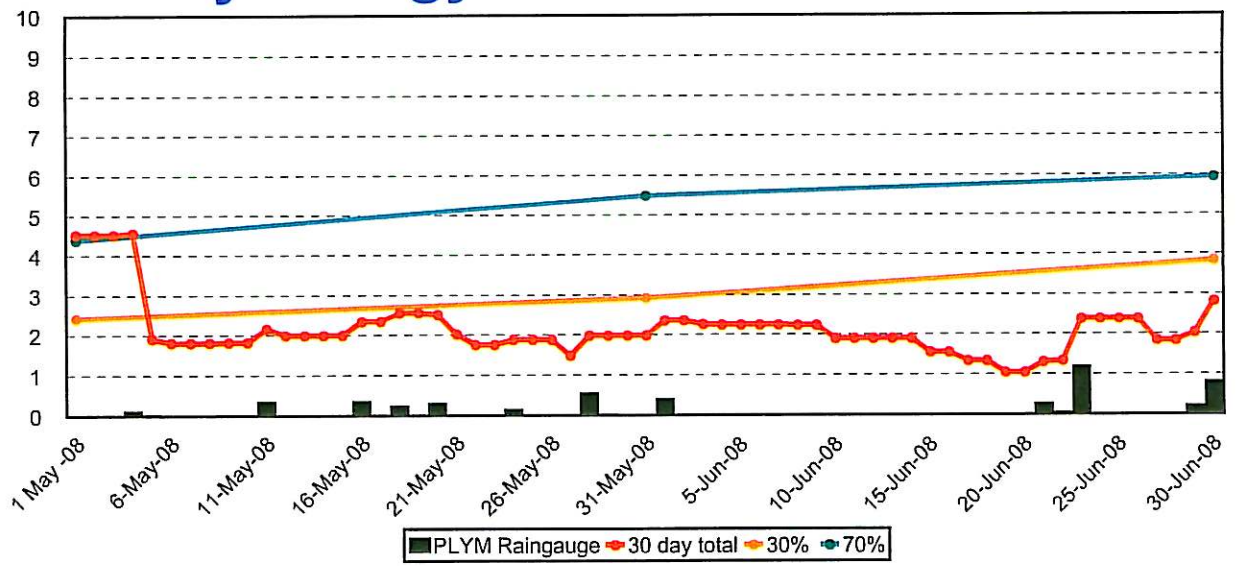
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

June, 2008

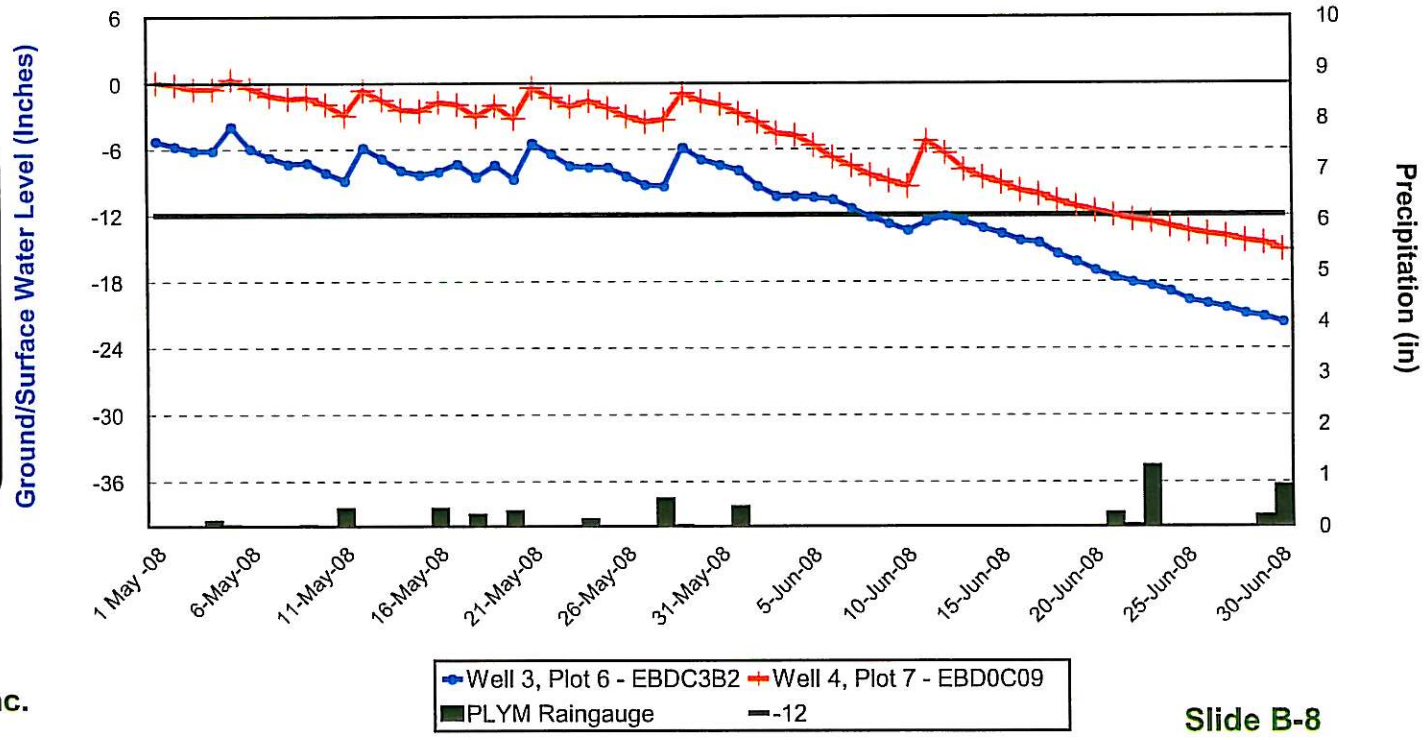
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- May 1, 2008 -
- June 30, 2008
- One reading per day
- at 7:00am



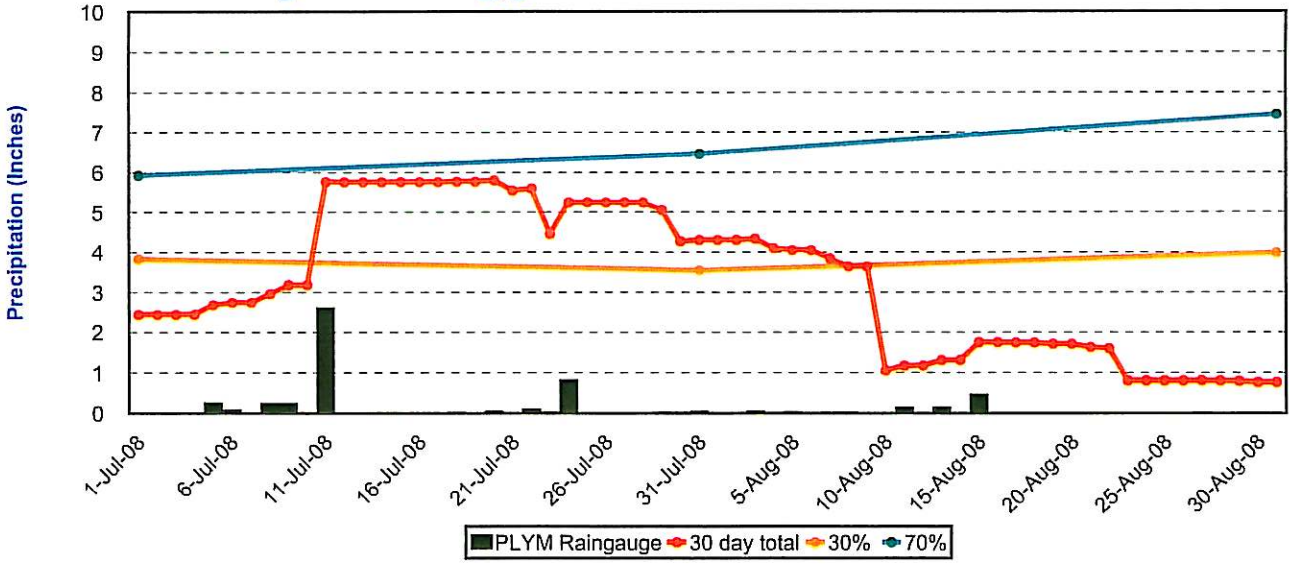
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

August, 2008

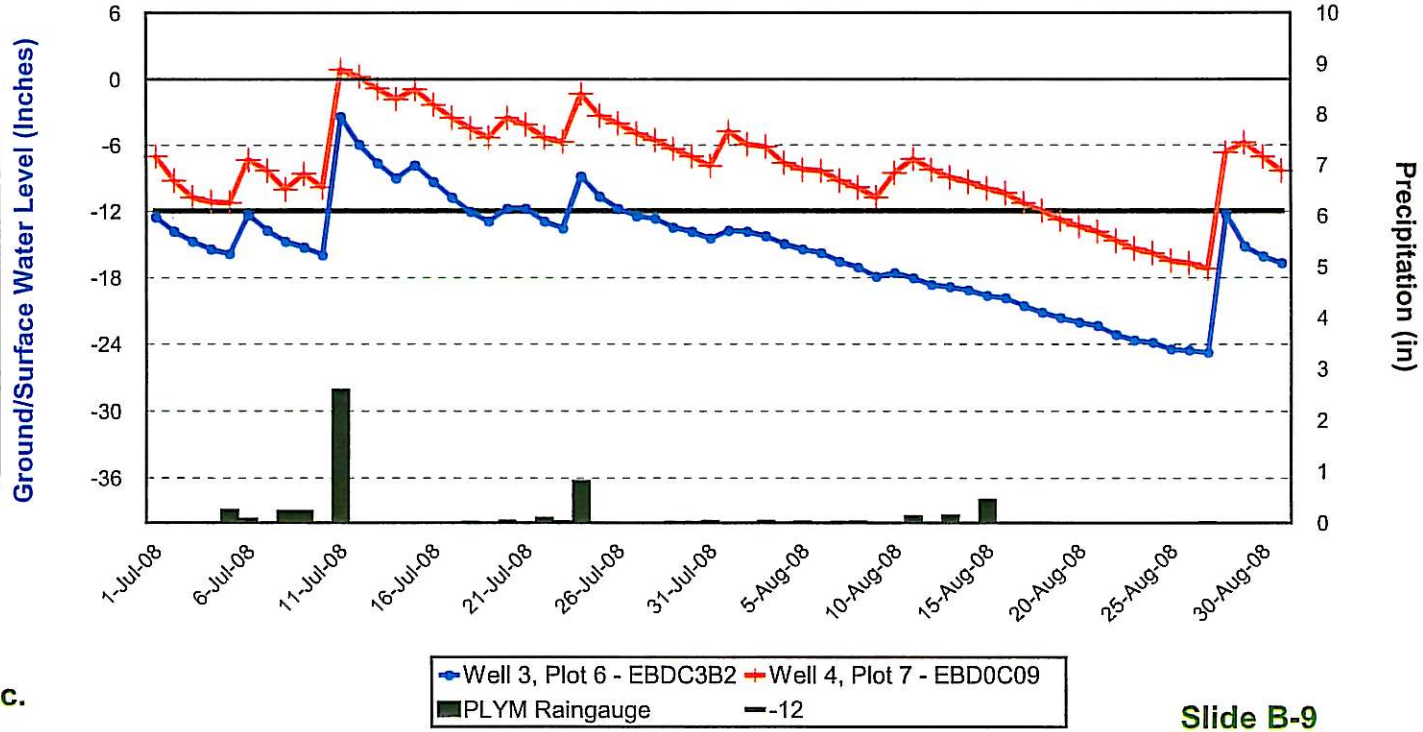
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- July 1, 2008 -
- August 31, 2008
- One reading per day
- at 7:00am



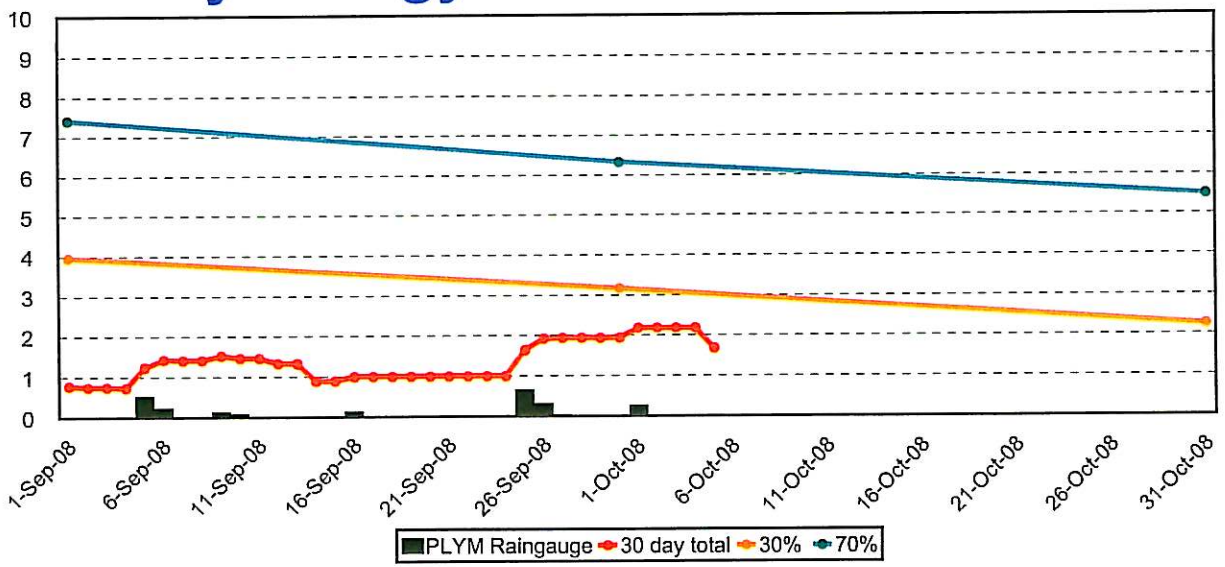
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

October, 2008

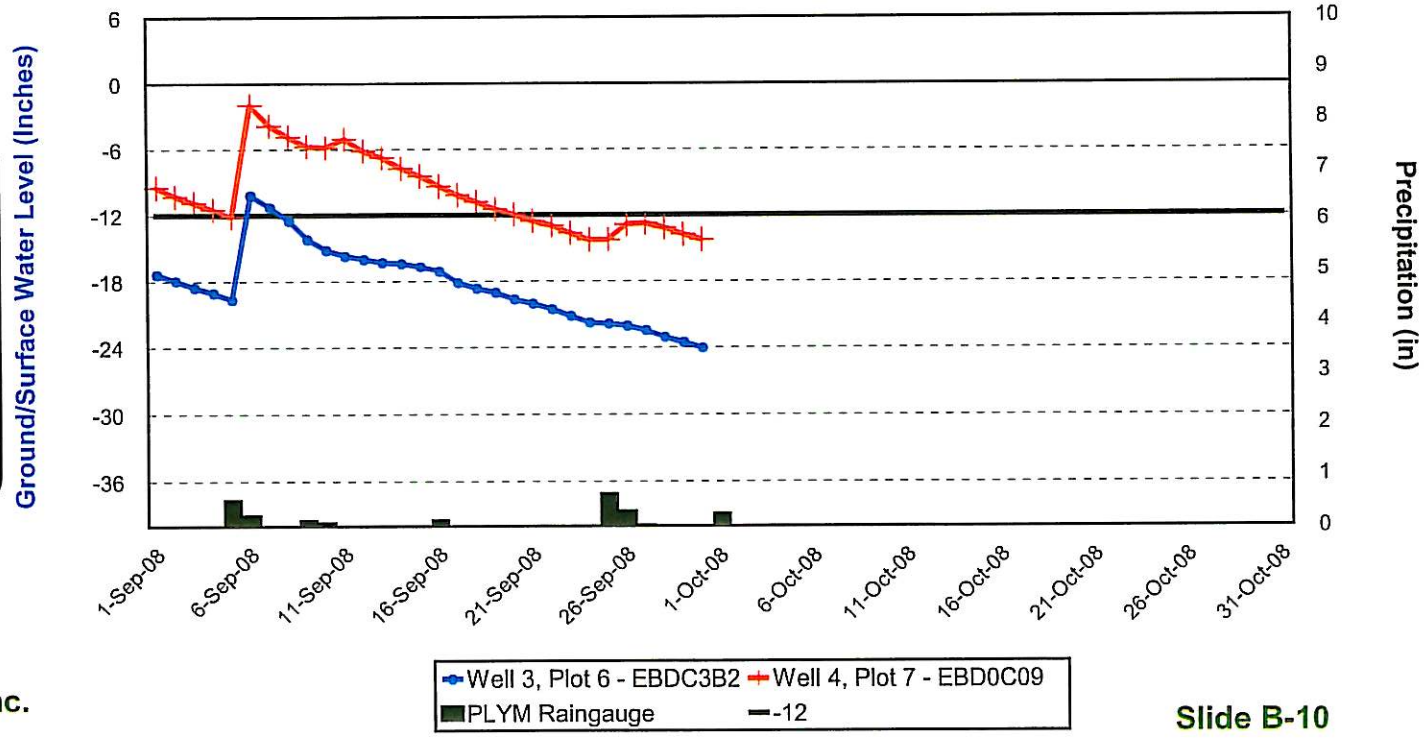
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 3 & 4
- WL 40
- September 1, 2008 -
- October 31, 2008
- One reading per day
- at 7:00am



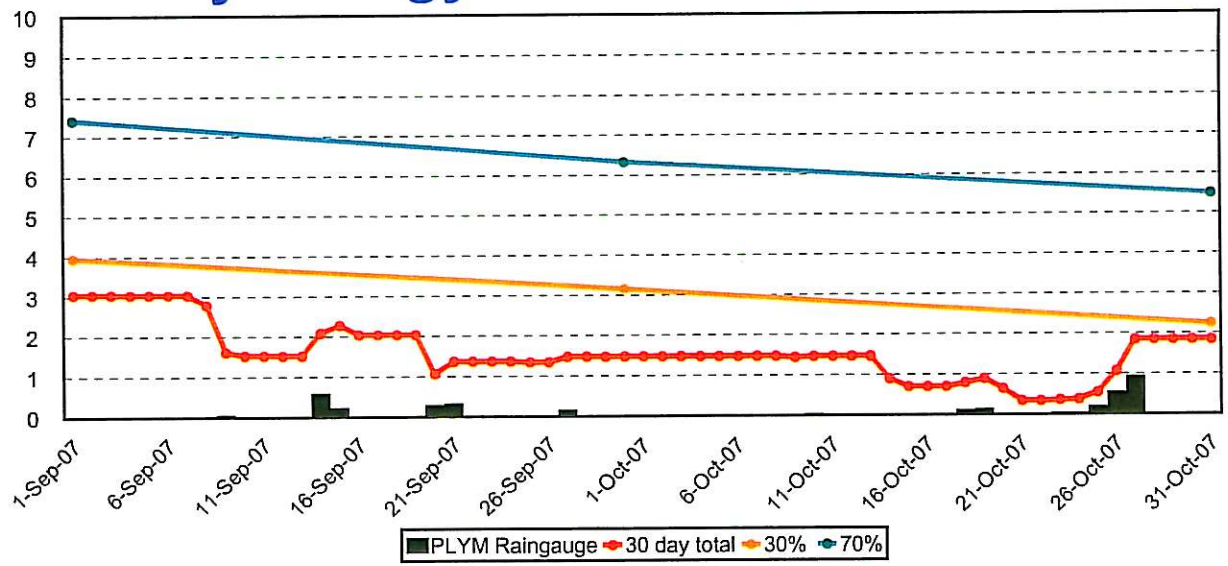
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

September 2007

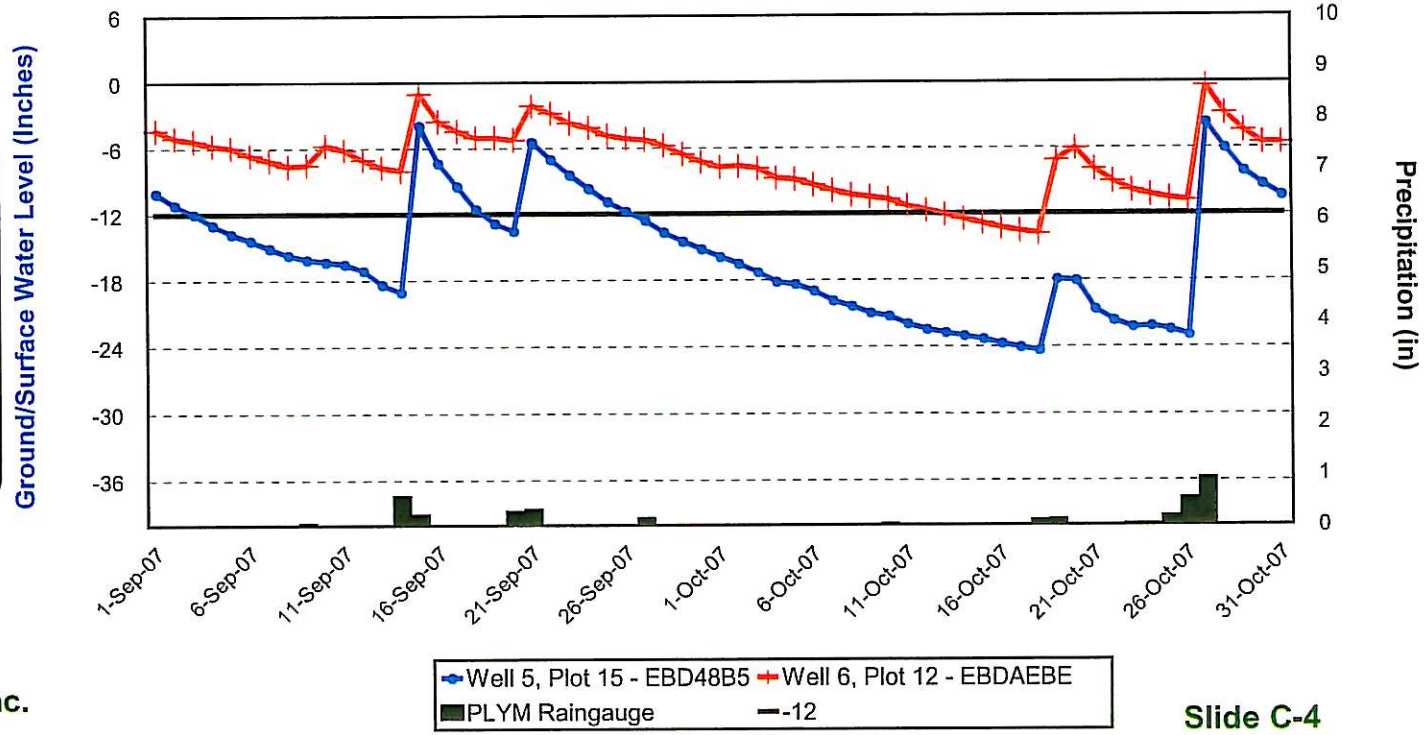
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- September 1, 2007 -
- October 31, 2007
- One reading per day
- at 7:00am



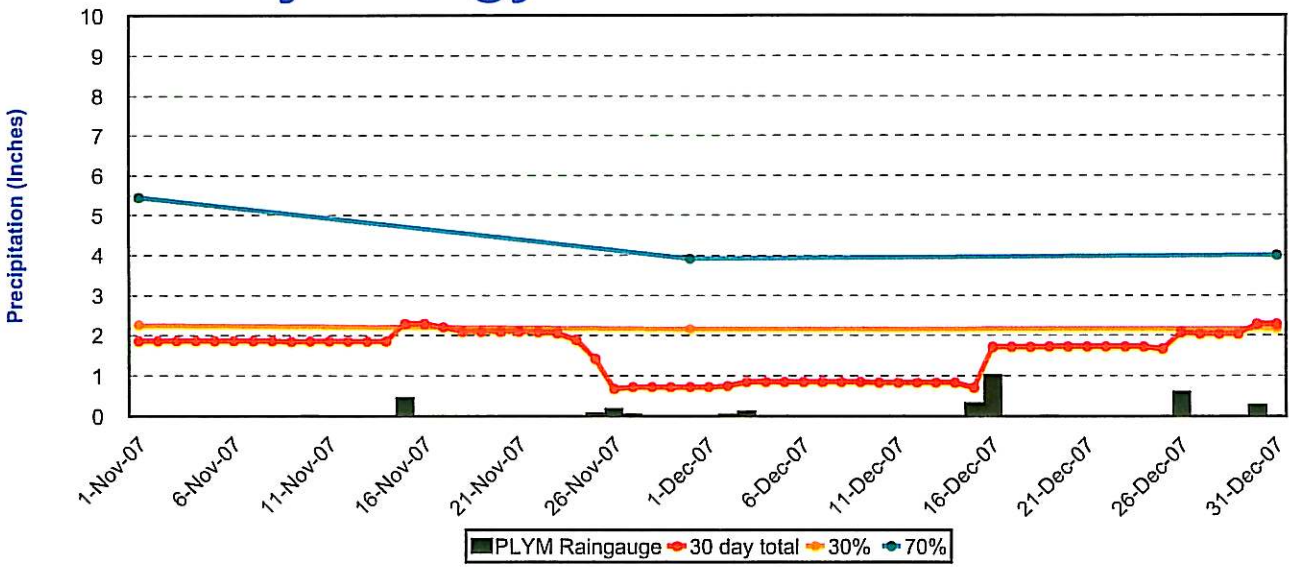
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

December 2007

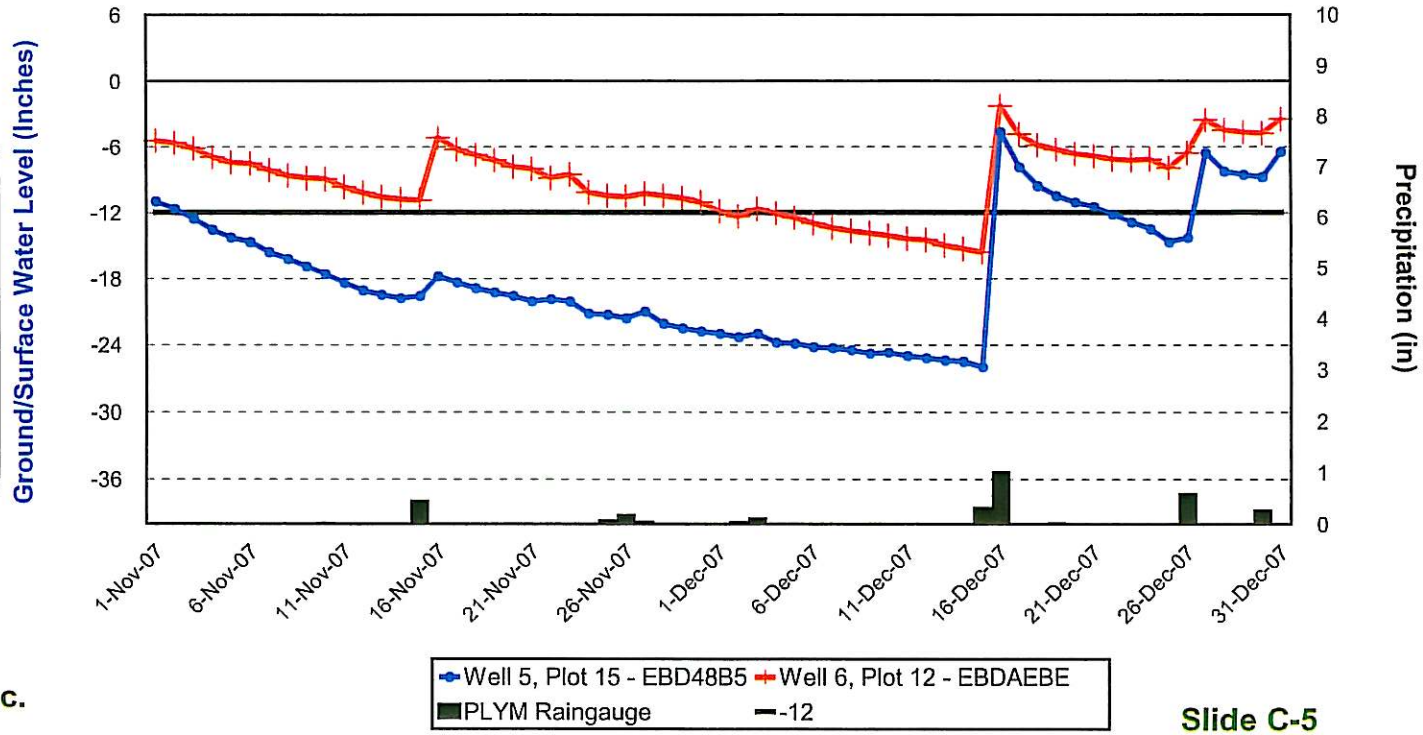
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- November 1, 2007 -
- December 31, 2007
- One reading per day
- at 7:00am



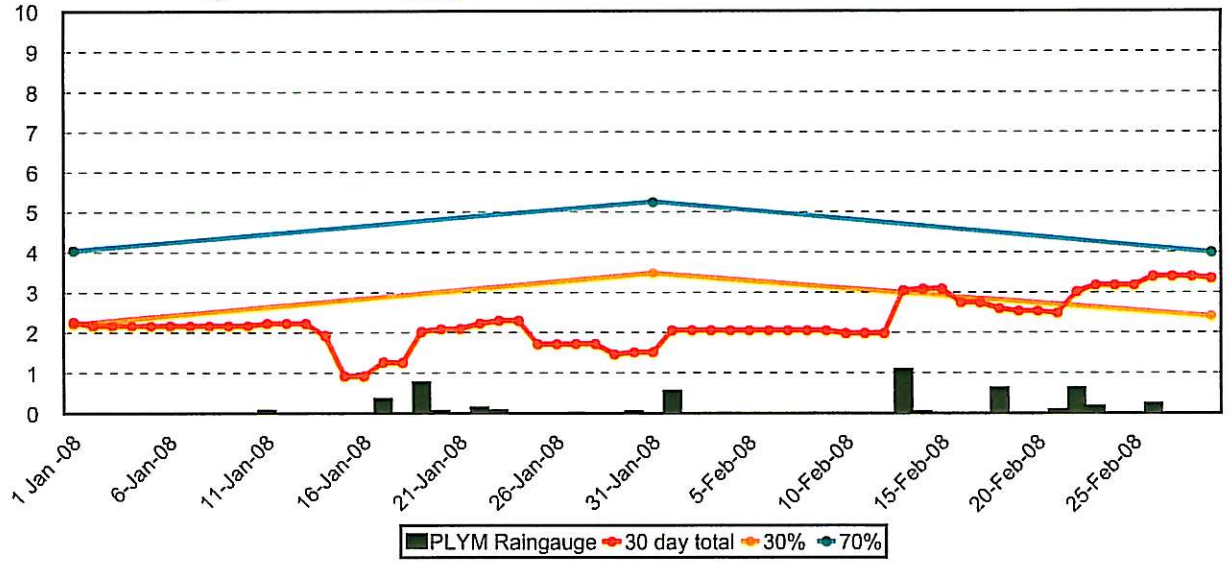
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

February 2008

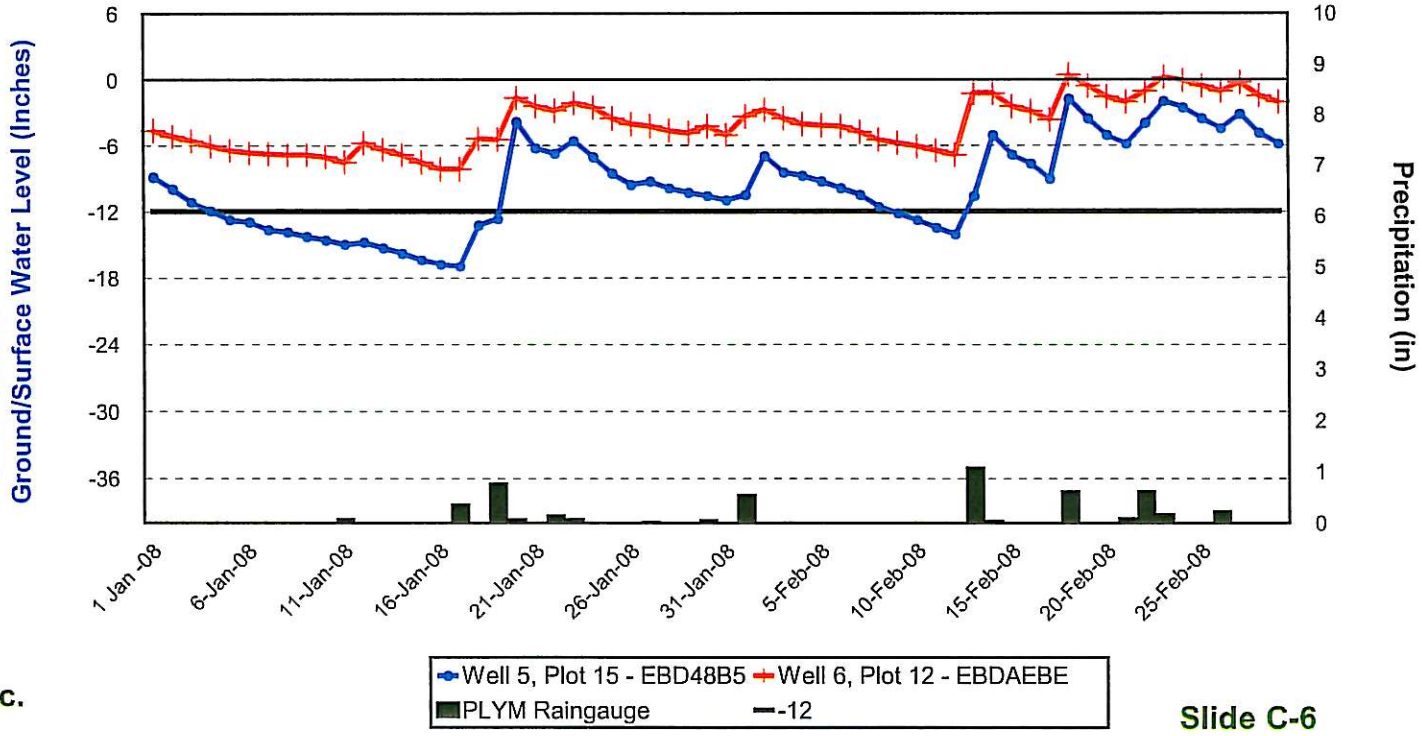
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- January 1, 2008 -
- February 29, 2008
- One reading per day
- at 7:00am



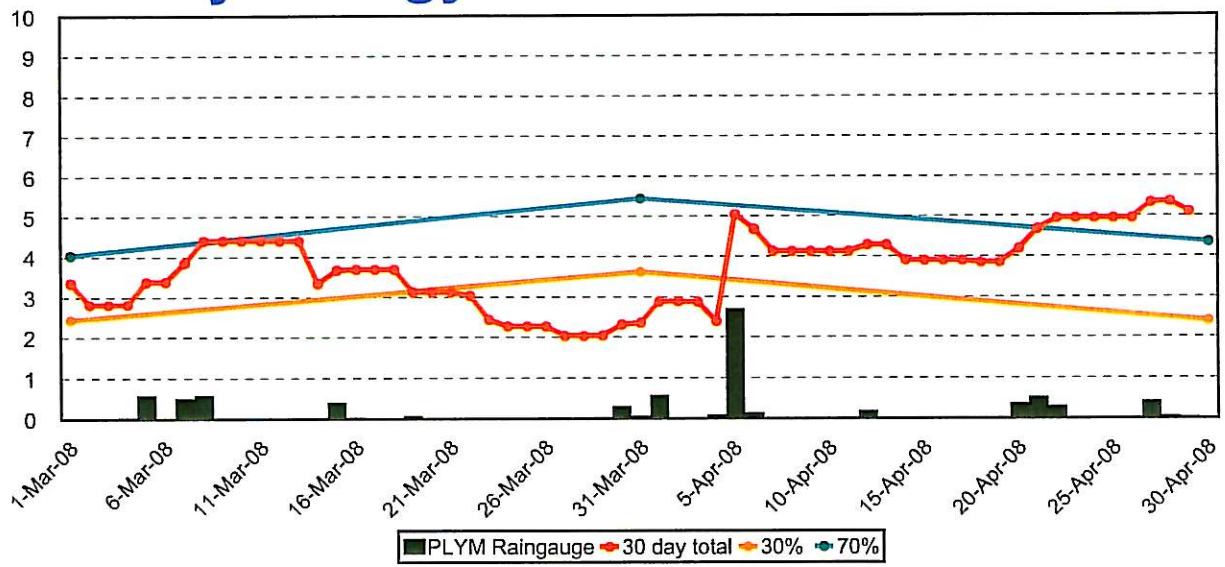
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

April, 2008

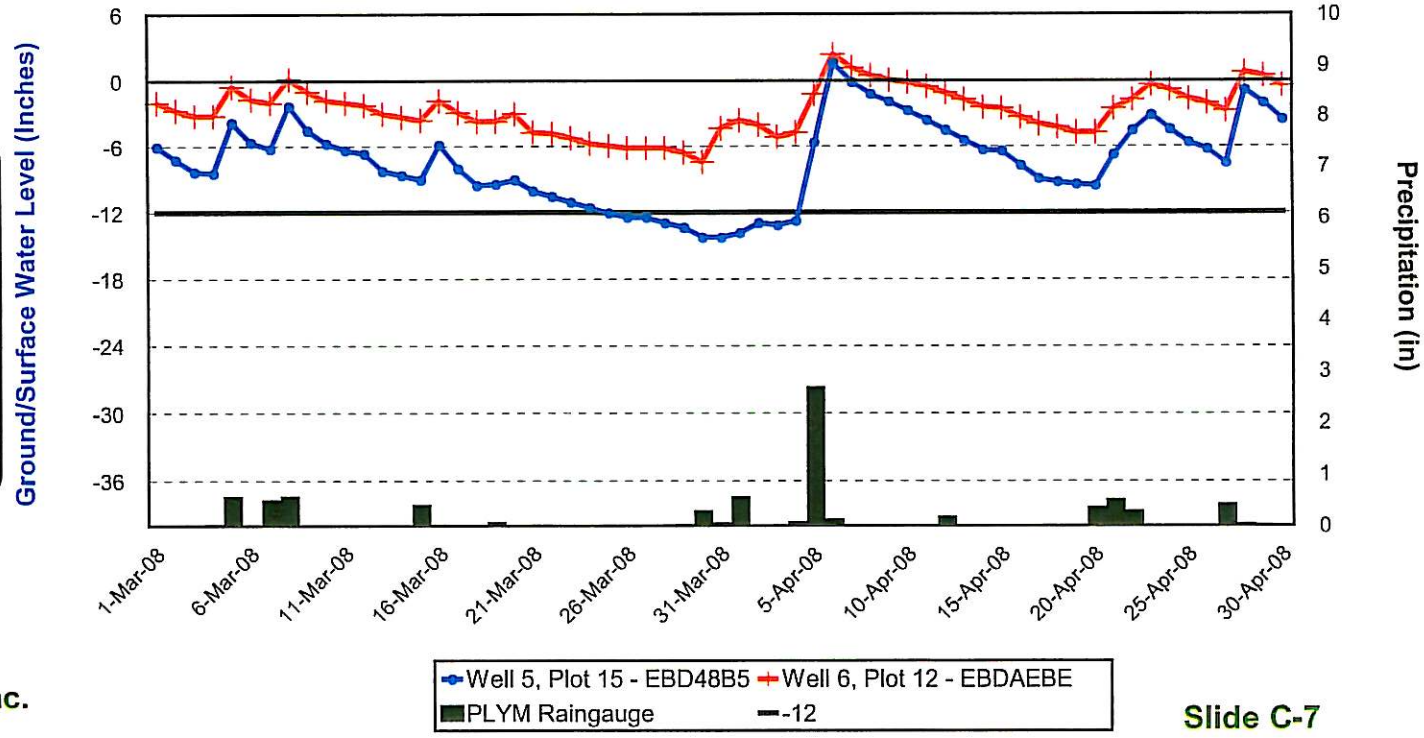
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- March 1, 2008 -
- April 30, 2008
- One reading per day
- at 7:00am

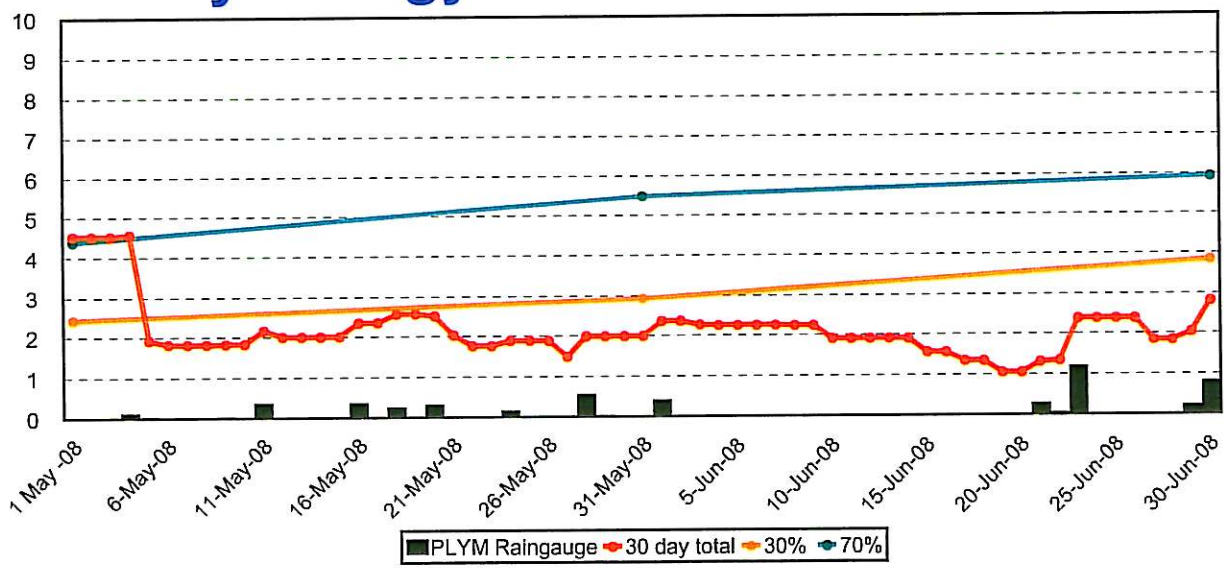


Hydrology Assessment

June, 2008

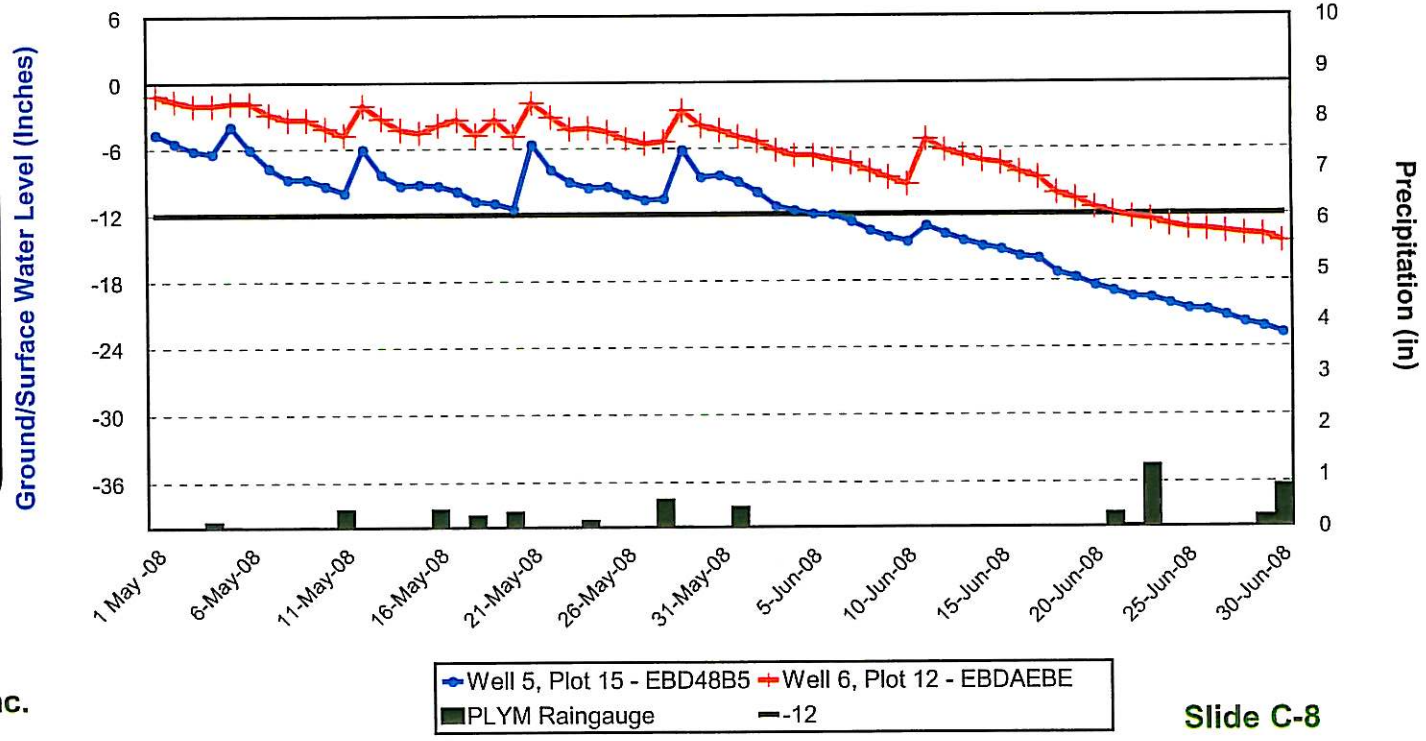
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- May 1, 2008 -
- June 30, 2008
- One reading per day
- at 7:00am



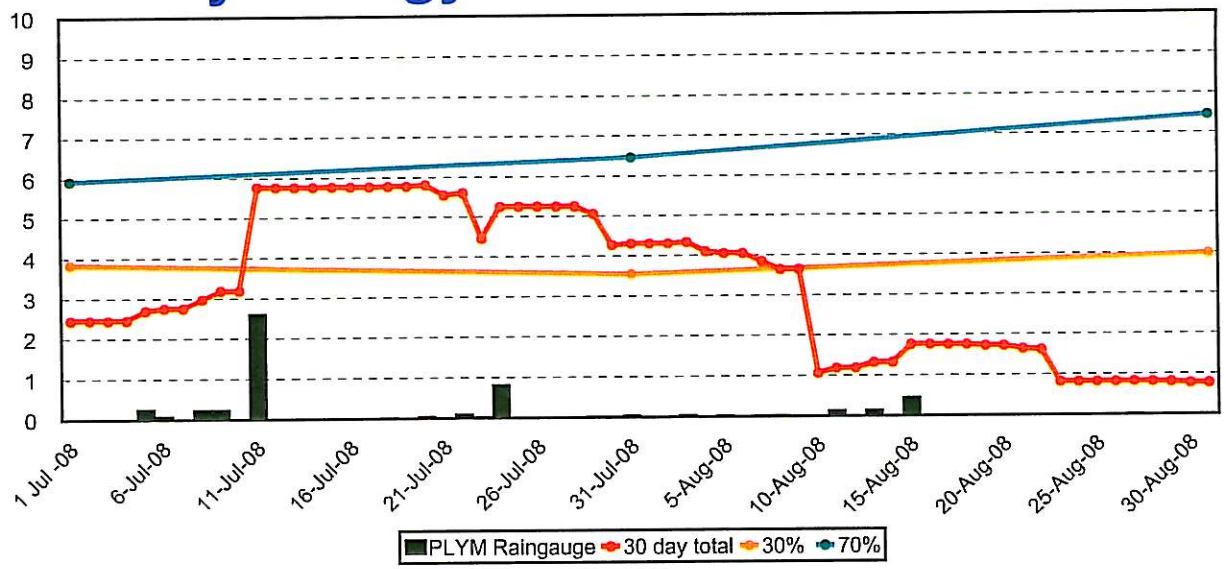
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

August, 2008

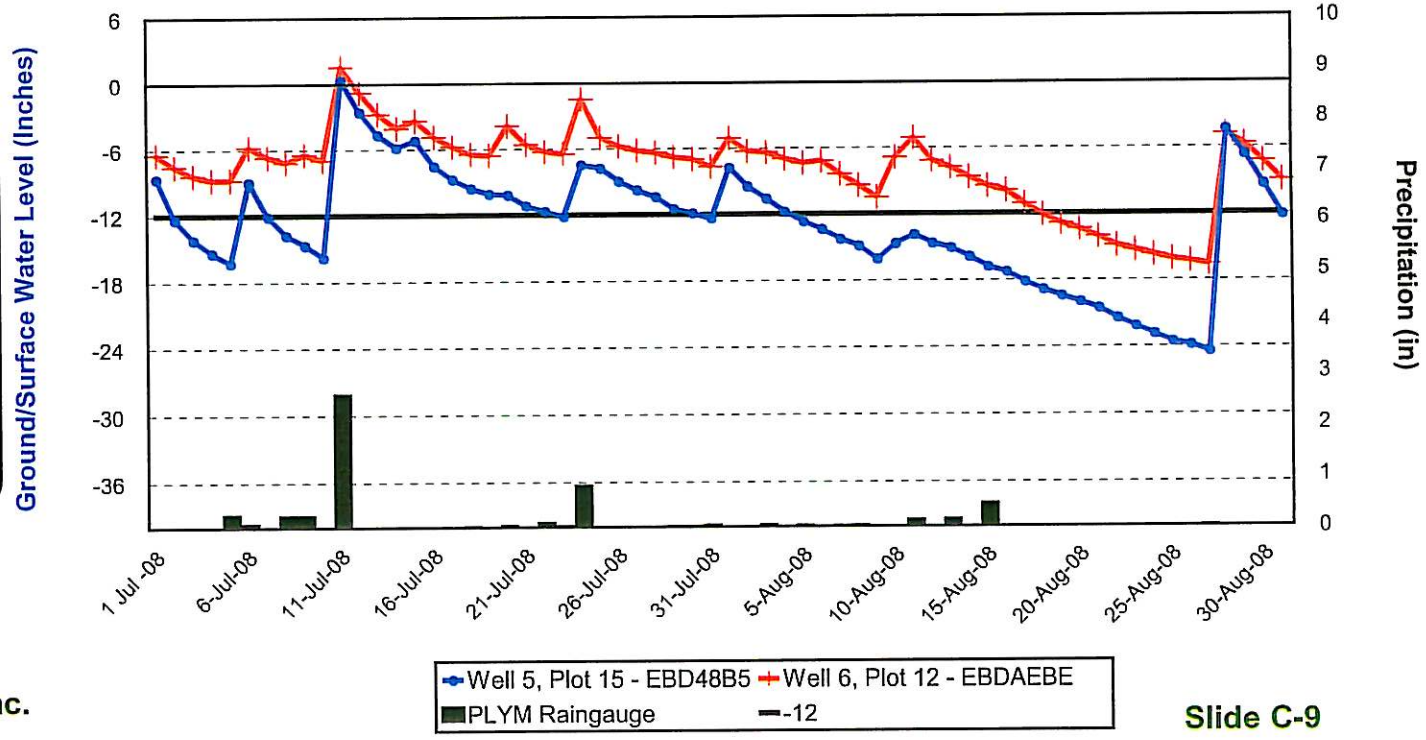
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- July 1, 2008 -
- August 31, 2008
- One reading per day
- at 7:00am



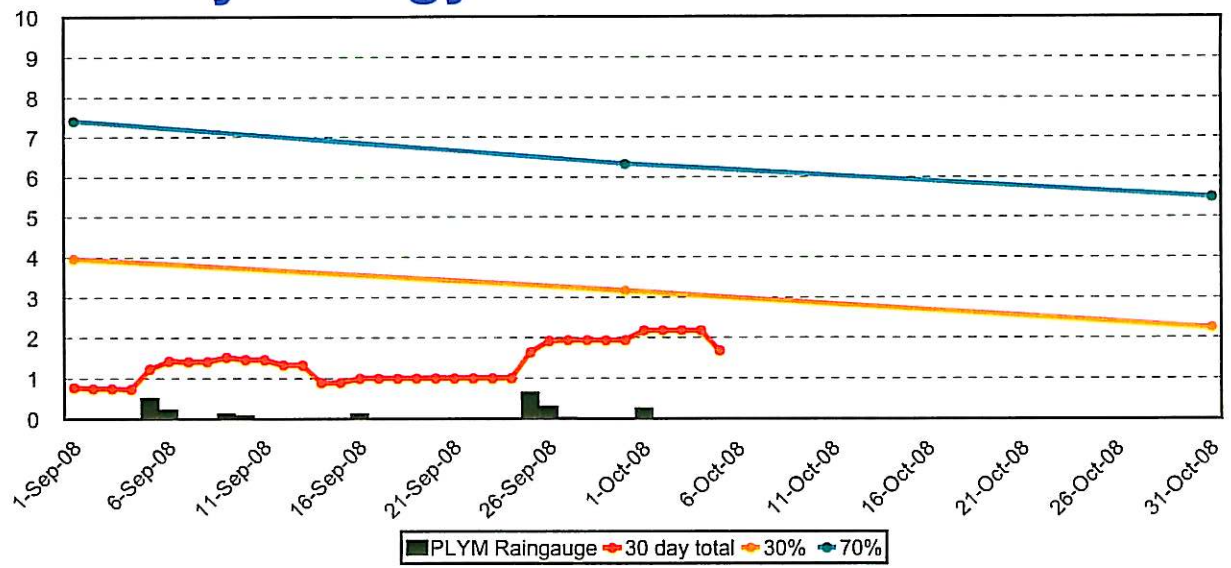
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

October, 2008

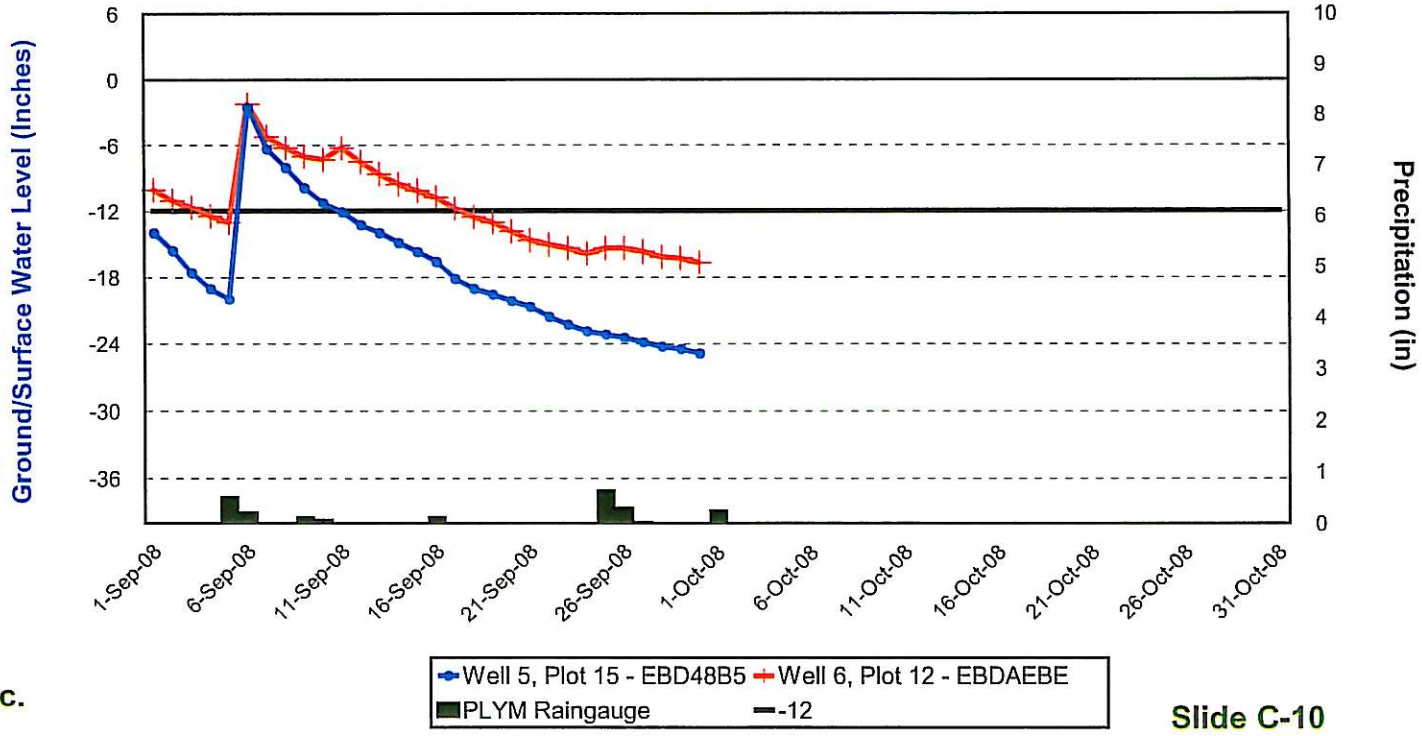
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 5 & 6
- WL 40
- September 1, 2008 -
- October 31, 2008
- One reading per day
- at 7:00am



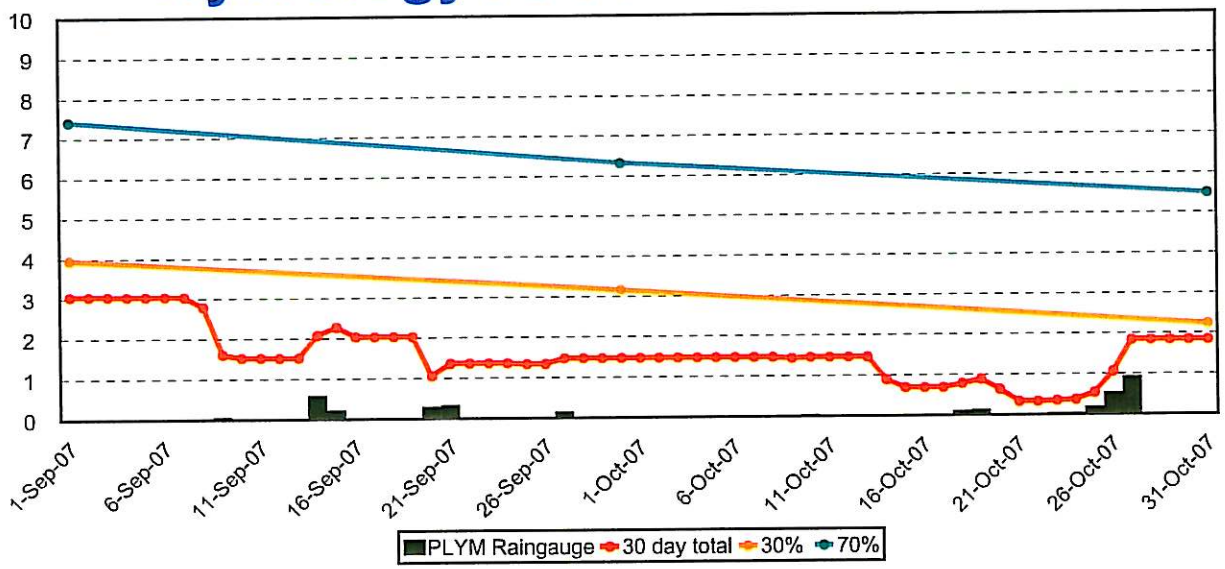
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

September 2007

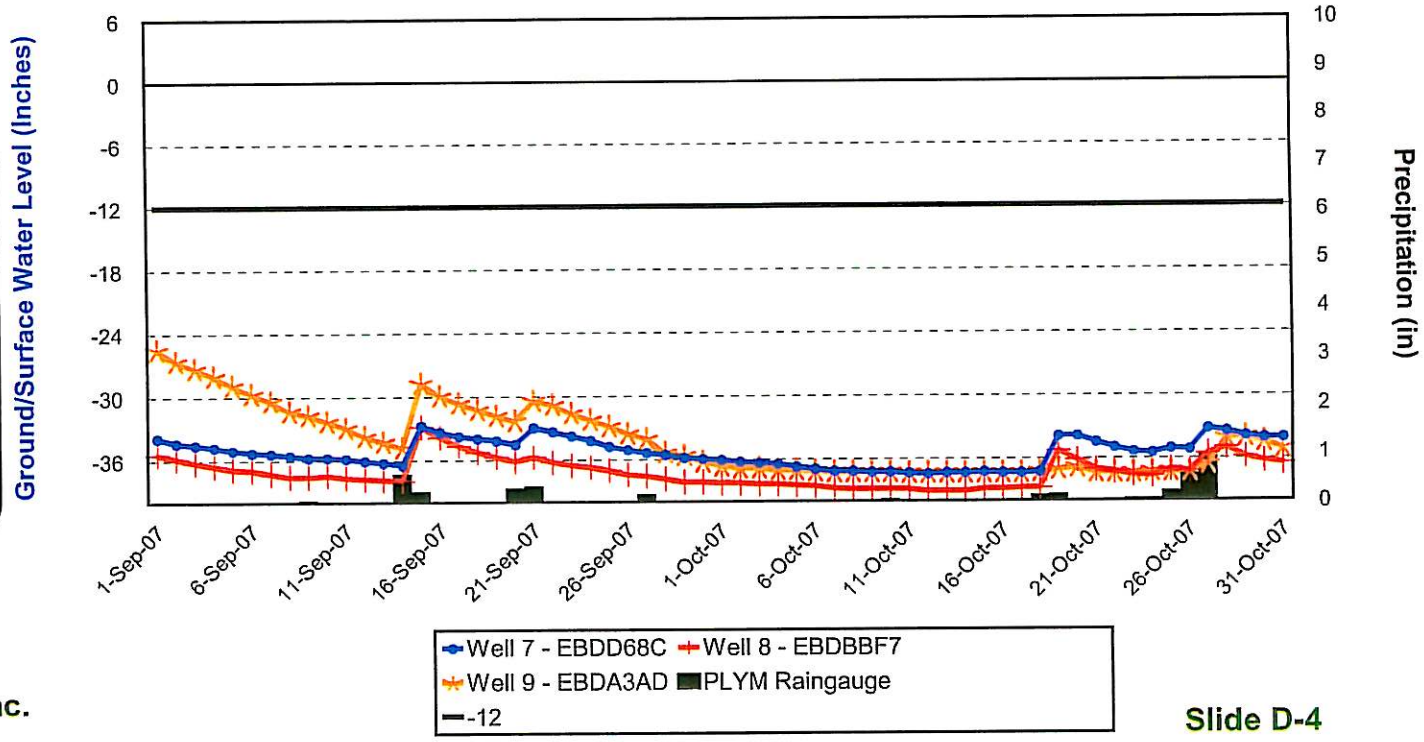
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- September 1, 2007 -
- October 31, 2007
- One reading per day
- at 7:00am



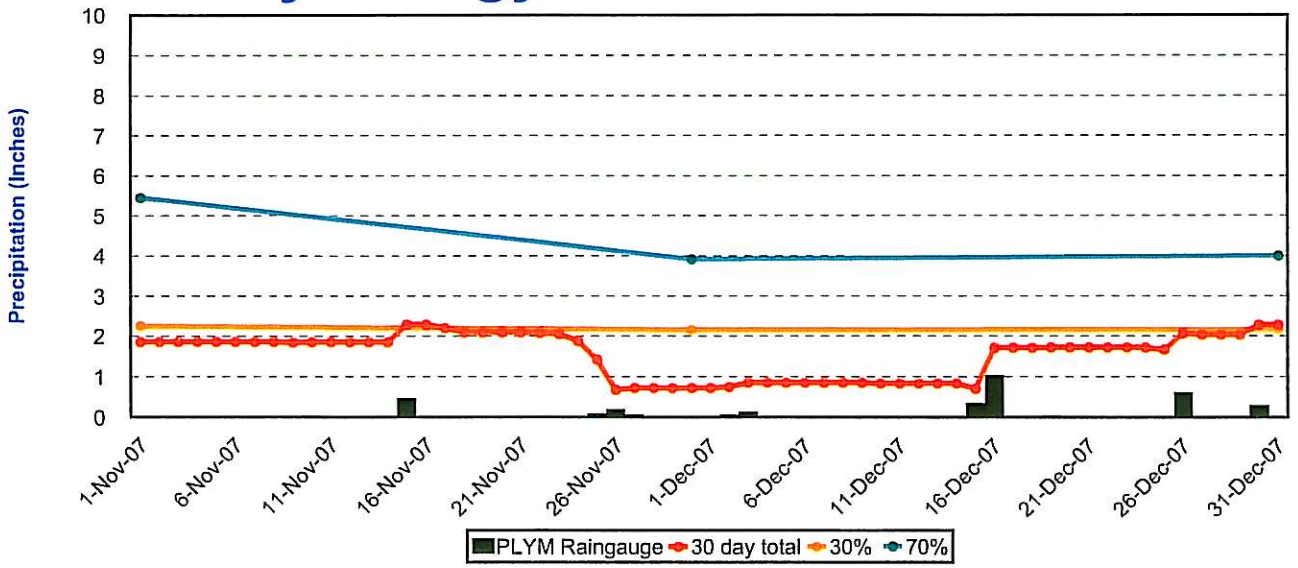
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

December 2007

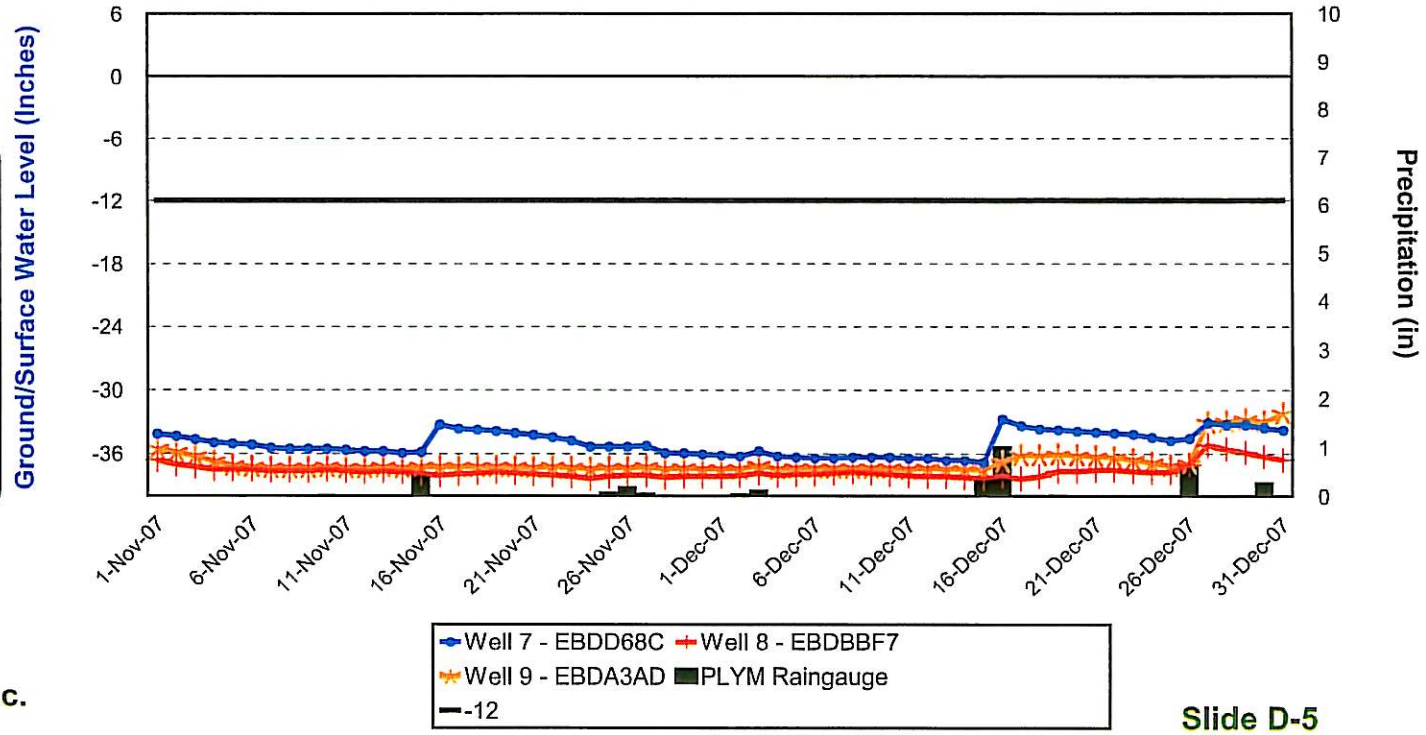
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- November 1, 2007 -
- December 31, 2007
- One reading per day
- at 7:00am



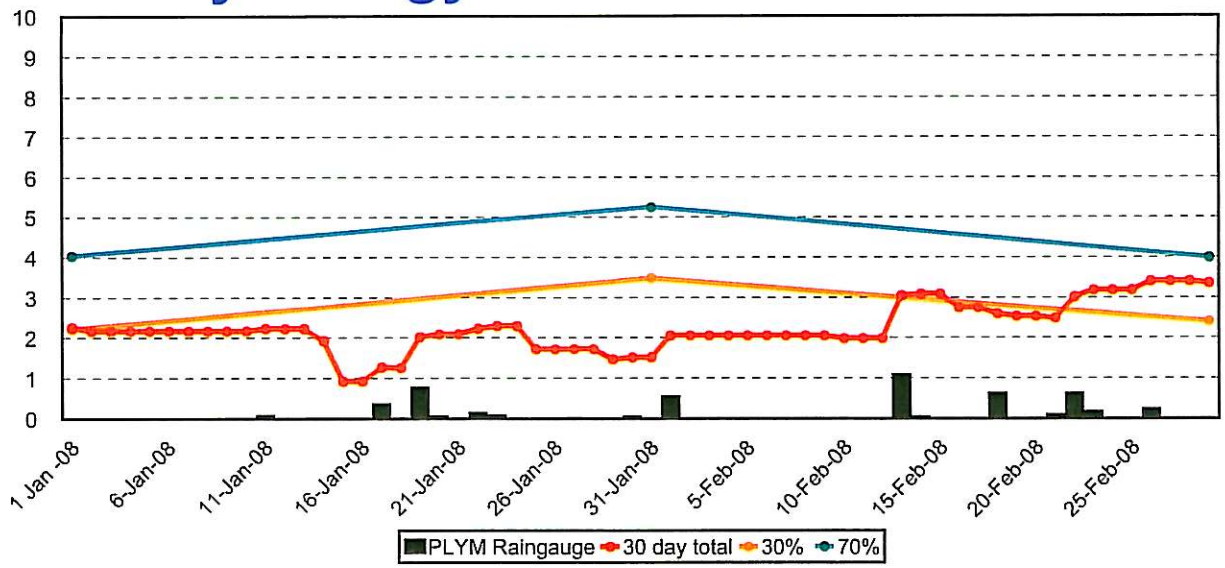
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

February 2008

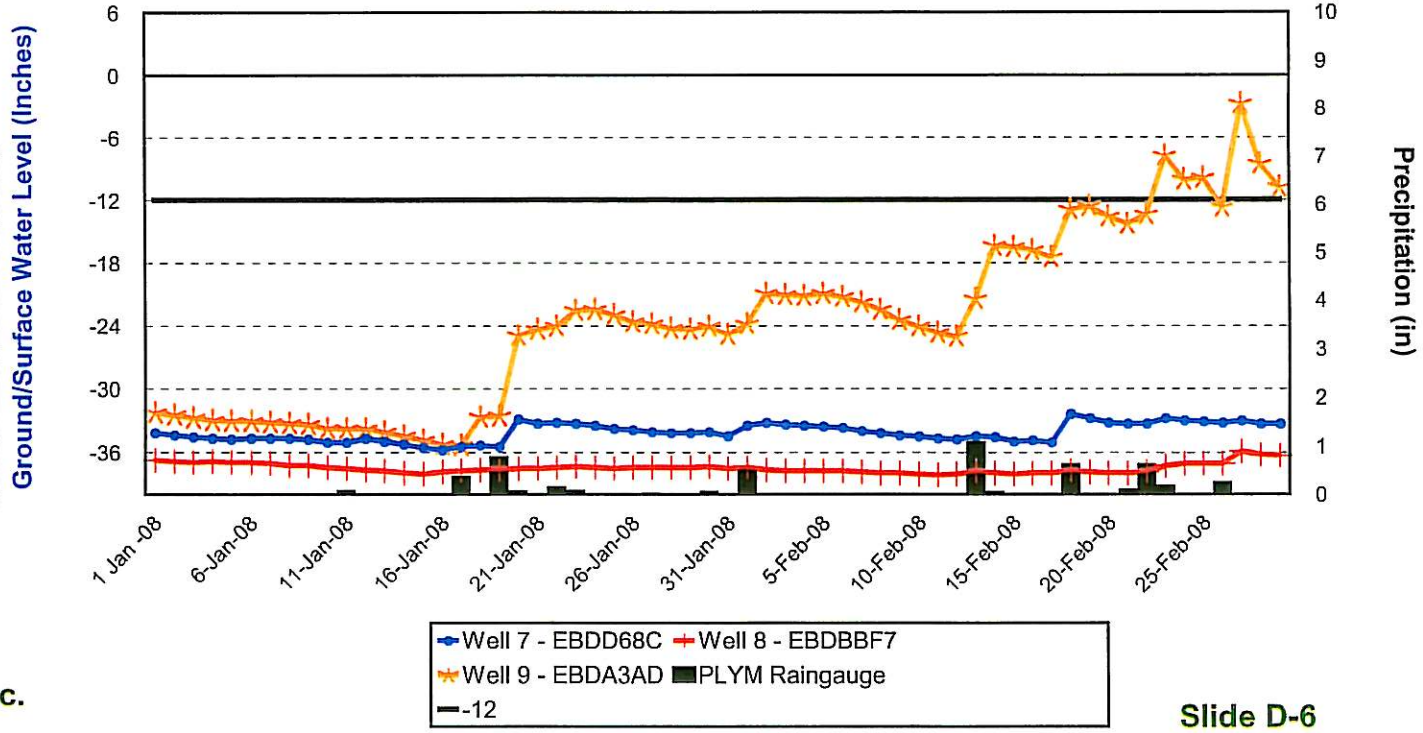
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- January 1, 2008 -
- February 29, 2008
- One reading per day
- at 7:00am



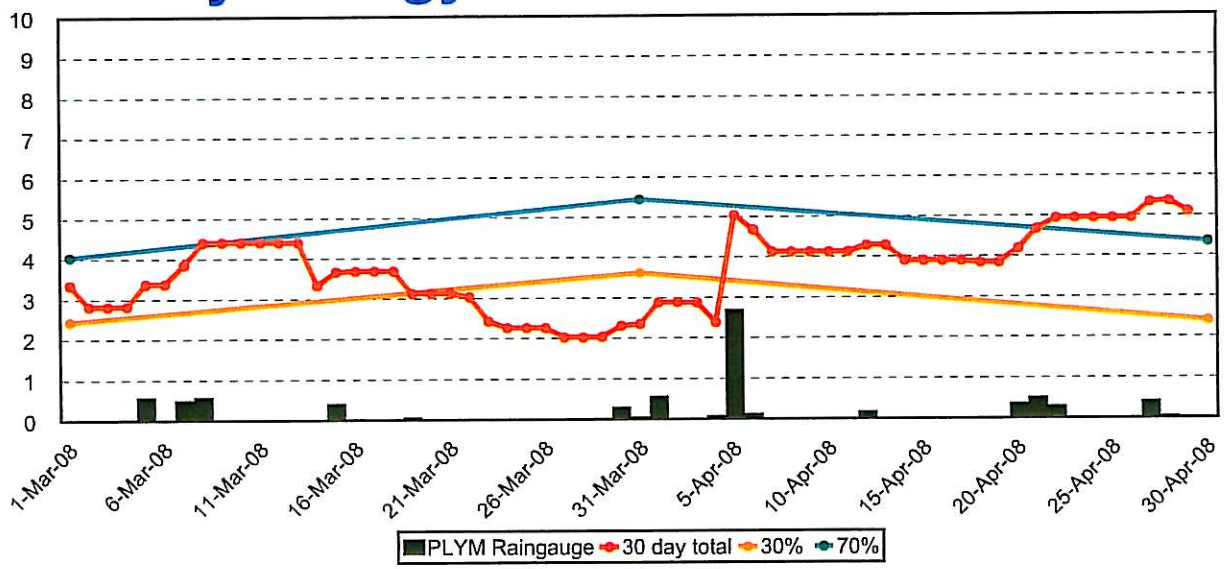
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

April, 2008

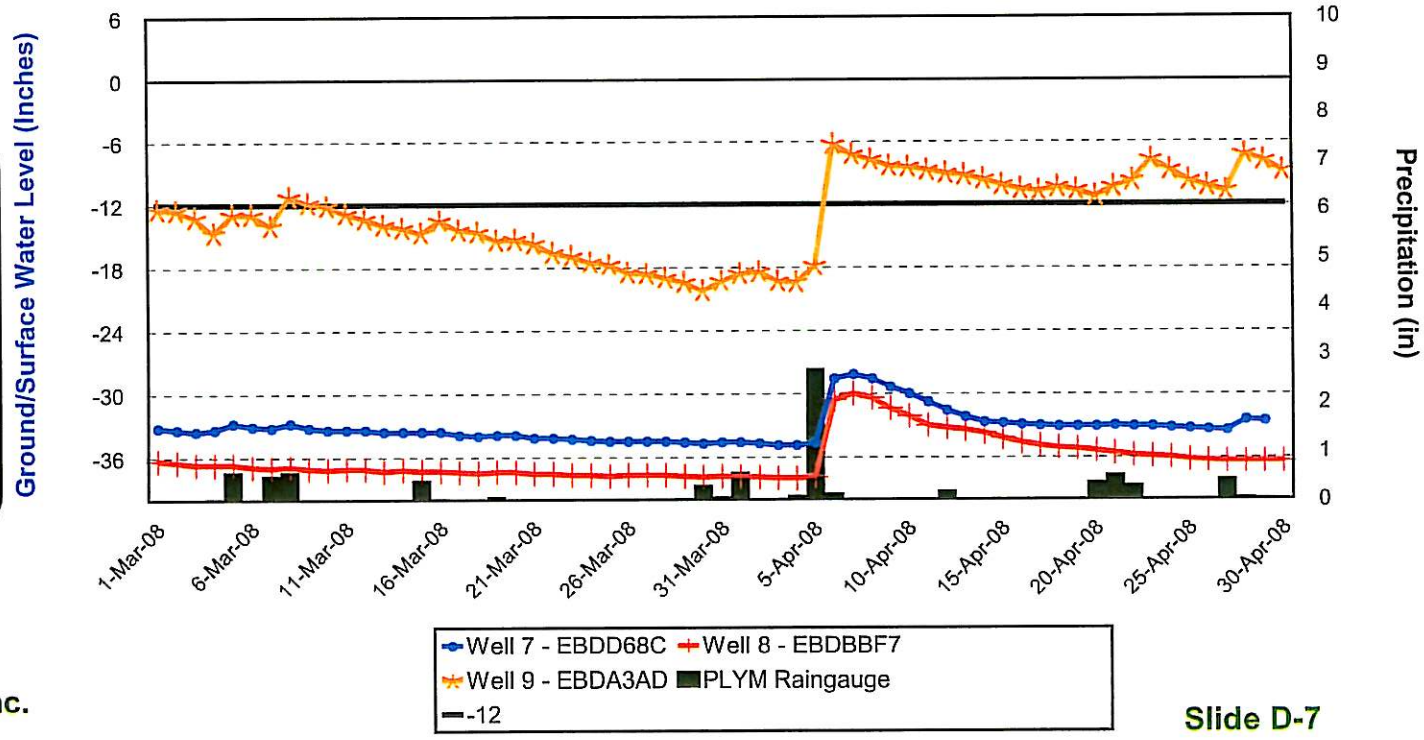
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- March 1, 2008 -
- April 30, 2008
- One reading per day
- at 7:00am



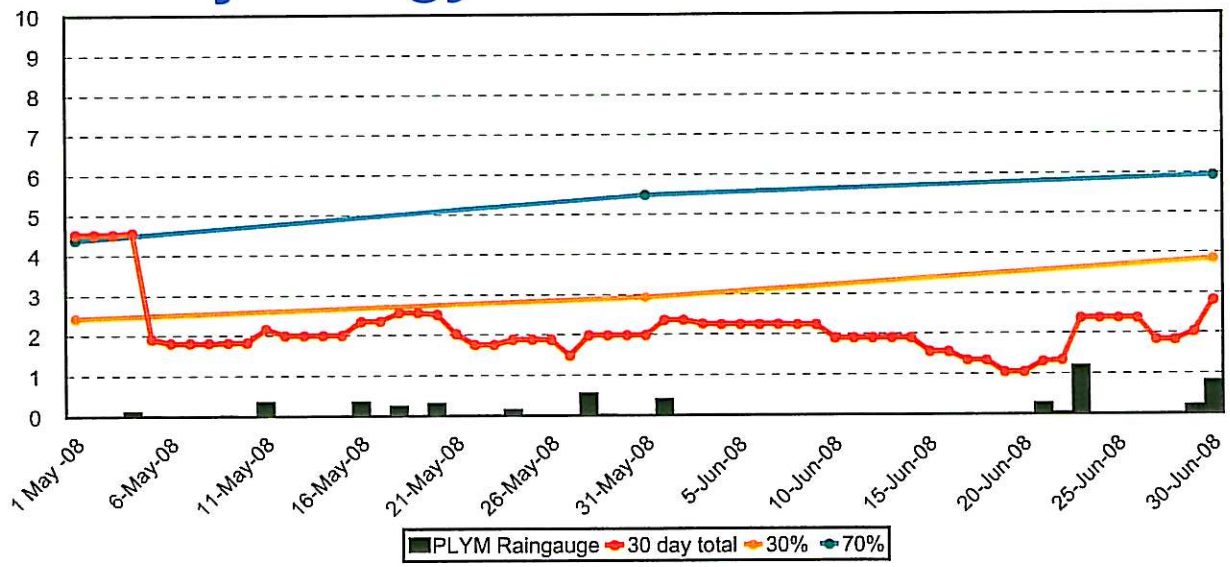
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

June, 2008

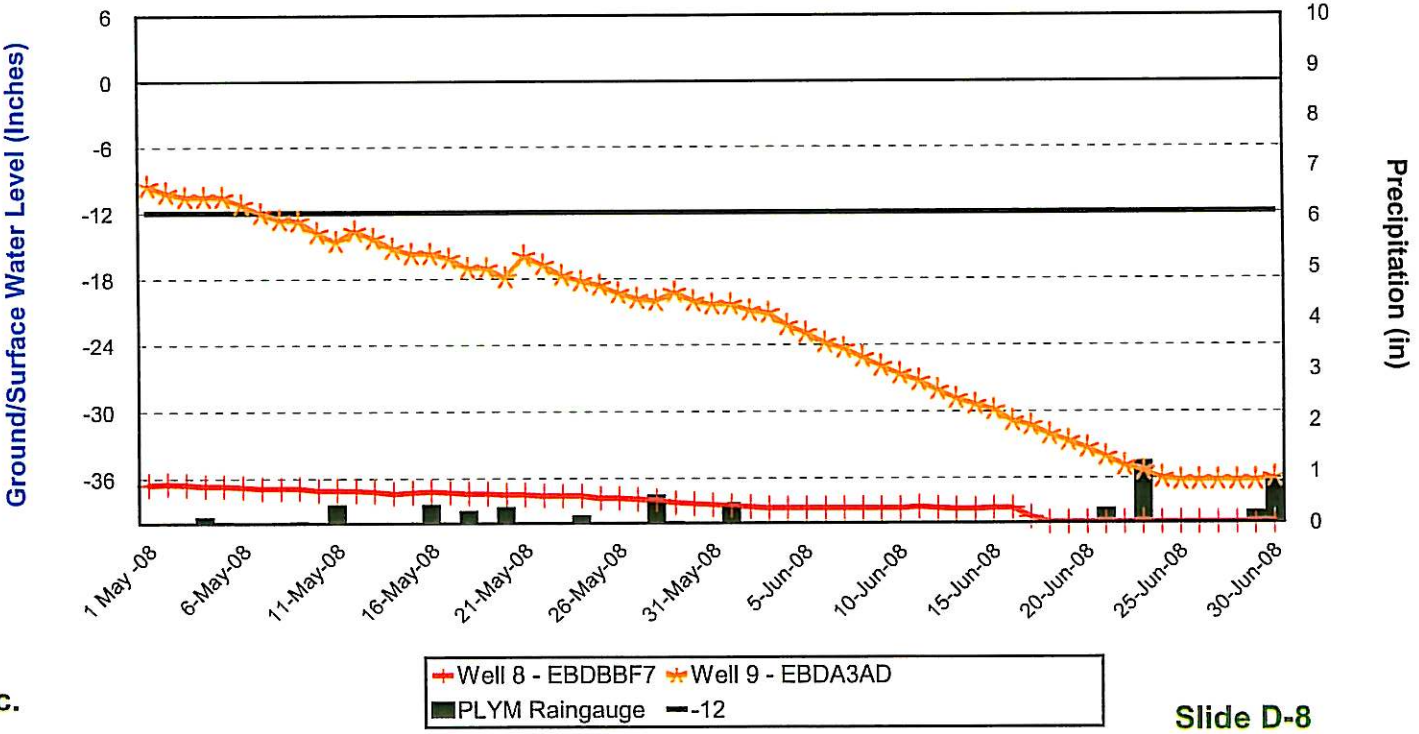
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- May 1, 2008 -
- June 30, 2008
- One reading per day
- at 7:00am



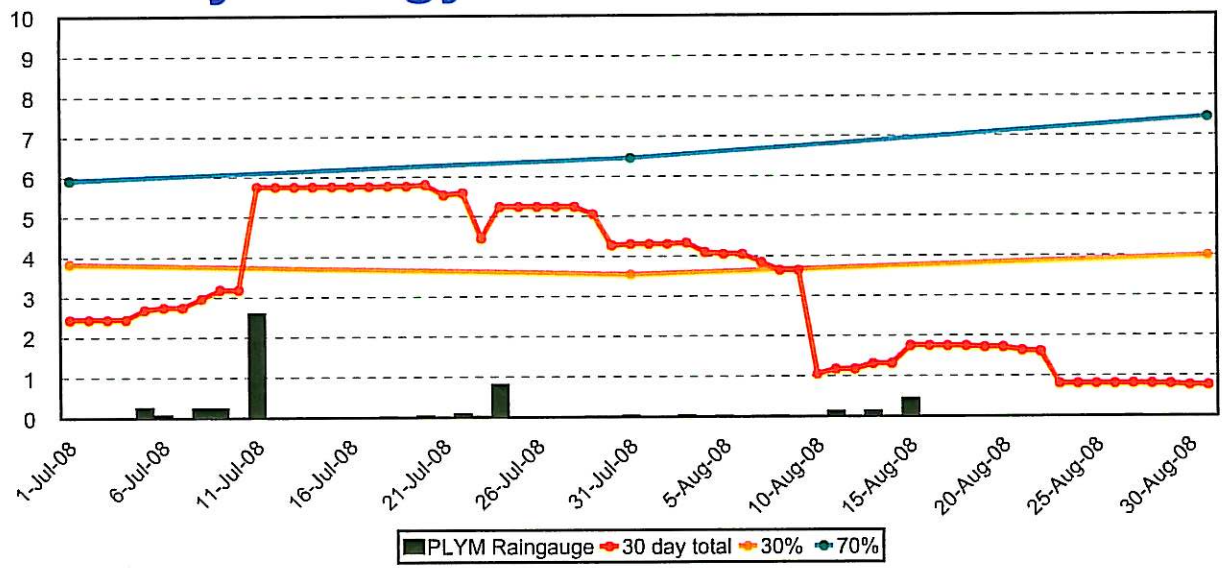
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

August, 2008

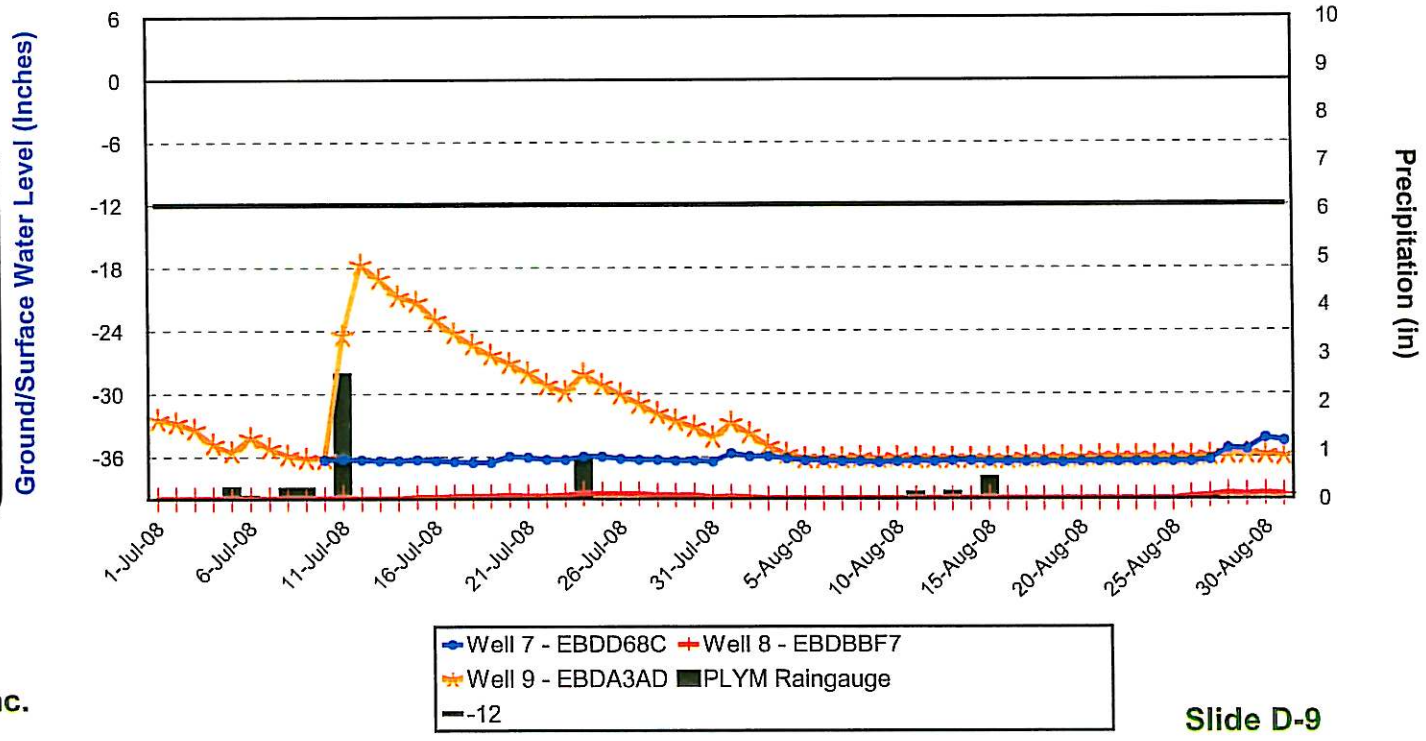
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- July 1, 2008 -
- August 31, 2008
- One reading per day
- at 7:00am



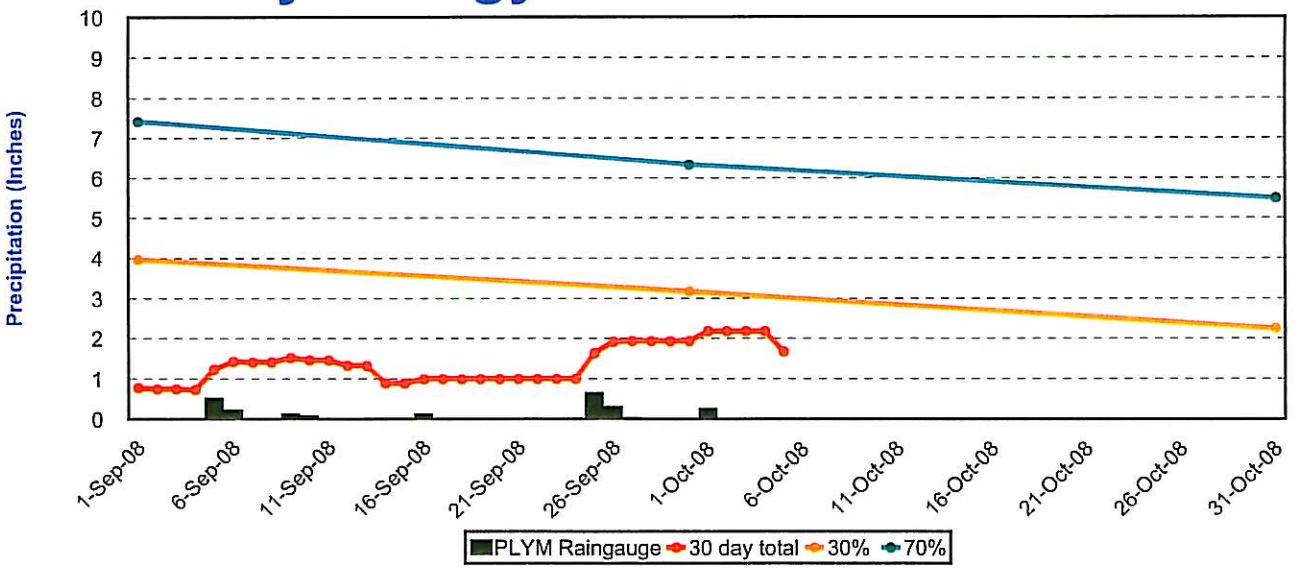
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

October, 2008

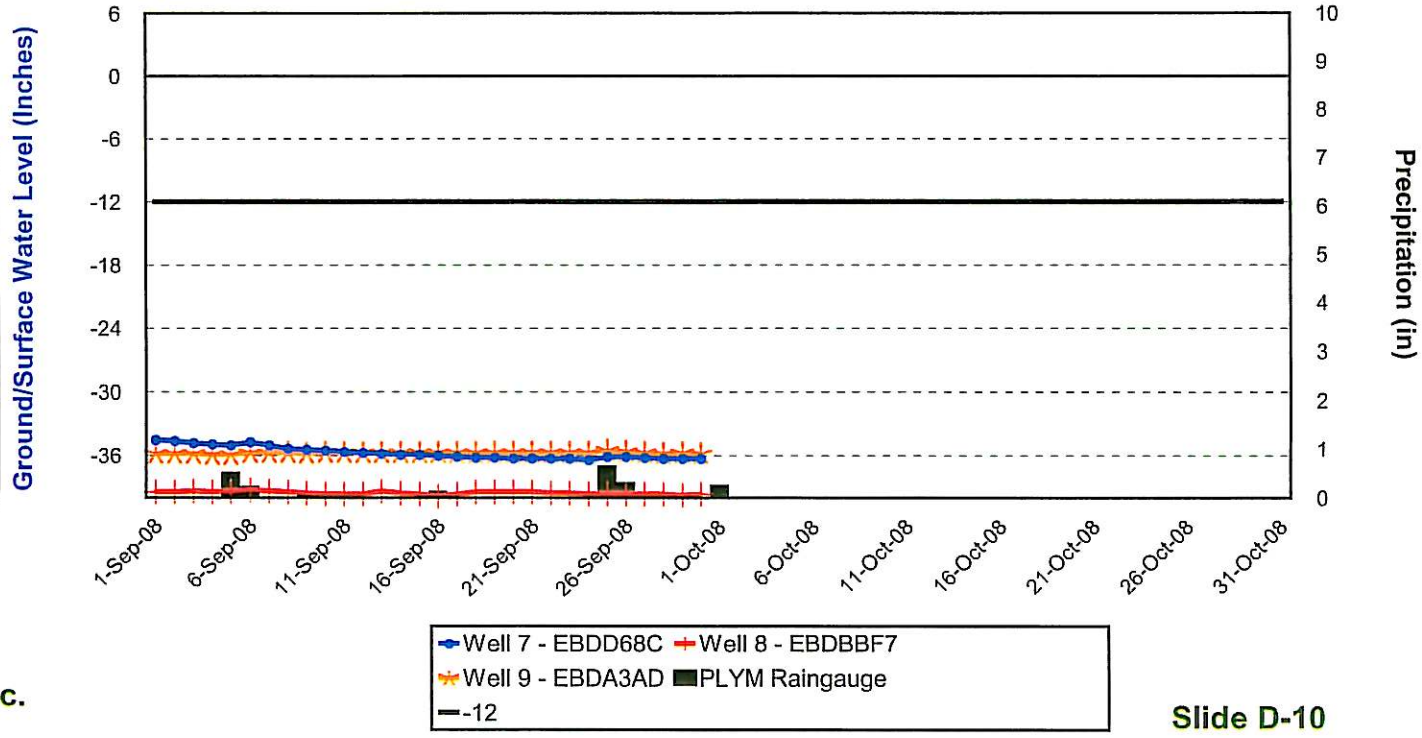
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 7, 8, & 9
- Original Reference Wells
- WL 40
- September 1, 2008 -
- October 31, 2008
- One reading per day
- at 7:00am



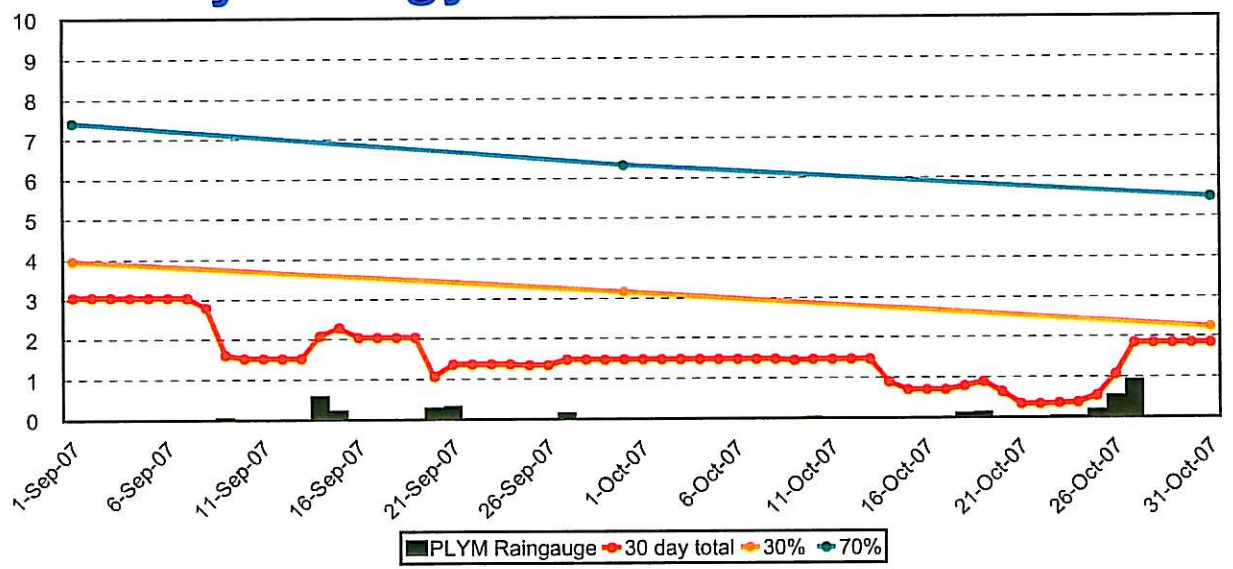
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

September 2007

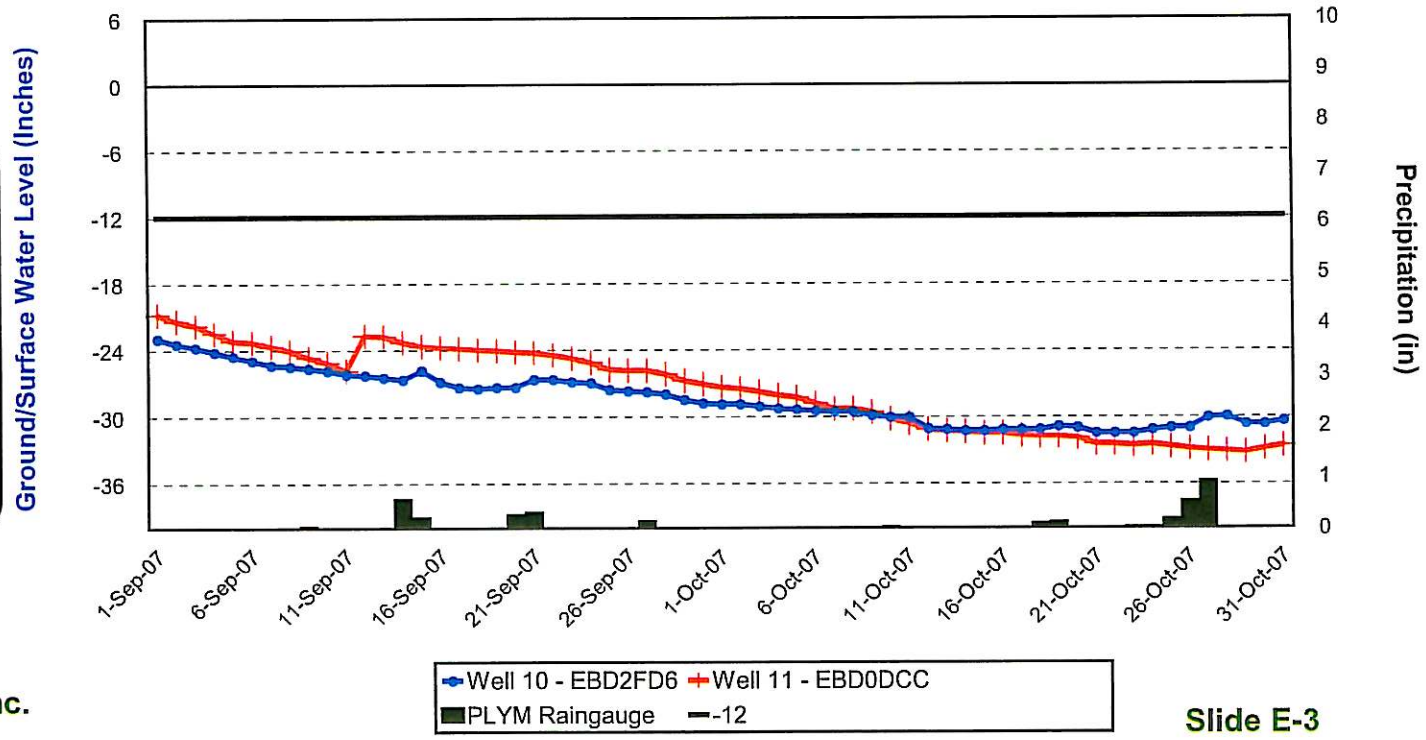
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- September 1, 2007 -
- October 31, 2007
- One reading per day
- at 7:00am



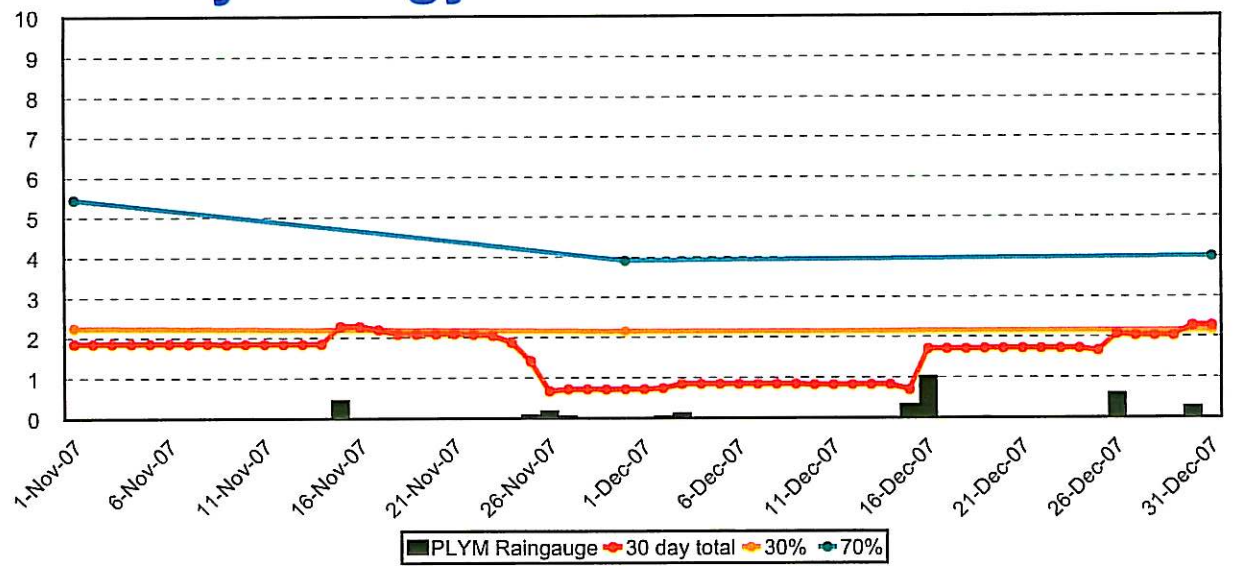
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

December 2007

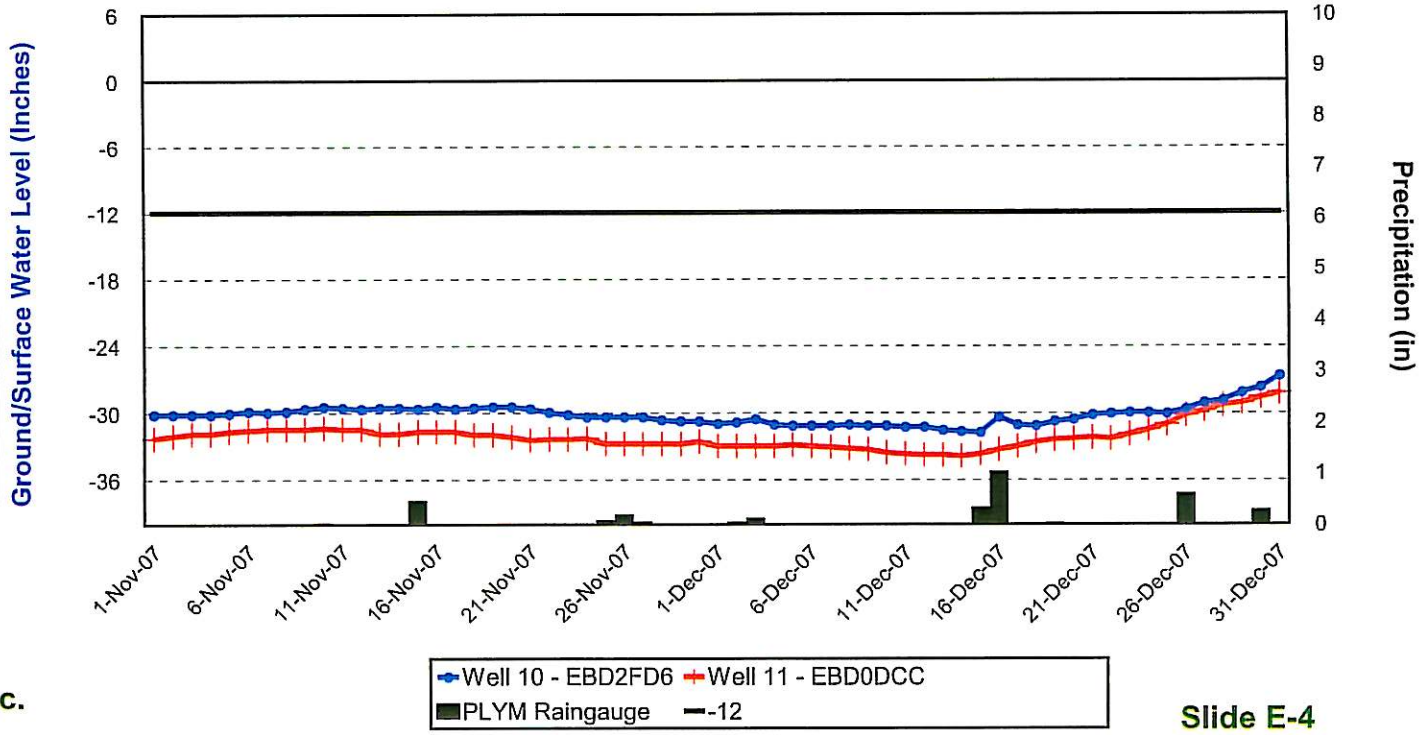
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- November 1, 2007 -
- December 31, 2007
- One reading per day
- at 7:00am



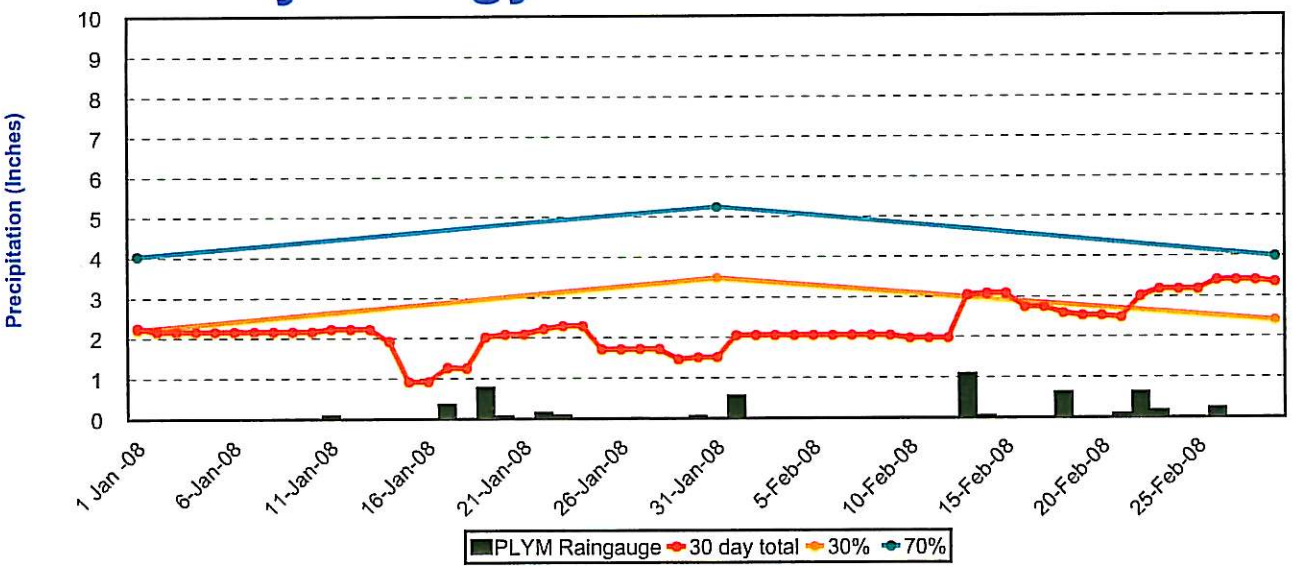
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

February 2008

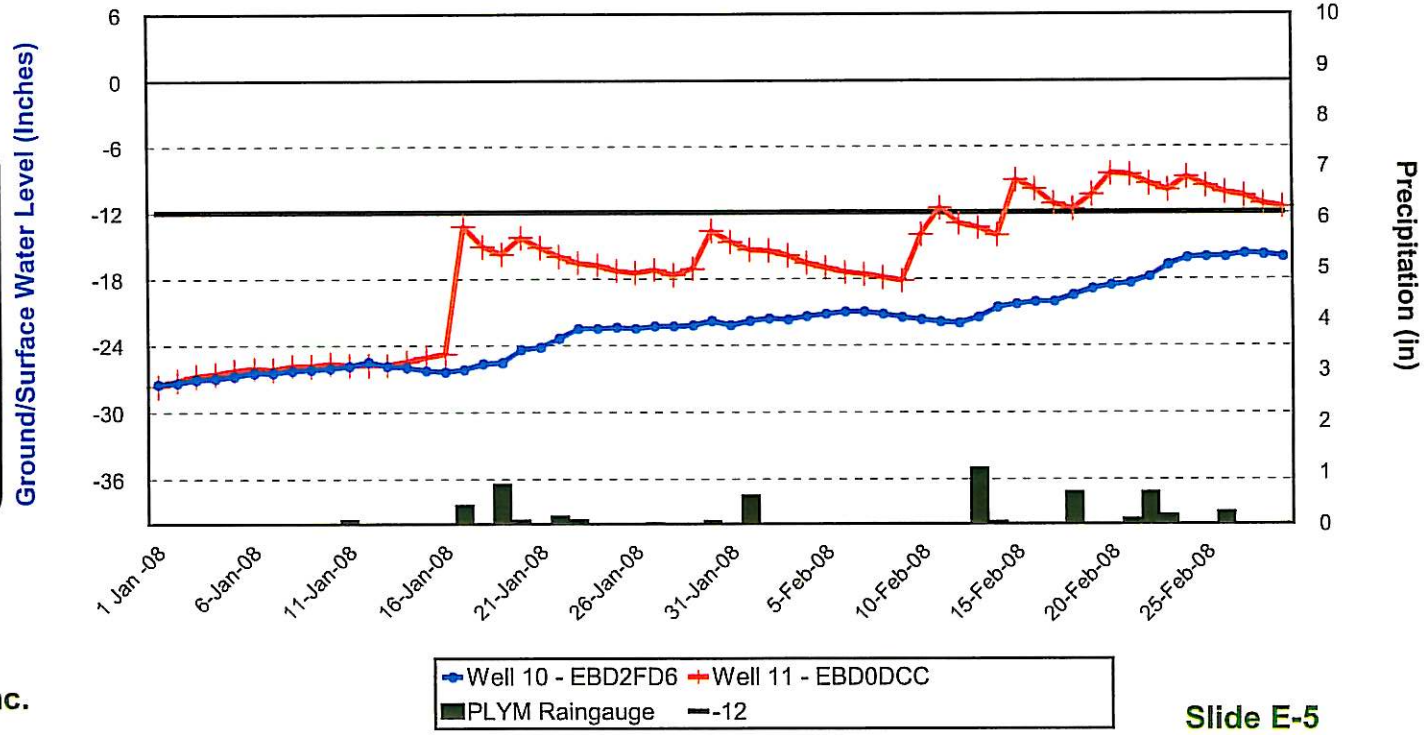
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- January 1, 2008 -
- February 29, 2008
- One reading per day
- at 7:00am



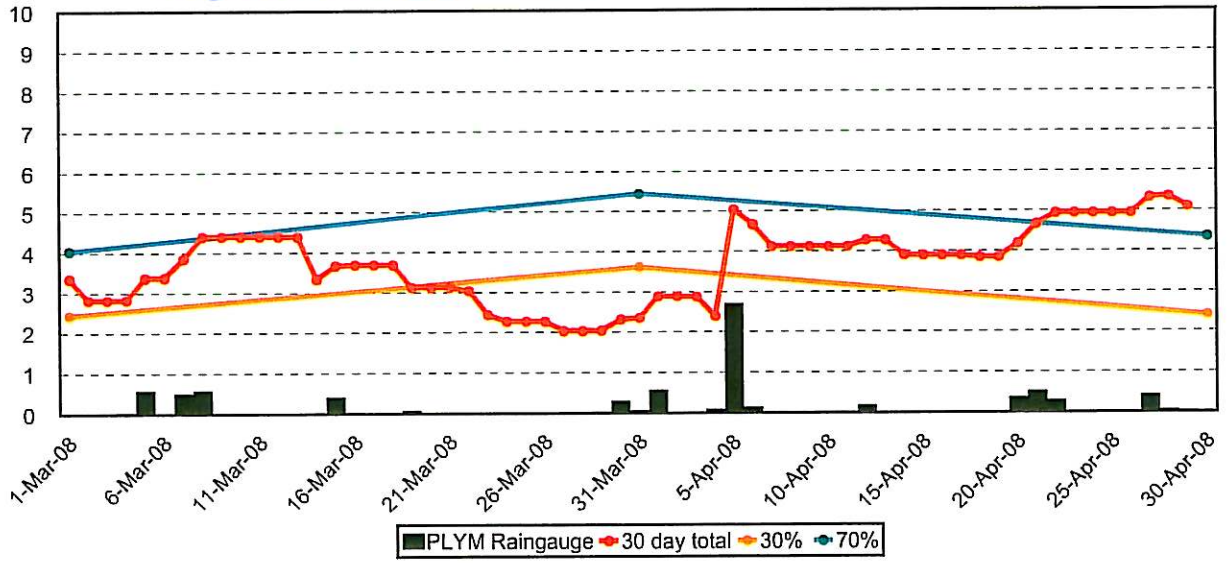
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

April, 2008

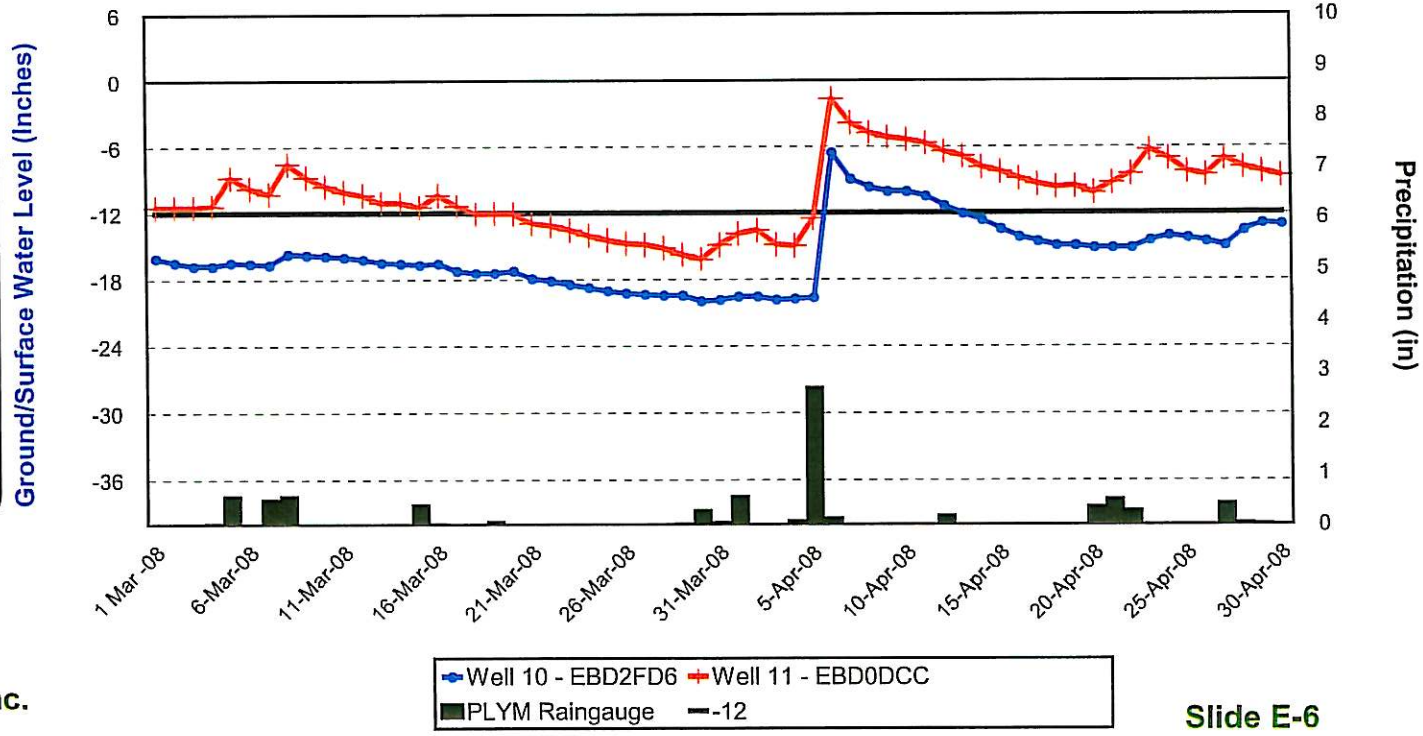
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- March 1, 2008 -
- April 30, 2008
- One reading per day
- at 7:00am



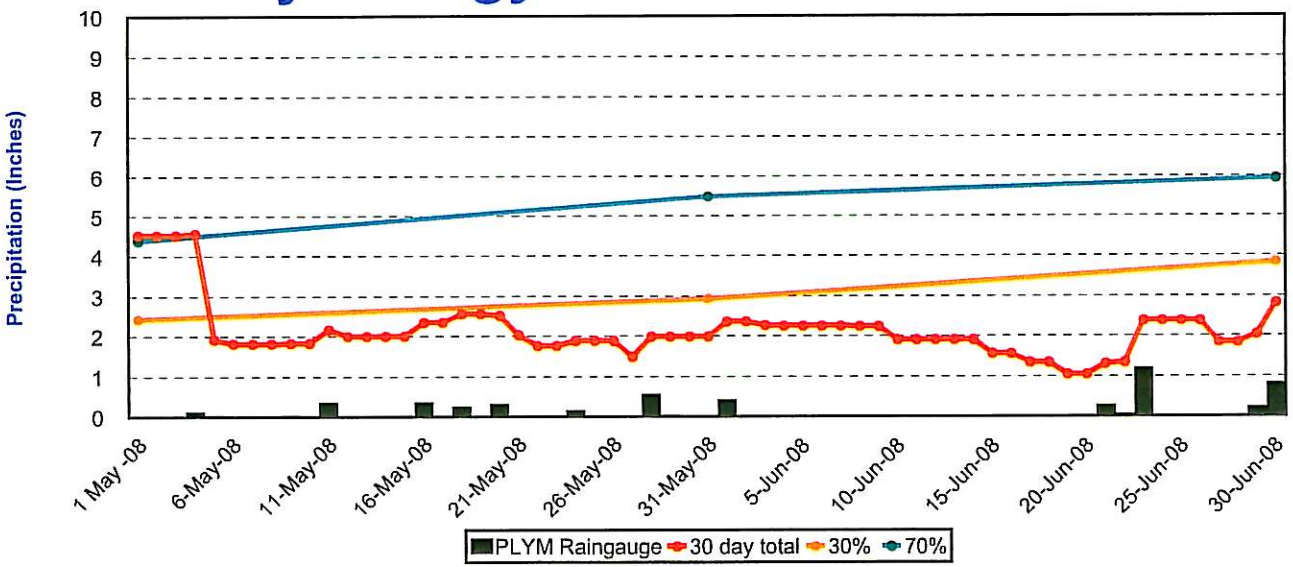
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

June, 2008

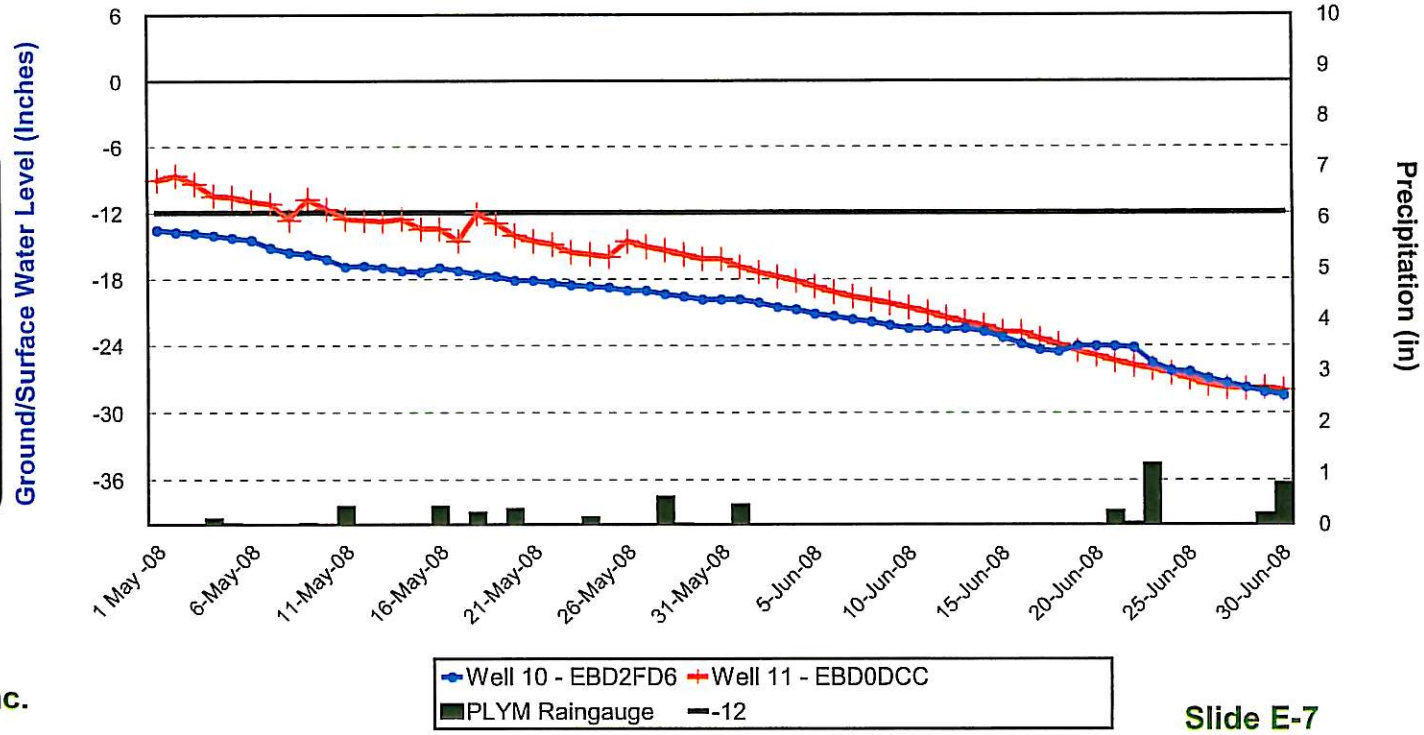
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- May 1, 2008 -
- June 30, 2008
- One reading per day
- at 7:00am

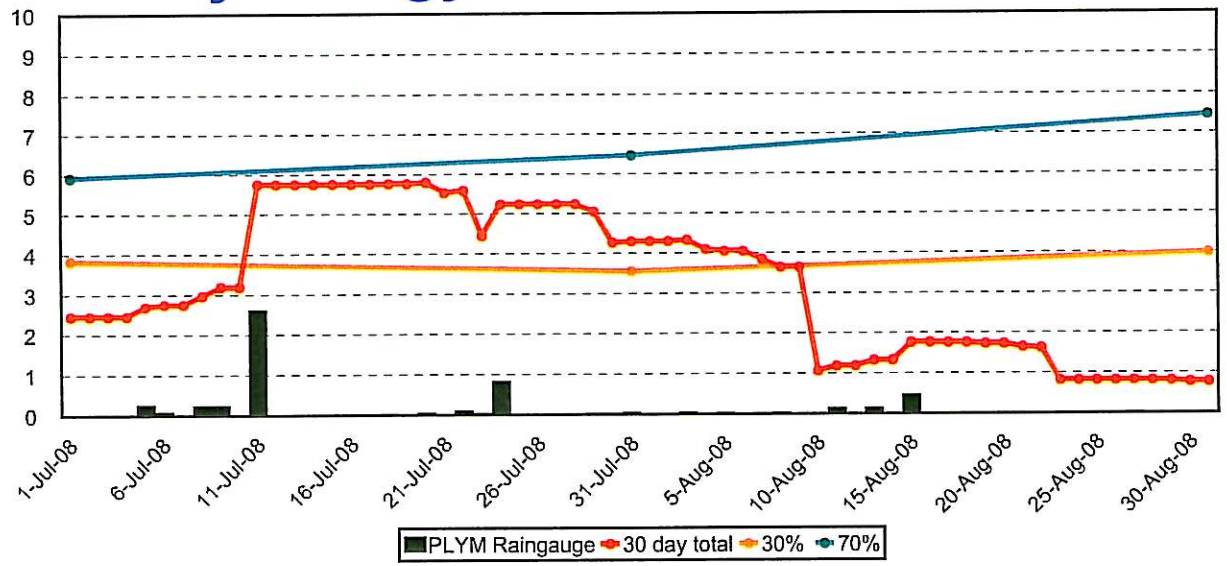


Hydrology Assessment

August, 2008

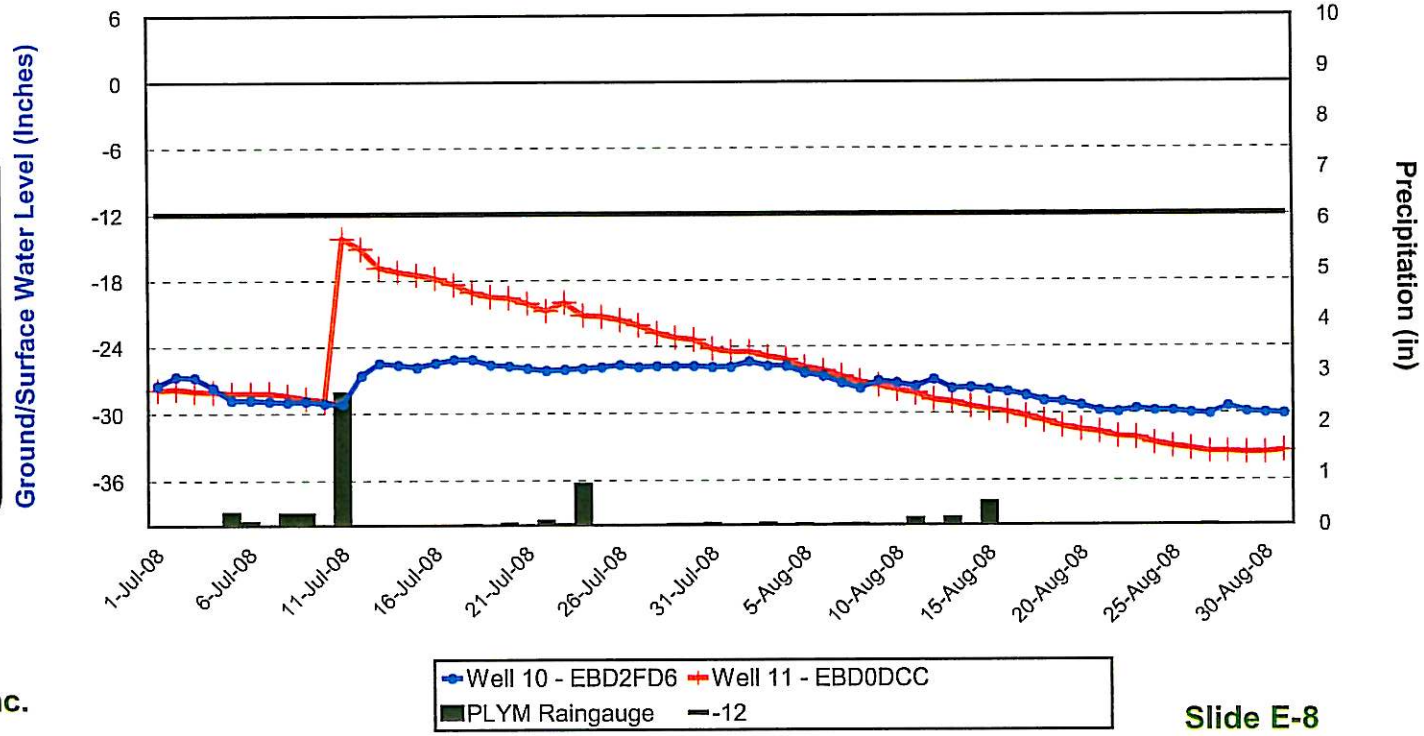
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



Monitoring Well Record

- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- July 1, 2008 -
- August 31, 2008
- One reading per day
- at 7:00am



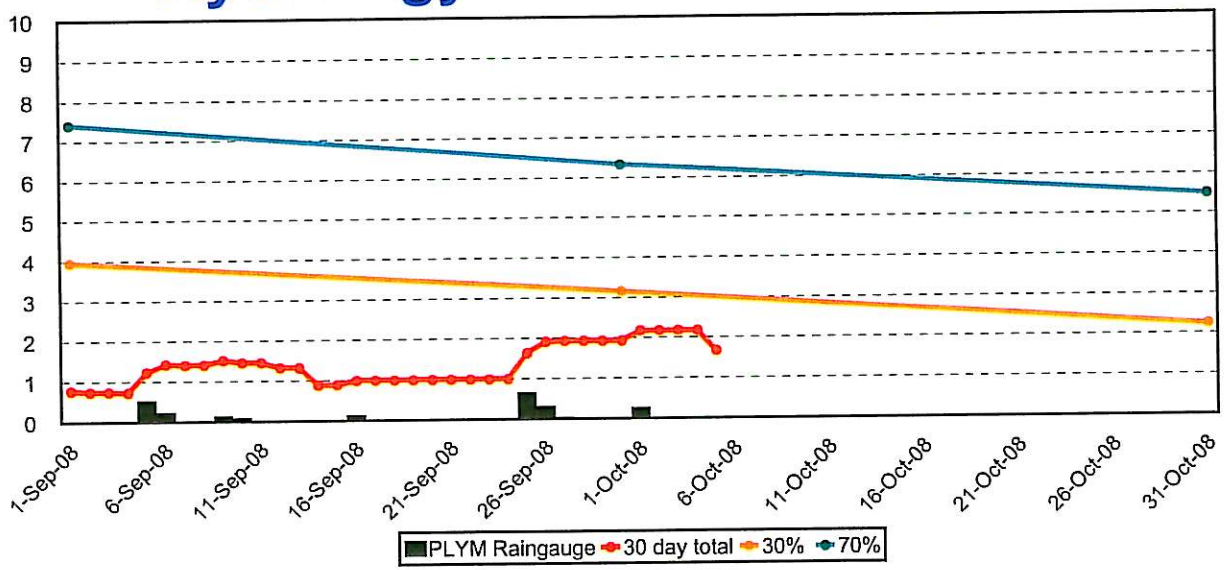
Land Management Group, Inc.
www.lmgroup.net

Hydrology Assessment

October, 2008

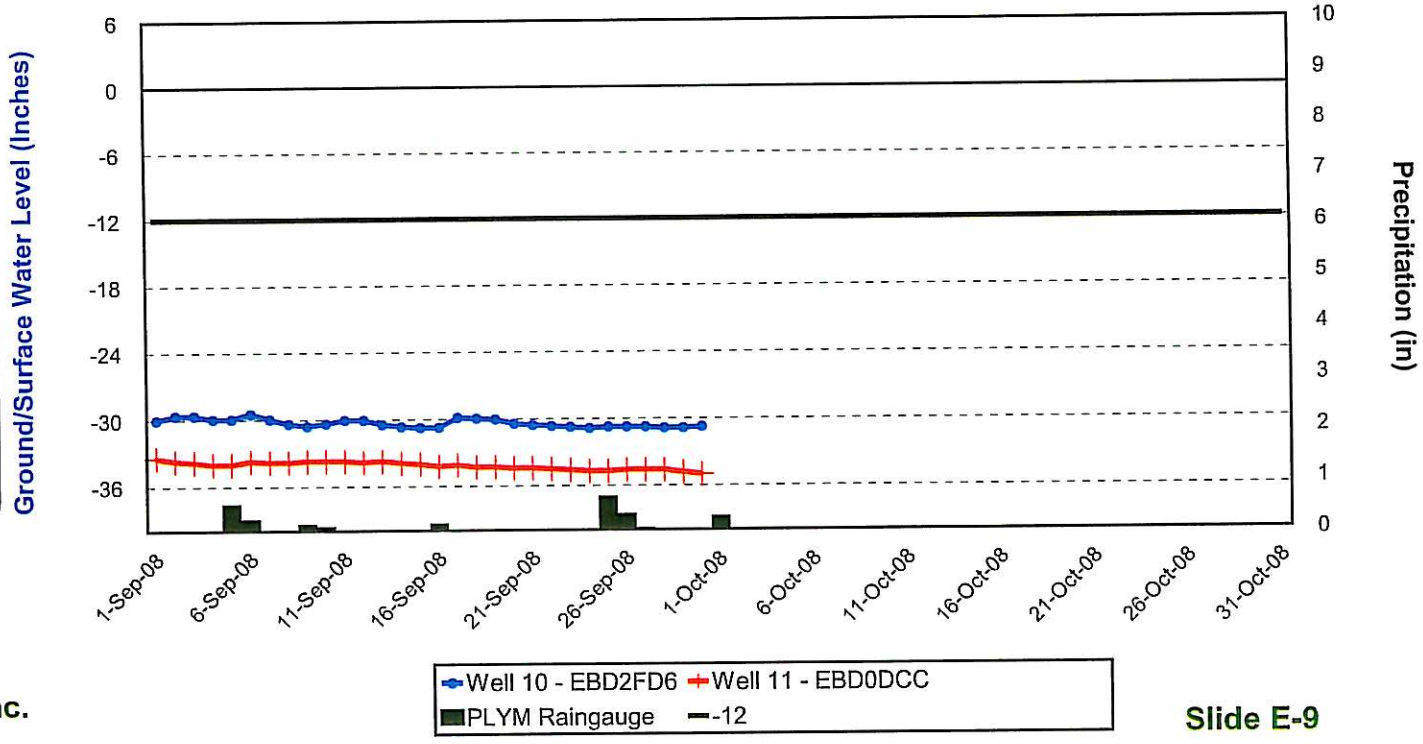
Precipitation data obtained from: station PLYM (www.nc-climate.ncsu.edu)

30% & 70% precipitation data obtained from: WETS Station : PLYMOUTH 5 E, NC6853 (wcc.nrcs.usda.gov)



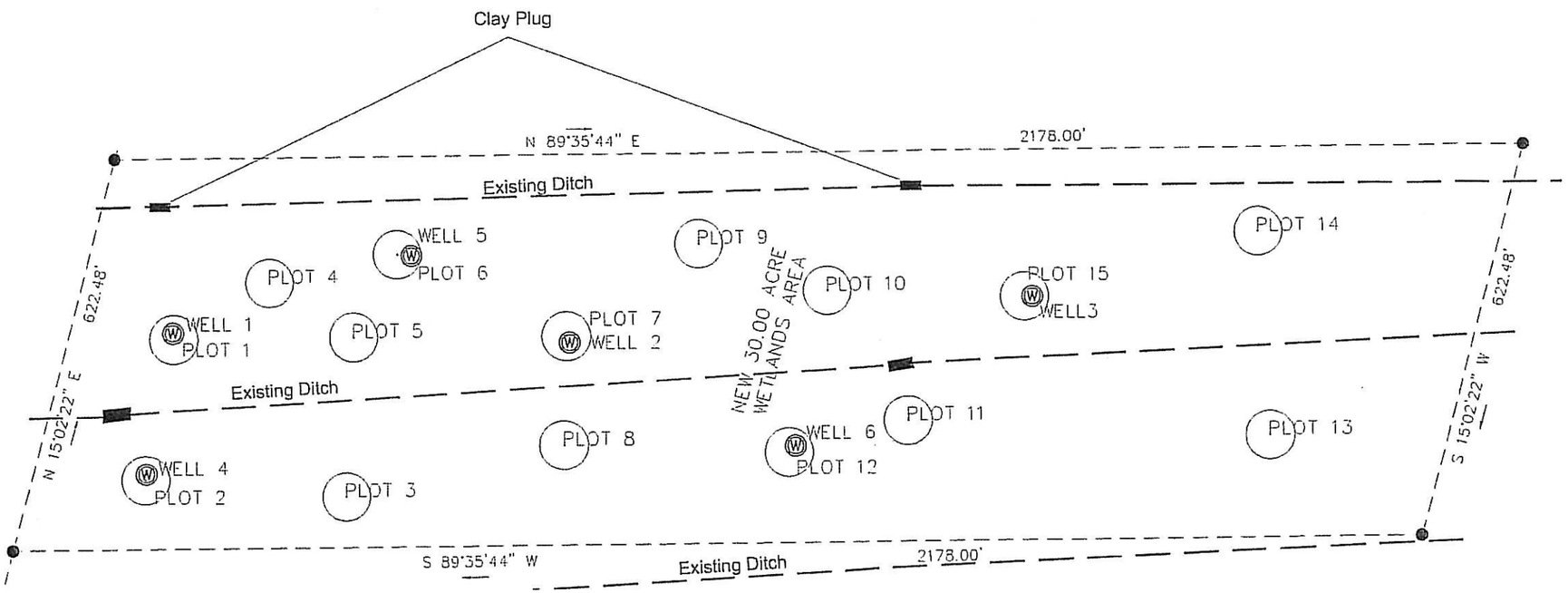
Monitoring Well Record

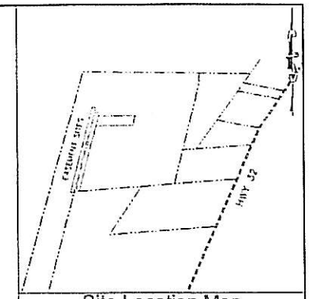
- Simpson Restoration
- Washington County, NC
- 40-05-624
- Wells 10 & 11
- New Reference Wells
- WL 40
- September 1, 2008 - October 31, 2008
- One reading per day
- at 7:00am

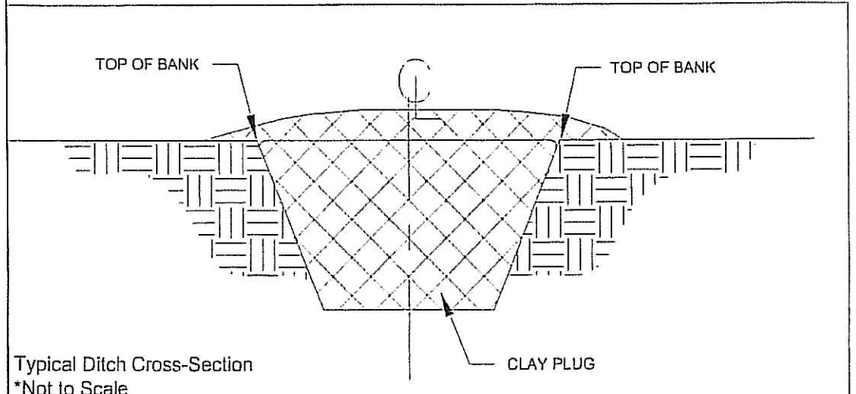


Land Management Group, Inc.
www.lmgroup.net

Appendix D. Conservation Easement Plat - September 2006 (includes Plot and Well locations)







Typical Ditch Cross-Section
*Not to Scale

0 50 100 200 400

THIS MAP IS BASED ON ORIGINAL DRAWINGS AND/OR SURVEY INFORMATION FROM:

THE EAST GROUP
Engineering · Architecture · Surveying · Technology

LAND MANAGEMENT IS NOT RESPONSIBLE FOR THE ACCURACY OF SAID INFORMATION

LAND MANAGEMENT IS NOT RESPONSIBLE FOR LOCATING, OR THE LOCATION OF, UTILITIES. ANY UTILITIES SHOWN ON THIS PLAN HAVE BEEN PROVIDED BY THIRD PARTIES AND ARE FOR GENERAL REFERENCE PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE OWNER/APPLICANT AND/OR CONTRACTOR TO CONTACT A PROFESSIONAL UTILITY LOCATING COMPANY.

LMG
LAND MANAGEMENT GROUP, P.A.
Environmental Consultants
Post Office Box 2522
Wilmington, North Carolina 28402
Telephone: 910-452-0001

Project: Simpson Wetland Restoration	Date: 4/17/07	Revision Date:
Applicant:	Scale: 1"=200'	Job Number: 40-05-624
Title:	Drawn By: GSF	Sheet Number: Appendix B

L:\WETLANDS\2005 WETLANDS FILES\40-05-624 — Simpson Tract, Wetland Restoration 30 ac, Cal Miller\ACAD\East Group_Final-Consv_Eas.dwg