Basic Remediation COMPANY

TECHNICAL MEMORANDUM

To:	Brian Rakvica (NDEP)
From:	Ranajit Sahu (BRC)
cc:	John J. Dodge, PG (DBS&A)
	Stephen J. Cullen, PG (DBS&A)
Date:	April 28, 2009
Subject:	**Technical Memorandum – Work Plan for Groundwater Sampling, BMI Common Areas (Eastside) Site, Clark County, Nevada**

Introduction

Per the request of the NDEP, this Groundwater Monitoring Work Plan (GMWP) provides specific information and guidance for a round of groundwater sampling and analysis to be performed by Basic Remediation Company (BRC) at the Basic Management, Inc. (BMI) Common Areas (Eastside or 'Site') in Henderson, Nevada. The Eastside BMI Common Areas are located in Clark County, Nevada, approximately 13 miles southeast of Las Vegas, Nevada. This GMWP is focused on a portion of the BMI Common Areas known as the Eastside – consisting of approximately 2,320 acres.

This GMWP describes the scope of work to collect groundwater data to be used to complete the evaluation of the lateral and vertical extent of groundwater contamination beneath the Eastside. This effort began in 2004 with the collection of soil boring and groundwater data, and continued with five rounds of groundwater sampling and analysis in 2006, 2007, and 2008.

This GMWP includes wells that have been installed by BRC subsequent to the earlier groundwater monitoring events at the Site, including wells previously designated as the upgradient alluvial aquifer (Aa) wells, the Northeast Area wells, and the additional Shallow Zone, Middle Zone, and Deep Zone wells currently being installed per the NDEP-approved work plan for well installation (BRC, 2009a). Findings from the 2004 groundwater sampling event and the 2006/2007/2008 quarterly groundwater monitoring events have been used as a basis for developing this GMWP.

Background

The Eastside BMI Common Areas consists of former used and unused wastewater effluent ponds (now dry) into which various wastewaters from the BMI Industrial Complex were discharged from the early 1940s through 1976, and portions of the system of conveyance ditches that were used to transport those wastewaters to the effluent ponds. The Eastside also includes municipal rapid infiltration basins and recently-active, lined ponds in the southwestern portion of the Upper Ponds that were constructed over the former ponds (also known as the TIMET active ponds or the Pabco Road ponds). In addition to the active and former effluent ponds and conveyance ditch segments, the Eastside also includes adjoining lands northeast of Boulder Highway, northwest of Lake Mead Drive, and south of the Las Vegas Wash. With the exception of a short segment that traverses Parcel 9 South, conveyance ditch segments to the west of Boulder Highway are not part of the Eastside Site.

Site Hydrogeology

The uppermost water-bearing zone is unconfined and present primarily in alluvium (referred to as the Shallow Zone). At some locations on portions of the Site, Shallow Zone groundwater is first encountered in the uppermost portion of the Tertiary Muddy Creek Formation (TMCf). This unconfined Shallow Zone groundwater generally flows in a northerly direction toward Las Vegas Wash. The Shallow Zone groundwater is generally continuous across the Site, but there are areas where Shallow Zone wells are dry.

Below the Shallow Zone, deeper groundwater occurs in sporadically encountered lenses in the Middle Zone, designated between approximately 90 and 270 feet below grade. Deep Zone groundwater is generally continuous across the Site and is characterized with wells screened below 270 feet bgs to a maximum nominal depth of 400 ft bgs. Groundwater elevation data from the last several rounds of groundwater monitoring (2006, 2007, 2008) show that Deep Zone groundwater is confined, and the potentiometric surface of Deep Zone groundwater is oriented generally north towards Las Vegas Wash (MWH, 2008).

Separate NDEP-approved project documents provide information regarding area geology and hydrogeology, soils, history, and investigations completed to-date (e.g., BRC, 2006).

Existing non-BRC wells HMW-08, HMWWT-4, HMWWT-6, and TWI were previously designated as Middle Zone wells in prior sampling events. Based on their well screen intervals listed below, these wells have been re-designated at Shallow Zone wells:

- HMW-08: 17 to 37 feet below grade (fbg)
- HMWWT-4: 36 to 51 fbg
- HMWWT-6: 36 to 51 fbg
- TWI: 9 to 19 fbg

Previous Monitoring Events

BRC has completed five rounds of groundwater monitoring at the Site. Results from each of these monitoring events are presented and discussed in the following NDEP-approved reports:

- First Quarterly Groundwater Monitoring Report, April-June 2006, BMI Common Areas
- (Eastside), Clark County, Nevada.
- Second Quarterly Groundwater Monitoring Report, July-August 2006, BMI Common Areas (Eastside), Clark County, Nevada.
- Third Quarterly Groundwater Monitoring Report, October-November 2006, BMI Common Areas (Eastside), Clark County, Nevada.
- Fourth Quarterly/Annual Groundwater Monitoring Report, January-March 2007, BMI Common Areas (Eastside), Clark County, Nevada.
- Fifth Quarterly/Annual Groundwater Monitoring Report, April-July 2008, BMI Common Areas (Eastside), Clark County, Nevada.

The Fifth Round event included utilizing 36 on-site BRC wells (previously installed during the 2004 Hydrogeological Characterization Investigation), 4 BRC replacement wells (MCF-06A-R, MCF-08B-R, AA-23R, and MCF-23A-R), 35 newly installed BRC wells (installed between June

and August 2007, and March and August 2008), and 33 non-BRC wells totaling 108 wells utilized for chemical analyses. Four BRC wells (AA-11, AA-14, AA-15, AA-19) and 43 non-BRC wells were used for groundwater level measurements only.

Objective

Data from this proposed groundwater monitoring event will be used to update the CSM for the Eastside site and, along with previously collected data, be the basis for development of a groundwater Remedial Alternatives Study (RAS) for the Eastside. Under this GMWP, data will be reviewed and validated by BRC and/or its consultant, and a report will be prepared that summarizes the sampling event. The GWMP report will be the primary document where monitoring activities from all components of the proposed GMWP are summarized. This will be the first groundwater monitoring event to include the previously monitored wells and new wells installed since the fifth quarterly monitoring event.

Scope of Work

The proposed scope of work consists of the following tasks:

- Field implementation;
- Data evaluation; and
- Reporting.

Task 1: Field Implementation

The requirements for sample collection and analysis are established in the BRC Quality Assurance Project Plan (QAPP; BRC, ERM and MWH 2008a) and the Field Sampling and Standard Operating Procedures (FSSOP; BRC, ERM and MWH 2007), which are stand-alone NDEP-approved project documents.

Pre-Field Activities

The pre-field activities will be conducted in accordance with applicable standard operating procedures (SOPs; BRC, ERM and MWH 2007). The BRC QAPP (BRC, ERM and MWH 2008) and BRC Health and Safety Plan (BRC and MWH 2005) prepared for the BMI Common Areas will be used for this proposed scope of work. All work will be completed under the direction of a State of Nevada Certified Environmental Manager.

Water Level Measurements

Water level measurements provide a measure of water potential (hydraulic head) at specific geographic locations and depths beneath the Site. The primary purpose for measuring water levels in monitoring wells is to determine horizontal and vertical groundwater flow directions and gradients. These measurements, when converted to elevations relative to a standard datum (such as mean sea level or the North American Vertical Datum) and posted on a map, can be contoured to prepare potentiometric surface maps, and used to determine where and at what rate groundwater is moving.

Water levels will be measured in wells shown on Figure 1, Figure 2, and Figure 3 to provide water level data to determine groundwater gradients and flow directions.

This water level measurement event will be conducted over a one to four day period, and will be coordinated to coincide with the other BMI Companies, if possible. Measurements within geographic areas will be collected in the shortest possible time so that the local hydraulic gradients in each zone and between zones can be assumed to have been made under comparable conditions. Water level measurements will be performed in accordance with procedures described in the project specific SOP-5 (Water Sampling and Field Measurements).

Water Quality Sampling and Analysis

Water quality samples will be collected from the monitoring wells specified on Figure 1, Figure 2, and Figure 3 and Table 1. Monitoring will be completed in the selected wells to:

- Re-sample wells for parameters with high detection limits in prior analyses (arsenic, perchlorate, hexavalent chromium);
- Utilize new analytical methods for arsenic and perchlorate samples to achive lower detection limits;
- Characterize offsite upgradient impacts and flow direction;
- Sample wells that were scheduled but missed during 5th round sampling;
- Sample new 2009 wells;
- Sample previously inactive wells to assist with impact delineation;
- Further characterize evaporite deposits and total dissolved solids (TDS) in the Deep Zone.

At any point, wells may be evaluated for removal from the monitoring program and will be considered on a case-by-case basis by the NDEP. This evaluation will include review of the detected analytes, detection limits, applicable water quality parameters, professional judgment and project goals. It is also possible that BRC will coordinate with the other companies in implementing this program so that duplication of effort is avoided.

As approved by the NDEP in a July 25, 2006 meeting between BRC and the NDEP, BRC will use the micro-purge and sampling methodology that were used for the previous Eastside groundwater monitoring program. BRC-owned wells have been or will be equipped with QED® Well Wizard (A-system and L-system) dedicated bladder pumps for the monitoring and sampling of wells for the groundwater monitoring. QED® MP10H high pressure micro-purge controllers will be used. The Well Wizard A-system was installed in all AA-wells (or shallow MCF-wells) due to their relative shallow well design (less than 100 feet deep). The L-system pumps were required in many of the MCF wells due to the depth of the wells. The L-system uses a drop-tube

that attaches to the base of the pump and extends down to a specified intake depth within the well screen interval. This allows the pump to be located closer to the top of the well and still collect groundwater samples from across the screen interval located as deep as 380 feet btoc.

Generally, pump (sample) intakes were installed across the middle of the well screen intervals for saturated well screens (typically identified as MCF wells – confined aquifer), and approximately 1 to 3 feet from the bottom of the wells for non-saturated well screens (typically identified as AA wells – unconfined aquifer).

Where possible, non-BRC wells are proposed to be monitored and sampled using a QED® brand SamplePro portable bladder pump system. QED® MP10H high pressure micro-purge controllers will be used during the event. Due to circumstances previously identified during the prior quarterly monitoring events, several non-BRC wells will be monitored and sampled for groundwater during this event using the SamplePro portable pump system. The portable pump (sample) intakes are generally placed in the middle of the saturated well screen interval for groundwater monitoring and sampling collection.

Field quality control measures to be implemented during the quarterly groundwater sampling events will be performed according to BRC QAPP requirements and BRC SOPs. The required QC sample frequencies and field QC measures will include but are not limited to:

- Collection of 10% field duplicates, 5% equipment blanks, 5% trip blanks, and 10% matrix spike/matrix spike duplicate samples;
- Providing accurate, detailed field documentation; and
- Proper sample packaging and shipment.

SOPs specific to groundwater sampling and field analytical procedures are presented in SOP-5 and SOP-30.

Waste Management

Purge water resulting from groundwater sampling will be disposed of in TIMET pond SW-12, pursuant to an NDEP-approved Temporary Authorization to Discharge (permit).

Well Maintenance and Inspections

The groundwater monitoring includes inspection and well maintenance activities that identify wells that ensure wells are properly maintained; and that, therefore, representative samples are collected from the monitoring wells. Every monitoring well scheduled for water level measurement or sampling will be inspected for deficiencies and problems. An inspection checklist will be completed, noting any deficiencies and problems, and will include the following information:

- Date, inspector's initials, well identification number; and
- Description of condition for security posts, well pad, security casing, and dedicated sampling components, if applicable;
- Gasket, lock, well casing, well head, flange bolt tightness; and
- Straightness of the well head.

In addition to the routine well inspection, each well total depth will be measured to determine if formation material surrounding the well has migrated into and accumulated inside the well casing. Wells that contain an accumulation of material that exceeds 20 percent of the screened interval will be considered for redevelopment.

Routine maintenance such as lubricating the well cap lock with graphite, replacing the lock, replacing the well gasket, replacing the well head bolts, and tapping out the bolt holes will be performed each water level monitoring event, as needed, for on-site (i.e., BRC owned) wells only. For all off-site wells requiring maintenance, the respective site owners will be notified.

All maintenance performed will be documented in a bound logbook. If well components are damaged and cannot be repaired on the spot (such as bent security posts or casing, or a cracked concrete well pad), the problem will be described and recommended for correction under a well maintenance task. These routine maintenance activities will be summarized in the fifth round groundwater monitoring report.

Analytical Program

The proposed analytical suites for this groundwater monitoring event are listed below and detailed in Table 1:

- Field measurements (using air-tight flow-through cell): oxidation-reduction potential (ORP), dissolved oxygen (DO), pH, temperature, and specific conductivity;
- Water quality parameters (alkalinity, bicarbonate alkalinity, carbonate alkalinity, hardness, hydroxide alkalinity, total dissolved solids, and total suspended solids);
- General chemistry parameters (ammonia, iodide, pH, total inorganic carbon, total Kjeldahl nitrogen [TKN], and total organic carbon);
- Ions and ion balance (including perchlorate);
- Metals (including arsenic);
- Select radionuclides (thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, uranium-238, radium-226, and radium-228); and
- Volatile organic compounds (VOCs).

Groundwater samples from each well selected for water quality sampling (depicted on Figure 1, Figure 2, and Figure 3) will be analyzed for the parameters listed above.

In addition to the above proposed analytical program listed above, the following stable isotope analyses will be completed during the fifth round in select wells to support the CSM:

- Delta ^{18}O (del O) (stable isotopes of oxygen (ratio of ^{18}O to ^{16}O)); and
- Delta ^{2}H (del H) (stable isotopes of hydrogen (ratio of deuterium (^{2}H) to protium (^{1}H))).

Stable isotopes samples will be collected from the following Deep Zone wells:

- MCF-02A;
- MCF-06A-R; and
- MCF-18A.

As shown in the boring logs for wells MCF-06A-R and MCF-18A, these wells are located where an evaporitic deposit is present in the Deep Zone. The evaporitic deposit is identified by the abundance of gypsum in the logged soils at depth. As a result, del O and del H data from wells MCF-06A-R and MCF-18A should be similar to existing data from well MCF-20A (isotopically heavy).

Deep Zone well MCF-02A is not located within the evaporitic deposit, and in addition, the concentration of total dissolved solids (TDS) in this well was relatively low at 540 milligrams per liter (mg/L) in the fifth sampling round. The data from MCF-02A is thus anticipated to be isotopically distinct (relatively light) from MCF-06A-R, MCF-18A, and MCF-20A. The proposed del O and del H data from the Deep Zone wells will be used to evaluate the origin of the Deep Zone TDS at the Eastside area.

The proposed monitoring program will follow the analytical method specifications presented in the Fifth Round Groundwater Monitoring Work Plan (Revision 0) prepared March 20, 2008 (BRC, 2008b) (Table 2).

As noted in BRC's March 25, 2009 technical memorandum entitled, "Resolution of Various Analytical Program Issues," arsenic will be analyzed using collision cell methodology for reduced detection limits (BRC, 2009b). Similarly, perchlorate will be analyzed using liquid chromatography/mass spectrometry (LC/MS) instead of ion chromatography so that reduced detection limits can be achieved.

Task 2: Data Evaluation

Measurement data will be consistently assessed and documented to determine whether objectives were met. The review will assess data quality and identify potential limitations on data use. The data quality review process provides information on overall method performance and data usability. The BRC QAPP defines the basis for assessing the elements of data quality. Laboratory data and data quality review reporting procedures and formats are also addressed in the BRC QAPP.

Once the data are collected, BRC will subject the data to validation per procedures agreed to previously with the NDEP and consistent with the BRC QAPP (BRC, ERM and MWH 2008) and SOP-40. Only those data determined by the QA/QC review to be suitable for use will be considered for the site data set. A separate Data Validation Summary Report will be prepared and submitted to NDEP for the monitoring event.

Task 3: Reporting

A sampling report will be prepared to document the groundwater monitoring activities at the Site. The purpose of the groundwater monitoring report is to present the analytical results with an evaluation of current groundwater conditions at the Site.

Section 1.0 of the report will present introduction information pertaining to the project history and hydrogeology, purpose and scope, and report organization. Section 2.0 will summarize the monitoring event activities including well measurements, sample collection, decontamination procedures, management of investigation-derived waste, and the analytical program. Section 3.0 will present the groundwater monitoring data including; groundwater conditions and analytical results. An electronic (PDF) copy of the report, well hydrographs, isoconcentration trend graphs, and isoconcentration maps will be included as appendices.

BRC currently maintains a comprehensive project database for all Site data. All new data collected pursuant to this GMWP will be incorporated into the project database. Each laboratory will provide the analytical data in electronic format for storage in the project analytical database. The Data Manager (currently ERM) will amend the project database with each new set of data provided by the laboratory, perform accuracy checks between the hardcopy and electronic data reports, and maintain any data qualifiers resulting from data validation activities.

Schedule

Once final approval of the GMWP is received from NDEP, field implementation activities can commence within one month. However, BRC will collect the data at the next synchronized quarterly event previously agreed to by all of the BMI companies. BRC will provide NDEP with at least one week notice prior to the initiation of field activities at the Site. It is anticipated that this quarterly monitoring can be completed within four weeks, depending on field conditions. The groundwater samples will be submitted to the laboratories and placed on a standard turn around time, which is 28 days for the complete analyte list. A report will be completed within one month after the final data are received from the laboratory and validated. Report submittal is subject to change based upon length of time required to conduct each sampling event and the time required to receive the analytical data from the laboratory.

Closing

Please see below for appropriate certification language and signature. Please direct any remaining questions or comments you may have to me at 626-382-0001.

Sincerely,

Basic Remediation Company
Ranajit Sahu, CEM
Project Manager

Attachments:

Table 1 – Summary of Proposed Monitoring Program

Table 2 – Analytical Specifications

Figure 1 – Shallow Zone Monitoring Well Locations

Figure 2 – Middle Zone Monitoring Well Locations

Figure 3 – Deep Zone Monitoring Well Locations

References

Basic Remediation Company (BRC) and MWH. 2005. BRC Health and Safety Plan, BMI Common Areas, Clark County, Nevada. October.

Basic Remediation Company (BRC), Environmental Resources Management (ERM), and Daniel B. Stephens & Associates, Inc. (DBS&A). 2006. Closure plan, BMI Common Areas, Clark County, Nevada. Prepared for Basic Remediation Company (BRC), Henderson, Nevada. August 2006.

Basic Remediation Company (BRC), ERM, and MWH. 2007. BRC Field Sampling and Standard Operating Procedures, BMI Common Areas, Clark County, Nevada. August.

Basic Remediation Company (BRC), ERM, and MWH. 2008a. BRC Quality Assurance Project Plan. BMI Common Areas, Clark County, Nevada. February.

Basic Remediation Company (BRC). 2008b. Fifth Round Groundwater Monitoring Work Plan, BMI Common Areas (Eastside), BMI Complex, Henderson, Nevada (Revision 0), March 20.

Basic Remediation Company (BRC). 2009a. Work Plan for Monitoring Well Installation, BMI Common Areas, Eastside, March 4.

Basic Remediation Company (BRC). 2009b. Technical Memorandum – Resolution of Various Analytical Program Issues, BMI Common Areas (Eastside) Site, Clark County, Nevada

MWH, 2008. Fifth round groundwater monitoring report, April - July 2008, BMI Common Areas (Eastside), Clark County, Henderson, Nevada. Prepared for Basic Remediation Company (BRC), Henderson, Nevada. December 2008.

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

April 28, 2009

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009) Date

BRC Project Manager

Table 1. Summary of Proposed Analytical Program
Groundwater Monitoring Event
BMI Common Areas
Eastside

Analyte	Objective	Shallow Zone Wells	Middle Zone Wells	Deep Zone Wells
Arsenic	Re-sample wells with high detection limits in prior analyses; analyze with new method	AA-08, HMW-08, PC-76, PC-81, PC-88, PC-94, COH-2A, HMW-09, WMW5.58SS, MW-13, DBMW-20, AA-10, DBMW-19, AA-22, AA-23R, MW-04, AA-26; DBMW-1, 4, 5, 7, 8; MCF-06C; DBMW-11, 12, 13, 16, 17; PC-24, MCF-16C, PC-67, POD2, POD8, AA-09, DM-1, AA-27, AA-01, AA-UW2,3,4,5.	COH-1, COH-2, WMW5.58SI, WMW5.58SD, MW-15, MCF-08BR, MCF-10B, MCF-06B, MCF-05, MCF-11, MCF-16B, MCF-09B, BEC-6, MCF-03B	All Deep Zone wells
	Characterize offsite upgradient impacts	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Chromium VI	Re-sample wells with high detection limits in prior analyses	None	None	MCF-20A
	Characterize offsite upgradient impacts	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Perchlorate	Re-sample wells that were scheduled but missed last round; analyze with new method	PC-79, PC-2, PC-4, POU3, DM-1, AA-01	BEC-9, MCF-09B, BEC-6, HMWWT-6, MCF-02B	MCF-17A, MCF-06AR, MCF-19A, MCF-23A, MCF-09A, MCF-01A, MCF-03A
	Re-sample wells with high detection limits in prior analyses (5th round); analyze with new method	None	MCF-16B	MCF-18A, MCF-20A, MCF-21A
	Characterize offsite upgradient impacts; analyze with new method	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Radium 226+228	Re-sample wells that were scheduled but missed last round	PC-79, PC-2, DM-1, POU3, AA-01	BEC-9, BEC-6, MCF-09B, HMWWT-6, MCF-02B	MCF-17A, MCF-19A, MCF-06AR, MCF-23A, MCF-09A, MCF-01, MCF-03A
	Characterize offsite upgradient impacts	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Total dissolved solids	Re-sample wells that were scheduled but missed last round	None	None	MCF-09A
	Characterize offsite upgradient impacts	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Volatile organic compounds	Characterize offsite upgradient impacts	TMPZ-1 to TMPZ-12, PC-21, PC-50, PC-54	CMT-307	None
Arsenic, chromium VI, perchlorate, total dissolved solids, volatile organic compounds, metals, select radionuclides; major ions and balance; water quality parameters; general chemistry parameters	Sample new 2009 wells	AA-30, AA-24, AA-32	MCF-28B, MCF-29B, MCF-30B, MCF-31B, MCF-24B	MCF-28A, MCF-29A, MC-30A, MCF-31A, MCF-32A
	Sample previously inactive wells to assist with impact delineation	DM-04, PC-56, PC-62, PC-58, PC-84, PC-86, PC-95, PC-92, PC-01, DM-8, POD-4, POD-7, BEC-4, AA-14, AA-15, AA-19, DM-05, DM-09, PC-104, PZ-13	MW-01, W02, BEC-10, DM-7B, TWE-107, TWE-126, HMWWT-8	None
Stable isotopes of oxygen and hydrogen (del O and del H)	Evaporite deposit characterization and evaluation of total dissolved solids	None	None	MCF-02A, MCF-06AR, MCF-18A

Note: Field measurements (using air-tight flow-through cell) will be collected from each sampled well: oxidation-reduction potential (ORP), dissolved oxygen (DO), pH, temperature, and specific conductivity
Water quality parameters include alkalinity, bicarbonate alkalinity, carbonate alkalinity, hardness, hydroxide alkalinity, total dissolved solids, and total suspended solids
General chemistry parameters include ammonia, iodide, pH, total inorganic carbon, total Kjeldahl nitrogen (TKN0, and total organic carbon

Table 2. Analytical Specifications
Groundwater Monitoring Event
BMI Common Areas
Eastside

Parameter of Interest	Preparation Method	Analytical Method	Compound List	CAS Number	Laboratory Limits	
Ions	EPA 300.0A	EPA 300.0A	Bromide	24959-67-9	0.25	mg/L
			Bromine	7726-95-6	0.5	mg/L
			Chlorate	14866-68-3	0.5	mg/L
			Chloride	16887-00-6	0.2	mg/L
			Chlorine (soluble)	7782-50-5	0.5	mg/L
			Chlorite	14998-27-7	0.02	mg/L
			Fluoride	16984-48-8	0.1	mg/L
			Nitrate (as N)	14797-55-8	0.02	mg/L
			Nitrite (as N)	14797-65-0	0.02	mg/L
			Orthophosphate	14265-44-2	0.5	mg/L
			Sulfate	14808-79-8	0.5	mg/L
	EPA 377.1	EPA 377.1	Sulfite	14265-45-3	0.5	mg/L
	per LC/MS/MS requirements	LC/MS/MS	Perchlorate	14797-73-0	4	µg/L
General Chemistry Parameters	EPA 350.1	EPA 350.1	Ammonia (as N)	7664-41-7	50	µg/L
	EPA 9012A	EPA 9012A	Cyanide (Total)	57-12-5	5	µg/L
	EPA 300.0A	EPA 300.0A	Iodine	7553-56-2	1	mg/L
	NA	EPA 9040B	pH in soil	pH	NA	pHunits
	NA	NA	Percent moisture	%MOISTURE	NA	NA
	NA	NA	Percent moisture	%MOISTURE	NA	NA
	EPA 376.1/376.2	EPA 376.1/376.2	Sulfide	18496-25-8	1	mg/L
	Mod. EPA 415.1	EPA 9060	Total inorganic carbon	7440-44-0	1	mg/L
	EPA 351.2	EPA 351.2	Total Kjeldahl nitrogen (TKN)	TKN	0.1	mg/L
	EPA 9060	EPA 9060	Total organic carbon (TOC)	7440-44-0	1	mg/L
Metals	EPA 3010M	EPA 6020/6010B Note: use collision cell ICP/MS method for reduced detection limits where needed (i.e. Arsenic)	Aluminum	7429-90-5	30	µg/L
			Antimony	7440-36-0	5	µg/L
			Arsenic	7440-38-2	10	µg/L
			Barium	7440-39-3	2	µg/L
			Beryllium	7440-41-7	0.5	µg/L
			Boron	7440-42-8	50	µg/L
			Cadmium	7440-43-9	0.5	µg/L
			Calcium	7440-70-2	100	µg/L
			Chromium	7440-47-3	10	µg/L
			Cobalt	7440-48-4	2	µg/L
			Copper	7440-50-8	1	µg/L
			Iron	7439-89-6	50	µg/L
			Lead	7439-92-1	3	µg/L
			Lithium	1313-13-9	50	µg/L
			Magnesium	7439-95-4	50	µg/L
			Manganese	7439-96-5	2	µg/L
			Molybdenum	7439-98-7	5	µg/L
			Nickel	7440-02-0	5	µg/L
			Niobium	3/1/7440	25	µg/L
			Palladium	5/3/7440	0.5	µg/L
			Phosphorus	7723-14-0	20	µg/L
			Platinum	6/4/7440	1	µg/L
			Potassium	9/7/7440	100	µg/L
			Selenium	7782-49-2	5	µg/L
			Silicon	7440-21-3	250	µg/L
			Silver	7440-22-4	2	µg/L
			Sodium	7440-23-5	50	µg/L
			Strontium	7440-24-6	5	µg/L
			Sulfur	7704-34-9	2000	µg/L
			Thallium	7440-28-0	2	µg/L
			Tin	7440-31-5	2	µg/L
			Titanium	7440-32-6	2	µg/L
			Tungsten	7440-33-7	5	µg/L
			Uranium	7440-61-1	1	µg/L
			Vanadium	7440-62-2	10	µg/L
			Zinc	7440-66-6	10	µg/L
			Zirconium	7440-67-7	5	µg/L
	EPA 3060A	EPA 7196A	Chromium (VI)	18540-29-9	10	µg/L
	EPA 7470A	EPA 7470A	Mercury	7439-97-6	0.2	µg/L

Table 2. Analytical Specifications
Groundwater Monitoring Event
BMI Common Areas
Eastside

Parameter of Interest	Preparation Method	Analytical Method	Compound List	CAS Number	Laboratory Limits	
Radionuclides	HASL 300 RC-5016 2 (Total Dissolution)	HASL A-01-R	Thorium-232	7440-29-1	1	pCi/L
			Thorium-228	14274-82-9	1	pCi/L
			Thorium-230	14269-63-7	1	pCi/L
	HASL 300 RC-5016/5086 2 (Total Dissolution)		Uranium-233/234	13966-29-5	1	pCi/L
			Uranium 235/236	15117-96-1	1	pCi/L
			Uranium-238	7440-61-1	1	pCi/L
	HASL 300 RC-5013/RC-50322	EPA 903.1	Radium-226	13982-63-3	1	pCi/L
		EPA 904.0	Radium-228	15262-20-1	1	pCi/L
Volatile Organic Compounds	EPA 5030B	EPA 8260B	1,1,1,2-Tetrachloroethane	630-20-6	1	µg/L
			1,1,1-Trichloroethane	71-55-6	1	µg/L
			1,1,2,2-Tetrachloroethane	79-34-5	1	µg/L
			1,1,2-Trichloroethane	79-00-5	1	µg/L
			1,1-Dichloroethane	75-34-3	1	µg/L
			1,1-Dichloroethene	75-35-4	1	µg/L
			1,1-Dichloropropene	563-58-6	1	µg/L
			1,2,3-Trichlorobenzene	87-61-6	1	µg/L
			1,2,3-Trichloropropane	96-18-4	1	µg/L
			1,2,4-Trichlorobenzene	120-82-1	1	µg/L
			1,2,4-Trimethylbenzene	95-63-6	1	µg/L
			1,2-Dichlorobenzene	95-50-1	1	µg/L
			1,2-Dichloroethane	107-06-2	1	µg/L
			1,2-Dichloroethene	540-59-0	2	µg/L
			1,2-Dichloropropane	78-87-5	1	µg/L
			1,3,5-Trichlorobenzene	108-70-3	5	µg/L
			1,3,5-Trimethylbenzene	108-67-8	1	µg/L
			1,3-Dichlorobenzene	541-73-1	1	µg/L
			1,3-Dichloropropene	542-75-6	1	µg/L
Volatile Organic Compounds (continued)	EPA 5030B	EPA 8260B	1,3-Dichloropropane	142-28-9	1	µg/L
			1,4-Dichlorobenzene	106-46-7	1	µg/L
			2,2-Dichloropropane	594-20-7	1	µg/L
			2,2-Dimethylpentane	590-35-2	1	µg/L
			2,2,3-Trimethylbutane	464-06-2	1	µg/L
			2,3-Dimethylpentane	565-59-3	1	µg/L
			2,4-Dimethylpentane	108-08-7	1	µg/L
			2-Chlorotoluene	95-49-8	1	µg/L
			2-Hexanone	591-78-6	5	µg/L
			2-Methylhexane	591-76-4	1	µg/L
			2-Nitropropane	79-46-9	10	µg/L
			3,3-Dimethylpentane	562-49-2	1	µg/L
			3-Ethylpentane	617-78-7	10	µg/L
			3-Methylhexane	589-34-4	10	µg/L
			4-Chlorobenzene	108-90-7	1	µg/L
			4-Chlorotoluene	106-43-4	1	µg/L
			4-Methyl-2-pentanone (MIBK)	108-10-1	5	µg/L
			Acetone	67-64-1	2	µg/L
			Acetonitrile	75-05-8	10	µg/L
			Benzene	71-43-2	1	µg/L
			Bromobenzene	108-86-1	1	µg/L
			Bromodichloromethane	75-27-4	1	µg/L
			Bromoform	75-25-2	1	µg/L
			Bromomethane	74-83-9	2	µg/L
			Carbon disulfide	75-15-0	1	µg/L
			Carbon tetrachloride	56-23-5	1	µg/L
			Chlorobenzene	108-90-7	1	µg/L
			Chlorobromomethane	74-97-5	1	µg/L
			Chlorodibromomethane	124-48-1	1	µg/L
			Chloroethane	75-00-3	2	µg/L
			Chloroform	67-66-3	1	µg/L
			Chloromethane	74-87-3	2	µg/L
			cis-1,2-Dichloroethene	156-59-2	1	µg/L
			cis-1,3-Dichloropropene	10061-01-5	1	µg/L
			Cymene (Isopropyltoluene)	99-87-6	1	µg/L
			Dibromochloroethane	73506-94-2	1	µg/L
			Dibromochloromethane	124-48-1	1	µg/L
			Dibromochloropropane	96-12-8	1	µg/L

Table 2. Analytical Specifications
Groundwater Monitoring Event
BMI Common Areas
Eastside

Parameter of Interest	Preparation Method	Analytical Method	Compound List	CAS Number	Laboratory Limits	
Volatile Organic Compounds (continued)	EPA 5030B	EPA 8260B	Dibromomethane	74-95-3	1	µg/L
			Dichloromethane (Methylene chloride)	75-09-2	1	µg/L
			Dimethyldisulfide	624-92-0	5	µg/L
			Ethanol	64-17-5	250	µg/L
			Ethylbenzene	100-41-4	1	µg/L
			Freon-11 (Trichlorofluoromethane)	75-69-4	1	µg/L
			Freon-113 (1,1,2-Trifluoro-1,2,2-trichloroethane)	76-13-1	1	µg/L
			Freon-12 (Dichlorodifluoromethane)	75-71-8	2	µg/L
			Heptane	142-82-5	1	µg/L
			Isoheptane (same as 2-Methylhaxane)	31394-54-4	TBD	µg/L
			Isopropylbenzene	98-82-8	1	µg/L
			m,p-Xylene	mp-XYL	2	µg/L
			Methyl ethyl ketone (2-Butanone)	78-93-3	5	µg/L
			Methyl iodide	74-88-4	2	µg/L
			MTBE (Methyl tert-butyl ether)	1634-04-4	2	µg/L
			n-Butyl benzene	104-51-8	1	µg/L
			n-Propylbenzene	103-65-1	1	µg/L
			Nonanal	124-19-6	5	µg/L
			o-Xylene	95-47-6	1	µg/L
			sec-Butylbenzene	135-98-8	1	µg/L
			Styrene	100-42-5	1	µg/L
			tert-Butyl benzene	98-06-6	1	µg/L
			Tetrachloroethene	127-18-4	1	µg/L
			Toluene	108-88-3	1	µg/L
			trans-1,2-Dichloroethene	156-60-5	1	µg/L
			trans-1,3-Dichloropropene	10061-02-6	1	µg/L
			Trichloroethene	79-01-6	1	µg/L
			Vinyl acetate	108-05-4	2	µg/L
			Vinyl chloride	75-01-4	2	µg/L
			Xylenes (total)	1330-20-7	3	µg/L
			Tentatively Identified Compounds (TICs)		NA	µg/L
Water Quality Parameters	EPA 120.1	EPA 120.1	Conductivity	COND	10	µohms /cm
	EPA 130.2	EPA 130.2	Hardness, total	Hardness	5	mg/L
	EPA 160.1	EPA 160.1	Total dissolved solids	TDS	5	mg/L
	EPA 160.2	EPA 160.2	Total suspended solids	TSS	5	mg/L
	EPA 310.1	EPA 310.1	Alkalinity, Total (as CACO3)	ALK	5	mg/L
			Bicarbonate alkalinity	71-52-3	5	mg/L
			Carbonate alkalinity	3812-32-6	5	mg/L
			Hydroxide alkalinity	OH-ALK	5	mg/L
Isotopes	per laboratory	equilization	del O (18O/16O)	7782-44-7	0.01	ppt
	per laboratory	equilization	del H (2H/1H)	7782-44-7	0.01	ppt

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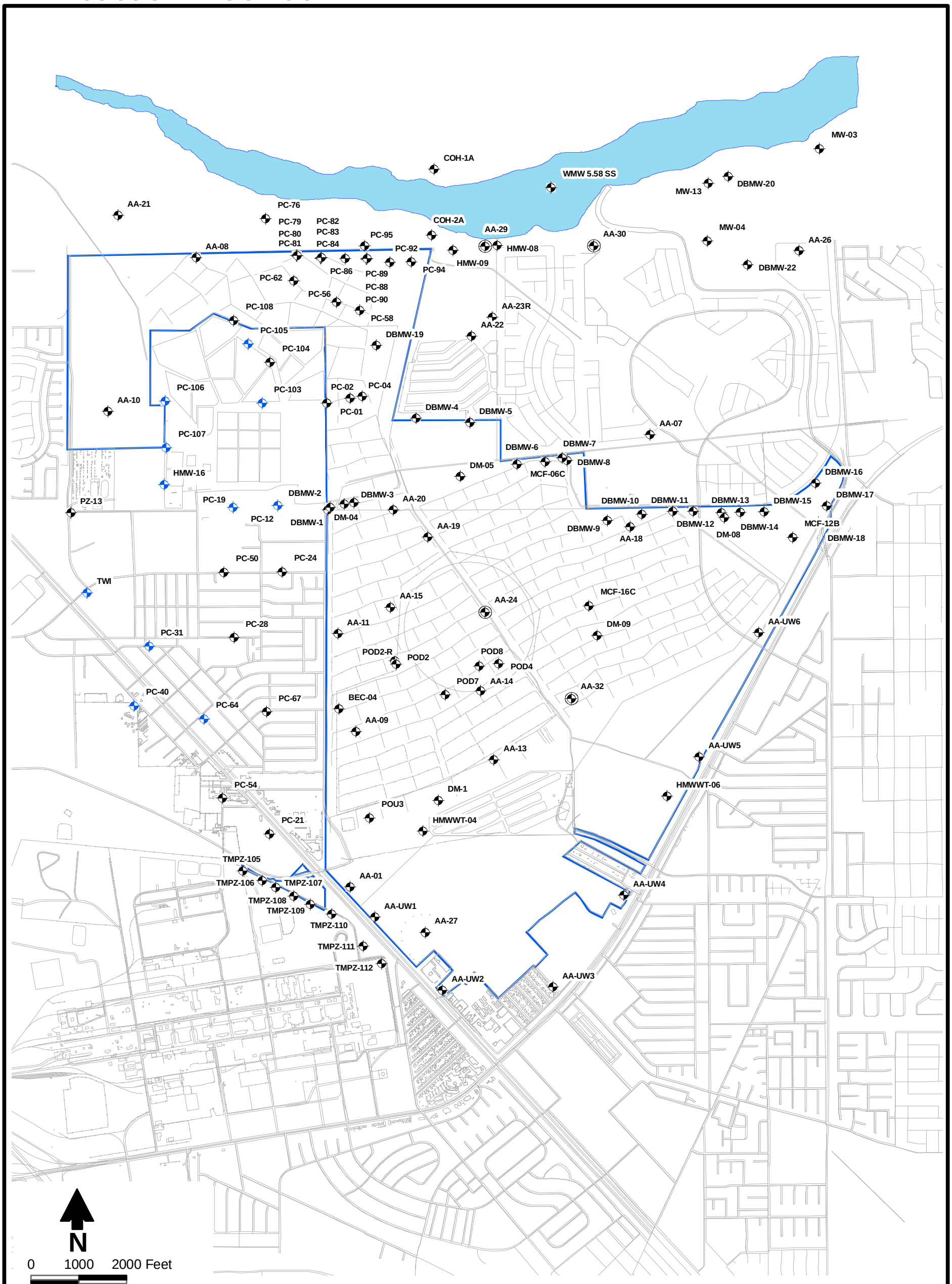

Explanation

- Water Level Data Only
- Water Quality and Water Level Data (see Table 1)
- Shallow Zone well installed 2009
  Well locations are estimated pending final land survey

BMI Common Areas (Eastside)
Henderson, Nevada

FIGURE 1
Shallow Zone
Monitoring Well Locations

Basic Remediation COMPANY

Prepared by: DBS&A CRS

Date 04-28-09

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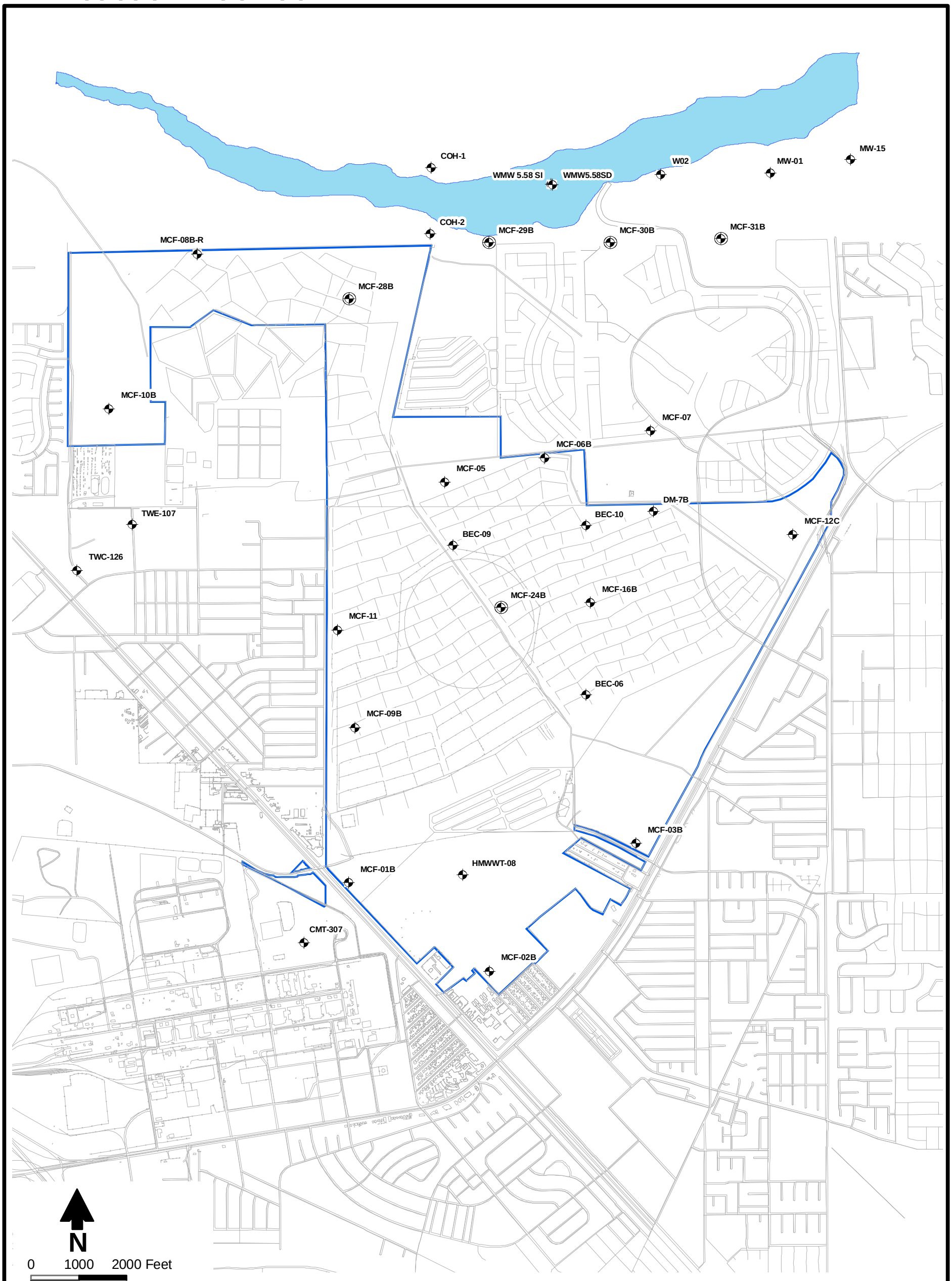

Explanation

- Water Level Data Only
- Water Quality and Water Level Data (see Table 1)
- Middle Zone well installed 2009
  Well locations are estimated pending final land survey

BMI Common Areas (Eastside)
Henderson, Nevada

FIGURE 2
Middle Zone
Monitoring Well Locations

Basic Remediation COMPANY

Prepared by: DBS&A CRS | Date 04-28-09

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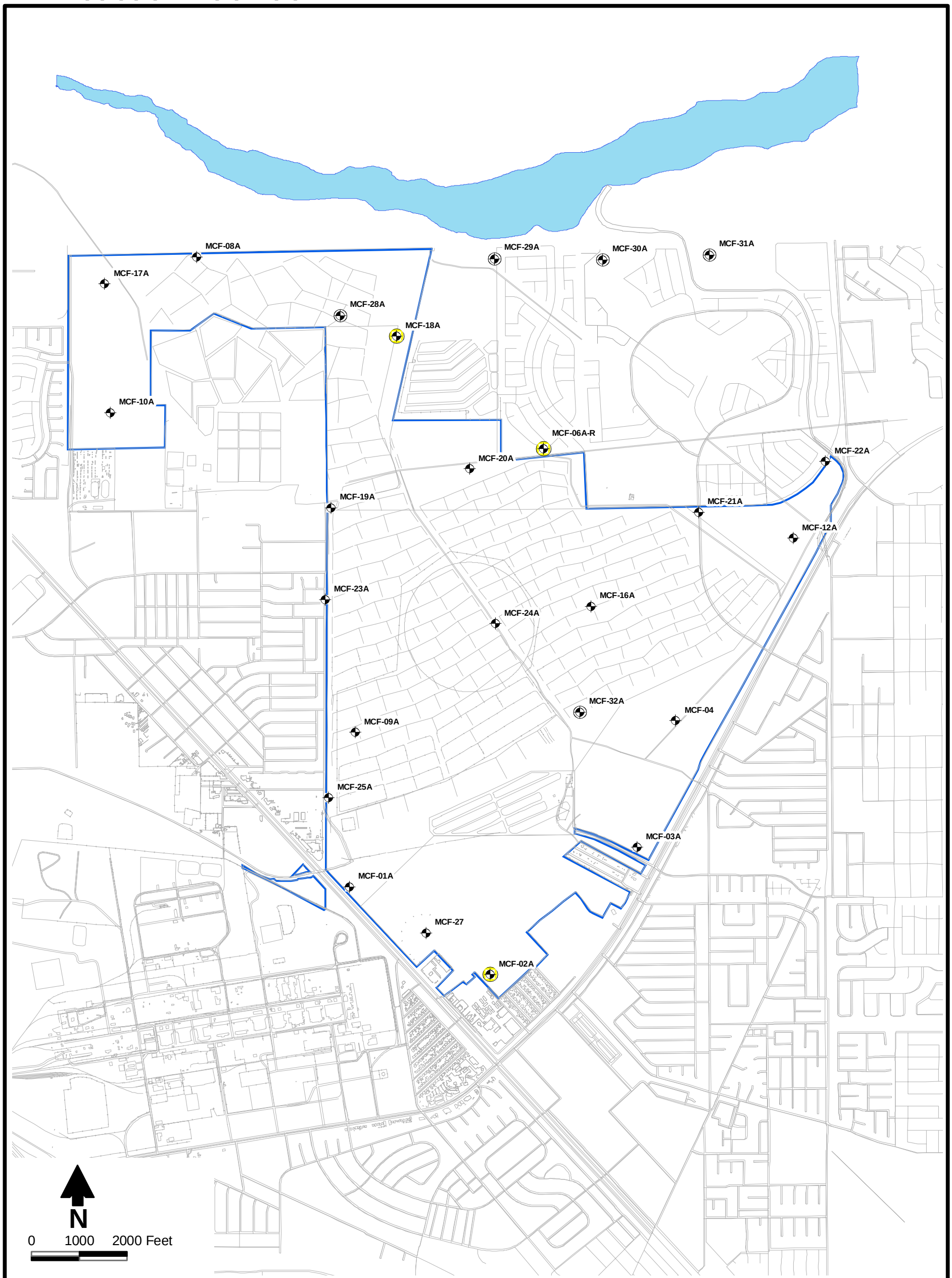

Explanation

- Water Level Data Only
- Water Quality and Water Level Data (see Table 1)
- Deep Zone well installed 2009
  Well locations are estimated pending final land survey
- Isotope Analysis

BMI Common Areas (Eastside)
Henderson, Nevada

FIGURE 3
Deep Zone
Monitoring Well Locations

Basic Remediation COMPANY

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