WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No. 90420
Permit No.
Basin 110C

NOTICE OF INTENT NO. 46327

1. OWNER US ARMY CORP OF ENGRS
MAILING ADDRESS 1325 J Street
Sacramento, CA 95814

ADDRESS AT WELL LOCATION
HAWTHORNE ARMY DEPOT
Hawthorne, Nevada

2. LOCATION SW ¼ SE ¼ Sec. 23 T 8 N/S R 30 E Mineral County

PERMIT NO. (Issued by Water Resources) Parcel No. Subdivision Name

3. WORK PERFORMED
☒ New Well ☐ Replace ☐ Recondition
☐ Deepen ☐ Abandon ☐ Other

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Test
☐ Municipal/Industrial ☒ Monitor ☐ Stock

5. WELL TYPE
☐ Cable ☐ Rotary ☐ RVC
☐ Air ☒ Other H.S.A.

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
SILTY SAND		0	50	
SANDY SILT		50	60	
POORLY GRADED		60	130	
BROWN CLAY		130	~~195~~ 195	

Date started 8/13/02, 19
Date completed 8/23/02, 19

7. WELL TEST DATA
TEST METHOD: ☐ Bailer ☒ Pump ☐ Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)

8. WELL CONSTRUCTION
Depth Drilled 195 Feet Depth Cased 190 Feet

HOLE DIAMETER (BIT SIZE)

		From	To
8 Inches		0 Feet	195 Feet
Inches		Feet	Feet
Inches		Feet	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
2		sch. 40	0	190

Perforations:
Type perforation machined slot
Size perforation .010
From 175 feet to 190 feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

Surface Seal: ☒ Yes ☐ No
Depth of Seal 1-168
Placement Method: ☐ Pumped ☒ Poured
Seal Type: ☒ Neat Cement ☐ Cement Grout ☐ Concrete Grout

Gravel Packed: ☒ Yes ☐ No
From 173 feet to 190 feet

9. WATER LEVEL
Static water level feet below land surface
Artesian flow G.P.M. P.S.I.
Water temperature °F Quality

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name Cascade Drilling, Inc (Contractor)
Address 3632 Omec Circle (Contractor)
Rancho Cordova, CA 95742
Nevada contractor's license number issued by the State Contractor's Board C23 51207
Nevada driller's license number issued by the Division of Water Resources, the on-site driller M-1908
Signed (By driller performing actual drilling on site or contractor)
Date 10-9-02

(Rev. 3-91)

USE ADDITIONAL SHEETS IF NECESSARY

(O)-627

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT	USACE
LOCATION	Hawthorne, NV
PROJECT NAME	HWAD
JOB NUMBER	00729.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE) / OTHER	HSA / DP / MUD / ARCH / NONE
DRILLING METHOD, FLUID USED	HSA - RmE95
SOIL SAMPLING METHOD (CIRCLE ONE) / OTHER	SPLIT SPOON / CC / ACETATE / NONE
MONITORING INSTRUMENT (CIRCLE ONE) / OTHER	PID / FID / LEL / RAD / NONE
SURFACE CONDITIONS (CIRCLE ONE) / OTHER	ASPHALT / CONCRETE / DIRT / DRY / WET

BORING NUMBER: IRPmwS0A

SHEET 1 OF 10

DRILLING	START	FINISH
TIME	1030	1000
DATE	082102	082202

WELL CONSTRUCTION	START	FINISH
TIME	1000	1500
DATE	082202	082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank	SS						0	0	SW	0-10 Well graded sand w/ silt, yellow - yellowish orange (20, 50, 30), SW, no plasticity, subrounded, dry, no odor, weak cementation, high perm, homogeneous, loose sands
								5			
											10-30 Silty sand, yellow - yellowish orange, (20, 40, 40), SM, no plasticity, subrounded, dry, no odor, weak cementation, med perm, homogeneous, fine + dense sands
								10	3.5	SM	
								15			
								20			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A
B
C
D
E
F

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 08279 002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): OTHER ____ (X) OP MUD AUGER NONE

DRILLING METHOD: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): OTHER ____ SPLIT SPOON CC ACETATE NONE

MONITORING INSTRUMENT (CIRCLE ONE): OTHER ____ (X) PID OVA RAD NONE

SURFACE CONDITIONS (CIRCLE ONE): OTHER ____ ASPHALT CONCRETE (X) DRY WET

BORING NUMBER: IRPmw50A

SHEET 2 OF 10

DRILLING	START	FINISH
TIME	1030	1000
DATE	082102	082102

WELL CONSTRUCTION	START	FINISH
TIME	1000	1500
DATE	082202	082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (%), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: WELLS	CASING	SOIL SAMPLING: SAMPLE TYPE	BLOWS/6" INTERVAL	INTERVAL SAMPLED	RECOVERY	ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
	2" SCH40 PVC Blank	SS						20		SM	20-30 same as 16-20
			3-4-6 X X					25			30-50 Poorly graded sands ~~yellow~~ yellowish orange - lt brown (10, 7, 2), SP, no plasticity, subangular, dry, no odor, homogeneous, weak cementation, med perm, dense fine sands
			3-4-6 X X					30		SP	
								35			
								40			

Cement Grout

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A ____ B ____ C ____ D ____ E ____ F ____

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE

CLIENT	USACE
LOCATION	Hawthorne, Nv
PROJECT NAME	HWAD
JOB NUMBER	~~Cas~~ 00729.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE) OTHER	HSA (X) DP MUD ARCH NONE
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE) OTHER	SPLIT SPOON (X) CC ACETATE NONE
MONITORING INSTRUMENT (CIRCLE ONE) OTHER	PID (X) FID LEL RAD NONE
SURFACE CONDITIONS (CIRCLE ONE) OTHER	ASPHALT CONCRETE DIRT (X) DRY (X) WET

BORING NUMBER: IRPMW50A

SHEET 3 OF 10

DRILLING	START	FINISH
TIME	1030	1000
DATE	082102	082202

WELL CONSTRUCTION	START	FINISH
TIME	1000	1500
DATE	082202	082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (gpm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 Blank PVC		60(6) x x					40		SP	40-50 same as 30-40'
											50- silty sand, lt brown (5, 65, 30), low plasticity, subrounded, dry, no odor, homogeneous, weak cementation, low perm, fine, dense sands
								45			
			60(6) x x					50		SM	
								55			
								60			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

P:\Sheets\DACW05-97-D-0035A_E\Field Activities\boringlogform.xls

09-05-2002 15:16 FROM- T-203 P.004/011 F-397

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, Nv

PROJECT NAME: HWAD

JOB NUMBER: 00779.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 4 OF 10

DRILLING	
START	FINISH
TIME 1030	TIME 1000
DATE 082102	DATE 082202

WELL CONSTRUCTION	
START	FINISH
TIME 1000	TIME 1500
DATE 082202	DATE 082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/v/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE INTERVAL DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank		50(6)					60		SP	60-80 Poorly graded sands, lt brown, SP (5,80,15), no plasticity, subrounded, dry, no odor, homogeneous, weak cementation, low-med perm, dense fine sands
								65			
											70-80 Same as 60-70 except change in color to lt gray
			50(6)					70		SP	
								75			
								80			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A
B
C
D
E
F

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 00229.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA (X) DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON (X) CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID (X) FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DRY (X) WET OTHER

BORING NUMBER: IRPMW50A

SHEET 5 OF 16

DRILLING	
START	FINISH
TIME 1030	TIME 1000
DATE 082102	DATE 082202

WELL CONSTRUCTION	
START	FINISH
TIME 1000	TIME 1500
DATE 082202	DATE 082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank	SS	160 X X					80		SW	80-90 Well graded sands, lt gray, (15, 55, 30) SW, no plasticity, subrounded, dry, no odor, homogeneous, weak cementation, med perm, dense medium + fine sands w/ 10% coarse
								85			
			100/5" X X					90		SP	90- ~~Same as 80-90~~ Poorly graded sands, lt brown, (10, 75, 15), no plasticity, subrounded, dry, no odor, homogeneous, weak cementation, high-med perm, medium dense sands
								95			
								100			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 00729.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD AUGER NONE OTHER

DRILLING METHOD FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 6 OF 10

DRILLING	
START	FINISH
TIME 1030	TIME 1000
DATE 082102	DATE 082202

WELL CONSTRUCTION	
START	FINISH
TIME 1000	TIME 1500
DATE 082202	DATE 082202

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INI/AI/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	FINE GRAINED AND ORGANIC SOIL DESCRIPTION, GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION; COARSE GRAINED SOIL DESCRIPTION, GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (yes/n), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION; SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank	SS	80					100		SM	100-110 Silty sand, lt brown, SM (10, 55, 35), low plasticity, subrounded, dry, no odor, homogeneous, weak cementation, low perm, dense fine sands
								105			
			70					110		SP	110-130 Poorly graded sands, lt-med brown, SP, (10, 80, 10) no plasticity, subrounded, dry, no odor, homogeneous, weak cementation, med perm, medium dense sand
								115			
								120			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A
B
C
D
E
F

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 00729002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 7 OF 10

DRILLING	START	FINISH
TIME	1030	1060
DATE	082102	082202

WELL CONSTRUCTION	START	FINISH
TIME	1000	1560
DATE	082202	082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/cm), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE INTERVAL DESCRIPTION
		SS						120			
			50 x x							SP	120-130 Same as 110-120
											130- Lean clay, med-dk brown, CL (10, 10, 80), med plasticity, med dry strength, no dilatancy, med toughness, dry, no odor, homogeneous, low perm, firm
								125			
			70 x x					130		CL	
								135			
								140			

Neat Cement Grout

2" SCH 40 PVC Blank

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A

B

C

D

E

F

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, Nv

PROJECT NAME: HWAD

JOB NUMBER: 80729-002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 8 OF 10

DRILLING	
START	FINISH
TIME 1030	TIME 1000
DATE 082102	DATE 082202

WELL CONSTRUCTION	
START	FINISH
TIME 1000	TIME 1500
DATE 082202	DATE 082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (φ/m), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank		35 50/2 X					140		SC	140-150 Clayey Sand, med brown, SC, (15, 60, 25), low plasticity, subrounded, dry, no odor, homogeneous, weak cementation, med perm, well graded Sands
								145			
											150-170 Well graded Sands, lt gray, SW (25, 65, 10), no plasticity, subrounded, dry, no odor, homogeneous, med cementation, med perm, Very dense Sands
			100 X X					150		SW	
								155			
								160			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A
B
C
D
E
F

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, Nv

PROJECT NAME: HWAO

JOB NUMBER: 00729.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 9 OF 10

DRILLING	
START	FINISH
TIME 1030	TIME 1000
DATE 082102	DATE 082202

WELL CONSTRUCTION	
START	FINISH
TIME 1000	TIME 1500
DATE 082202	DATE 082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
		SS						160		SW	160-170 Same as 150-160
			110 X X								Boring stopped @ 160' on 08/21/02 @ 1700. Will resume drilling tomorrow.
								165			170- Sandy silt, med brown, ML (10, 40, 50), low plasticity, med dry strength, no dilatancy, med toughness, dry, no odor, homogeneous, low perm
Neat Cement	2" SCH 40 PVC Blank		70 X X					170		ML	
								175			
								180			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A

B

C

D

E

F

P:\Sheets\DACW05-97-D-0035A E\Field Activities\boringlogform.xls

09-05-2002 15:18 FROM- T-203 P.010/011 F-387

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

SCALE.

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 00729.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DRY WET OTHER

BORING NUMBER: IRPMW50A

SHEET 10 OF 10

DRILLING	START	FINISH
TIME	1030	1000
DATE	082102	082202

WELL CONSTRUCTION	START	FINISH
TIME	1000	1500
DATE	082202	082202

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL
#2/12 SAND	2" .010 Slotted PVC SCH40		70 x x					180		SC
								185		
			80 x x					190	3	SM
								195		
								200		

SAMPLE TYPE: INTERVAL: DESCRIPTION

180-190 Clayey sands, med-dk brown, SC, (5, 65, 30), med plasticity, med dry strength, ~~no dilat~~ subrounded, med toughness, moist no odor, homogeneous, low perm

190 Silty sand, med-dk brown, SM (10, 75, 15), well graded, weak cementation, no plasticity, subrounded, wet no odor, homogeneous, med perm

TD boring = 197'

Well materials:

- 15' .010 slotted screen, 180' blank SCH40, 6" cap

Sand: 197-178-19' (.32) = 6.0 - used 6 bags

Seal = 2: 50lb bags of Envirop plug medium

Cement grout = 172 x 2.44 gal/ft = 420 gals

- Used 42 bags cement + 560 gals grout

3 bags concrete for well box

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A

B

C

D

E

F