

**130 ENVIRONMENTAL PARK
CALDWELL COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 2383**

TYPE I PERMIT APPLICATION

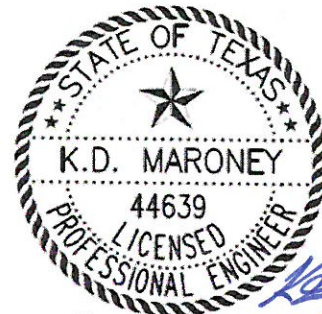
VOLUME 3 OF 5

Prepared for

130 ENVIRONMENTAL PARK, LLC

August 2013
Revised February 2014
Revised June 2014
Revised August 2014
Revised September 2014

Revised October 2014



Prepared by

Biggs & Mathews, Inc.
Firm Registration No. F-834

BIGGS & MATHEWS ENVIRONMENTAL

1700 Robert Road, Suite 100 ♦ Mansfield, Texas 76063 ♦ 817-563-1144

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VOLUME 3 OF 5

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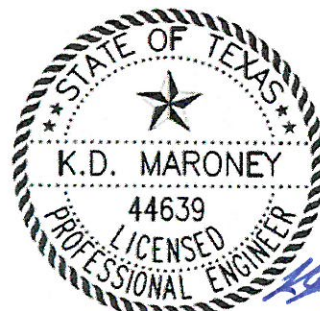
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Biggs & Mathews, Inc.
Firm Registration No. F-834

K.D. Maroney
10/16/14

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PART III – FACILITY INVESTIGATION AND DESIGN

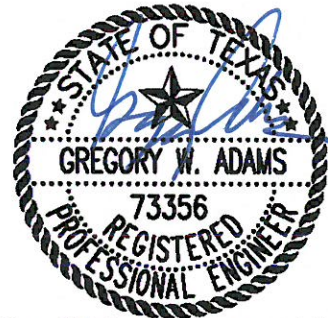
**ATTACHMENT D
WASTE MANAGEMENT UNIT DESIGN**

Prepared for

130 ENVIRONMENTAL PARK, LLC

February 2014
Revised June 2014
Revised August 2014

Revised October 2014



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10/16/2014

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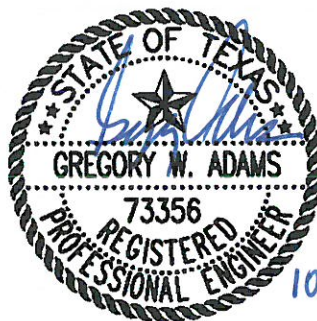
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30 TAC §330.63(d)

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Attachment D6 – Leachate and Contaminated Water Management Plan

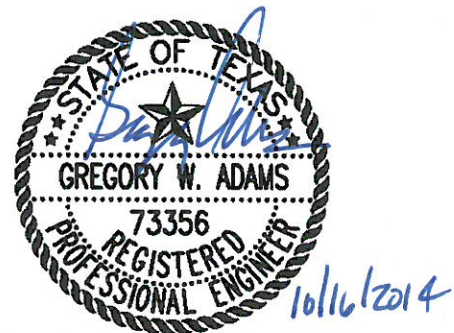
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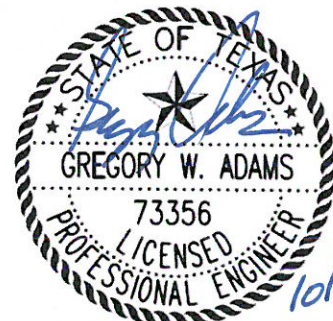
**ATTACHMENT D1
SITE LAYOUT PLANS**

Prepared for

130 ENVIRONMENTAL PARK, LLC

February 2014

Revised October 2014



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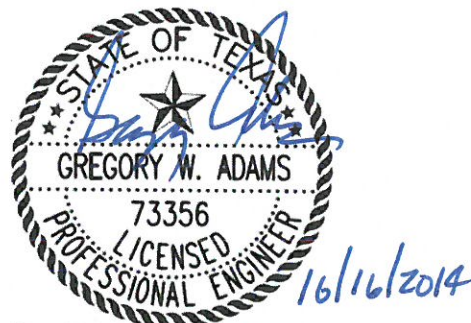
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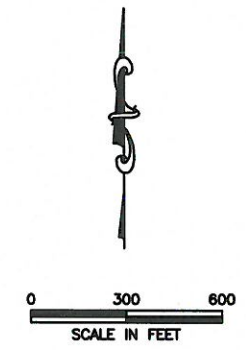
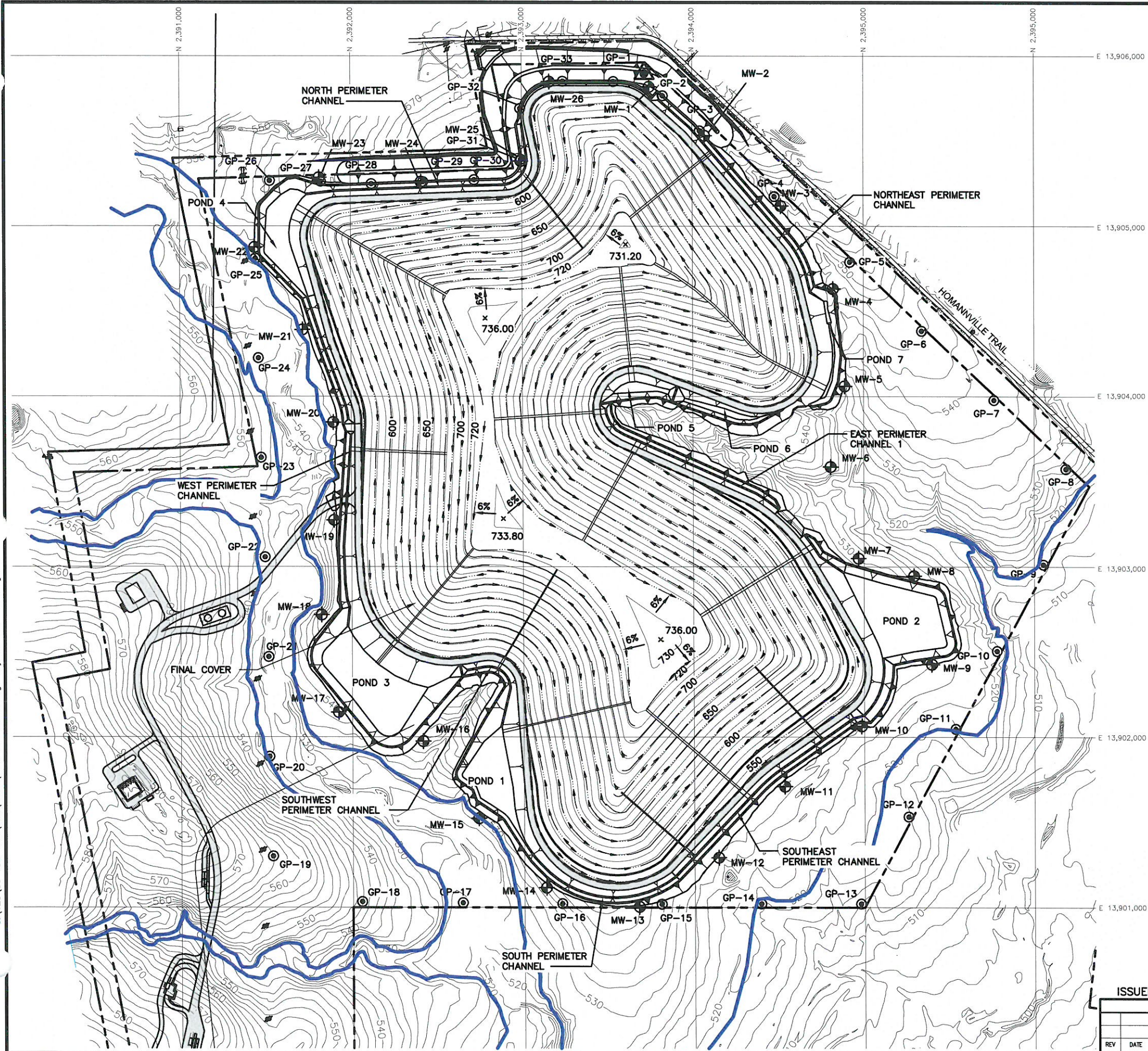
30 TAC §330.63(d)

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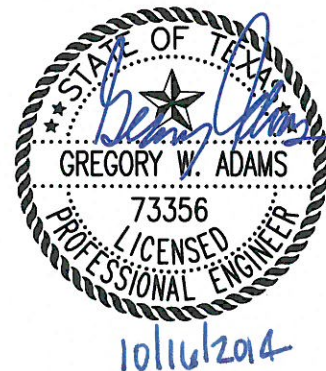
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- LEGEND**
- PROPERTY BOUNDARY
 - FACILITY BOUNDARY
 - LANDFILL FOOTPRINT
 - 250 --- EXISTING CONTOUR
 - 100 YEAR FLOODPLAIN
 - N 6753000 STATE PLANE GRID
 - ▲ SITE BENCHMARK
 - MW-4 MONITORING WELL
 - GP-1 LFG MONITORING PROBE

- NOTES:**
1. CONTOURS AND ELEVATIONS PROVIDED BY DALLAS AERIAL SERVICE FROM AERIAL PHOTOGRAPHY FLOWN MAY 13, 2013. HORIZONTAL DATUM IS TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83). ELEVATIONS ARE RELATIVE TO NAVD88 - GEOID 12A.
 2. PROPERTY BOUNDARY, FACILITY BOUNDARY, EASEMENT LOCATIONS, AND PERMANENT BENCHMARK PROVIDED BY HODDE & HODDE LAND SURVEYING, INC.
 3. PERMANENT BENCHMARK INFORMATION:
COORDINATES (NAD 83): N 13905896.44
E 2393722.33
LATITUDE: N 29°58'43.75"
LONGITUDE: W 97°39'24.76"
ELEVATION: 592.37 FT-MSL
 4. PROPOSED CONTOURS DEPICT TOP OF FINAL COVER.
 5. MAXIMUM TOP OF WASTE ELEVATION = 731.5 MSL.



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REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY	DSN. GWA	DATE : 12/13	DRAWING	
							DWN. GLW	SCALE : GRAPHIC	D1.7	
							CHK. GWA	DWG : D1.7-FinConPlan.dwg		

LANDFILL COMPLETION PLAN

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PART III – FACILITY INVESTIGATION AND DESIGN

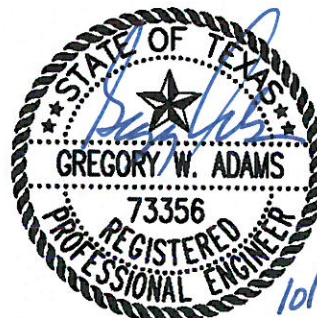
**ATTACHMENT D2
CROSS SECTIONS**

Prepared for

130 ENVIRONMENTAL PARK, LLC

February 2014
Revised June 2014

Revised October 2014



Biggs & Mathews Environmental, Inc.
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Prepared by

BIGGS & MATHEWS ENVIRONMENTAL

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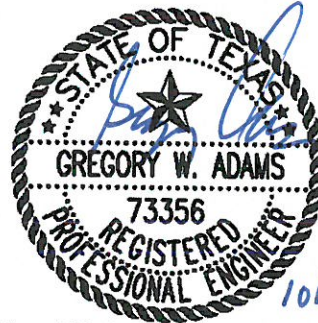
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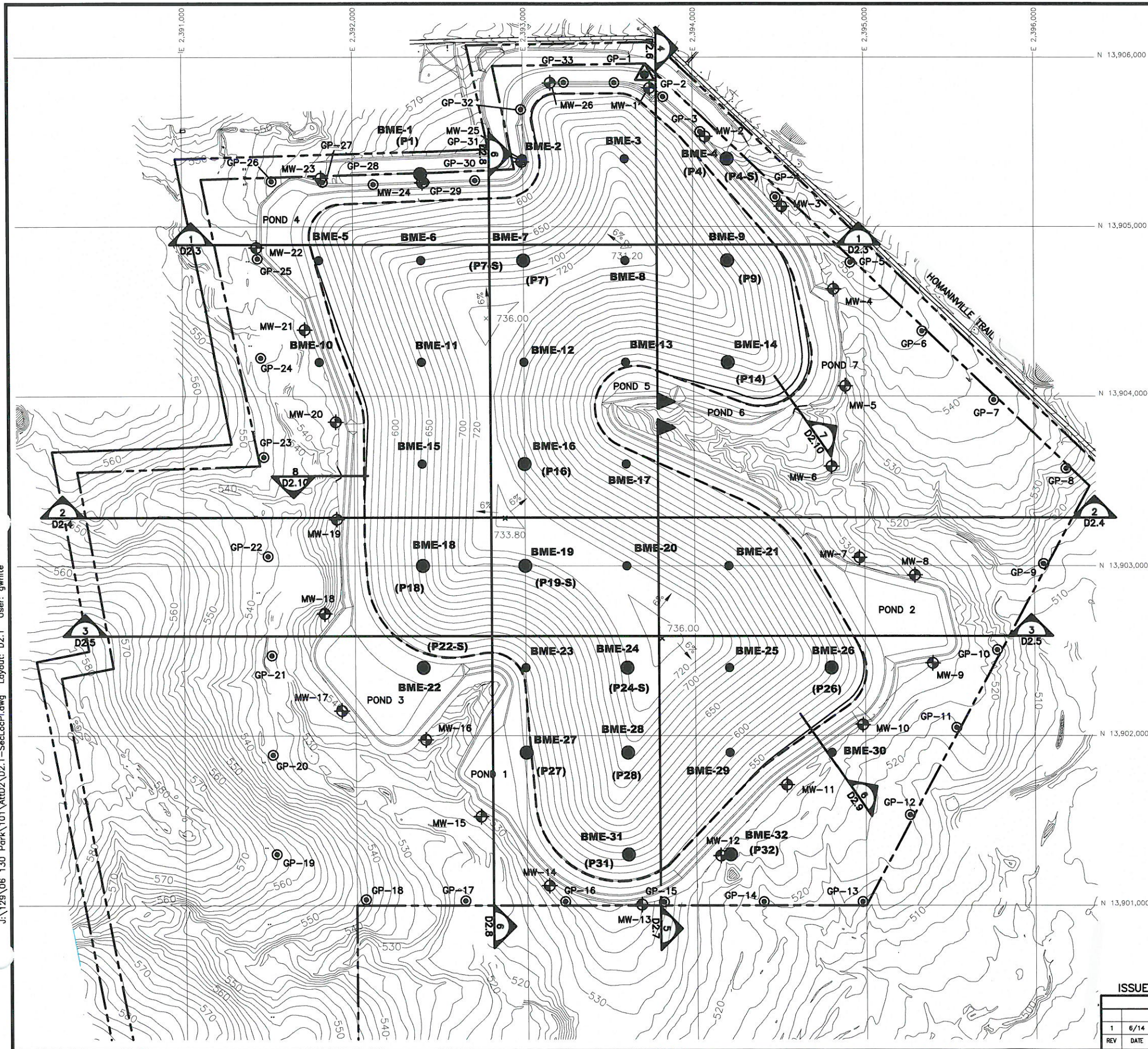
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- D2.9 – Perimeter Section
- D2.10 – Retaining Wall Section

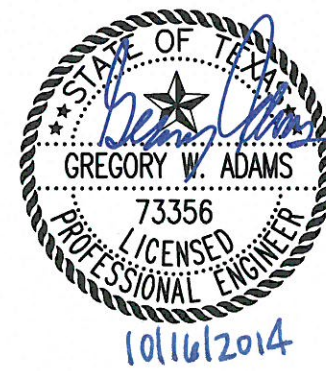


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- LEGEND**
- | | |
|---|--------------------------|
|  | PROPERTY BOUNDARY |
|  | FACILITY BOUNDARY |
|  | LANDFILL FOOTPRINT |
|  | EXISTING 2' CONTOUR |
|  | STATE PLANE GRID |
|  | BORING |
|  | BORING AND PIEZOMETER |
|  | PROPOSED MONITORING WELL |
|  | PROPOSED GAS PROBE |

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 2. PROPERTY BOUNDARY, FACILITY BOUNDARY, EASEMENT LOCATIONS, AND PERMANENT BENCHMARK PROVIDED BY HODDE & HODDE LAND SURVEYING, INC.
 3. GAS WELLS, SWALES AND LETDOWNS NOT SHOWN FOR CLARITY.



SECTION LAYOUT PLAN

**130 ENVIRONMENTAL PARK, LLC
130 ENVIRONMENTAL PARK
TYPE I PERMIT APPLICATION**



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1	6/14	N.O.D. NO. 1 RESPONSE	GLW	GWA	GWA	GWA	DWN. GLW	SCALE : GRAPHIC		
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY	CHK. GWA	DWG : D2.1-SecLocPl.dwg		

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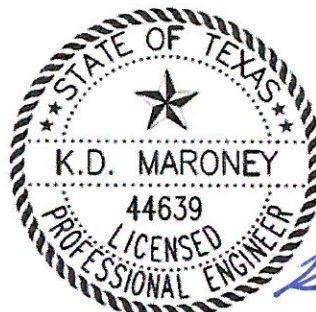
VOLUME 4 OF 5

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PART III FACILITY INVESTIGATION AND DESIGN

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Attachment F – Groundwater Sampling and Analysis Plan



Biggs & Mathews, Inc.
Firm Registration No. F-834

K.D. Maroney
10/16/14

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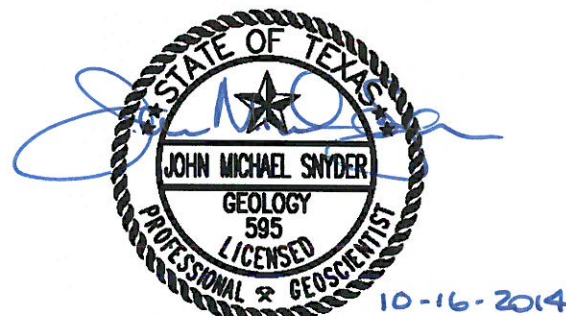
**ATTACHMENT F
GROUNDWATER SAMPLING AND ANALYSIS PLAN**

Prepared for

130 ENVIRONMENTAL PARK, LLC

February 2014
Revised June 2014
Revised August 2014

Revised October 2014



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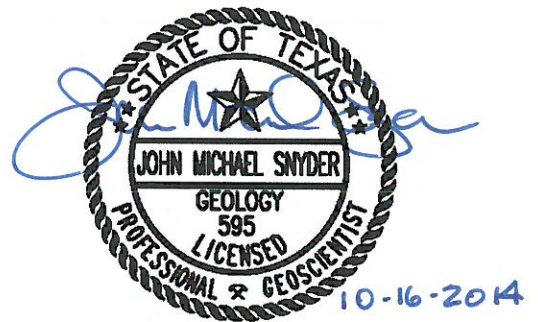
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APPENDIX F1

Proposed Groundwater Monitoring System	F1-1
Typical Monitoring Well Detail	F1-2

APPENDIX F2

Groundwater Sampling and Analysis Plan
--

GROUNDWATER MONITORING SYSTEM DESIGN CERTIFICATION

General Site Information

Site: 130 Environmental Park

Site Location: Caldwell County, Texas

MSW Permit No.: 2383

Qualified Groundwater Scientist Statement

I, John Michael Snyder, am a licensed professional geoscientist in the State of Texas and a qualified groundwater scientist as defined in §330.3. I have reviewed the groundwater monitoring system and supporting data contained herein. In my professional opinion, the groundwater monitoring system is in compliance with the groundwater monitoring requirements specified in 30 TAC §330.401 through §330.421. This system has been designed for specification application to 130 Environmental Park (Permit No. MSW 2383). The only warranty made by me in connection with this document is that I have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of my profession, practicing in the same or similar locality. No other warranty, expressed or implied, is intended.

Firm/Address: Biggs and Mathews Environmental, Inc.
1700 Robert Road, Suite 100
Mansfield, Texas 76063

Seal,
Signature &
Date:



Biggs & Mathews Environmental, Inc.
Firm Registration No. 50222

3 SUBTITLE D GROUNDWATER MONITORING SYSTEM

A groundwater monitoring system has been designed for the facility in accordance with the requirements for 30 TAC §330.403 based on site specific technical information including the identification of the uppermost aquifer and the lower confining unit beneath the uppermost aquifer that also includes a thorough characterization of the aquifer thickness and groundwater flow rate and direction (including the possibility of seasonal and temporal effects on the groundwater flow direction and rate). The design also considered the thickness, stratigraphy, lithology, and hydraulic characteristics of the geologic units above the groundwater, the materials of the uppermost aquifer, and the materials and characteristics of the lower confining unit beneath the uppermost aquifer.

As each phase of monitoring well installation is completed and prior to placement of waste in new landfill units, the owner or operator will submit a certification in accordance with 30 TAC §330.401(e) that the facility is in compliance with the groundwater monitoring requirements of §§330.403, 330.405, 330.407, and 330.409.

3.1 Monitoring Well Locations

For groundwater monitoring purposes, the uppermost aquifer beneath 130 Environmental Park Landfill has been identified as the weathered clay of the Midway Group (Stratum II). Stratum II is present and is correlatable across the site. Monitoring wells are designed to be screened across the interface of the weathered and unweathered Midway contact (Stratum II/III).

Twenty-~~four~~-~~five~~ groundwater monitoring wells have been designed along a point of compliance that has been identified on the site perimeter (Figure F1-1). Point of compliance monitoring well locations are spaced at less than 600 feet between wells.

In addition, one monitoring well has been designed along the north side of the site as background (upgradient) well.

3.2 Sampling and Analysis Procedures

Appendix F2 – Groundwater Sampling and Analysis Plan contains the general requirements, sampling procedures, and statistical analysis information required in 30 TAC §330.405(a)-(f).

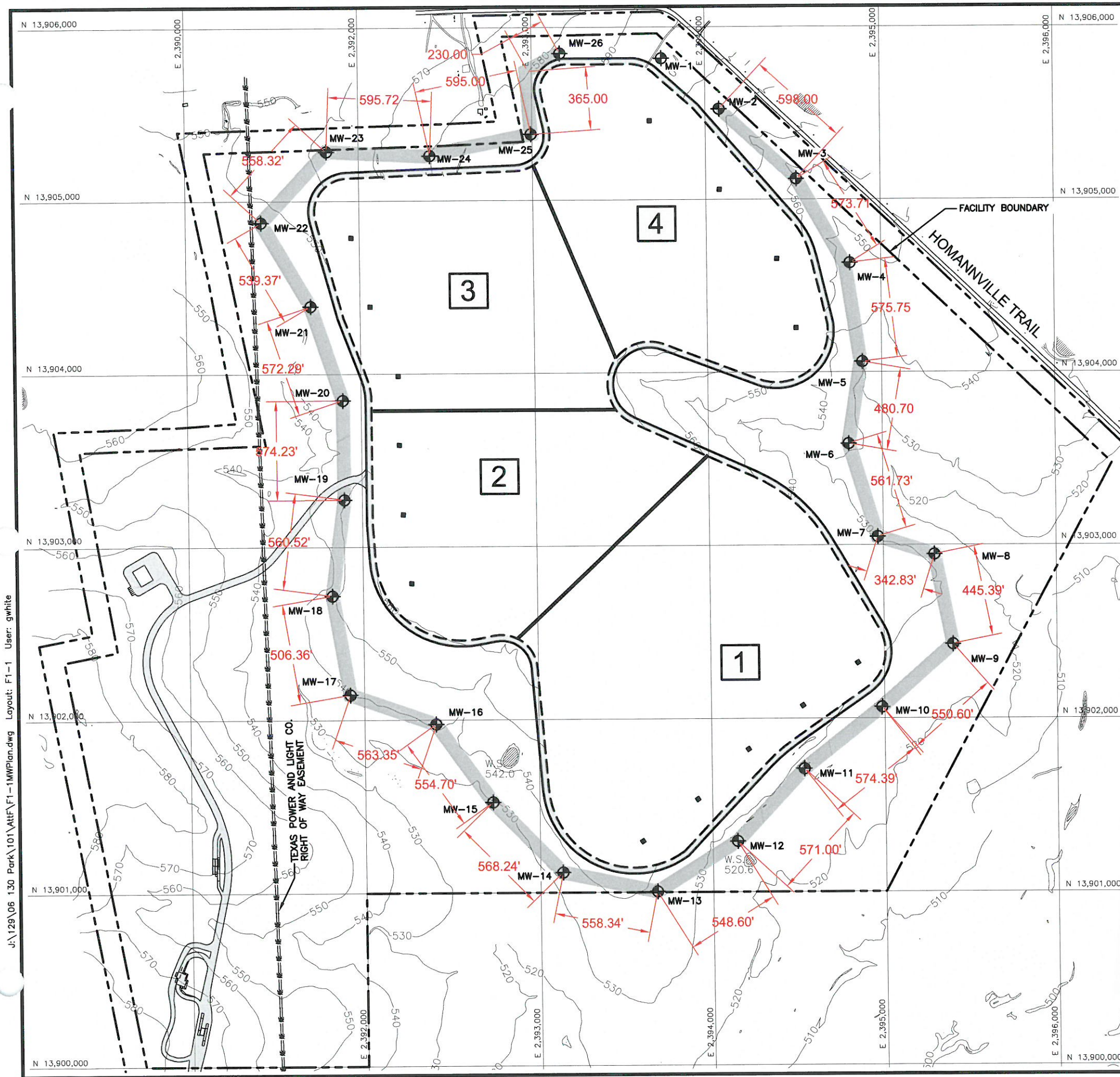
3.3 Monitor Well Design and Construction

In accordance with §330.421 – Monitor Well Construction Specifications, a licensed Texas driller will install monitoring wells in accordance with the regulations. Wells will be drilled by a method that will not introduce contaminants into the borehole or casing. A licensed professional geoscientist or engineer who is familiar with the geology of the area will supervise monitoring well installation and development and will provide a log of

APPENDIX F1

Proposed Groundwater Monitoring System
Groundwater Monitoring Well Detail

F1-1
F1-2



LEGEND

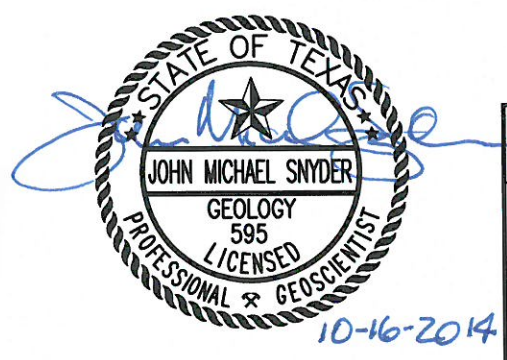
- PROPERTY BOUNDARY
- FACILITY BOUNDARY
- LANDFILL FOOTPRINT
- 510 EXISTING 10' CONTOUR
- N 6753000 STATE PLANE GRID
- OVERHEAD ELECTRIC
- MW-4 PROPOSED MONITORING WELL
- 1 PHASE DESIGNATION
- POINT OF COMPLIANCE
- SUMP

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MONITORING INSTALLATION SCHEDULE

PHASE 1	MW-1, MW-5 THROUGH MW-17
PHASE 2	MW-18 THROUGH MW-21
PHASE 3	MW-22 THROUGH MW-26
PHASE 4	MW-2 THROUGH MW-5



PROPOSED GROUNDWATER MONITORING PLAN

130 ENVIRONMENTAL PARK, LLC
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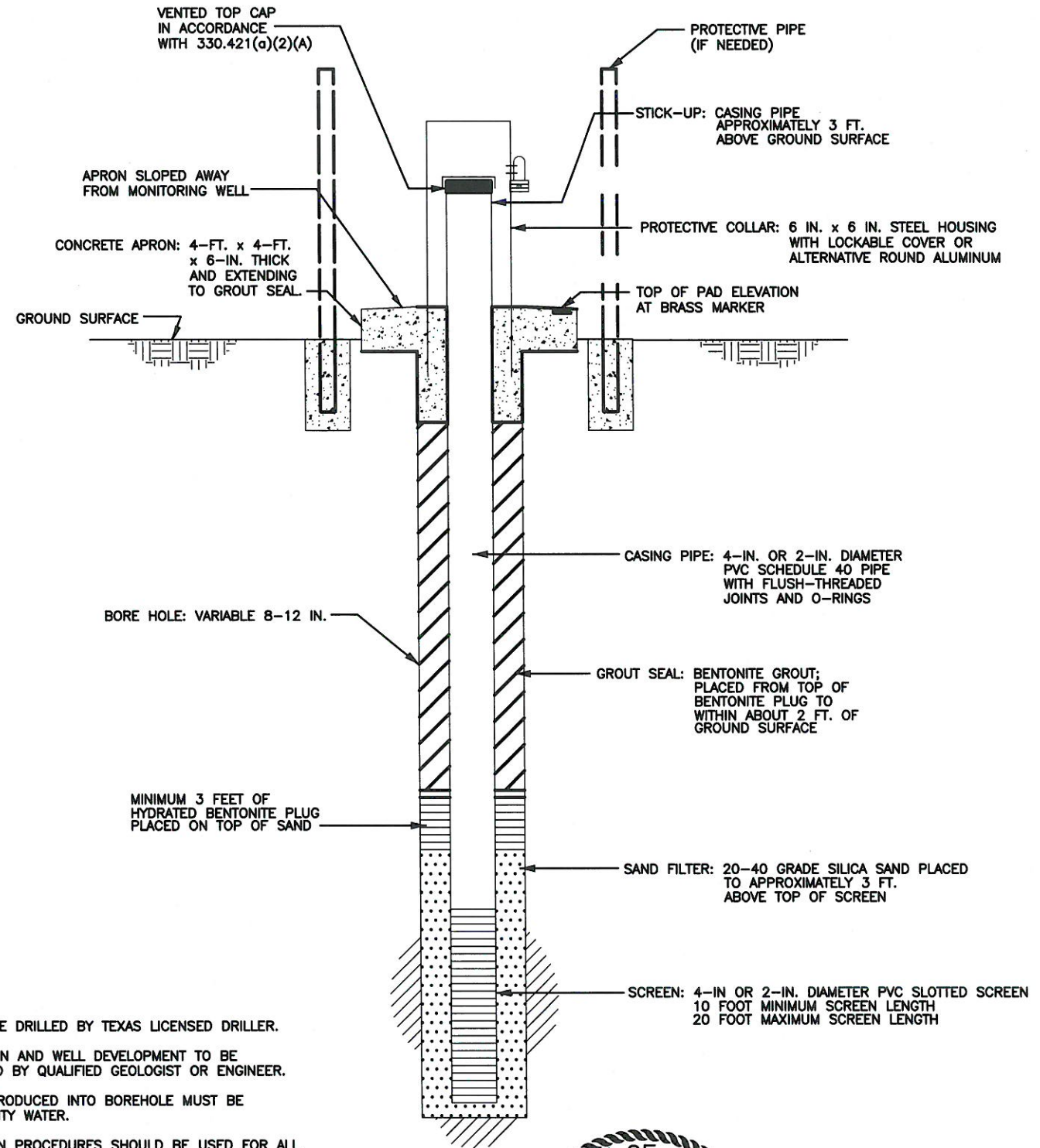
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DWN.	GLW	SCALE :	GRAPHIC			
CHK.	ESF	DWG :	F1-1MWPlan.dwg		F1-1	
REV	DATE	DESCRIPTION	DWN BY	DES BY		CHK BY

J:\129\06 130 Park\101\ATF\F1-1MWPlan.dwg Layout: F1-1 User: gwhite

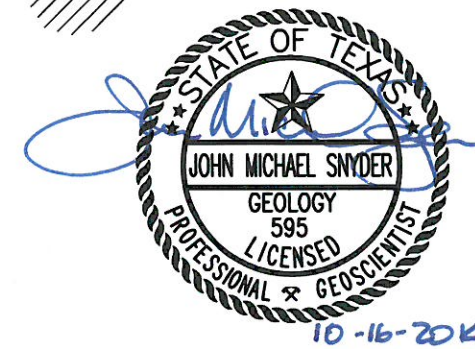
Monitoring Well No.	Unit	Designation	Northing	Easting	Ground Elevation (ft/msl)*	Top of Casing Elevation (ft-msl)*	Total Depth		Screened Interval (ft/bgs) *	
							Elev (ft-msl)*	(ft/bgs)*	Elevation	Depth
MW-1	II	U	13905818	2393749	592	577.0	531	61	513-503	61-41
MW-2	II	D	13905524	2394078	593	596.0	530	63	530-510	63-43
MW-3	II	D	13905118	2394518	559	562.0	507	52	507-497	52-32
MW-4	II	D	13904631	2394821	547	550.0	500	47	500-490	47-37
MW-5	II	D	13904060	2394889	533	536.0	495	38	495-485	38-18
MW-6	II	D	13903586	2394806	534	537.0	485	49	485-475	49-29
MW-7	II	D	13903048	2394969	529	532.0	480	49	480-470	49-29
MW-8	II	D	13902945	2395296	527	527.0	477	47	477-467	49-29
MW-9	II	D	13902427	2395399	526	529.0	477	49	477-467	50-30
MW-10	II	D	13902064	2394984	525	528.0	475	50	475-465	50-30
MW-11	II	D	13901711	2394533	527	530.0	475	52	475-465	52-32
MW-12	II	D	13901293	2394143	526	529.0	475	51	475-465	51-31
MW-13	II	D	13901005	2393676	538	541.0	487	51	487-477	51-31
MW-14	II	D	13901116	2393129	535	538.0	493	42	493-483	42-22
MW-15	II	D	13901523	2392711	529	532.0	497	32	497-487	32-12
MW-16	II	D	13901975	2392411	541	535.0	495	37	495-485	37-17
MW-17	II	D	13902211	2391839	539	542.0	495	44	495-485	44-24
MW-18	II	D	13902718	2391822	547	550.0	497	50	497-487	50-30
MW-19	II	D	13903273	2391897	549	552.0	497	52	497-487	52-32
MW-20	II	D	13903845	2391896	543	546.0	495	48	495-485	48-28
MW-21	II	D	13904391	2391716	545	548.0	505	40	505-495	40-20
MW-22	II	D	13904875	2391436	547	550.0	507	40	507-522	40-25
MW-23	II	D	13905285	2391815	562	565.0	505	57	505-525	57-42
MW-24	II	D	13905259	2392410	586	589.0	530	56	530-550	56-36
MW-25	II	D	13905382	2392993	590	593.0	525	65	525-545	65-45
MW-26	II	D	13905848	2393162	582	585.0	525	57	525-545	65-45

* ACTUAL VALUES WILL BE DETERMINED AT THE TIME OF INSTALLATION.



NOTES:

1. WELL TO BE DRILLED BY TEXAS LICENSED DRILLER.
2. INSTALLATION AND WELL DEVELOPMENT TO BE SUPERVISED BY QUALIFIED GEOLOGIST OR ENGINEER.
3. FLUIDS INTRODUCED INTO BOREHOLE MUST BE TREATED CITY WATER.
4. STEAMCLEAN PROCEDURES SHOULD BE USED FOR ALL EQUIPMENT THAT ENTERS BOREHOLES SUCH AS TREMIE PIPES OR DRILL PIPE.
5. WELL DEVELOPMENT SHOULD CONTINUE UNTIL pH, SPECIFIC CONDUCTANCE AND TEMPERATURE HAVE STABILIZED.
6. SCREENED INTERVAL TO MONITOR STRATUM II (WEATHERED MIDWAY) BELOW EXCAVATION BOTTOM. AT INTERFACE WITH STRATUM III (UNWEATHERED MIDWAY).
7. FILTER PACK GRAIN SIZE AND WELL SCREEN SLOT SIZE WILL BE DESIGNED USING GRAIN SIZE ANALYSIS AND ASTM D 5092-04 (2010) "STANDARD PRACTICE FOR DESIGN AND INSTALLATION OF GROUNDWATER MONITORING WELLS IN AQUIFERS" OR USEPA, REGION 4, SED, 2008 "GUIDANCE DOCUMENT, DESIGN AND INSTALLATION OF MONITORING WELLS".



ISSUED FOR PERMITTING PURPOSES ONLY

REVISIONS							TBPE FIRM NO. F-256			TBPG FIRM NO. 50222		FIGURE <div>F1-2</div>
							DSN.	ESF	DATE : 11/13			
							DWN.	GLW	SCALE : GRAPHIC			
							CHK.	JMS	DWG : F1-2_GW_Detail.dwg			
REV	DATE	DESCRIPTION			DWN BY	DES BY	CHK BY	APP BY				

GROUNDWATER MONITORING WELL DETAIL

130 ENVIRONMENTAL PARK, LLC
130 ENVIRONMENTAL PARK
TYPE I PERMIT APPLICATION



BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
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