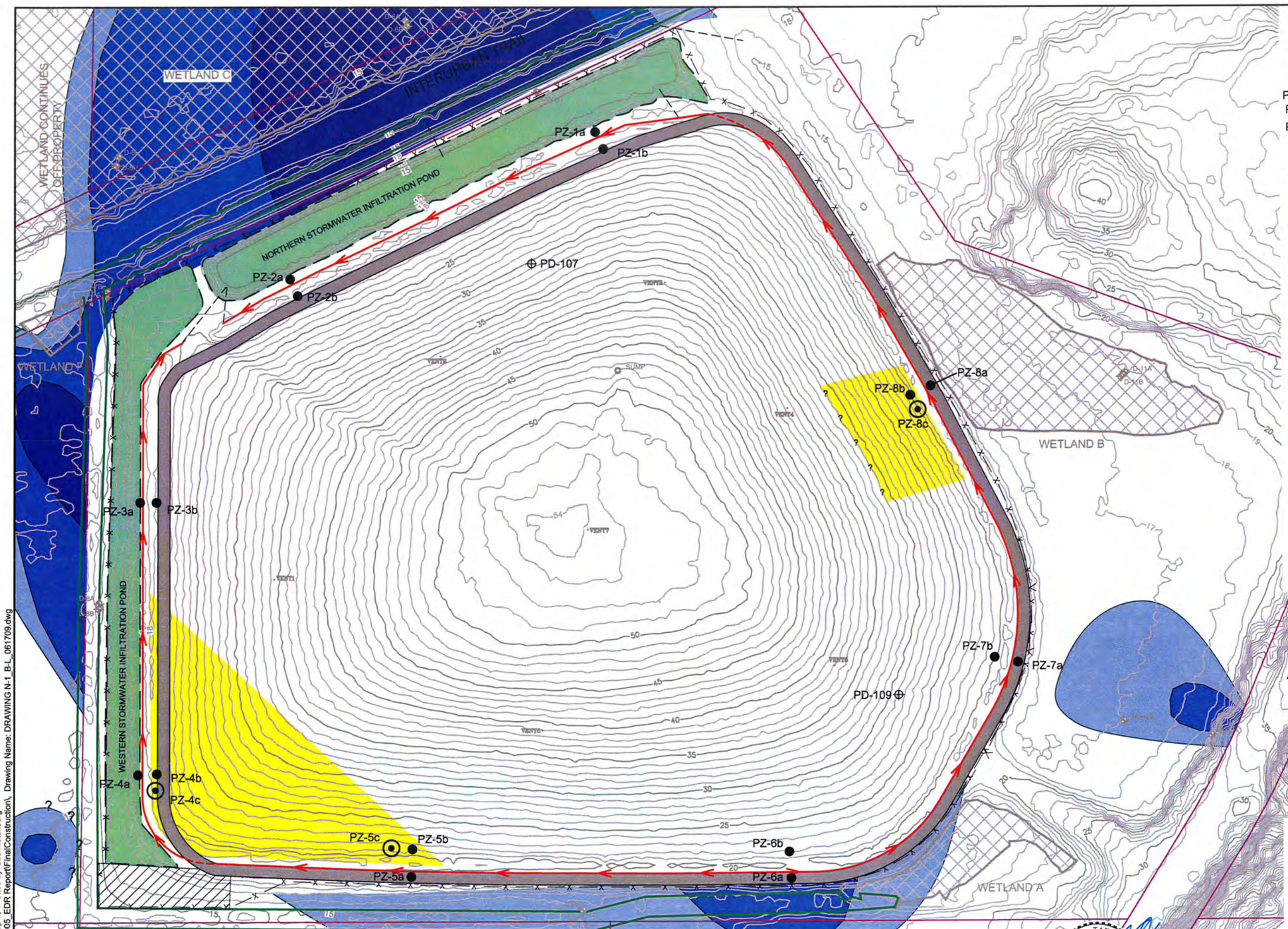

EXPLANATION

- TAX PARCEL LINE
- FENCE LINE
- 12" DIAMETER CULVERT
- PD-107 ⊕ EXISTING UPPER INTERVAL PIEZOMETER
- PZ-8b ● PROPOSED UPPER INTERVAL PIEZOMETER
- PZ-8c ⊙ PROPOSED LOWER INTERVAL PIEZOMETER
- MW-13 MONITORING WELL LOCATION
- VENT3 VENT LOCATION
- AGRICULTURAL DITCH
- WETLAND
- FINAL STORMWATER COLLECTION DITCH
- 18" DIAMETER CULVERT
- STORMWATER FLOW DIRECTION
- INFILTRATION POND
- APPROXIMATE LOCATION OF COMPACTED STOCKPILE AREA
- FINAL PERIMETER ROAD
- APPROXIMATE AREA OF GAP IN LOWER SILT AQUITARD

DISSOLVED ARSENIC (µg/L)

- < 2 – 5
- 5 – 50
- 50 – 500
- 500 – 5000

NOTES:

1. PIEZOMETERS WILL BE INSTALLED BY OTHERS FOLLOWING COMPLETION OF LANDFILL CAP CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION AND SUBSEQUENT REPAIR OF LANDFILL CAP ASSOCIATED WITH PIEZOMETER INSTALLATION.
3. DISPOSE OF EXCESS SOIL GENERATED FROM DRILLING OFFSITE.

0 50 100
APPROXIMATE SCALE IN FEET

REFERENCES:
PLANS

DATUM
HORIZONTAL: WASP–NAD83–S FEET
VERTICAL: NAVD88 FEET

NO.	REVISION	DATE	APRVD
1	ISSUED FOR AGENCY REVIEW	6/16/09	
2	ISSUED FOR CONSTRUCTION	6/29/09	KT

DRAWN AS
DESIGNED MZ
CHECKED KT
REVIEWED LM

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AMEC Geomatrix

KOORUS TAHGHIGHIAN, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JAN 10, 2010

GROUNDWATER MONITORING NETWORK PLAN
ADDENDUM 1

B&L WOODWASTE SITE
PIERCE COUNTY, WASHINGTON

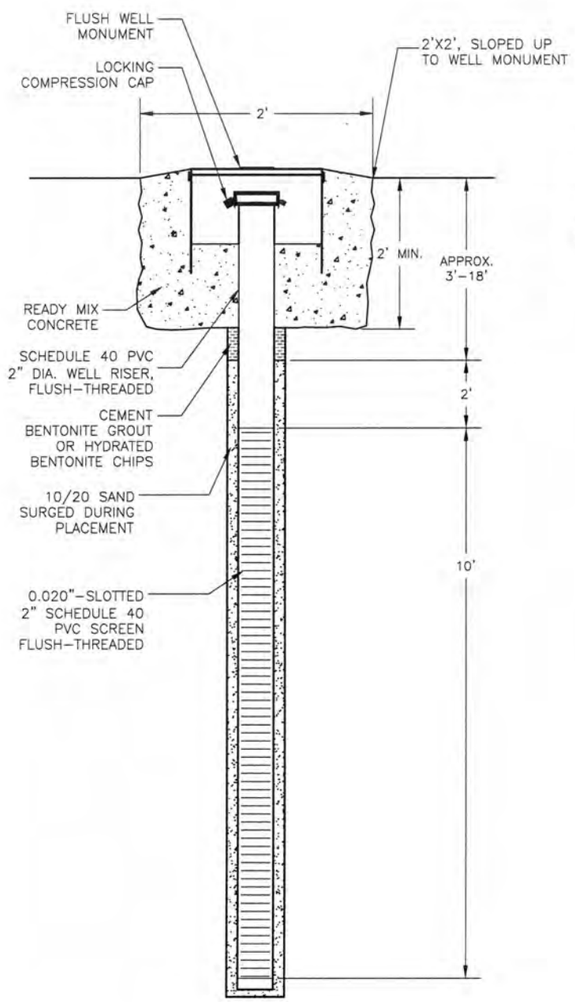
DATE: 07/02/09
PROJECT NO.: 13488

DRAWING
N–1

Plot Date: 07/02/09 - 4:06pm, Plotted by: adam.stenberg
Drawing Path: S:\13488\005_EDR Report\FinalConstruction\, Drawing Name: DRAWING N-1_B-L_061709.dwg

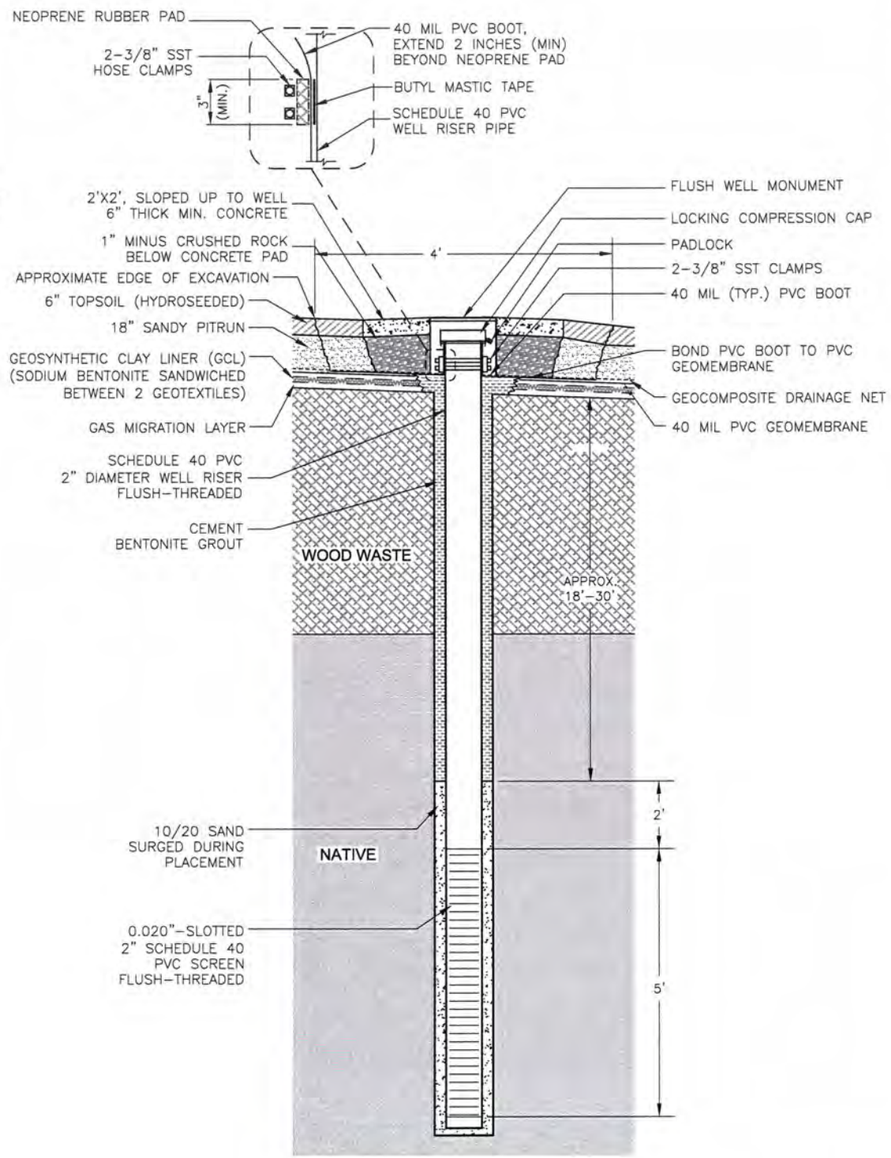
NOTES FOR PIEZOMETERS INSIDE BARRIER WALL

1. HAND–EXCAVATE THE COVER SOIL TO THE EXISTING GEOSYNTHETICS LAYER; APPROXIMATELY 2–FEET DEEP, AND 2–FEET DIAMETER.
2. CUT A 12–INCH DIAMETER OR SQUARE OPENING IN THE GEOSYNTHETICS LAYERS TO THE WOOD WASTE.
3. INSTALL PIEZOMETER AND GROUT THE ANNULAR SPACE UP TO THE GEOSYNTHETICS LAYER IN ACCORDANCE WITH STATE OF WASHINGTON WELL CONSTRUCTION STANDARDS.
4. ENLARGE EXCAVATION TO EXISTING GEOSYNTHETICS LAYER TO 4–FEET DIAMETER.
5. INSTALL A PVC BOOT OVER THE WELL WITH 18–INCHES OF (MIN.) OVERLAP WITH THE EXISTING PVC GEOMEMBRANE. CLEAN THE PVC SURFACES THOROUGHLY AND BOND THE BOOT TO THE GEOMEMBRANE PER THE MANUFACTURER'S RECOMMENDATIONS.
6. INSTALL STAINLESS STEEL HOSE CLAMPS AND MASTIC OVER THE BOOT ON THE WELL PER DETAIL.
7. INSTALL A STEEL, FLUSH, WELL MONUMENT IN GROUT. THE MONUMENT SHALL BE POSITIONED A MINIMUM OF 3–INCHES ABOVE THE GEOMEMBRANE. THE GROUTED AREA SHALL EXTEND AT LEAST 12–INCHES BEYOND THE MONUMENT IN EVERY DIRECTION.
8. BACKFILL THE REMAINDER OF EXCAVATION WITH THE COVER SOIL TO RESTORE TO ITS ORIGINAL CONDITION. ALTERNATIVELY, THE ENTIRE EXCAVATION MAY BE FILLED WITH GROUT.
9. WELL TO BE SURGED DURING PLACEMENT OF SANDPACK TO PREVENT VOIDS IN ANNULAR SPACE.



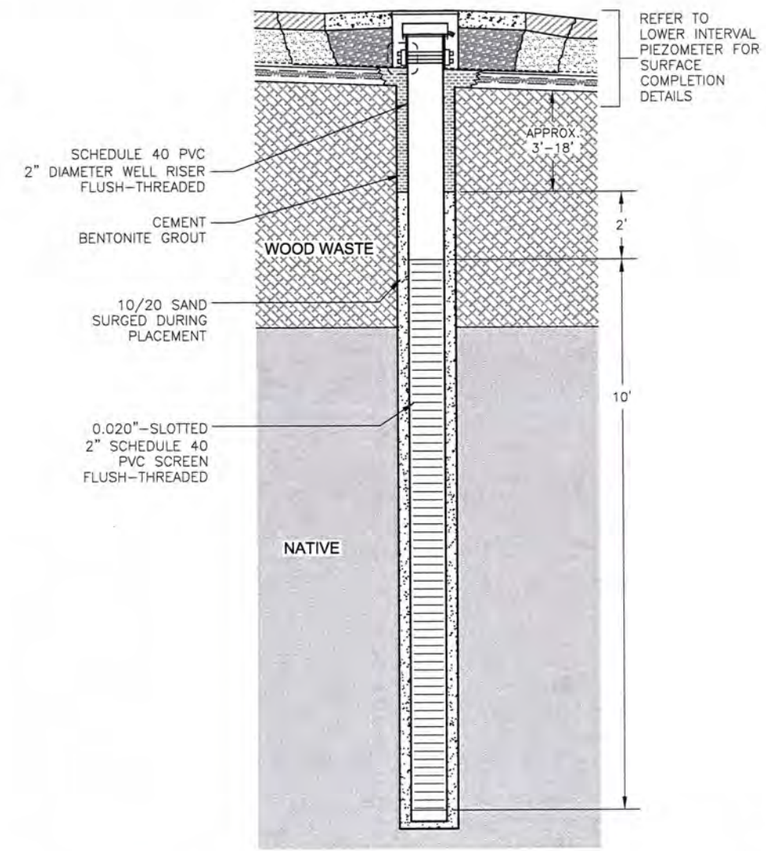
UPPER INTERVAL PIEZOMETER OUTSIDE BARRIER WALL (1 / N–1)

NOT TO SCALE



LOWER INTERVAL PIEZOMETER INSIDE BARRIER WALL (2 / N–1)

NOT TO SCALE



UPPER INTERVAL PIEZOMETER INSIDE BARRIER WALL (3 / N–1)

NOT TO SCALE

REFERENCES:
PLANS

DATUM
HORIZONTAL: WASP–NAD83–S FEET
VERTICAL: NAVD88 FEET

NO.	REVISION	DATE	APRVD
1	ISSUED FOR AGENCY REVIEW	6/16/09	
2	ISSUED FOR CONSTRUCTION	6/29/09	KT

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DESIGNED MZ
CHECKED KT
REVIEWED LM

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AMEC Geomatrix

ROBERTS TARGUS STATE OF WASHINGTON 32246 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JAN 10, 2010

PIEZOMETER CONSTRUCTION DIAGRAMS
ADDENDUM 1

B&L WOODWASTE SITE
PIERCE COUNTY, WASHINGTON

DATE: 07/02/09
PROJECT NO.: 13488

DRAWING N–2

Plot Date: 07/02/09 - 4:10pm, Plotted by: adam.stenberg
Drawing Path: S:\13488\005_EDR Report\FinalConstruction\, Drawing Name: DRAWING N-2_B-L_061709.dwg

Equipment
Lift Station A Pump: 1-hp sump pump, 230V, single phase
Lift Station B Pump: 1-hp sump pump, 230V, single phase
Control Panel, 240V, single phase
GFCI receptacle, 120V

Peripherals
LSL-A: Float switch, normally open
LSH-A: Float switch, normally open
LSHH-A: Float switch, normally open
LSLL-A: Float switch, normally closed
LSHH-WP: Float switch, normally open
LSL-B: Float switch, normally open
LSH-B: Float switch, normally open
LSHH-B: Float switch, normally open
LSLL-B: Float switch, normally closed
LSHH-NP: Float switch, normally open

PLC Panel Inputs
Control Power: Rotary On/Off switch for control power
HS-A (Rotary Hand/Off/Auto switch for Lift Station A pump)
Hand: Run pump regardless of LSHH-A, LSLL-A, LSHH-WP, LSL-A and LSH-A states
Auto: Run pump only if the following conditions are met:
- LSHH-A is open
- LSHH-A is closed (only check for low-low alarm condition if pump is running)
- LSHH-WP is open
- LSL-A and LSH-A are both closed

Stop pump when LSL-A and LSH-A are both open
HS-B (Rotary Hand/Off/Auto switch for Lift Station B pump)
Hand: Run pump regardless of LSHH-B, LSHH-NP, LSL-B, and LSH-B states
Auto: Run pump only if the following conditions are met:
- LSHH-B is open
- LSHH-B is closed (only check for low-low alarm condition if pump is running)
- LSHH-NP is open
- LSL-B and LSH-A are both closed

Stop pump when LSL-B and LSH-B are both open
Reset: Momentary button or rotary switch
Clear all alarms by checking states of the following:
- LSHH-A (reset when open)
- LSLL-A (reset when Lift Station A pump not running)
- LSHH-WP (reset when open and Lift Station A pump switch is in the OFF position)
- LSHH-B (reset when open)
- LSLL-B (reset when Lift Station B pump not running and Lift Station B pump switch is in the OFF position)
- LSHH-NP (reset when open)

PLC Signal Inputs
LSL-A: Lift Station A low-level
Connected to switch LSL-A, normally open
LSH-A: Lift Station A high-level
Connected to switch LSL-A, normally open
LSHH-A: Lift Station A high-high
Connected to switch LSHH-A, normally open
LSLL-A: Lift Station A low-low level
Connected to switch LSLL-A, normally closed
LSHH-WP: West Pond high-high
Connected to switch LSHH-WP, normally open
LSL-B: Lift Station B low-level
Connected to switch LSL-B, normally open
LSH-B: Lift Station B high-level
Connected to switch LSL-B, normally open
LSHH-B: Lift Station B high-high
Connected to switch LSHH-B, normally open
LSLL-B: Lift Station B low-low level
Connected to switch LSLL-B, normally closed
LSHH-NP: North Pond high-high
Connected to switch LSHH-NP, normally open

PLC Panel Outputs (Indicators)
CP (Control Power): Lit when control voltage is present, unlit when control voltage is not present
LSA (Lift Station A Pump Running): Lit when Lift Station A pump is running, unlit when Lift Station A pump is not running
LAHH-A (Lift Station A High-High Level): Lights when LSHH-A closes, unlights only after reset
LALL-A (Lift Station A Low-Low Level): Lights when switch LSLL-A closes and Lift Station A pump is running, unlights only after reset
LAHH-WP (West Pond High-High Level): Lights when LSHH-WP closes; unlights only after reset
LSB (Lift Station B Pump Running): Lit when Lift Station B pump is running, unlit when Lift Station B pump is not running
LAHH-B (Lift Station B High-High Level): Lights when LSHH-B closes; unlights only after reset
LALL-B (Lift Station B Low-Low Level): Lights when LSLL-B closes and Lift Station B pump is running, unlights only after reset
LAHH-NP (North Pond High-High Level): Lights when LSHH-NP closes; unlights only after reset

PLC Signal Outputs
LSA: Lift Station A pump run; run when switches LSL-A and LSH-A are both closed, stop when switches LSL-A and LSL-B are both open OR when LSLL-A closes while pump is running
LSB: Lift Station B pump run; run when switches LSL-B and LSH-B are both closed, stop when switches LSL-A and LSL-B are both open OR when LSLL-B closes while pump is running
Alarm 1: Lift Station A High-High Level; Contacts autodialer when LAHH-A is closed
Alarm 2: Lift Station A Low-Low Level: Contacts Autodialer when LSLL-A is closed and Lift Station A pump is running
Alarm 3: West Pond High-High Level; Contacts autodialer when LAHH-WP output is enabled
Alarm 4: Lift Station B High-High Level; Contacts autodialer when LAHH-B output is enabled
Alarm 5: Lift Station B Low-Low Level; Contacts autodialer when LSLL-B is closed and Lift Station Pump B is running
Alarm 6: North Pond High-Level; Contacts autodialer when LAHH-NP output is enabled
Alarm 7: Contacts autodialer upon power failure (may be intrinsic to autodialer)

Alarm Conditions
Lift Station A High-Level - occurs when LSHH-A closes
Lights LAHH-A indicator
Contacts autodialer (Alarm 1)
Lift Station A Low-Low Level - occurs when LSLL-A closes while Lift Station A pump is running
Lights LSLL-A indicator
Shuts off Lift Station A pump
Contacts autodialer (Alarm 2)
West Pond High-High Level - occurs when LSLL-WP closes
Lights LAHH-WP indicator
Shuts off Lift Station A pump
Contacts autodialer (Alarm 3)
Lift Station B High-High Level - occurs when LSHH-B closes
Lights LAHH-B indicator
Contacts autodialer (Alarm 4)
Lift Station B Low-Low Level - occurs when LSLL-B closes while Lift Station B pump is running
Lights LSLL-B indicator
Shuts off Lift Station B pump
Contacts autodialer (Alarm 5)
North Pond High-High Level - occurs when LSHH-NP closes
Lights LAHH-NP indicator
Shuts off Lift Station B pump
Contacts autodialer (Alarm 6)
Power Failure - occurs when control power switch is in ON position and control power is not present
Contacts autodialer (Alarm 7)

NOTES:
1. DESIGN PROGRAMMABLE LOGIC CONTROL (PLC) IN ACCORDANCE WITH THE LOGIC SHOWN.
2. ALL COMPONENTS AND LINES SHALL BE CLEARLY AND PERMANENTLY LABELED.
3. ALL ELECTRICAL AND MECHANICAL INSTALLATION SHALL BE FIELD TESTED AND OPERATED PRIOR TO SYSTEM COMMISSIONING AND ACCEPTANCE BY ENGINEER.
4. PROVIDE ELECTRICAL DESIGN DRAWINGS.

REFERENCES:
PLANS
DATUM
HORIZONTAL: WASP-NAD83-S FEET
VERTICAL: NAVD88 FEET

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1	ISSUED FOR AGENCY REVIEW	6/16/09	
2	ISSUED FOR CONSTRUCTION	6/29/09	KT

DRAWN AS
DESIGNED MZ
CHECKED KT
REVIEWED LM

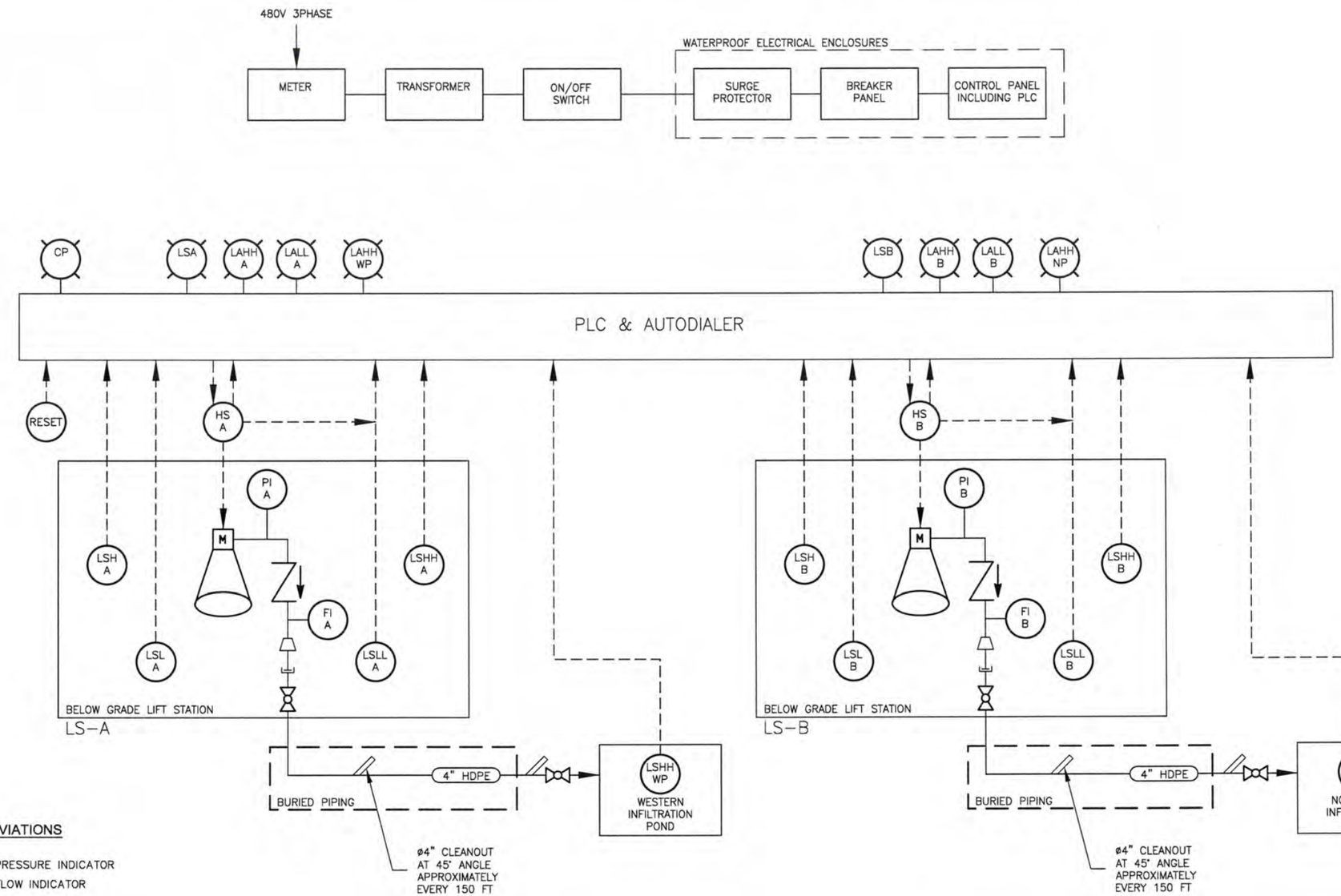
FLOYD | SNIDER
AMEC Geomatrix

KOORUS TAKIHI STATE OF WASHINGTON 40240 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JAN 10, 2010

ELECTRICAL ONE-LINE DIAGRAM AND CONTROL DIAGRAMS ADDENDUM 1
B&L WOODWASTE SITE
PIERCE COUNTY, WASHINGTON

DATE: 07/02/09
PROJECT NO.: 13488
DRAWING E-1

Plot Date: 07/02/09 - 3:50pm, Plotted by: adam.stenberg
Drawing Path: S:\13488\005_EDR Report\FinalConstruction\, Drawing Name: DRAWING C-6-8-9-10-11-P1-E1_B-L_061709.dwg



EXPLANATION

- OPERATOR INTERFACE FUNCTION
- FIELD MOUNTED
- BALL VALVE NORMALLY OPEN
- REDUCER
- CLEANOUT
- QUICK CONNECT COUPLING
- CHECK VALVE
- SUBMERSIBLE SUMP PUMP

ABBREVIATIONS

PI	PRESSURE INDICATOR
FI	FLOW INDICATOR
HS	HAND SWITCH
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGHER HIGH
LAHH	LEVEL ALARM HIGHER HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOWER LOW
LALL	LEVEL ALARM LOWER LOW
CP	CONTROL PANEL

NOTES:

1. DESIGN AND INSTALL ALL ELECTRICAL EQUIPMENT, SENSORS, AND INSTRUMENTATION SHOWN. POWER SUPPLY WILL BE AVAILABLE UP TO AND INCLUDING THE METER.
2. ON/OFF SWITCH SHALL BE INSTALLED ON THE ELECTRICAL BOX AND MUST BE WEATHERPROOF AND LOCKABLE (LO/TO).
3. EACH PUMP MUST HAVE A SEPARATE BREAKER AND BE LOCKABLE (LO/TO).
4. PLACE CRUSHED ROCK BASE FOR ELECTRICAL BOX IF NEEDED.
5. INSTALL WATERPROOF, LOCKABLE ON/OFF SWITCH FOR THE PUMPS AND SENSORS IN EACH LIFT STATION.

REFERENCES:
PLANS

DATUM
HORIZONTAL: WASP-NAD83-S FEET
VERTICAL: NAVD88 FEET

NO.	REVISION	DATE	APRVD
1	ISSUED FOR AGENCY REVIEW	6/16/09	
2	ISSUED FOR CONSTRUCTION	6/29/09	KT

DRAWN AS
DESIGNED MZ
CHECKED KT
REVIEWED LM

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AMEC Geomatrix

KOORUS TAHERI
STATE OF WASHINGTON
32240
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JAN 18, 2010

PIPING & INSTRUMENTATION DIAGRAM
ADDENDUM 1

B&L WOODWASTE SITE
PIERCE COUNTY, WASHINGTON

DATE: 07/02/09
PROJECT NO.: 13488

DRAWING
P-1

Plot Date: 07/02/09 - 3:50pm, Plotted by: adam.stenberg
Drawing Path: S:\13488\005_EDR Report\Final\Construction\, Drawing Name: DRAWING C-6-8-9-10-11-P1-E1_B-L_061709.dwg