Luminant

CP RAI #147

Questions 02.04.12-8 through 02.04.12-17
Hydrology

MNES
Mitsubishi Nuclear Energy Systems

ENERCON
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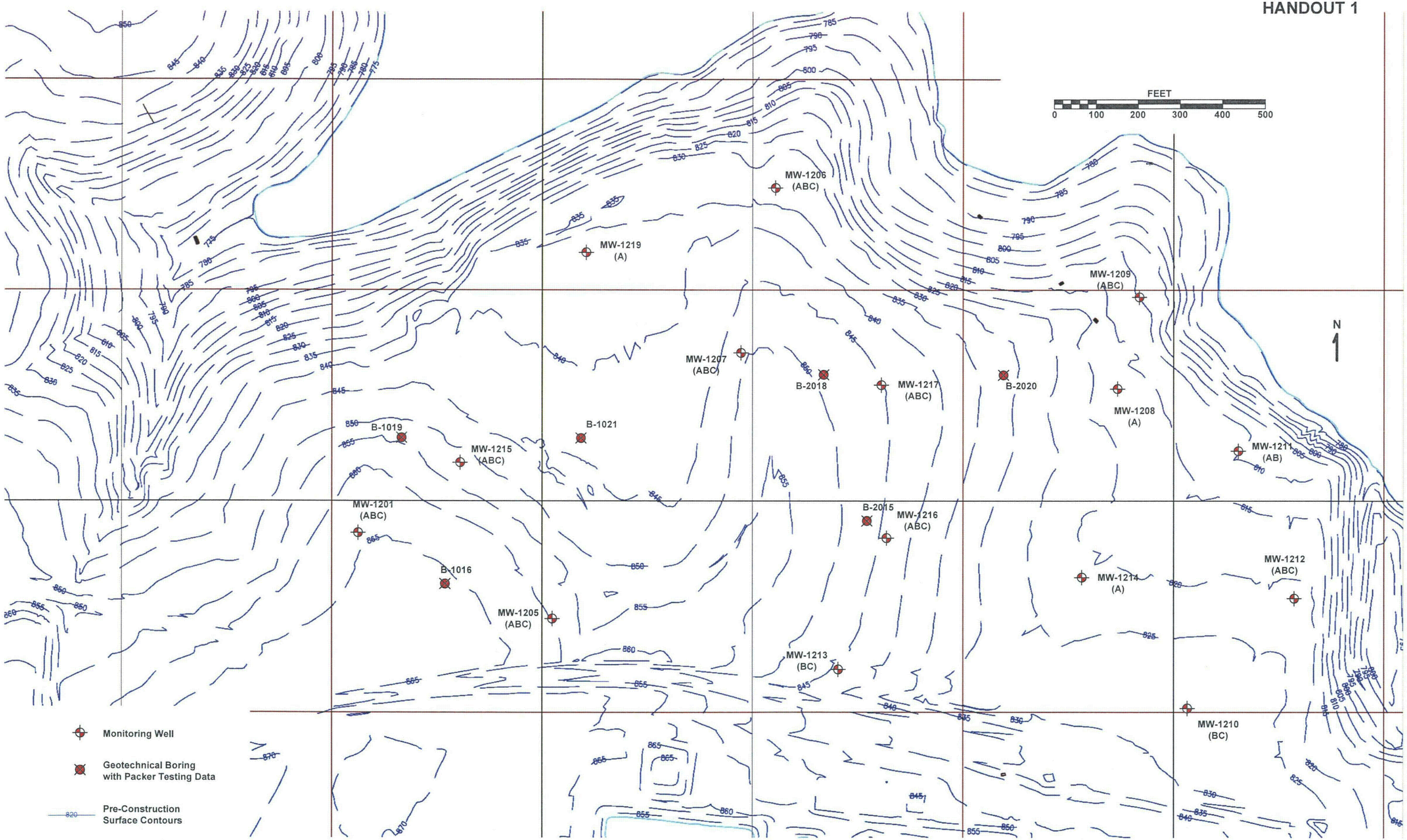
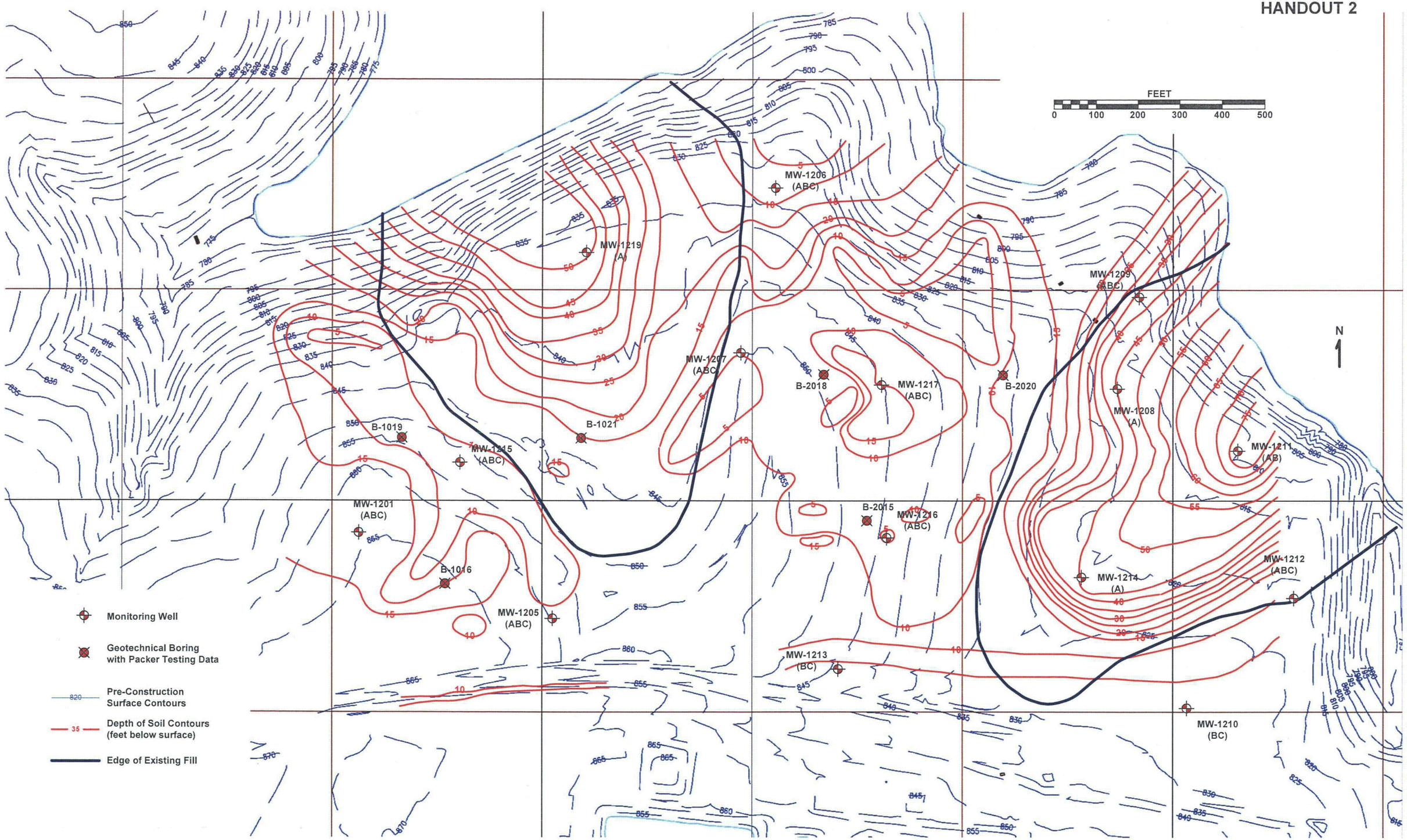
HANDOUT 1



Topography and site layout from Drawing CVL-12-11-101, Rev G

Monitoring Well Location Map (Pre-Construction Conditions)

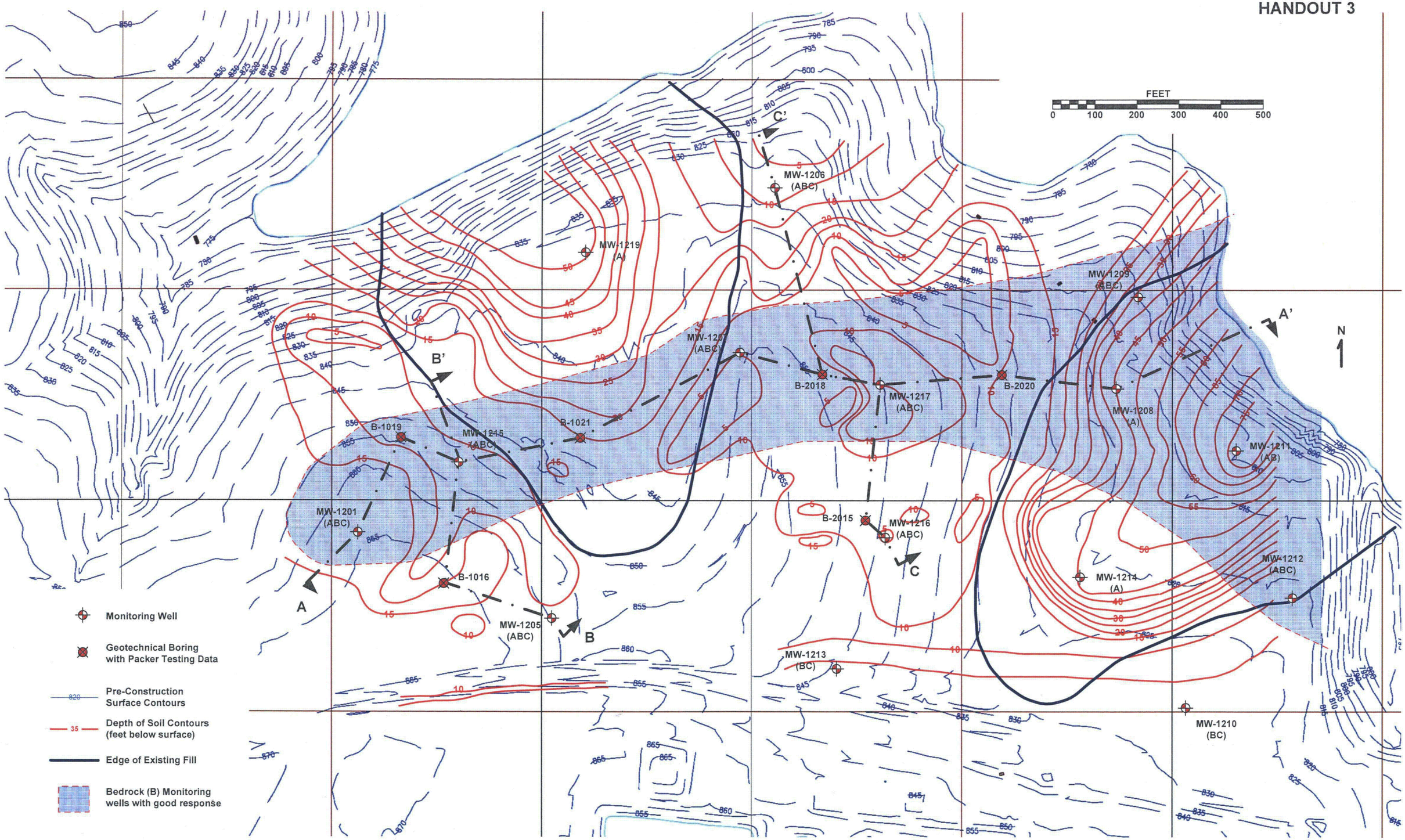
HANDOUT 2



Depth of soil contours from FSAR Figure 2.5.4-212, Rev 1
Topography from Drawing CVL-12-11-101, Rev G

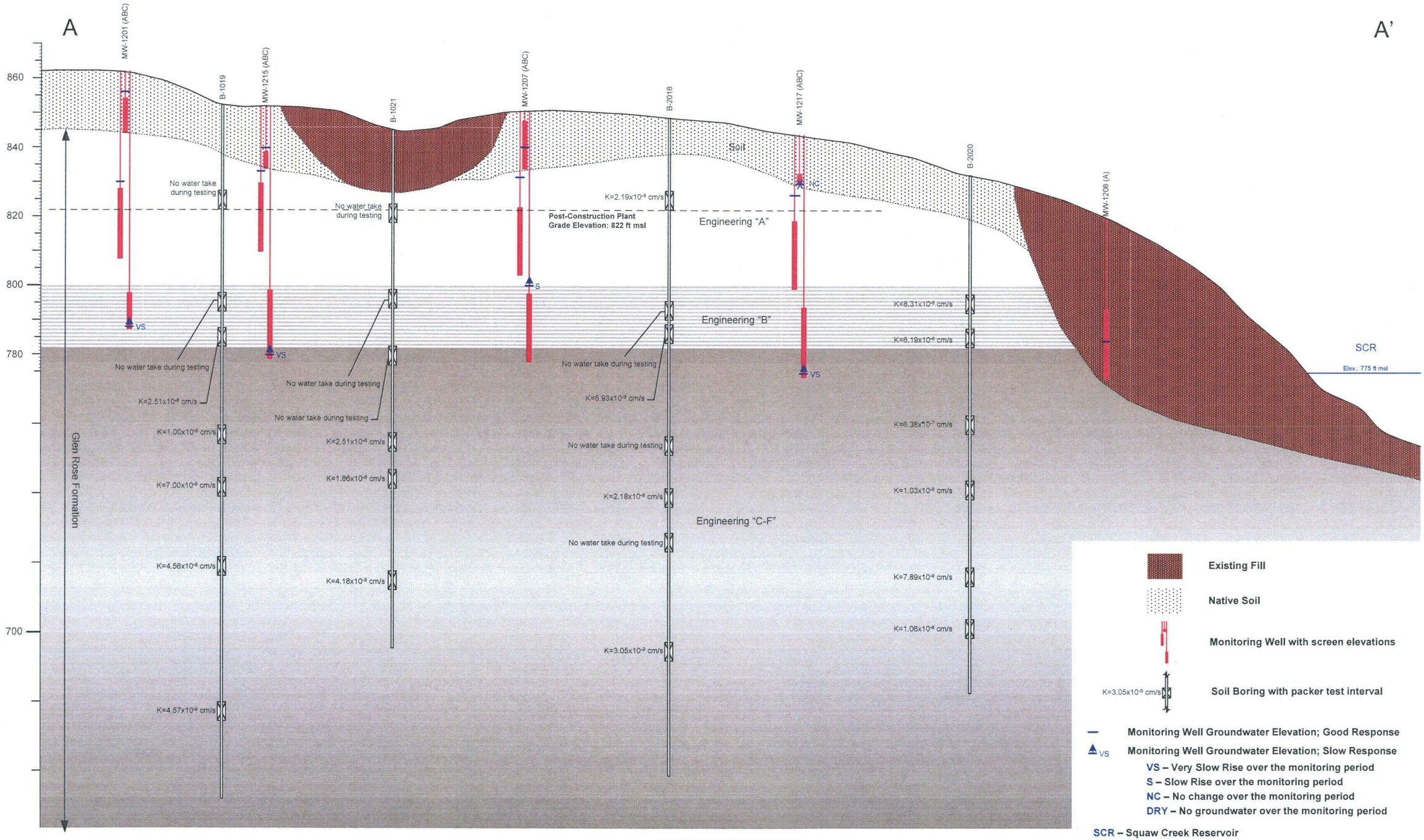
Soil and Existing Fill Depth Map
(Pre-Construction Conditions)

HANDOUT 3



Depth of soil contours from FSAR Figure 2.5.4-212, Rev 1
Topography from Drawing CVL-12-11-101, Rev G

Monitoring Well Response Map
(Pre-Construction Conditions)



Existing Fill

Native Soil

Monitoring Well with screen elevations

$K=3.05x10^{-9}$ cm/s — Soil Boring with packer test interval

— Monitoring Well Groundwater Elevation; Good Response

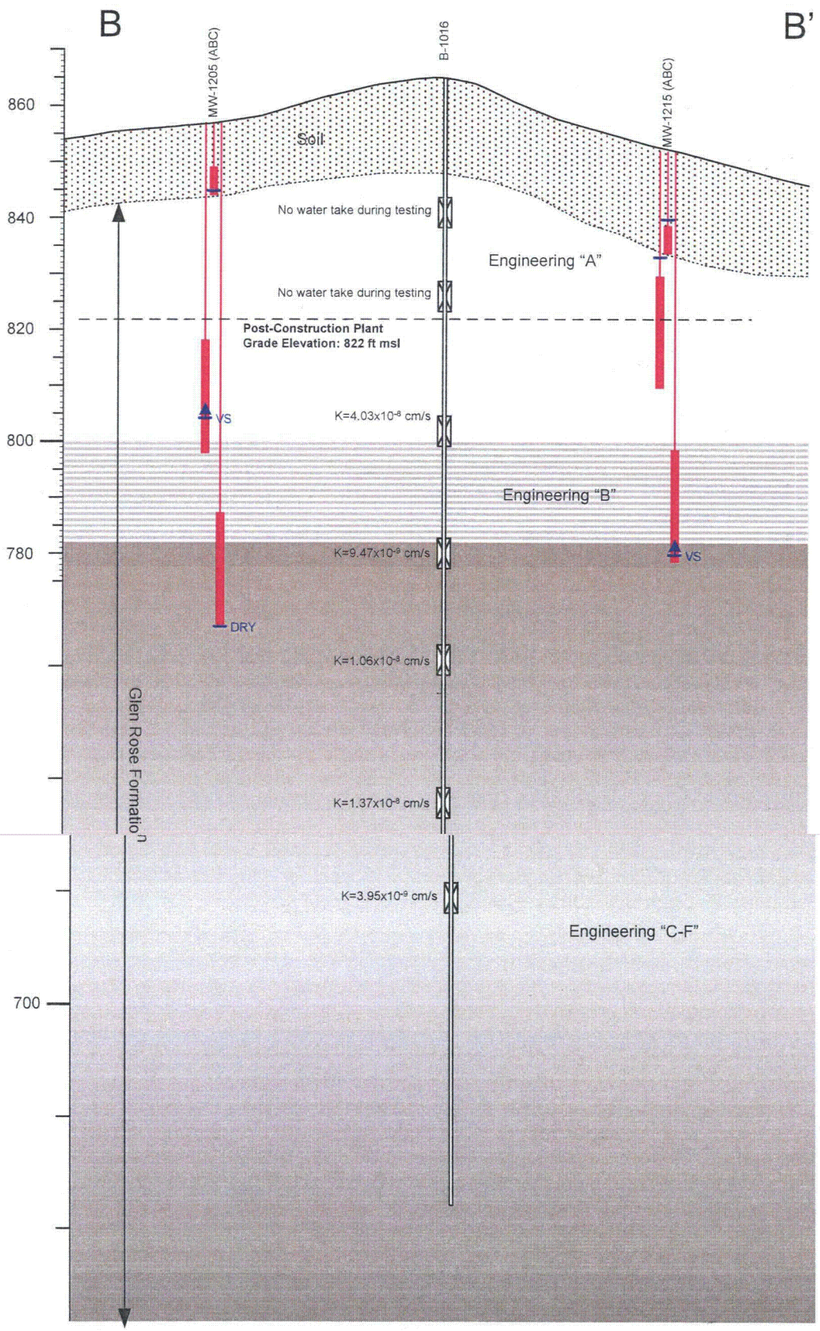
VS Monitoring Well Groundwater Elevation; Slow Response

VS – Very Slow Rise over the monitoring period
S – Slow Rise over the monitoring period
NC – No change over the monitoring period
DRY – No groundwater over the monitoring period

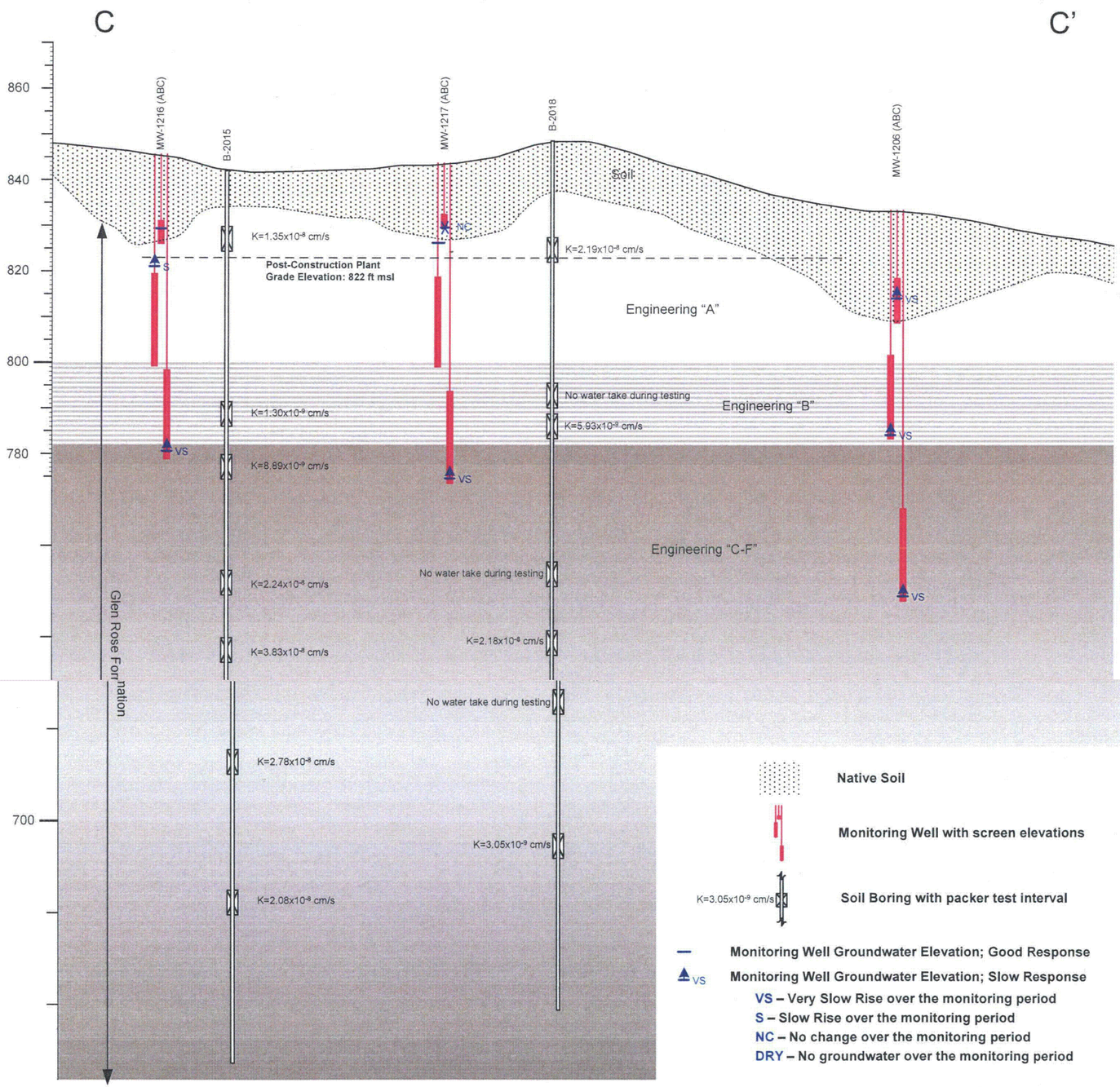
SCR – Squaw Creek Reservoir

Not Drawn to Horizontal Scale

Groundwater Elevation Comparison A-A'
(Pre Construction Conditions)



Not Drawn to Horizontal Scale



Not Drawn to Horizontal Scale

Native Soil

Monitoring Well with screen elevations

K=3.05x10-9 cm/s — Soil Boring with packer test interval

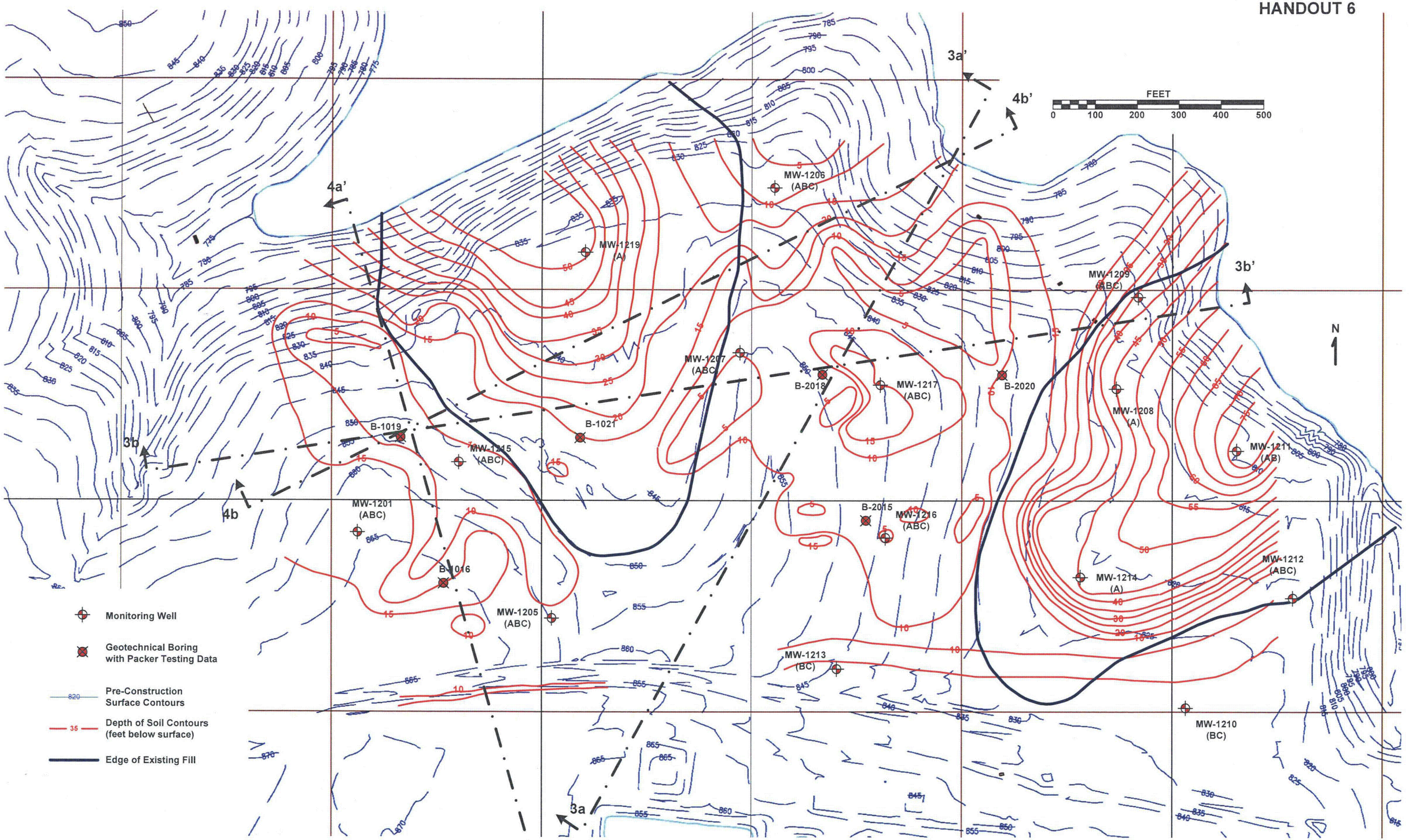
— Monitoring Well Groundwater Elevation; Good Response

VS Monitoring Well Groundwater Elevation; Slow Response

- **VS** – Very Slow Rise over the monitoring period
- **S** – Slow Rise over the monitoring period
- **NC** – No change over the monitoring period
- **DRY** – No groundwater over the monitoring period

Groundwater Elevation Comparisons B-B' and C-C'
(Pre Construction Conditions)

HANDOUT 6



Depth of soil contours from FSAR Figure 2.5.4-212, Rev 1
Topography from Drawing CVL-12-11-101, Rev G

Cross Section Location Map
(Pre-Construction Conditions)

3a

3a'

860
840
820
800
780
700
600
500

Soil

Cut bank perimeter trench drain

Plant Grade Elev.: 822 ft msl

Engineering "A"

Engineering "B"

Engineering "C-F"

Engineering "G-I"

Engineering "MW"

Glen Rose Formation

Twin Mountains Formation

Mineral Wells Formation

B-2018

MW-1217 (ABC)

K=2.19x10^{-8} cm/s

No water take during testing

K=5.93x10^{-9} cm/s

No water take during testing

K=2.18x10^{-8} cm/s

No water take during testing

K=3.05x10^{-9} cm/s

WS

VS

SCR

Elev.: 775 ft msl

Pre-Construction Groundwater Potentiometric Surface Elevation

Projected Groundwater Flow Direction

Monitoring Well with screen elevations

K=3.05x10^{-9} cm/s

Soil Boring with packer test interval

Existing Fill

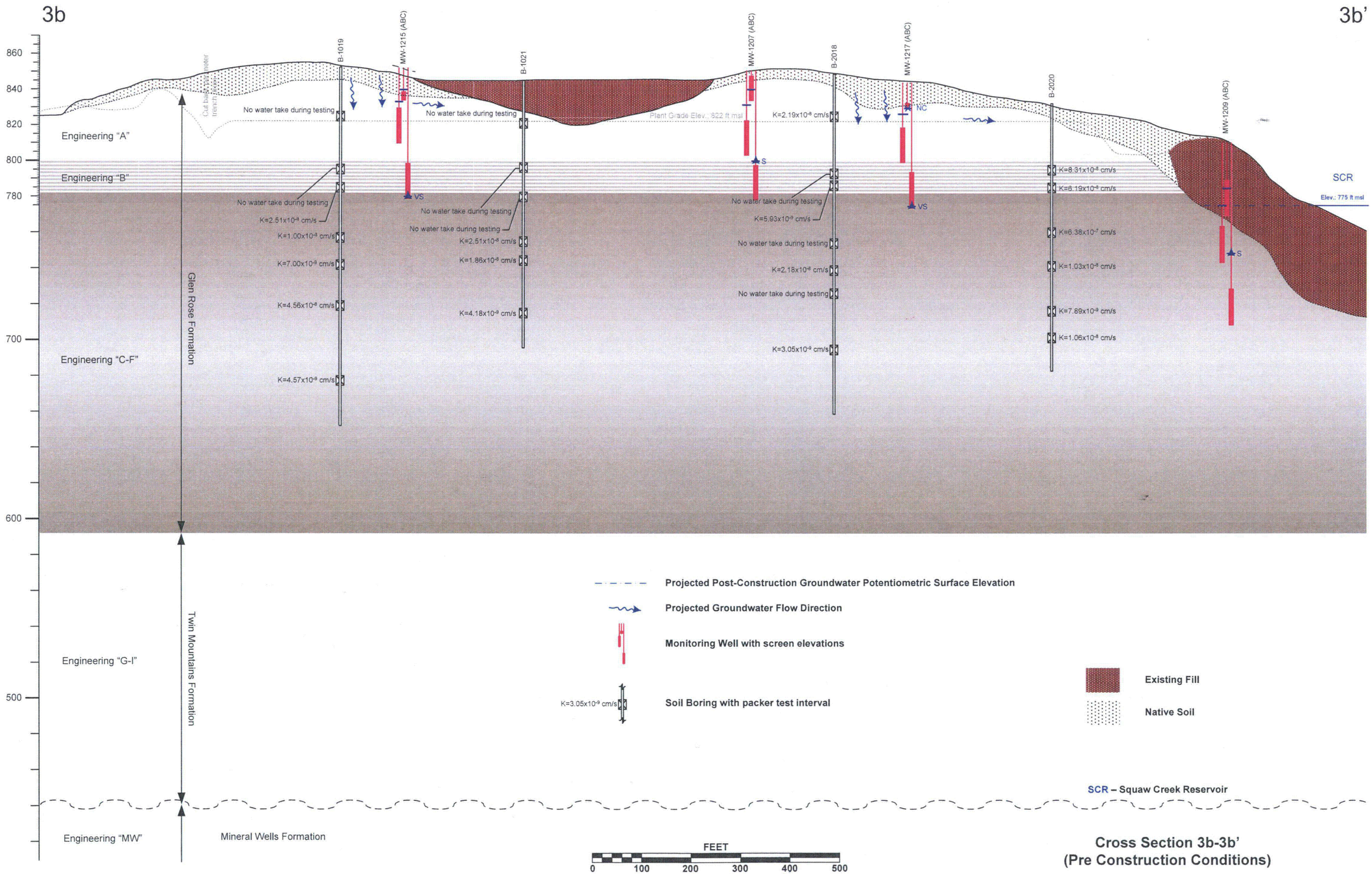
Native Soil

SCR – Squaw Creek Reservoir

FEET

0 100 200 300 400 500

Cross Section 3a-3a'
(Pre Construction Conditions)



Cross Section 3b-3b'
(Pre Construction Conditions)

4a

4a'

860
840
820
800
780
700
600
500

Soil

Cut bank perimeter trench drain

Plant Grade Elev.: 822 ft msl

Engineering "A"

Engineering "B"

Engineering "C-F"

Engineering "G-I"

Engineering "MW"

Glen Rose Formation

Twin Mountains Formation

Mineral Wells Formation

B-1016

MW-1215 (ABC)

B-1019

No water take during testing

No water take during testing

$K=4.03x10^{-8}$ cm/s

$K=9.47x10^{-9}$ cm/s

$K=1.06x10^{-8}$ cm/s

$K=1.37x10^{-8}$ cm/s

$K=3.95x10^{-9}$ cm/s

No water take during testing

VS

No water take during testing

$K=2.51x10^{-8}$ cm/s

$K=1.00x10^{-5}$ cm/s

$K=7.00x10^{-9}$ cm/s

$K=4.56x10^{-8}$ cm/s

$K=4.57x10^{-9}$ cm/s

SCR

Elev.: 775 ft msl

Projected Post-Construction Groundwater Potentiometric Surface Elevation

Projected Groundwater Flow Direction

Monitoring Well with screen elevations

$K=3.05x10^{-9}$ cm/s

Soil Boring with packer test interval

Existing Fill

Native Soil

SCR – Squaw Creek Reservoir

FEET

0 100 200 300 400 500

Cross Section 4a-4a'
(Pre Construction Conditions)

4b

4b'

860
840
820
800
780
700
600
500

Soil

Cut bank trench drain

No water take during testing

B-1019

MW-1215 (ABC)

MW-1219 (A)

MW-1206 (ABC)

VS

Engineering "A"

Engineering "B"

No water take during testing

$K=2.51x10^{-3}$ cm/s

$K=1.00x10^{-8}$ cm/s

$K=7.00x10^{-9}$ cm/s

$K=4.56x10^{-8}$ cm/s

$K=4.57x10^{-9}$ cm/s

Glen Rose Formation

Engineering "C-F"

Engineering "G-I"

Twin Mountains Formation

Engineering "MW"

Mineral Wells Formation

SCR

Elev.: 775 ft msl

Projected Post-Construction Groundwater Potentiometric Surface Elevation

Projected Groundwater Flow Direction

Monitoring Well with screen elevations

$K=3.05x10^{-9}$ cm/s

Soil Boring with packer test interval

Existing Fill

Native Soil

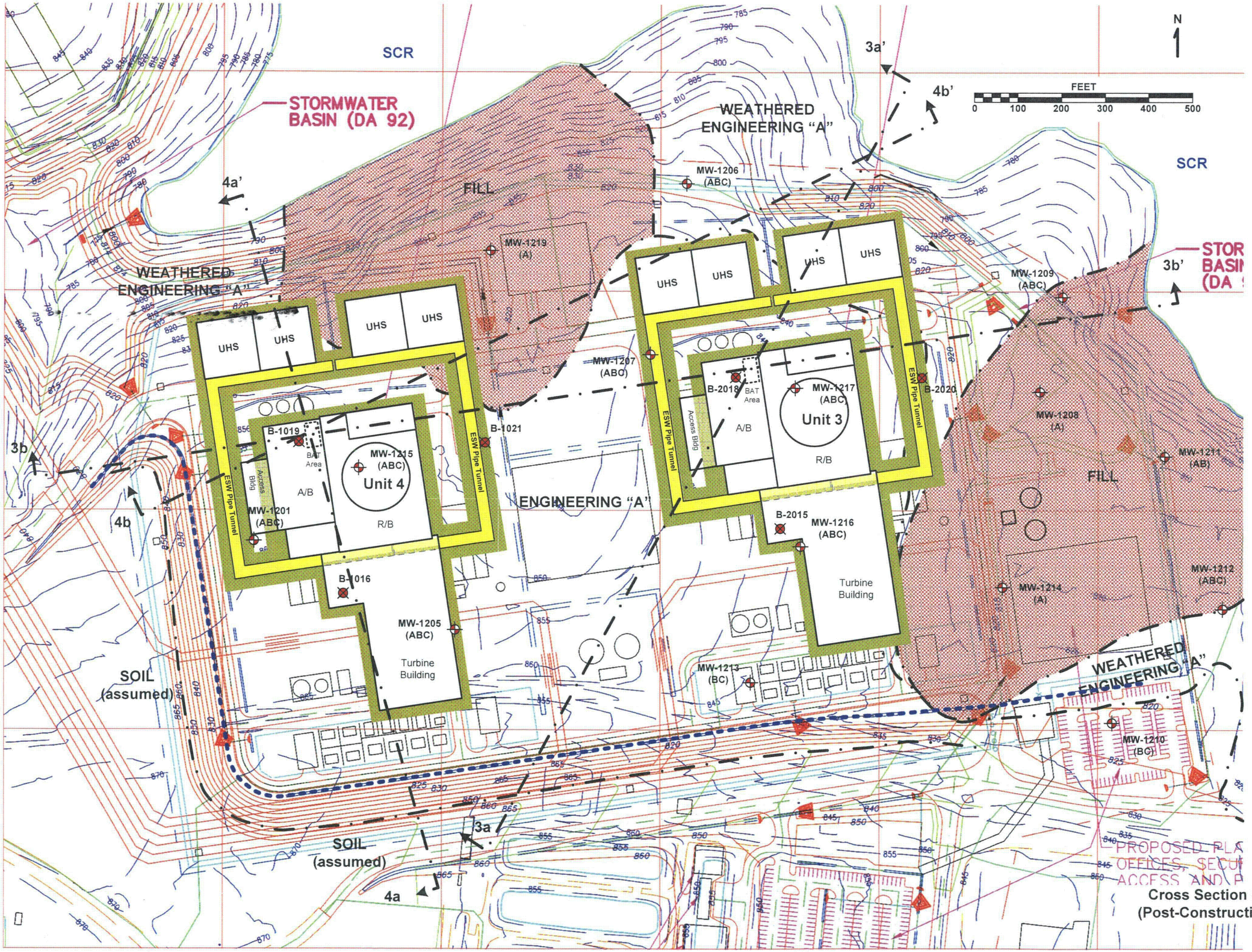
SCR – Squaw Creek Reservoir

FEET

0 100 200 300 400 500

Cross Section 4b-4b'
(Pre Construction Conditions)

HANDOUT 11



Engineered Fill

Existing Fill

Monitoring Well

Geotechnical Boring with Packer Testing Data

820 Pre-Construction Surface Contours

820 Post-Construction Surface Contours

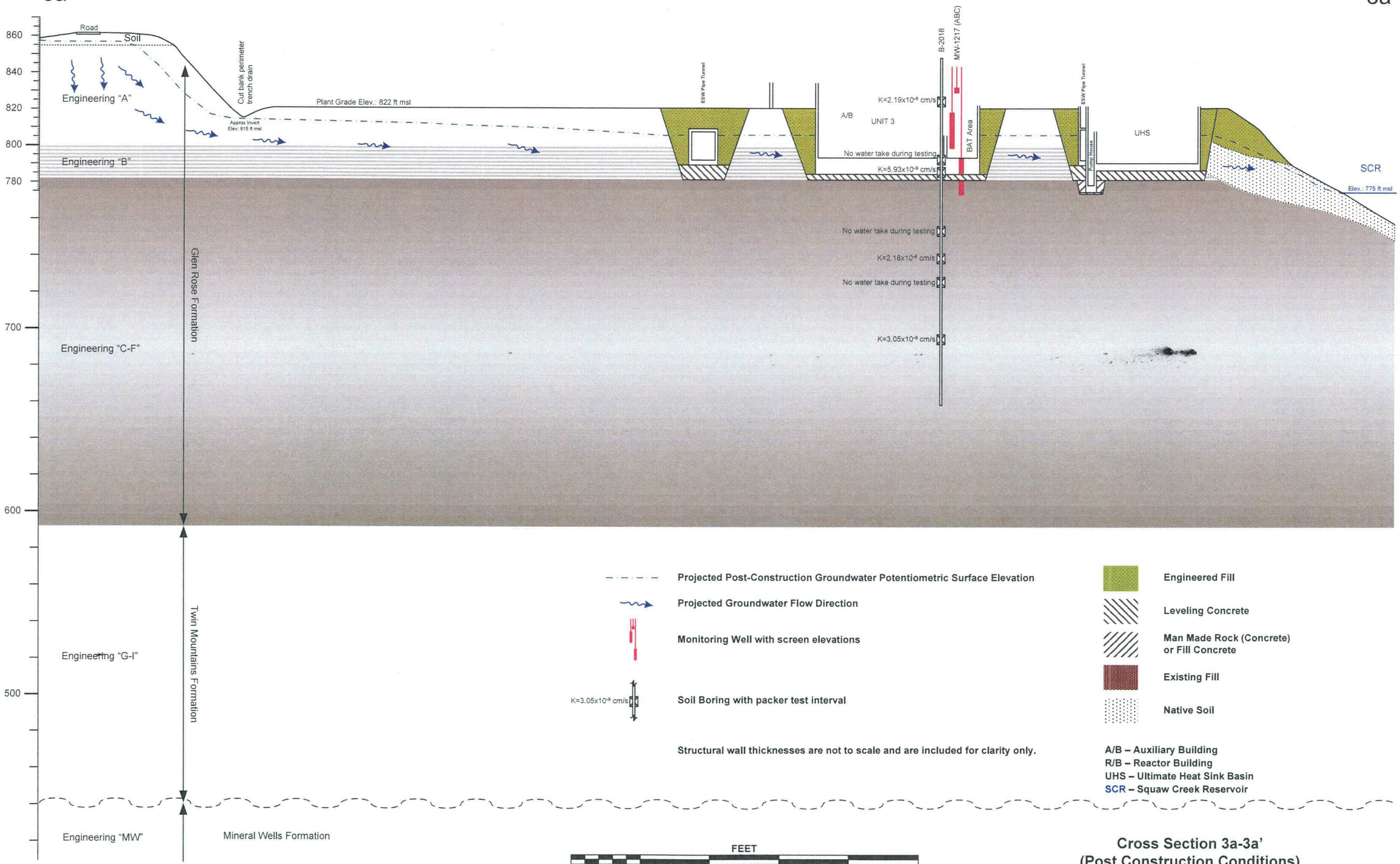
Cut-bank Perimeter Trench Drain

A/B – Auxiliary Building
R/B – Reactor Building
UHS – Ultimate Heat Sink Basin
SCR – Squaw Creek Reservoir

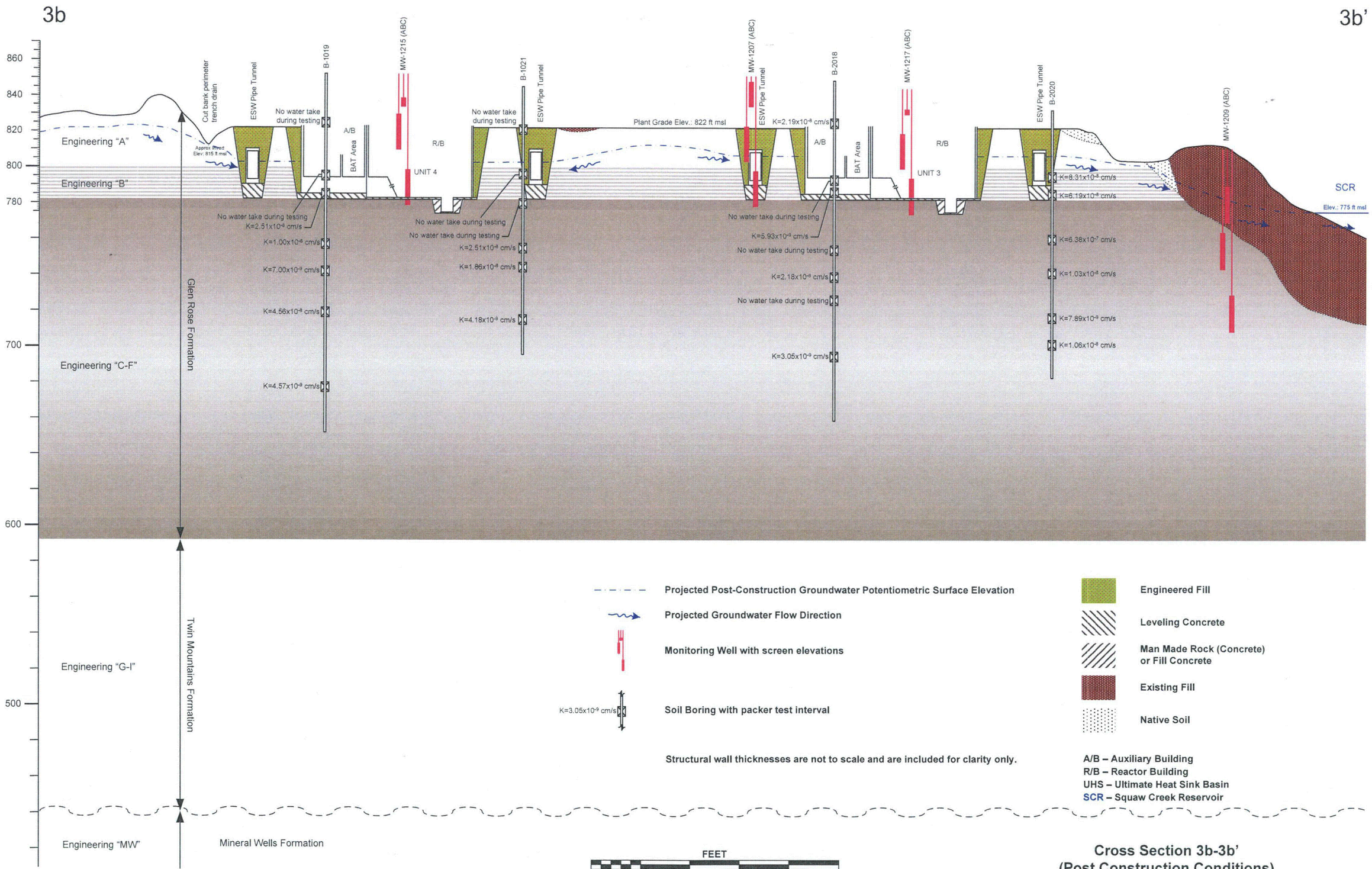
Topography and site layout from Drawing CVL-12-11-101, Rev G

Geology from FSAR Figure 2.5.4-215, Rev 1

Cross Section Location Map (Post-Construction Conditions)



Cross Section 3a-3a'
(Post Construction Conditions)



Cross Section 3b-3b'
(Post Construction Conditions)

Turbine building subsurface design is currently under development.

4a

4a'

Soil

Road

Cut bank perimeter trench drain

Approx Invert Elev: 817 ft msl

Plant Grade Elev.: 822 ft msl

Engineering "A"

Engineering "B"

Engineering "C-F"

Engineering "G-I"

Engineering "MW"

Glen Rose Formation

Twin Mountains Formation

Mineral Wells Formation

860
840
820
800
780
700
600
500

B-1016

MW-1215 (ABC)

B-1019

Turbine Building

Turbine Building

ESW Pipe Tunnel

ESW Pipe Tunnel

R/B

A/B

UNIT 4

BAT Area

Pump House

UHS

SCR

Elev.: 775 ft msl

No water take during testing

No water take during testing

No water take during testing

No water take during testing

K=4.03x10^{-4} cm/s

K=9.47x10^{-9} cm/s

K=1.06x10^{-8} cm/s

K=1.37x10^{-8} cm/s

K=3.95x10^{-9} cm/s

K=2.51x10^{-6} cm/s

K=1.00x10^{-3} cm/s

K=7.00x10^{-9} cm/s

K=4.56x10^{-8} cm/s

K=4.57x10^{-9} cm/s

Projected Post-Construction Groundwater Potentiometric Surface Elevation

Projected Groundwater Flow Direction

Monitoring Well with screen elevations

K=3.05x10^{-9} cm/s

Soil Boring with packer test interval

Structural wall thicknesses are not to scale and are included for clarity only.

Engineered Fill

Leveling Concrete

Man Made Rock (Concrete) or Fill Concrete

Existing Fill

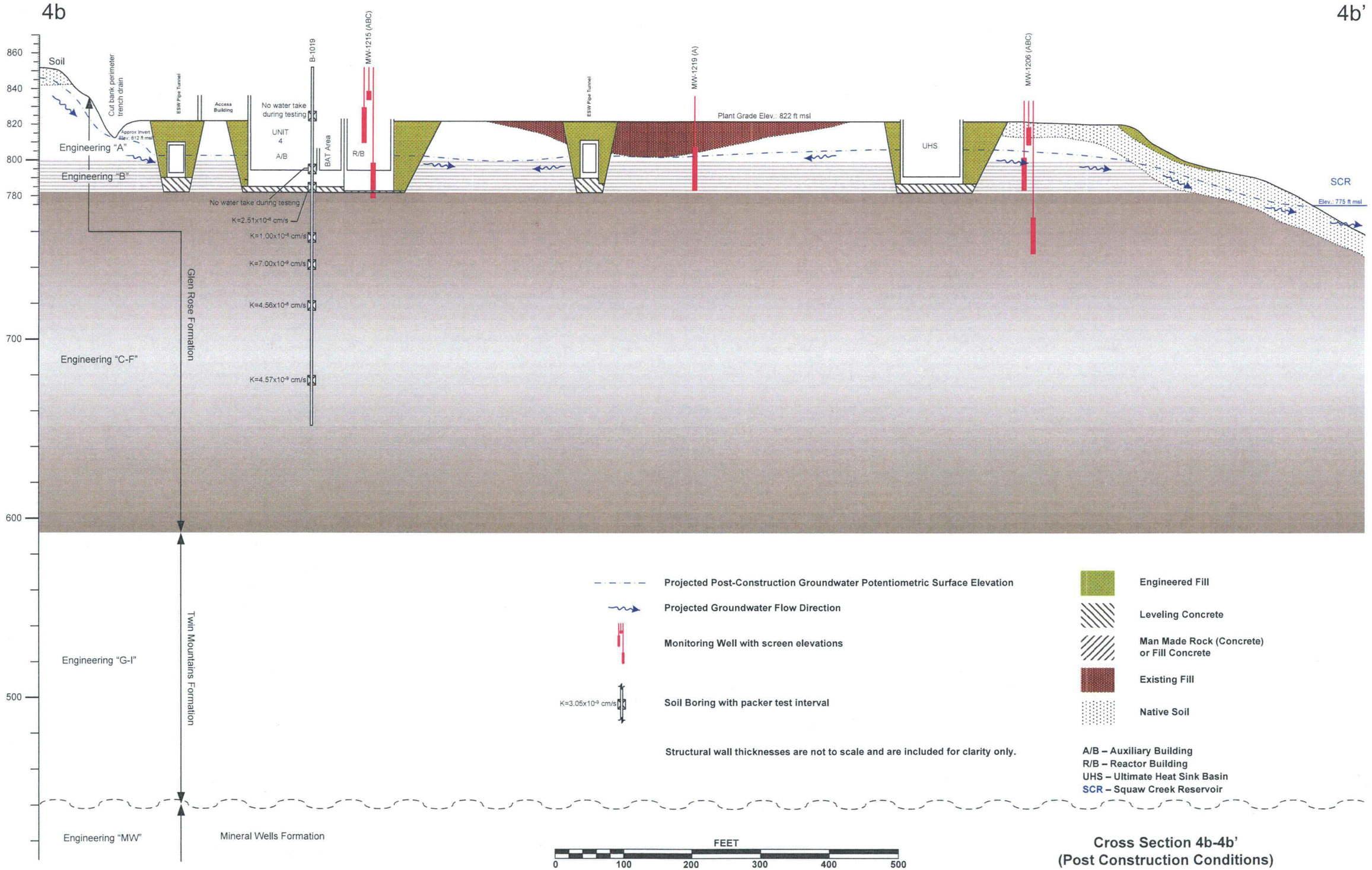
Native Soil

A/B – Auxiliary Building
R/B – Reactor Building
UHS – Ultimate Heat Sink Basin
SCR – Squaw Creek Reservoir

FEET

0 100 200 300 400 500

Cross Section 4a-4a'
(Post Construction Conditions)



Cross Section 4b-4b'
(Post Construction Conditions)