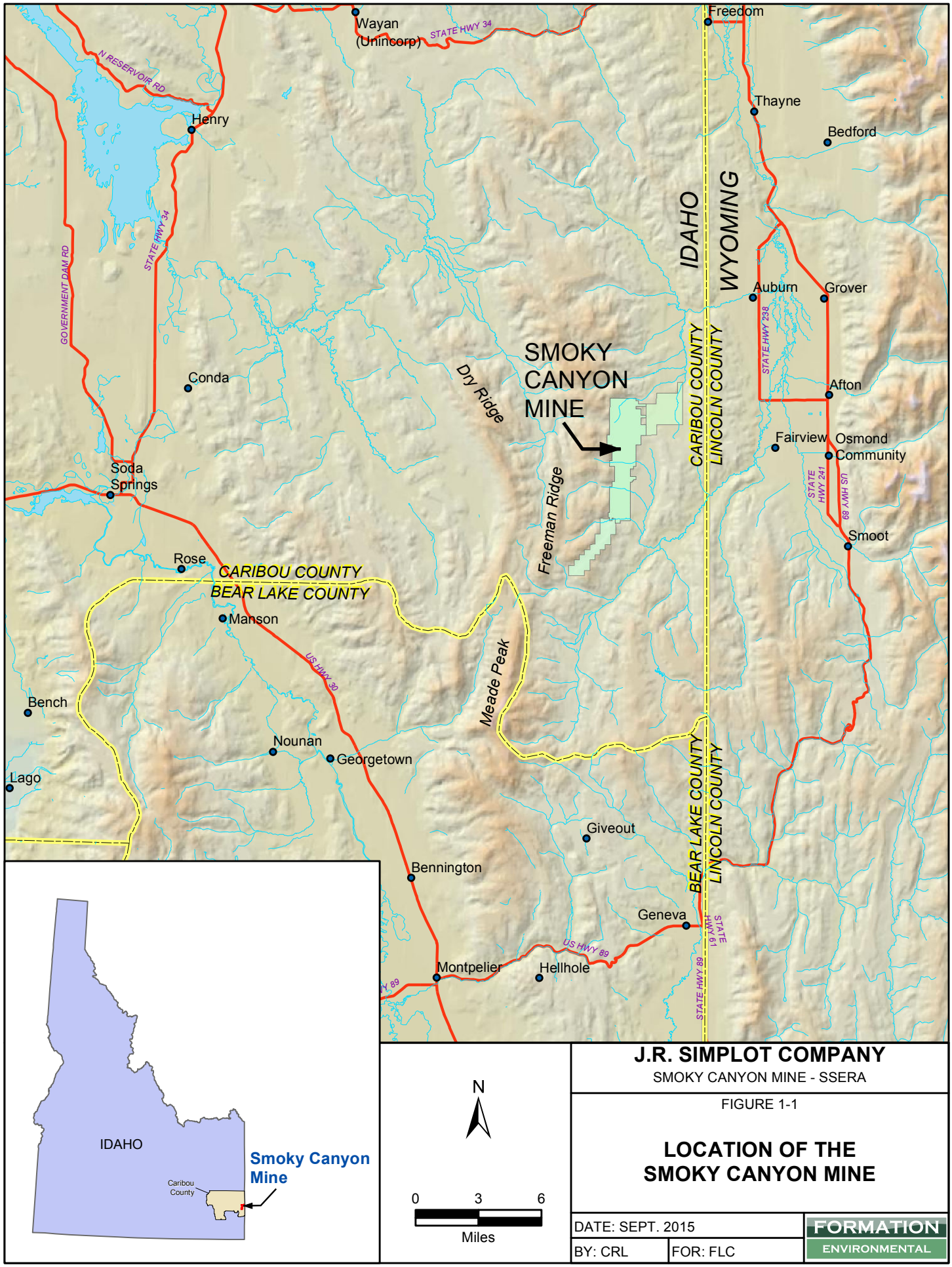


J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 1-1

LOCATION OF THE SMOKY CANYON MINE

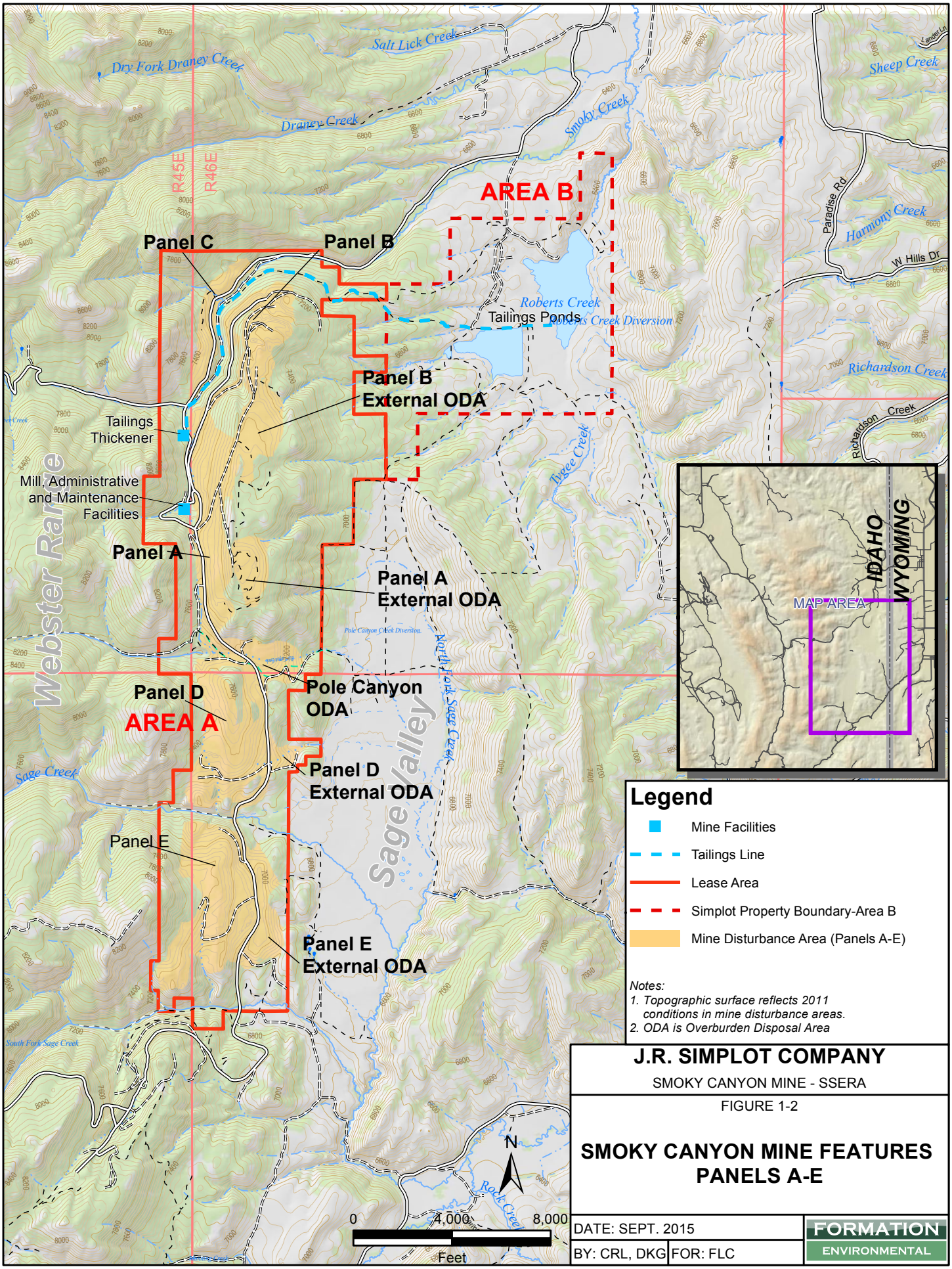
DATE: SEPT. 2015

BY: CRL

FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig1_01_RgnLoc.mxd



J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 1-2

SMOKY CANYON MINE FEATURES PANELS A-E

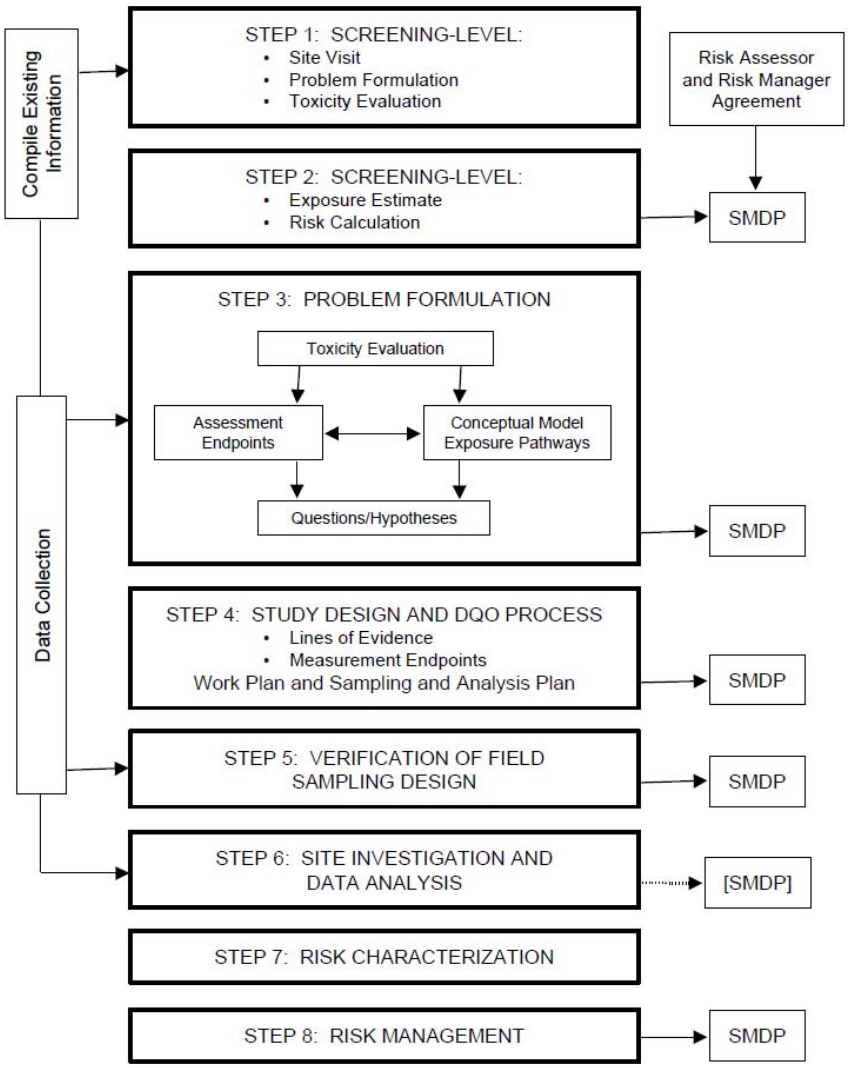
DATE: SEPT. 2015

BY: CRL, DKG FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig1_02-PanelsA-E_Residences.mxd

EXHIBIT I-2
Eight-step Ecological Risk Assessment Process for Superfund



Source: Exhibit I-2 from U.S. Environmental Protection Agency (EPA). 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. Interim Final. EPA 540-R-97-006. Environmental Response Team, Edison, NJ.

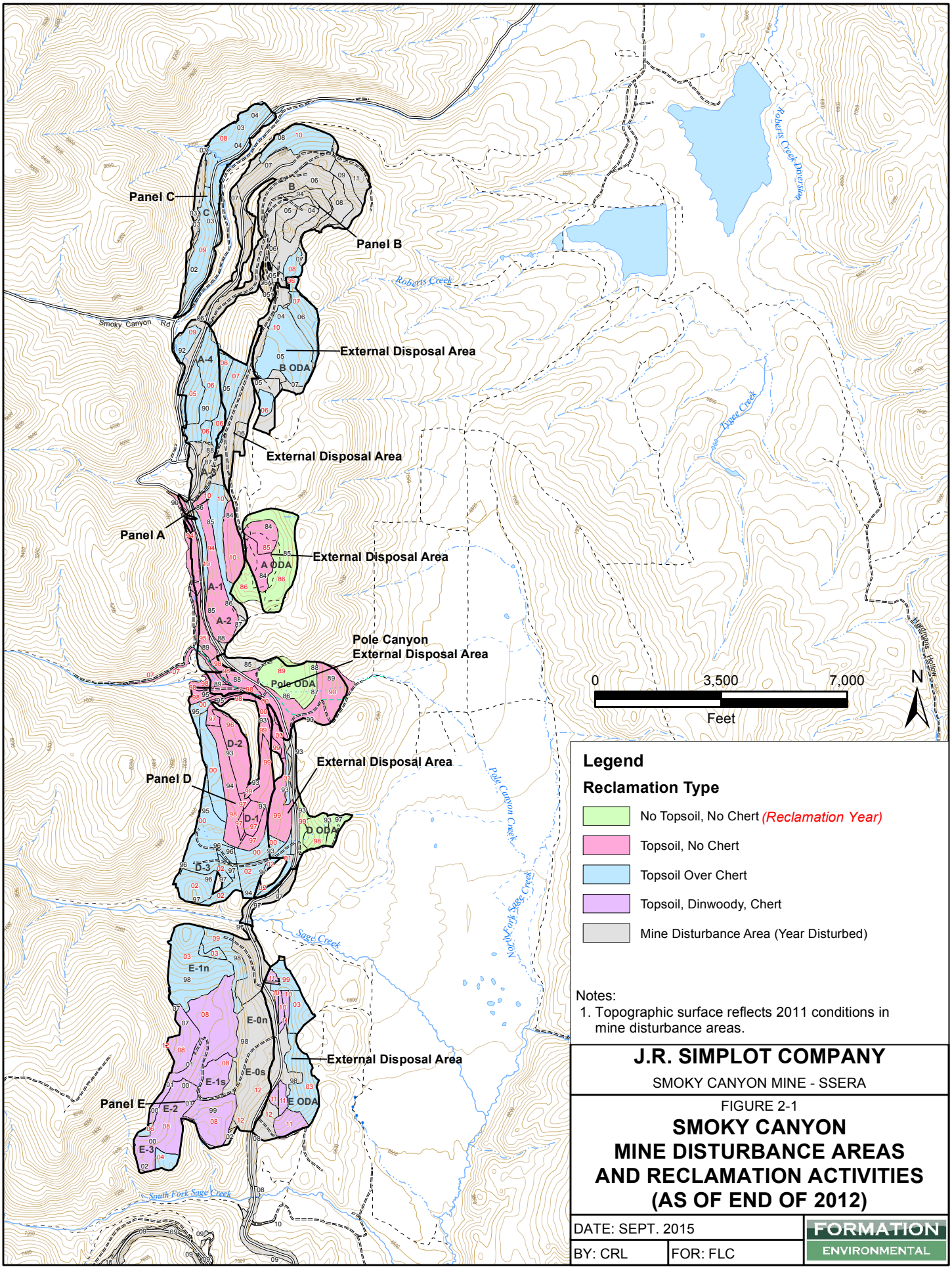
J.R. SIMPLOT COMPANY
SMOKY CANYON MINE-SSERA

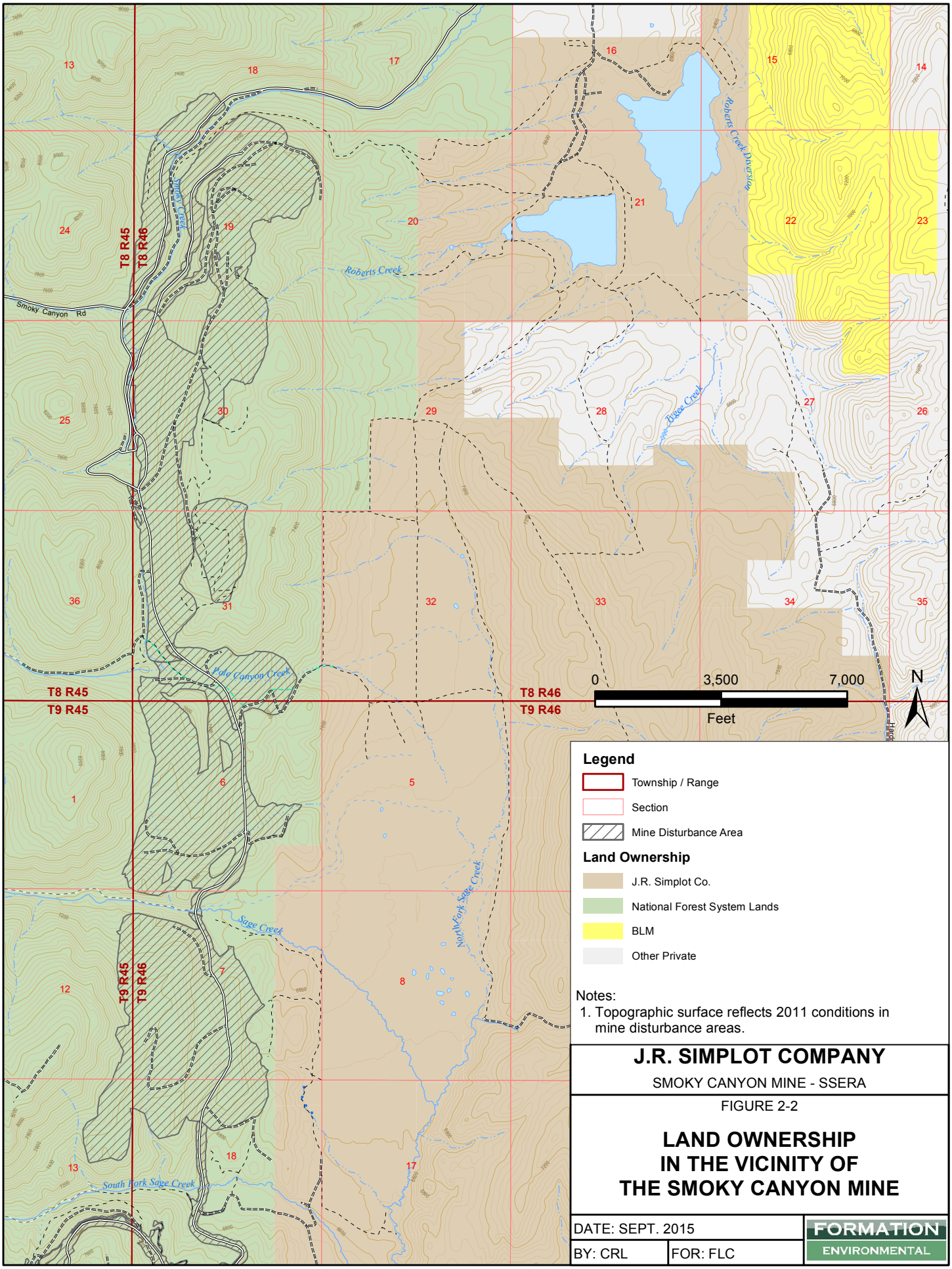
FIGURE 1 -3

Eight Step Ecological Risk Assessment Process

DATE: SEPT. 2015
BY: JMA
FOR: FLC

FORMATION ENVIRONMENTAL


Panel C
Panel B
Panel A
Panel D
Panel E
External Disposal Area
External Disposal Area
External Disposal Area
External Disposal Area
External Disposal Area
Pole Canyon
External Disposal Area
B ODA
A ODA
Pole ODA
D ODA
E ODA
A-4
A-1
A-2
D-2
D-1
D-3
E-1n
E-0n
E-0s
E-1s
E-2
E-3
Smoky Canyon Rd
Roberts Creek
Roberts Creek Diversion
Sage Creek
Pole Canyon Creek
North Fork Sage Creek
South Fork Sage Creek
Hardtrunk Hollow
0
3,500
7,000
Feet
N
Legend
Reclamation Type
No Topsoil, No Chert (Reclamation Year)
Topsoil, No Chert
Topsoil Over Chert
Topsoil, Dinwoody, Chert
Mine Disturbance Area (Year Disturbed)
Notes:
1. Topographic surface reflects 2011 conditions in mine disturbance areas.
J.R. SIMPLOT COMPANY
SMOKY CANYON MINE - SSERA
FIGURE 2-1
SMOKY CANYON
MINE DISTURBANCE AREAS
AND RECLAMATION ACTIVITIES
(AS OF END OF 2012)
DATE: SEPT. 2015
BY: CRL
FOR: FLC
FORMATION
ENVIRONMENTAL
S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_01_MineDis2012.mxd



Notes:
1. Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-2

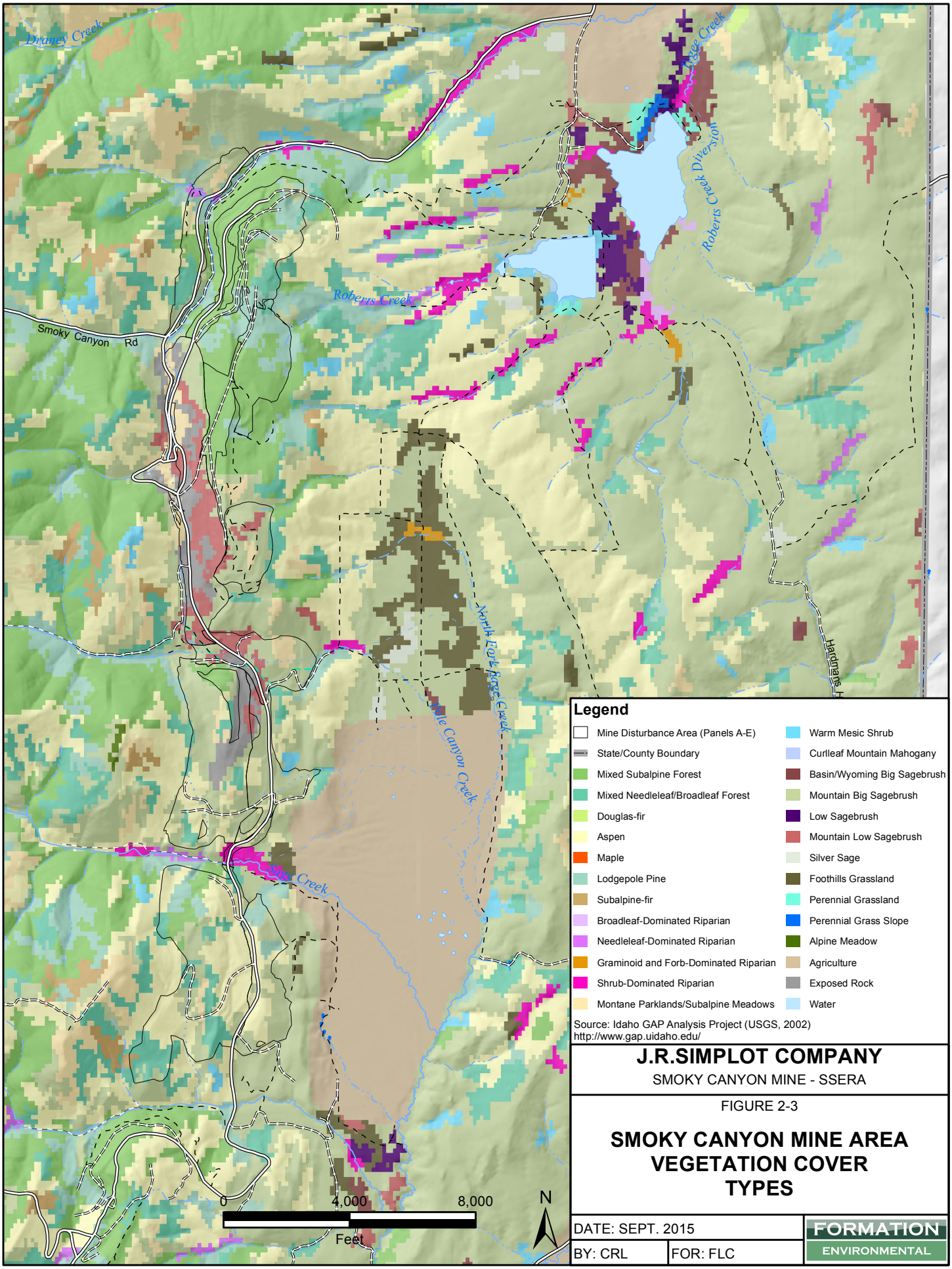
LAND OWNERSHIP IN THE VICINITY OF THE SMOKY CANYON MINE

DATE: SEPT. 2015

BY: CRL | FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_02_Ownership.mxd



J.R.SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-3

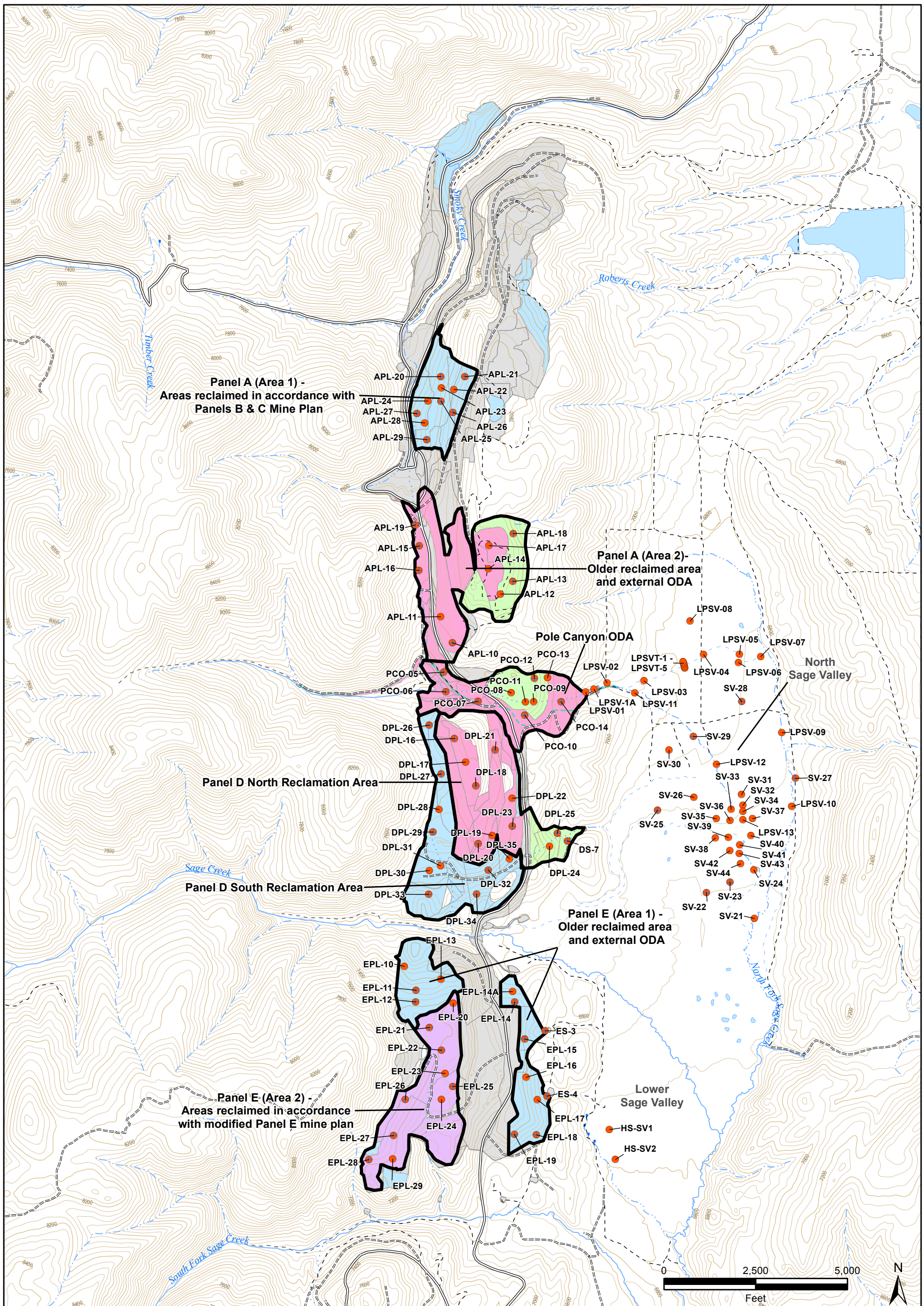
SMOKY CANYON MINE AREA VEGETATION COVER TYPES

DATE: SEPT. 2015

BY: CRL | FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_03_VegCoverTypes.mxd



Legend

- Terrestrial Biota Tissue Sampling Location
- Soil and Vegetation Sampling Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

Reclamation Type

- Topsoil, No Chert
- Topsoil, Dinwoody, Chert
- Topsoil Over Chert
- No Topsoil, No Chert
- Not Reclaimed at time of sampling (2010-2012)
- Mine Panel Sampling Area - samples collected only in reclaimed portions of the sampling area

Notes:
1. Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-4

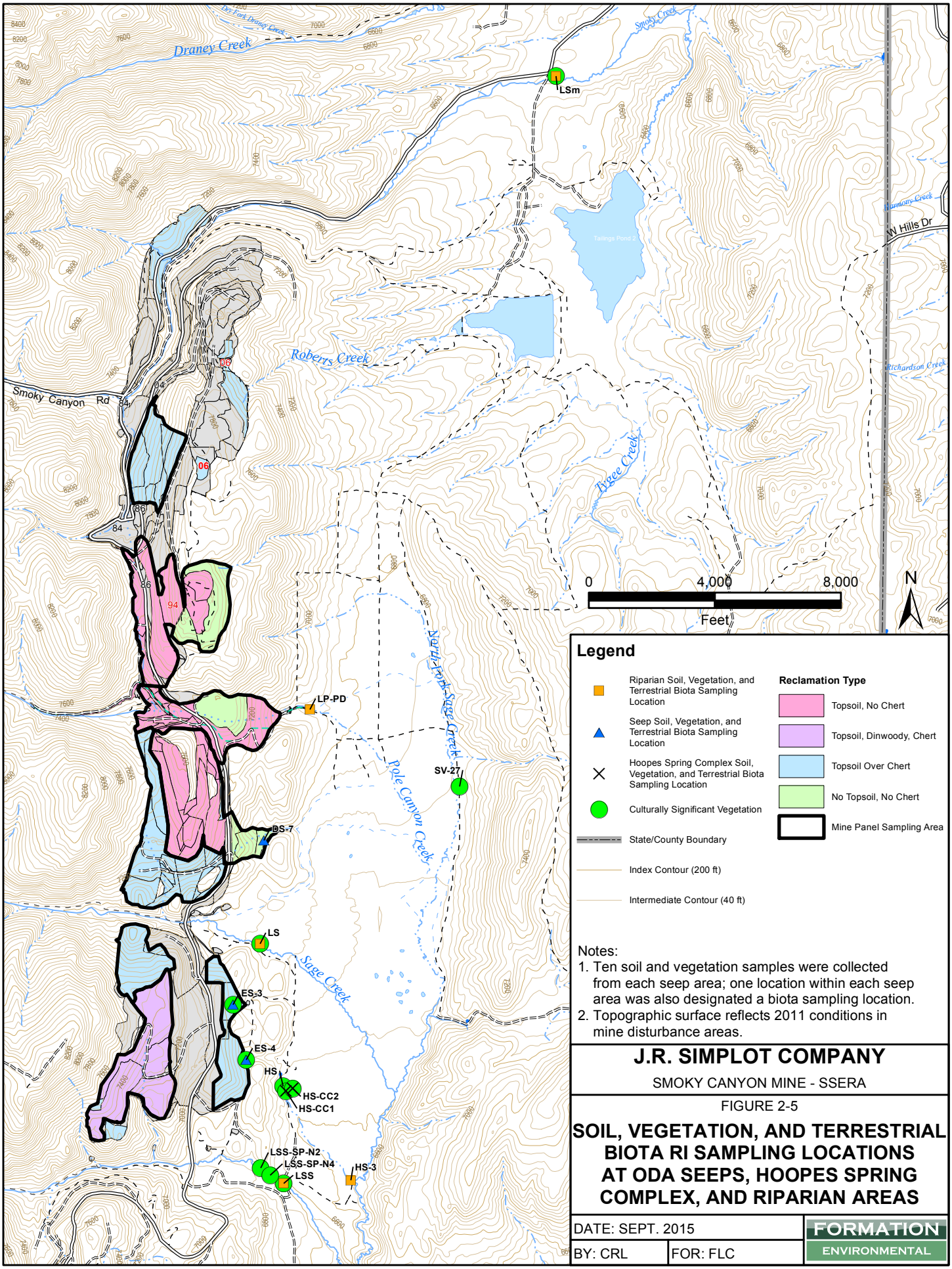
SOIL, VEGETATION, AND TERRESTRIAL BIOTA RI SAMPLING LOCATIONS ON ODAS AND IN NORTHERN SAGE VALLEY

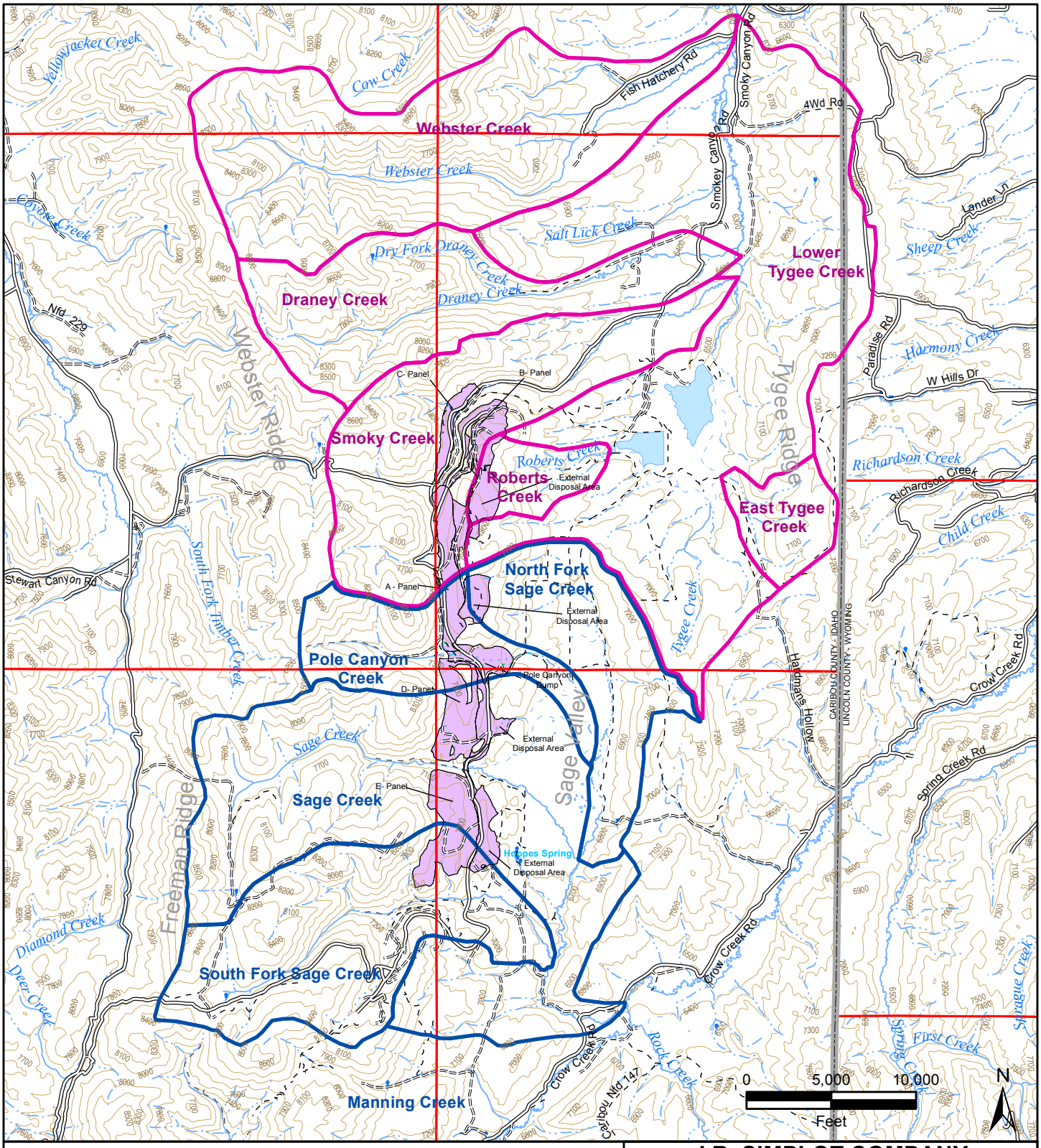
DATE: SEPT. 2015

BY: CRL | FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_04_Soil_Veg_TerrLocs.mxd


Draney Creek
Smoky Creek
LSm
Harmony Creek
N Hills Dr
Tailings Pond 2
Roberts Creek
Richardson Creek
Smoky Canyon Rd
Tygee Creek
0
4,000
8,000
Feet
N
LP-PD
North Fork Sage Creek
Pole Canyon Creek
SV-27
DS-7
LS
Sage Creek
ES-3
ES-4
HS
HS-CC2
HS-CC1
LSS-SP-N2
LSS-SP-N4
LSS
HS-3
Legend
Riparian Soil, Vegetation, and Terrestrial Biota Sampling Location
Seep Soil, Vegetation, and Terrestrial Biota Sampling Location
Hoopes Spring Complex Soil, Vegetation, and Terrestrial Biota Sampling Location
Culturally Significant Vegetation
State/County Boundary
Index Contour (200 ft)
Intermediate Contour (40 ft)
Reclamation Type
Topsoil, No Chert
Topsoil, Dinwoody, Chert
Topsoil Over Chert
No Topsoil, No Chert
Mine Panel Sampling Area
Notes:
1. Ten soil and vegetation samples were collected from each seep area; one location within each seep area was also designated a biota sampling location.
2. Topographic surface reflects 2011 conditions in mine disturbance areas.
J.R. SIMPLOT COMPANY
SMOKY CANYON MINE - SSERA
FIGURE 2-5
SOIL, VEGETATION, AND TERRESTRIAL BIOTA RI SAMPLING LOCATIONS AT ODA SEEPS, HOOPES SPRING COMPLEX, AND RIPARIAN AREAS
DATE: SEPT. 2015
BY: CRL
FOR: FLC
FORMATION ENVIRONMENTAL
S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_05_SeepAreaSamp.mxd



Legend

- State/County Boundary
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Pipeline
- Historic Flow Path
- Canal Ditch
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Mine Disturbance Area (Panels A-E)
- Sage Creek Basin (Drains to Crow Creek)
- Tygee Creek Basin (Drains to Stump Creek)

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-6

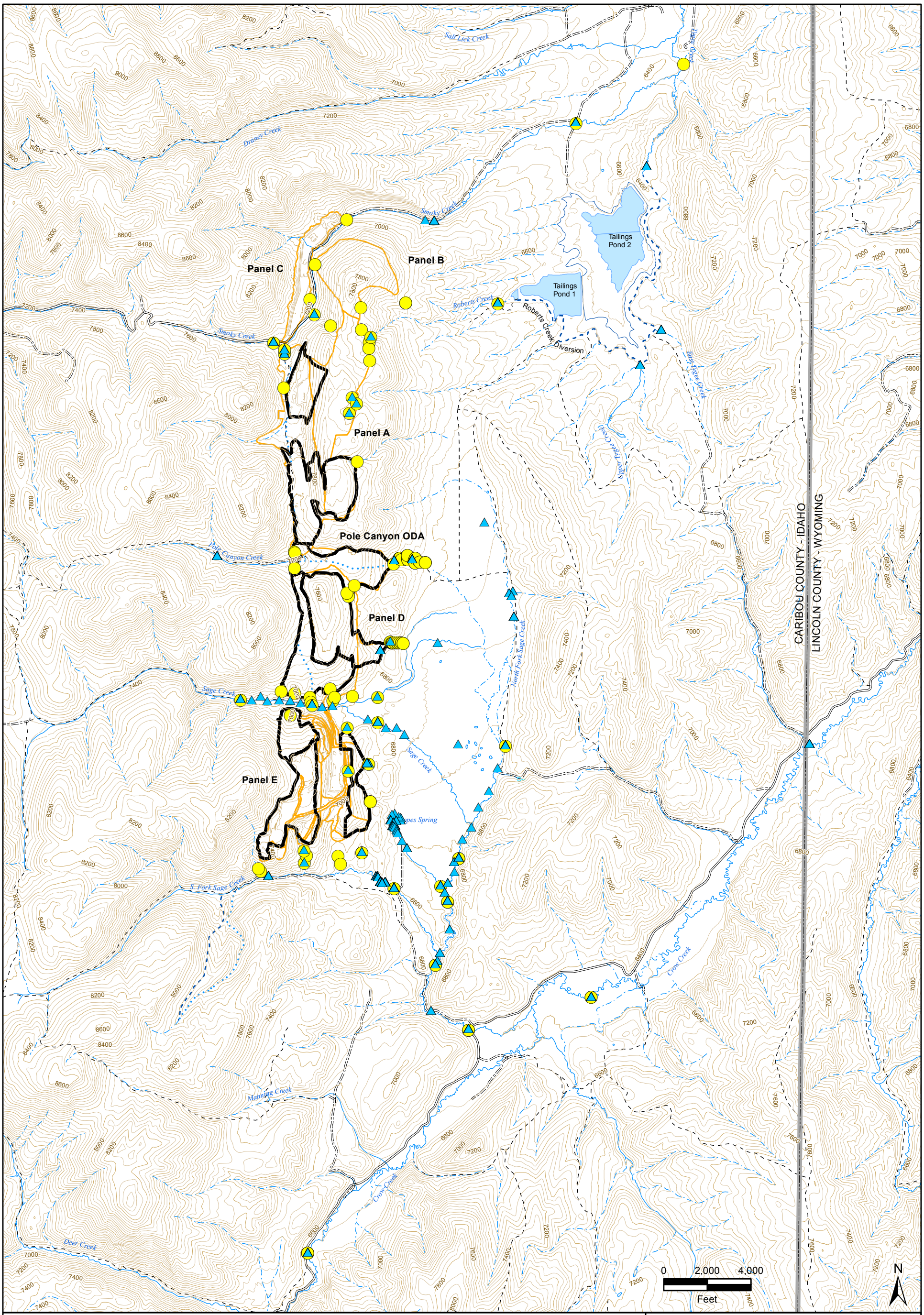
SMOKY CANYON MINE AREA DRAINAGE BASINS AND STREAMS

DATE: SEPT. 2015

BY: CRL, DKG FOR: FLC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_06_SW_Features.mxd



Legend

- Surface Water Sampling Locations
- Sediment Sampling Locations
- State/County Boundary
- Mine Panel Sampling Area

J.R. SIMPLOT COMPANY

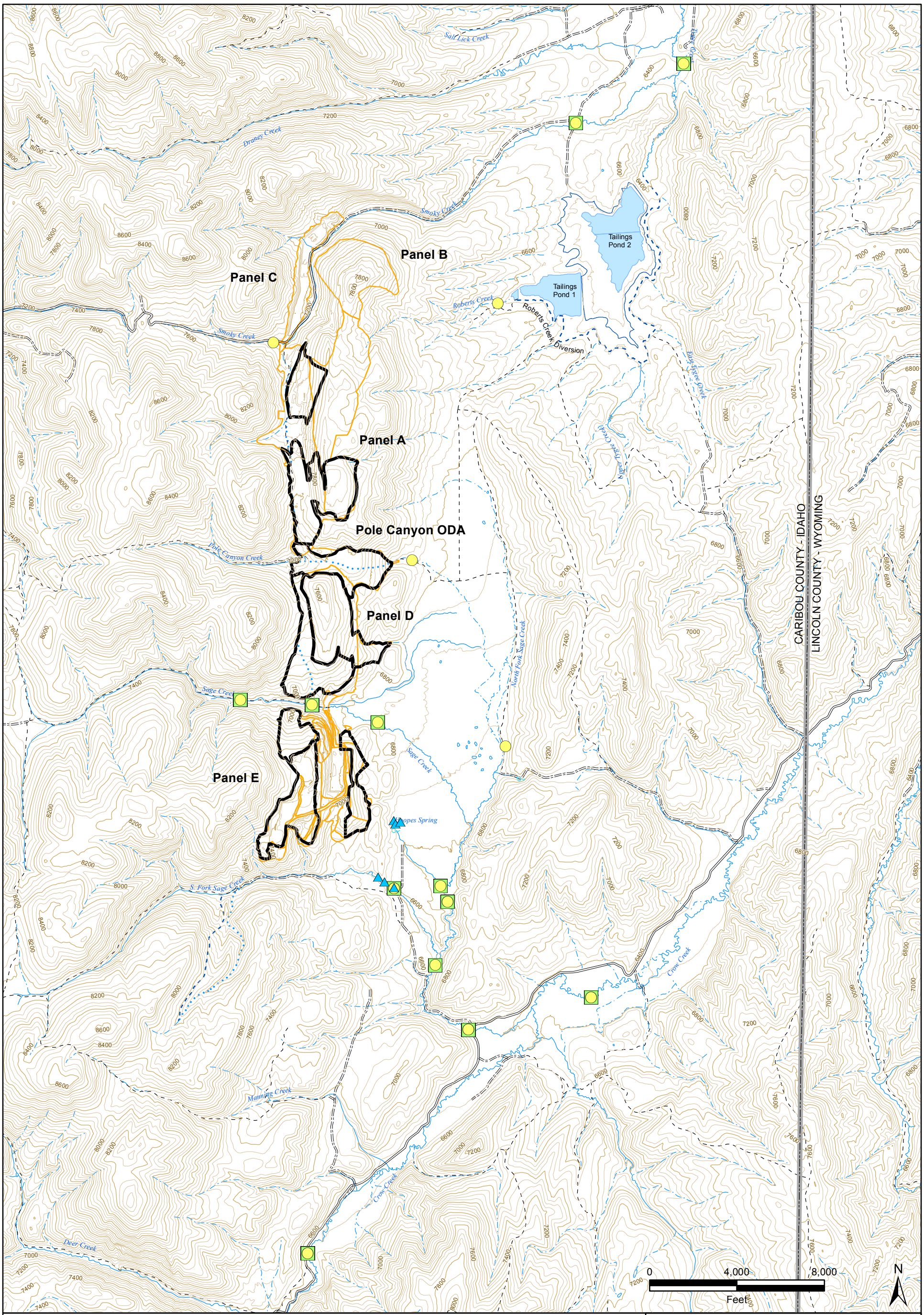
SMOKY CANYON MINE - SSERA

FIGURE 2-7

SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

DATE: SEPT. 2015	FORMATION ENVIRONMENTAL
BY: DKG	FOR: JMA

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_07_SW_SedLocs.mxd



Legend

- Aquatic Macrophytes Tissue Sample Locations
- Aquatic Invertebrate Tissue Sample Locations
- Fish Tissue Sample Locations
- State/County Boundary
- Mine Panel Sampling

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-8

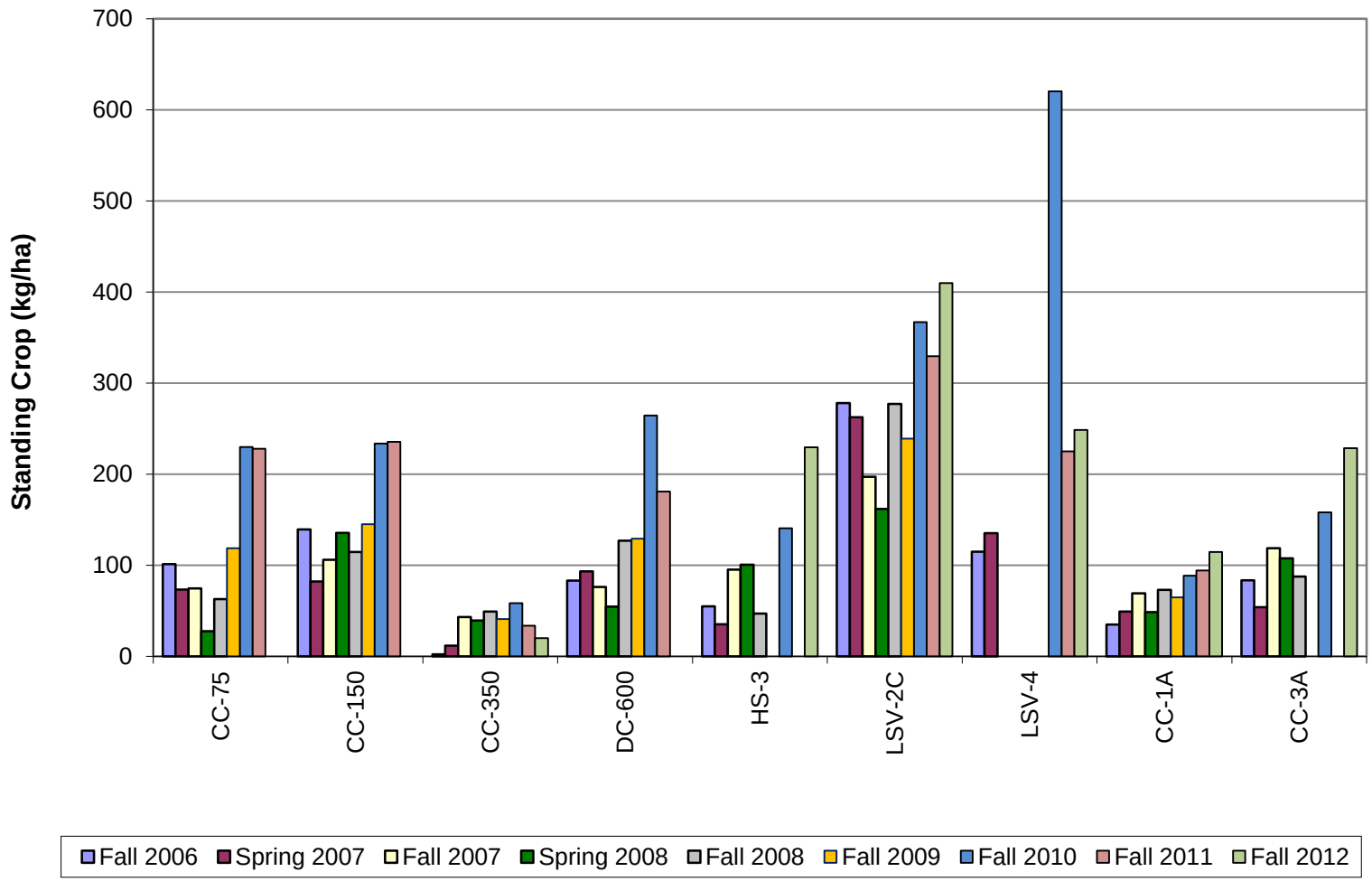
AQUATIC TISSUE SAMPLING LOCATIONS

DATE: SEPT. 2015

BY: DKG | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_08_AquaticTissueLocs.mxd



J.R. SIMPLOT COMPANY
SMOKY CANYON MINE - SSERA

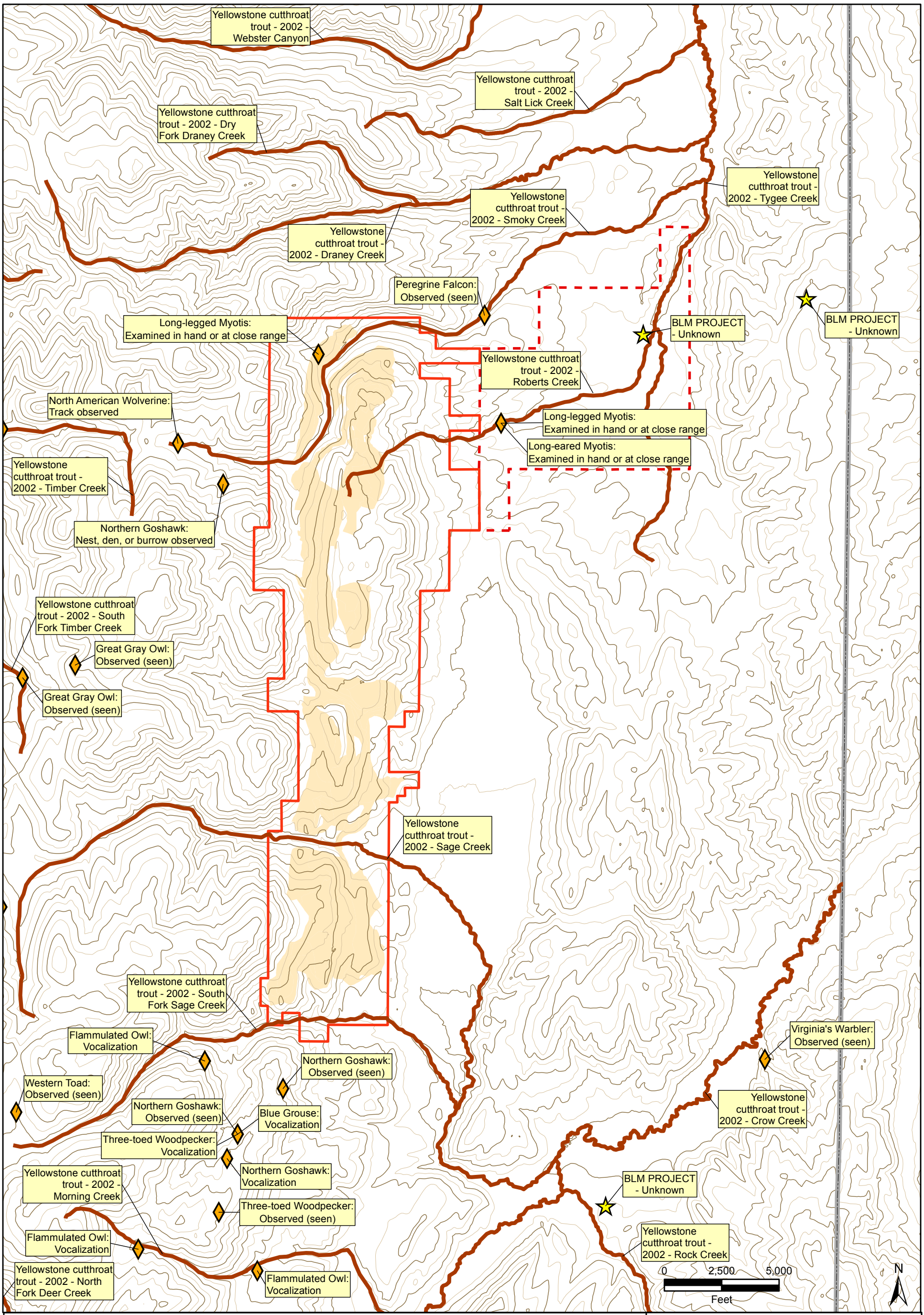
FIGURE 2-9

Total Trout Biomass 2006 to 2012

DATE: SEPT. 2015

BY: EEB | FOR: FLC

FORMATION ENVIRONMENTAL



LEGEND

- At-risk wildlife occurrences
- Sage Grouse leks
- At-risk fish occurrences
- Lease Area

Idaho Department of Fish and Game (IDFG). 2012. E-mail communication containing location information for Idaho at-risk species designated by the Comprehensive Wildlife Conservation Strategy (CWCS). Data are part of the Idaho Fish and Wildlife Information System (IFWIS) managed by the Idaho Department of Fish and Game (IDFG). Data for Caribou County, ID received October 30, 2012.

No Canada Lynx critical habitat present in map area.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 2-10

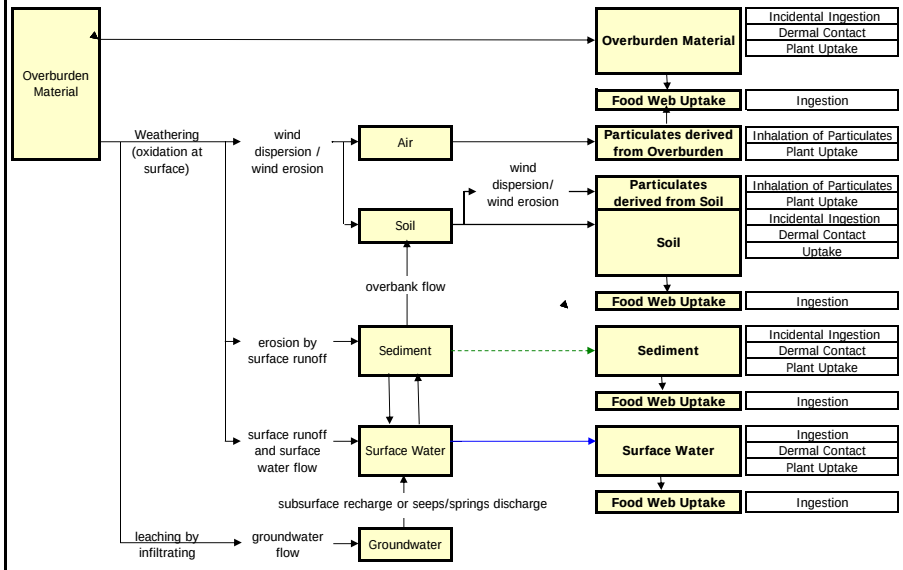
AT-RISK SPECIES OCCURRENCES (IDFG/IFWIS)

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig2_10_Atriskspecies.mxd



EXPOSURE MEDIA	POTENTIAL ECOLOGICAL EXPOSURE ROUTES	TERRESTRIAL UPLAND RECEPTORS					RIPARIAN/AQUATIC RECEPTORS						DOMESTIC LIVESTOCK RECEPTORS
		1° Producers – Terrestrial Plants	1° Consumers –Terr.Invertebrates	1° Consumers –Terr. Herbivorous Birds and Mammals	2° Consumers – Terr. Omnivorous Birds/Mammals/Reptiles	3° Consumers – Terr. Carnivorous Mammals and Raptors	1° Producers and Consumers – Non-fish Aquatic Life*	1° and 2° Consumers – Fish	1° Consumers – Aq./Ripar. Herbivorous Birds and Mammals	2° Consumers – Aq./Ripar. Omnivorous Birds and Mammals	2° Consumers – Aq./Ripar. Piscivorous Birds	2° Consumers – Aq./Ripar. Carnivorous Mammals	1° Consumers – Domestic Livestock Receptors
Overburden Material	Incidental Ingestion		●	●	●	●							●
	Dermal Contact		⊙	⊙	⊙	⊙							⊙
	Plant Uptake	●											
Food Web Uptake	Ingestion		●	●	●	●							●
Particulates derived from Overburden	Inhalation of Particulates		⊙	⊙	⊙	⊙							⊙
	Plant Uptake	⊙											
Particulates derived from Soil / Soil	Inhalation of Particulates		⊙	⊙	⊙	⊙							⊙
	Plant Uptake	⊙											
	Incidental Ingestion		●	●	●	●			●	●		●	●
	Dermal Contact		⊙	⊙	⊙	⊙			⊙	⊙		⊙	⊙
	Uptake	●											
Food Web Uptake	Ingestion		●	●	●	●			●	●		●	●
Sediment	Incidental Ingestion						●	●	●	●	●	●	●
	Dermal Contact						●	⊙	⊙	⊙	⊙	⊙	⊙
	Plant Uptake						●						
Food Web Uptake	Ingestion						●	●	●	●	●	●	
Surface Water	Ingestion		⊙	⊙	⊙	●	●	●	●	●	●	●	●
	Dermal Contact		⊙	⊙	⊙	⊙	●	●	⊙	⊙	⊙	⊙	⊙
	Plant Uptake	●					●						
Food Web Uptake	Ingestion				●	●	●	●		●	●	●	●

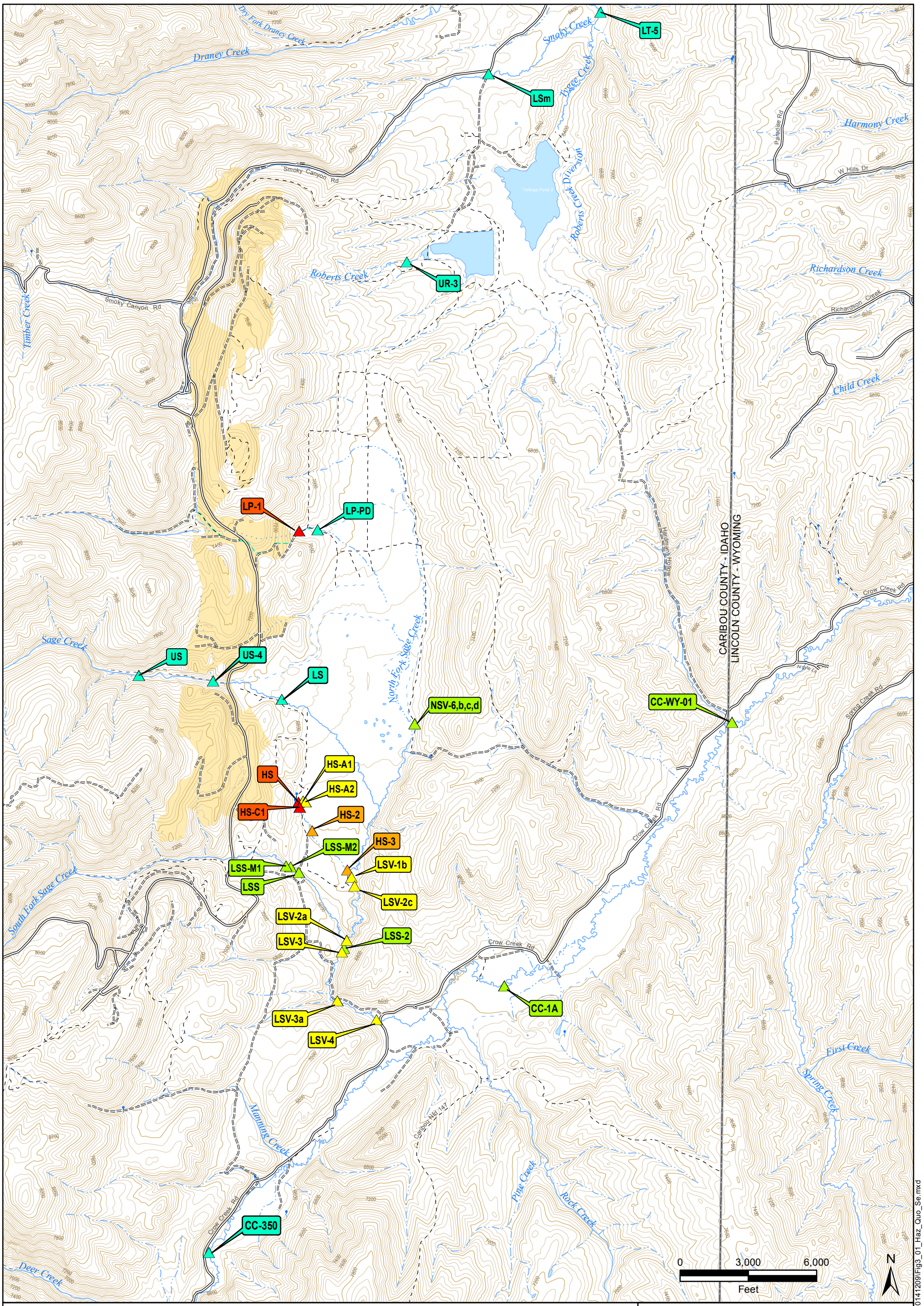
Notes:

Different line weights, colors, and styles are only used to allow ease of reading
Surface water is defined as streams, ponds, seeps, and springs
All receptors include current or future populations
* includes periphyton, aquatic plants, zooplankton, benthic invertebrates, amphibians
** surface water ingestion is complete and significant for the mule deer receptor only. For all other herbivorous receptors, the pathway is complete but insignificant.

● Complete Significant Pathway
⊙ Complete Insignificant Pathway
Incomplete Pathway

J.R. SIMPLOT COMPANY
SMOKY CANYON MINE - SSERA
FIGURE 2-11
CONCEPTUAL SITE MODEL FOR ECOLOGICAL RECEPTORS
DATE: SEPT. 2015
BY: FSR FOR: JMA

S:\Jobs\0442-004-900-Simplot-Smoky\RIFS\RIFS_ERAworkplan\RevDft01(Final)\FiguresTables\SmokyERAworkplan_revFig3-1_09Nov2012.xlsx



Legend

Maximum Hazard Quotient

- < 1
- 1 - 3
- 3 - 8
- 8 - 10
- >10

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- State and County Boundary
- Mine Disturbance Areas (Panels A-E)

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 3-1

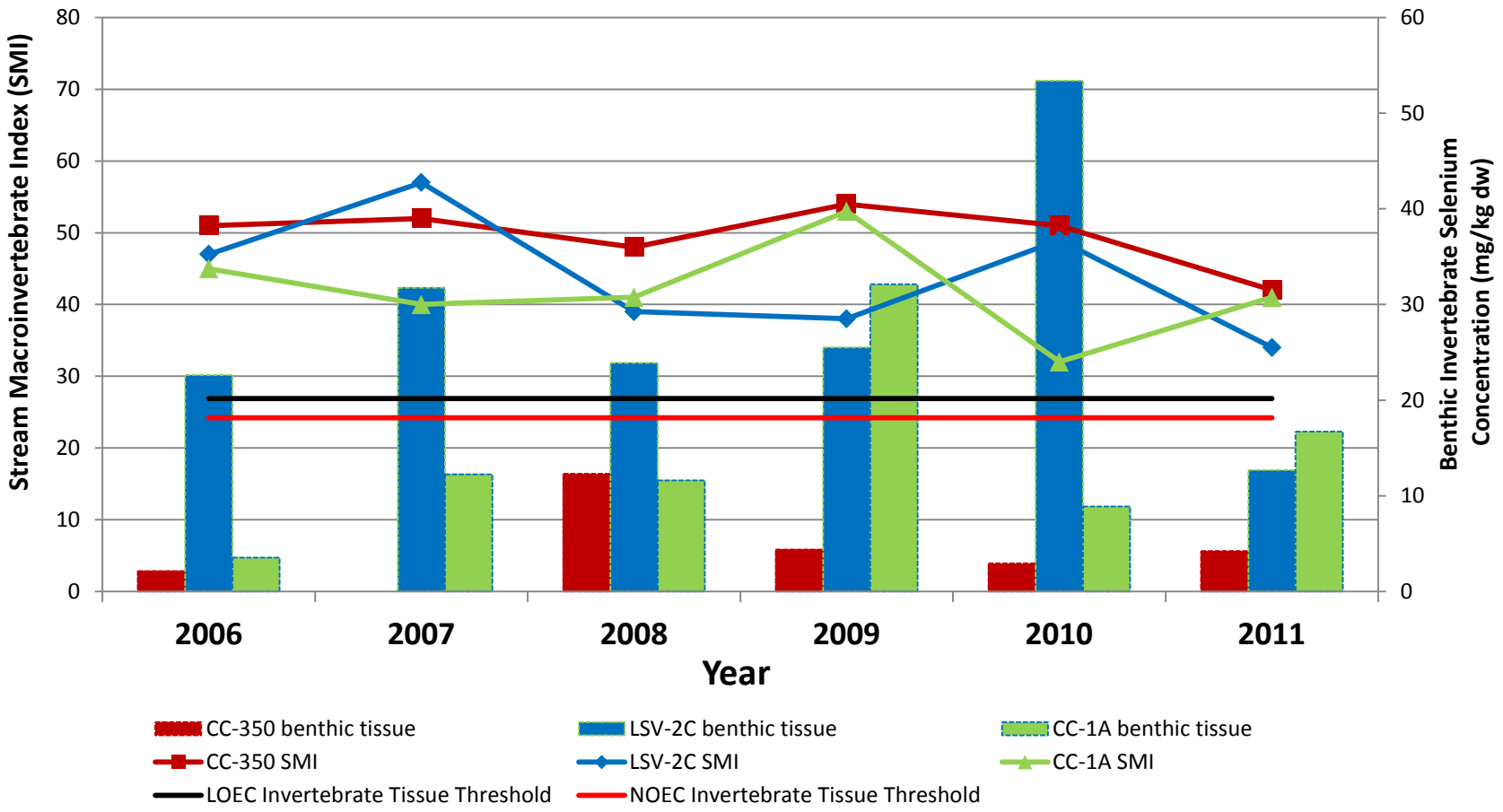
HAZARD QUOTIENTS FOR SELENIUM AT SURFACE WATER SAMPLING LOCATIONS

DATE: SEPT. 2015

BY: JMH | FOR: SMC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig3_01_Haz_Quo_Se.mxd



J.R. SIMPLOT COMPANY
SMOKY CANYON MINE - SSERA

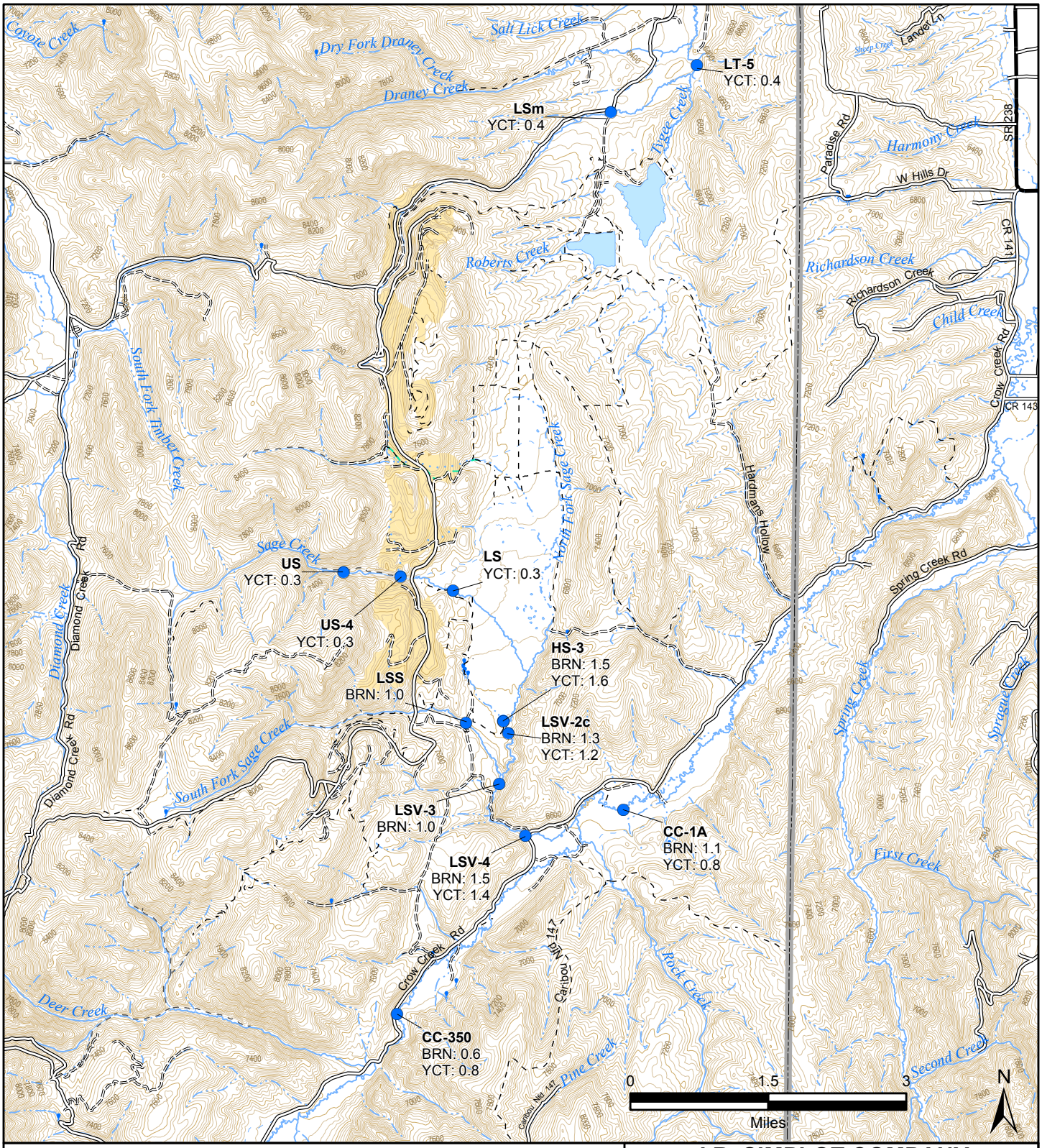
FIGURE 3-2

BENTHIC INVERTEBRATE FUNCTIONAL METRICS VERSUS SELENIUM CONCENTRATIONS IN SURFACE WATER

DATE: SEPT. 2015

BY: JMH | FOR: SMC

FORMATION ENVIRONMENTAL



Legend

State/County Boundary

Fish Collection Location

Site Name
Hazard Quotient

Species Codes
BRN: Brown Trout
YCT: Yellowstone Cutthroat Trout

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 3-3

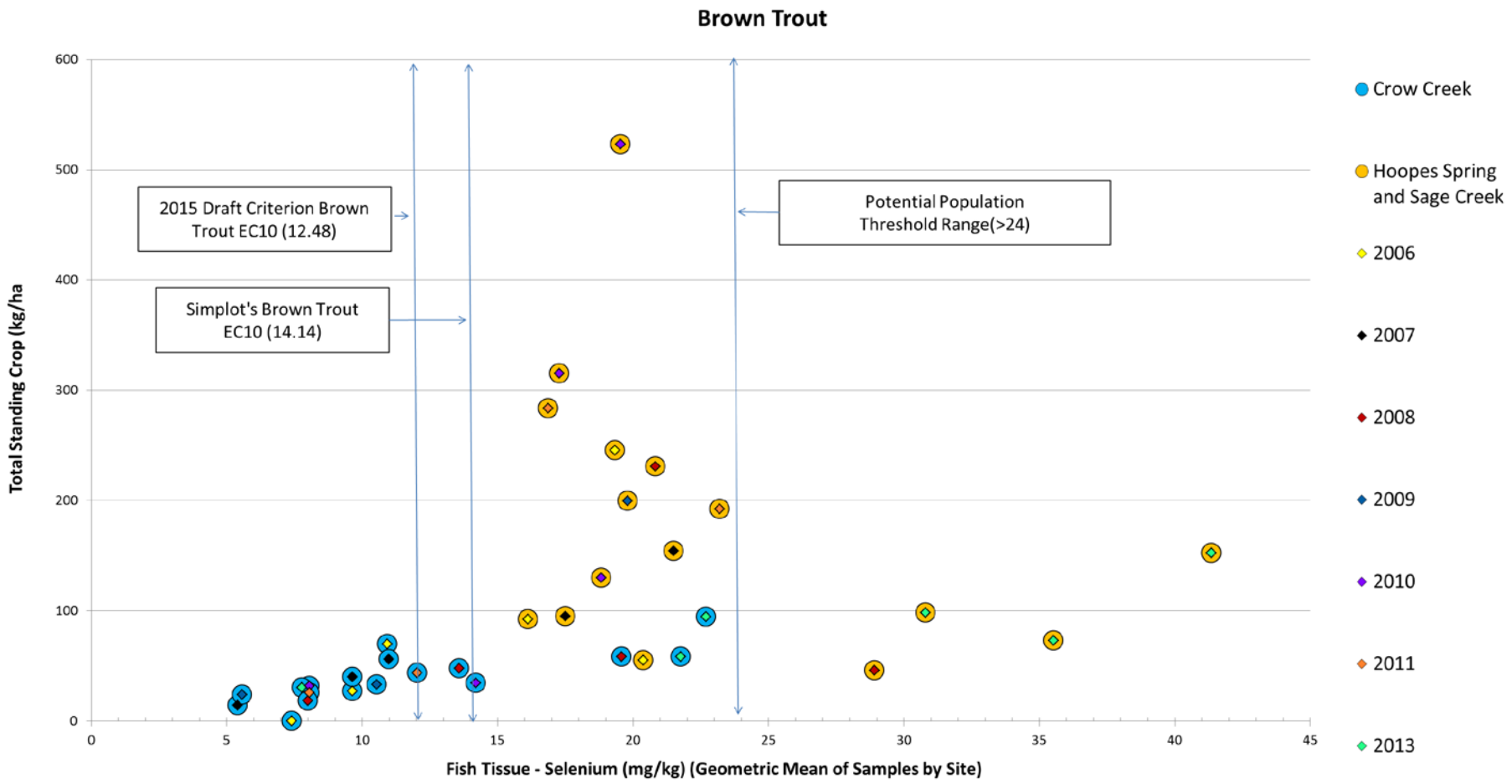
HAZARD QUOTIENTS FOR SELENIUM IN TROUT BY LOCATION

DATE: SEPT. 2015

BY: JMH | FOR: SMC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig3_03_SW_FishHQ.mxd



SSSC = Site Specific Selenium Criterion

Sites Included: CC-350, HS-3, LSV-2C, LSV-4, CC-1A, CC-3A for Fall Sampling*

*Note: not all sites were sampled per given year

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

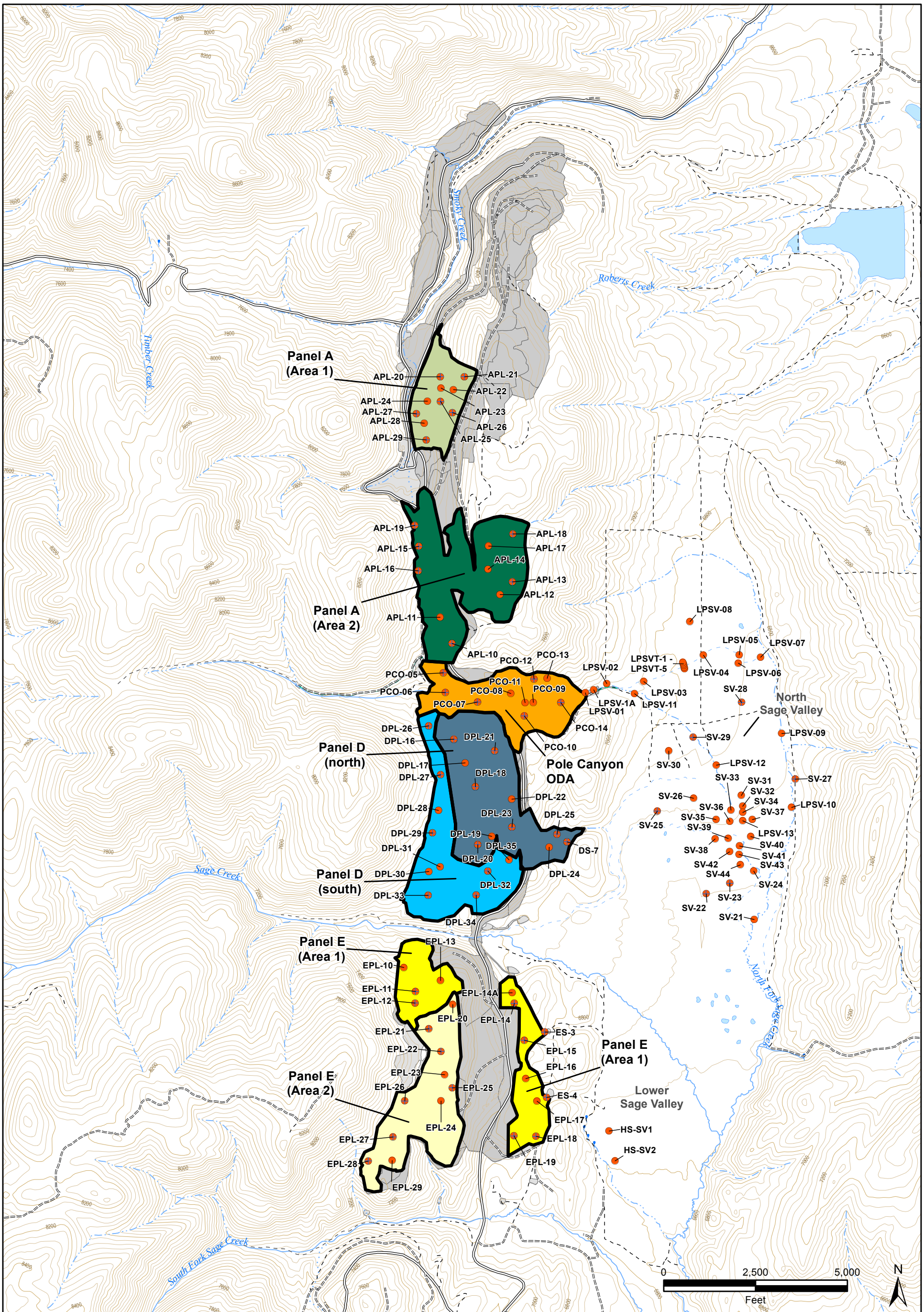
FIGURE 3-4

STANDING CROP BIOMASS POPULATION ESTIMATES VERSUS WHOLE BODY BROWN TROUT TISSUE SELENIUM

DATE: SEPT. 2015

BY: JMH | FOR: SMC

FORMATION ENVIRONMENTAL



Legend

- Terrestrial Biota Tissue Sampling Location
- Soil and Vegetation Sampling Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

Area Sampled

- Panel A (Area 1)
- Panel A (Area 2)
- Panel D (north)
- Panel D (south)
- Panel E (Area 1)
- Panel E (Area 2)
- Pole Canyon ODA

- Mine Panel Sampling Area - samples collected only in reclaimed portions of the sampling area
- Mine Disturbance Area

Note: Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-1

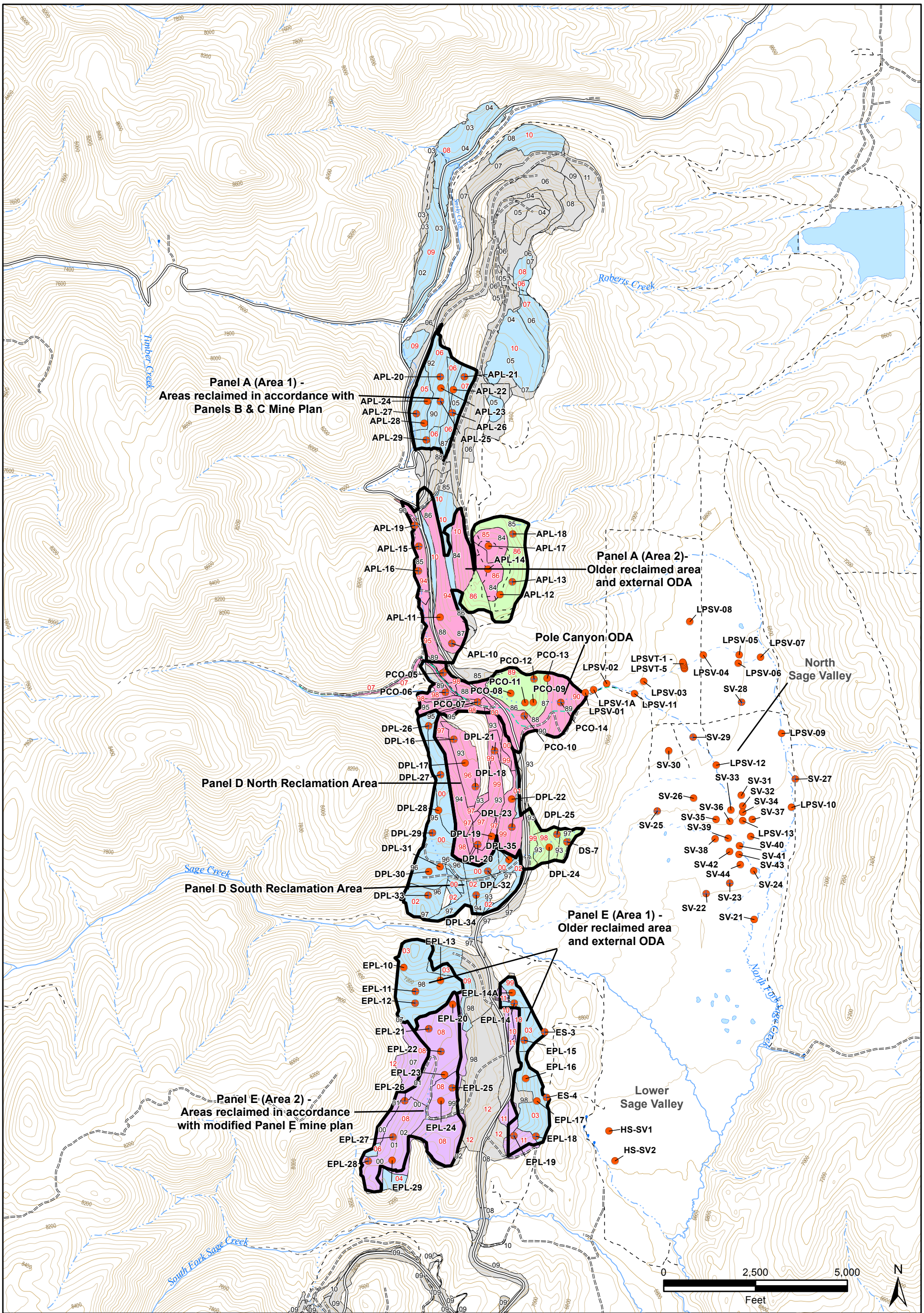
TIER 2 EXPOSURE DOMAINS MINE PANELS

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_01_Tier2ExposurePanels.mxd



Legend

- Terrestrial Biota Tissue Sampling Location
- Soil and Vegetation Sampling Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

Reclamation Type

- No Topsoil, No Chert
- Topsoil, No Chert
- Topsoil Over Chert
- Topsoil, Dinwoody, Chert
- Mine Disturbance Area (Year Disturbed)
- Mine Panel Sampling Area - samples collected only in reclaimed portions of the sampling area

Note: Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-2

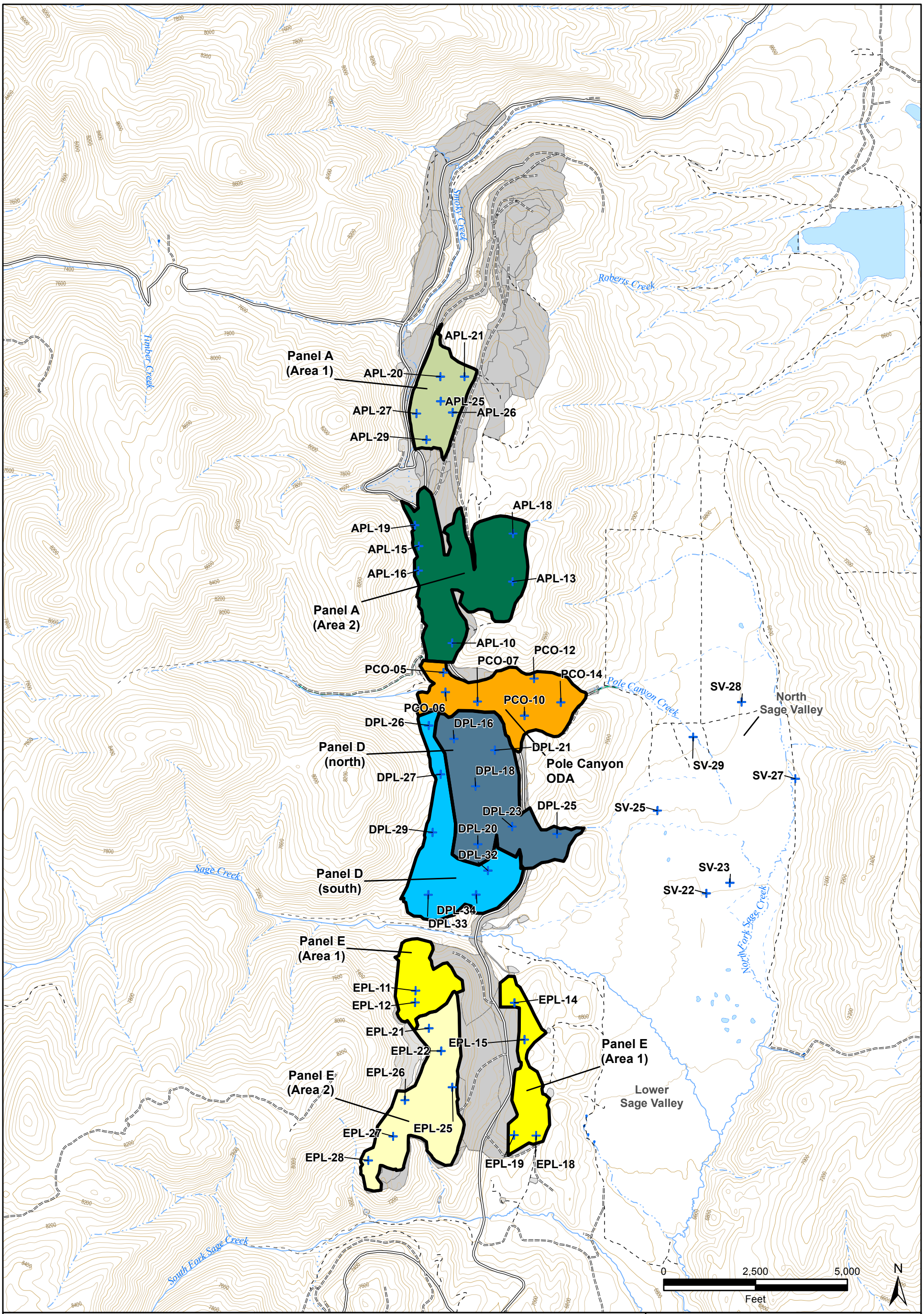
TIER 2 EXPOSURE DOMAINS RECLAMATION TYPE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_02_Tier2ExposureRecType.mxd



Legend

- Terrestrial Biota Tissue Sampling Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

Area Sampled

- Panel A (Area 1)
- Panel A (Area 2)
- Panel D (north)
- Panel D (south)
- Panel E (Area 1)
- Panel E (Area 2)
- Pole Canyon ODA
- Mine Disturbance Area
- Mine Panel Sampling Area - samples collected only in reclaimed portions of the sampling area

Note: Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-3

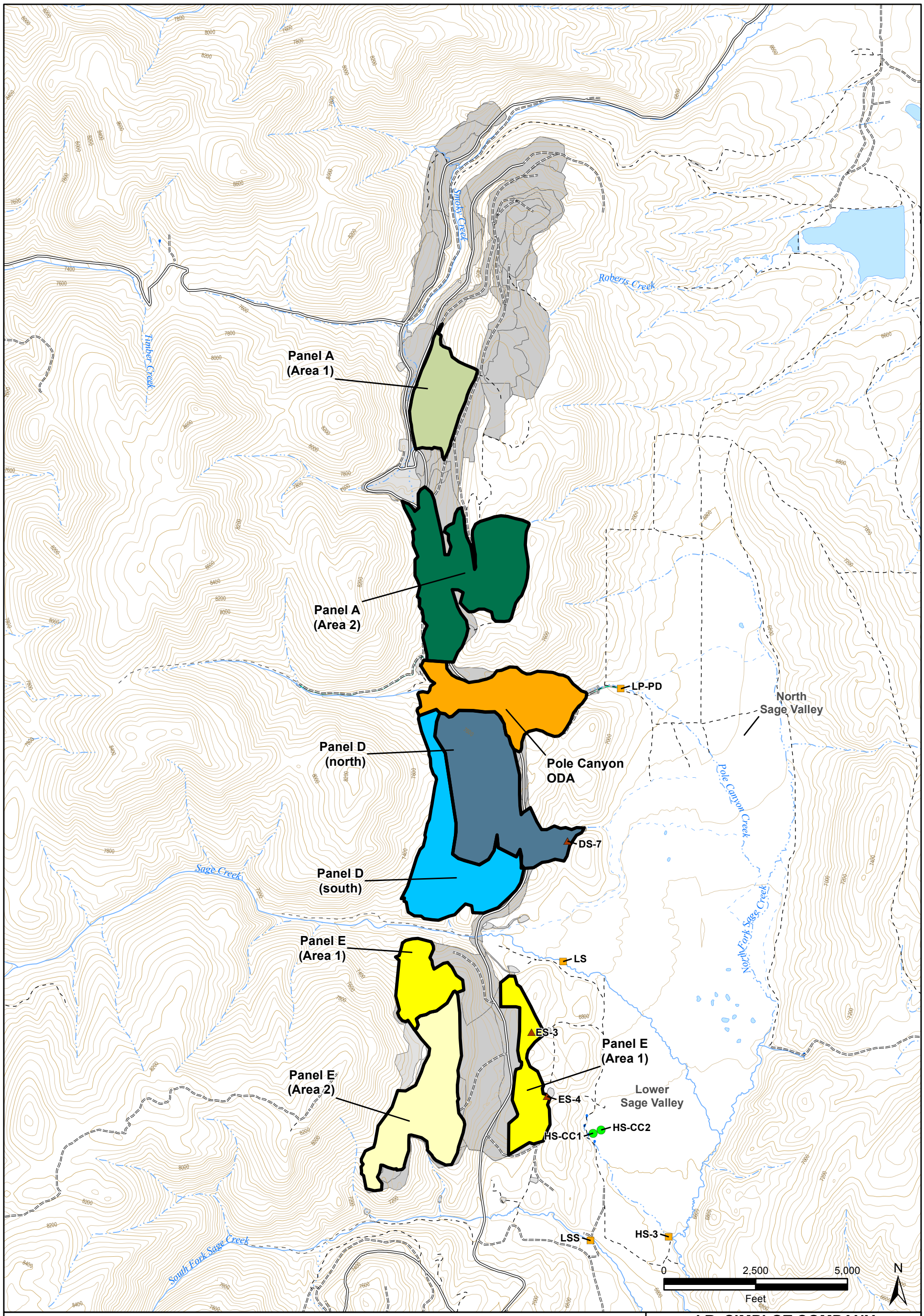
TIER 3 EXPOSURE LOCATIONS UPLAND AREAS

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_03_Tier3Exposure_UplandAreas.mxd



Legend

- Riparian Soil, Vegetation, and Terrestrial Biota Sampling Location
- Seep Soil, Vegetation, and Terrestrial Biota Sampling Location
- Hoopes Spring Complex Soil, Vegetation, and Terrestrial Biota Sampling Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

Area Sampled

- Panel A (Area 1)
- Panel A (Area 2)
- Panel D (north)
- Panel D (south)
- Panel E (Area 1)
- Panel E (Area 2)
- Pole Canyon ODA
- Mine Panel Sampling Area - samples collected only in reclaimed portions of the sampling area
- Mine Disturbance Area

Note: Topographic surface reflects 2011 conditions in mine disturbance areas.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-4

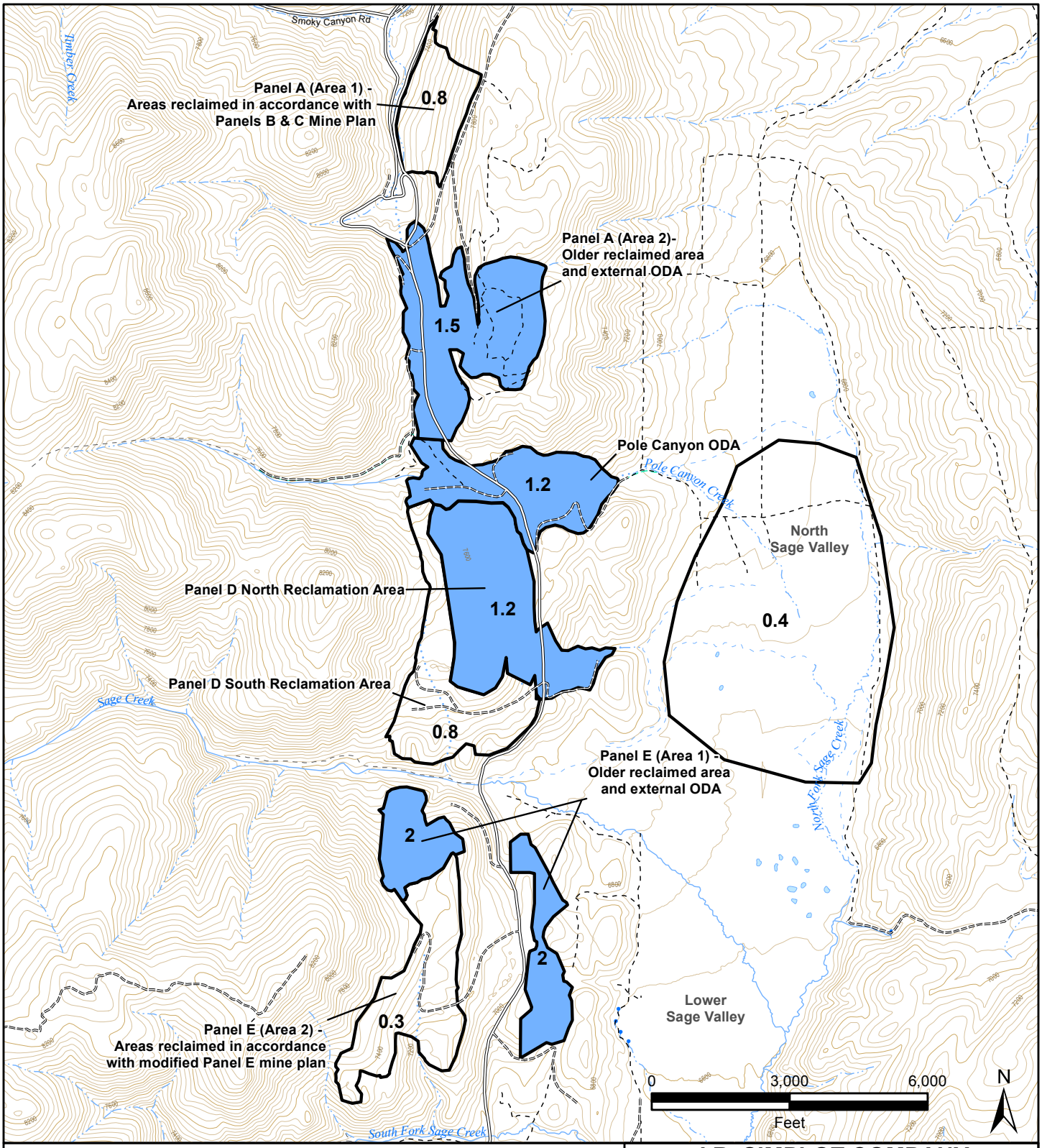
EXPOSURE LOCATIONS RIPARIAN AND SEEP AREAS

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_04_Exposure_RiparianSeep.mxd



Legend

Cadmium HQ; Deer Mouse

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-5

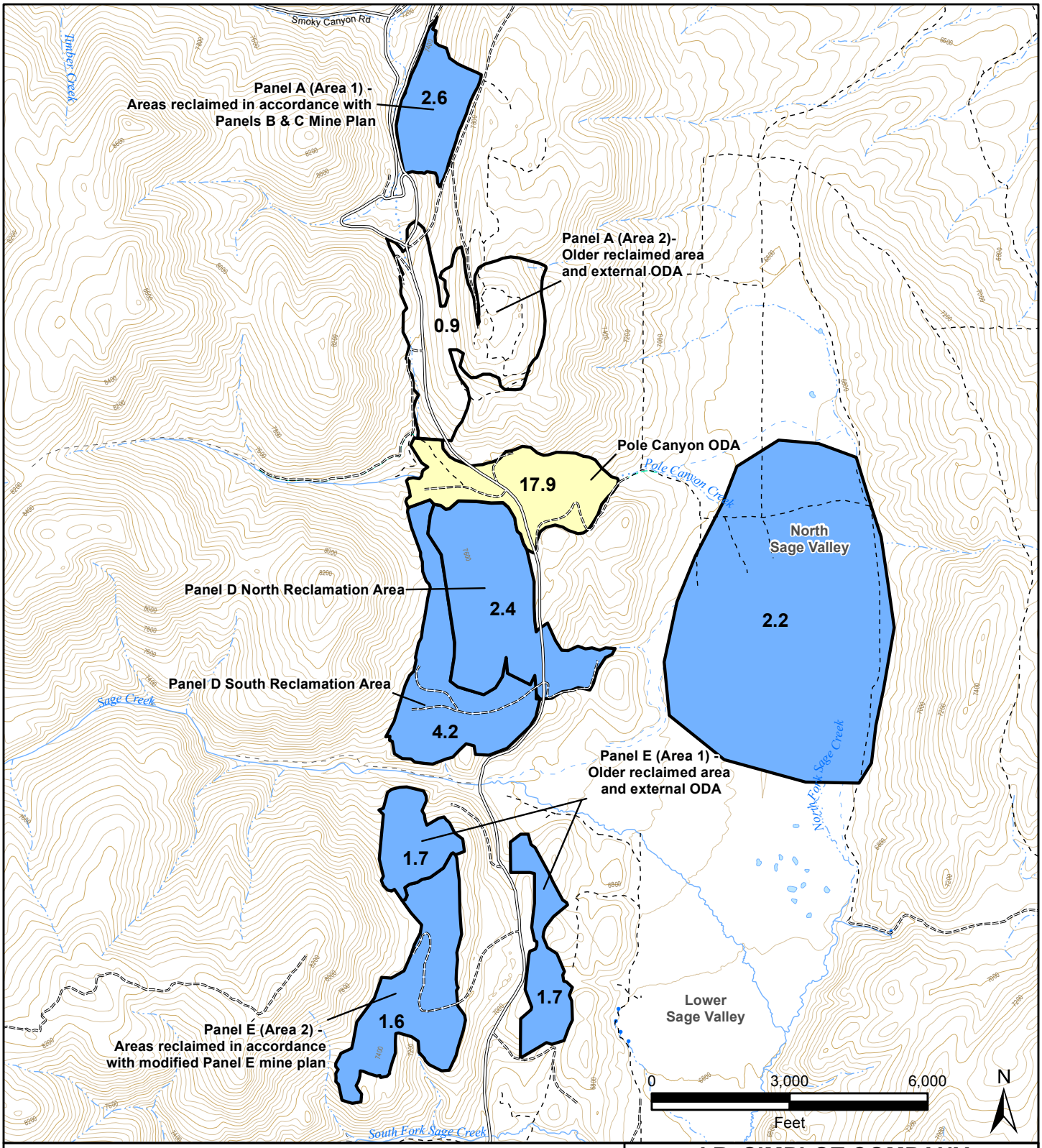
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL CADMIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_05_DeerMse_Cd.mxd



Legend

Copper HQ; Coyote

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-6

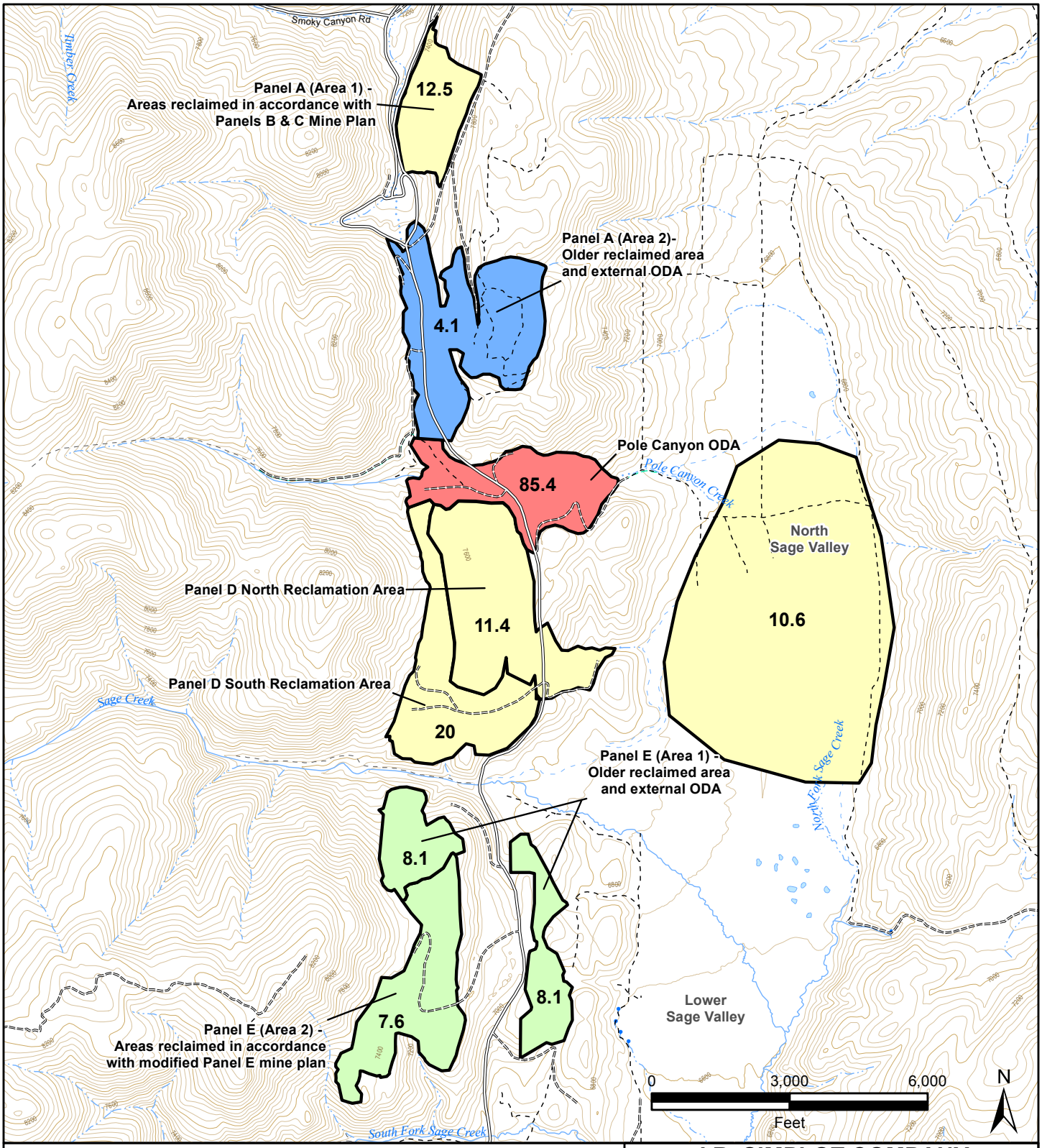
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL COPPER; COYOTE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_06_Coyote_Cu.mxd



Legend

Copper HQ; Northern Harrier

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-7

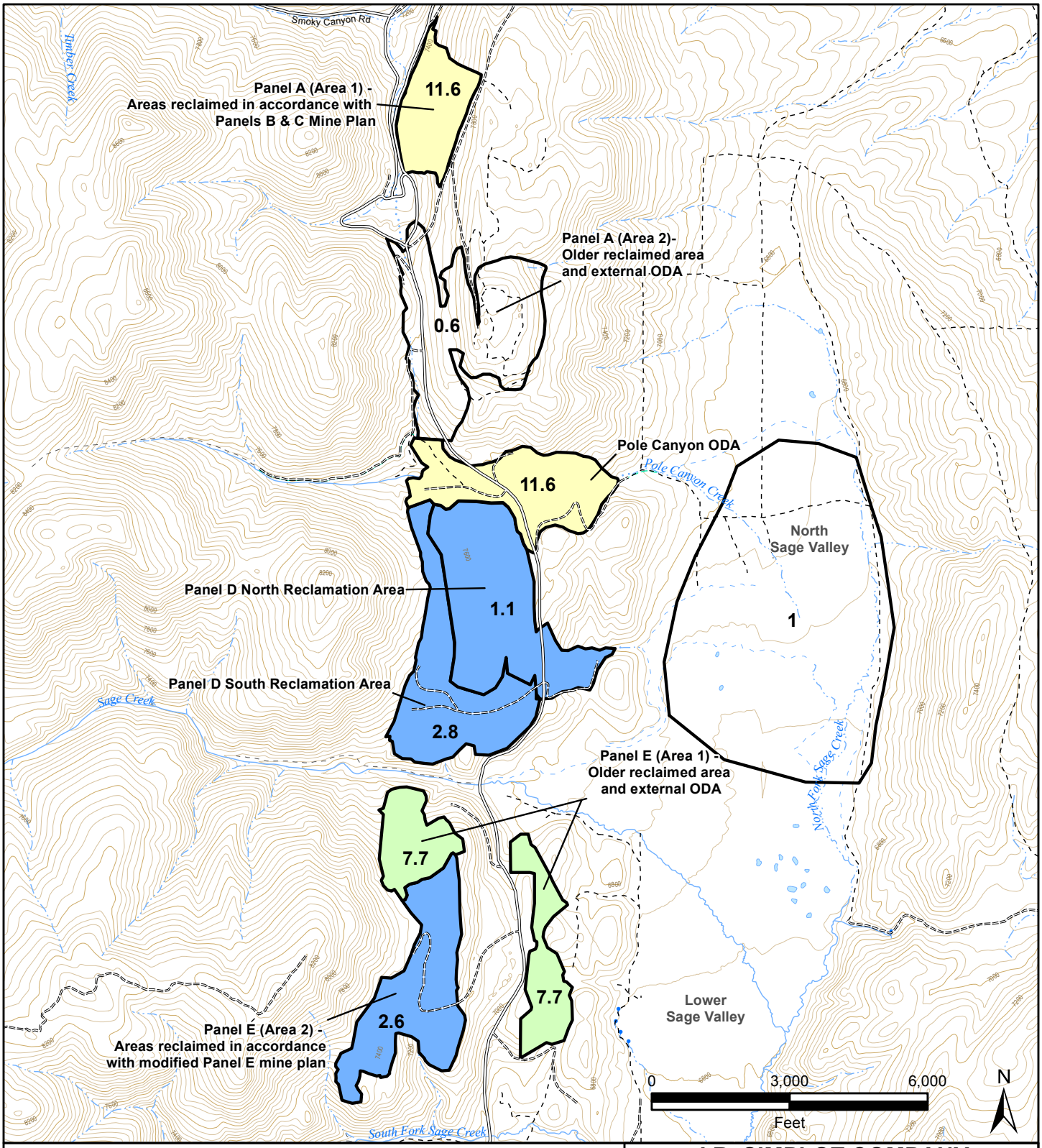
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL COPPER; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_07_NrthrnHarr_Cu.mxd



Legend

Lead HQ; Northern Harrier

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-8

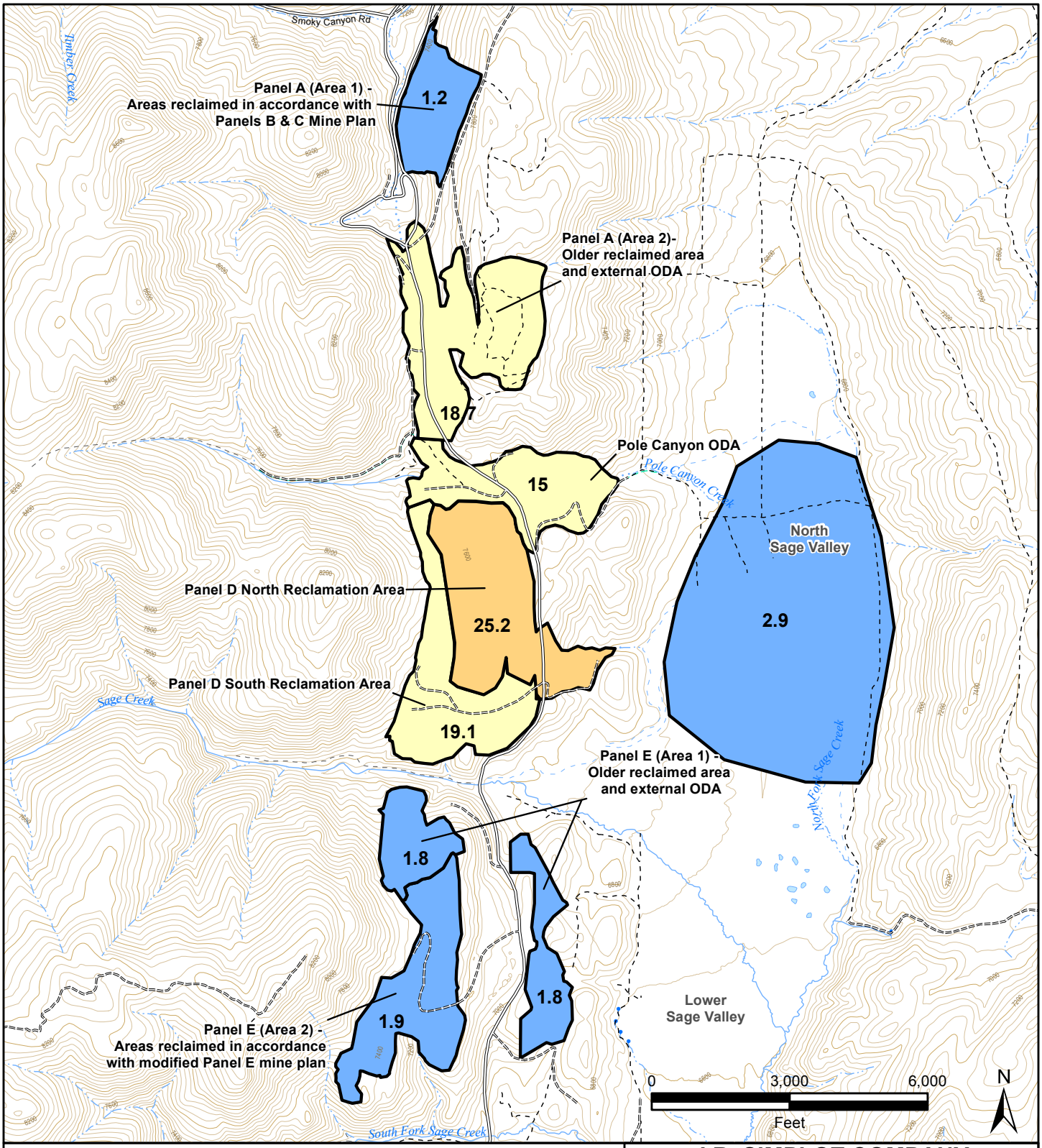
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL LEAD; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_08_NthrnHarrier_Pb.mxd



Legend

Selenium HQ; American Robin

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-9

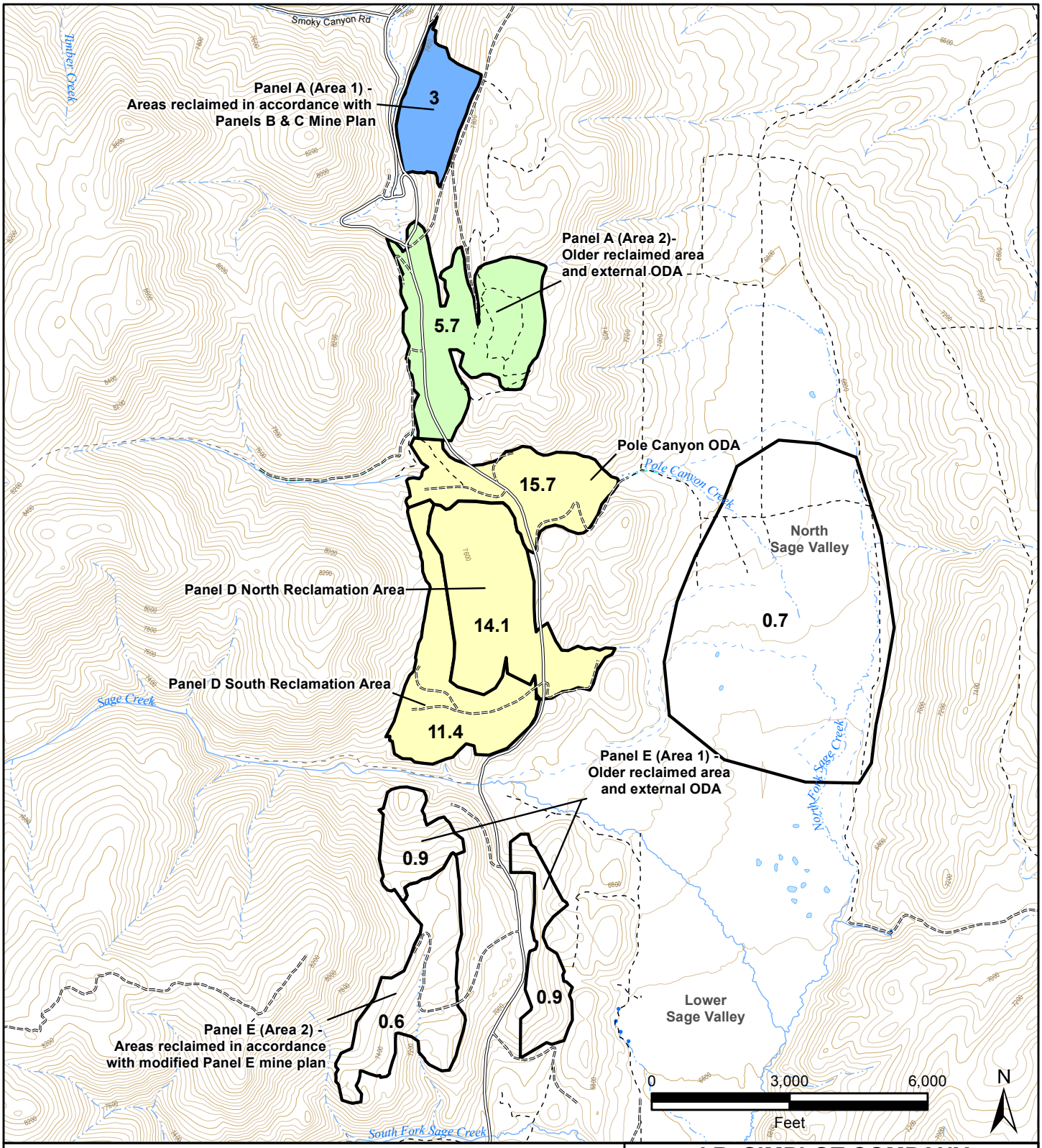
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_09_AmRobin_Se.mxd



Legend

Selenium HQ; Coyote

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-10

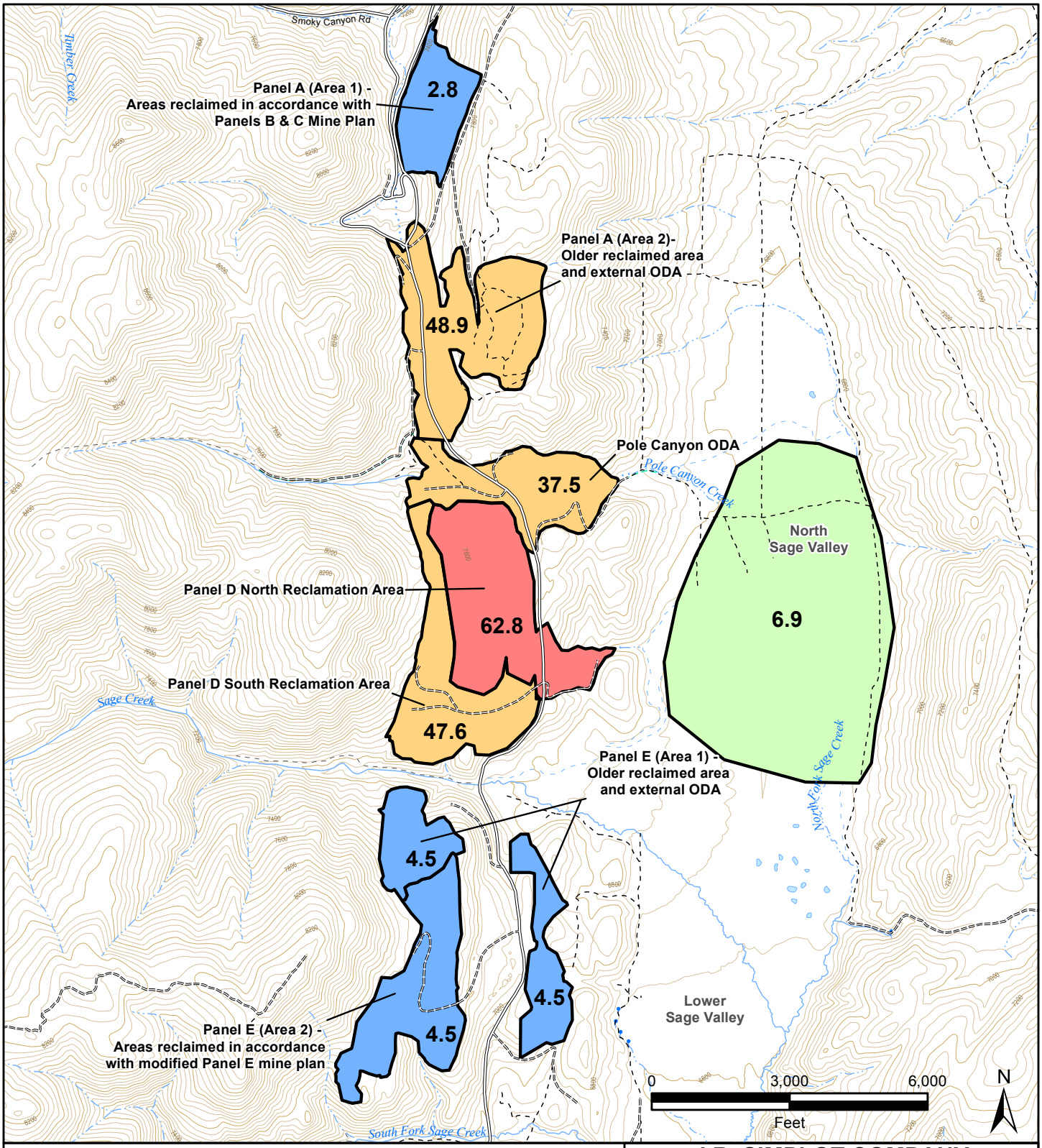
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; COYOTE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_10_Coyote_Se.mxd



Legend

Selenium HQ; Deer Mouse

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-11

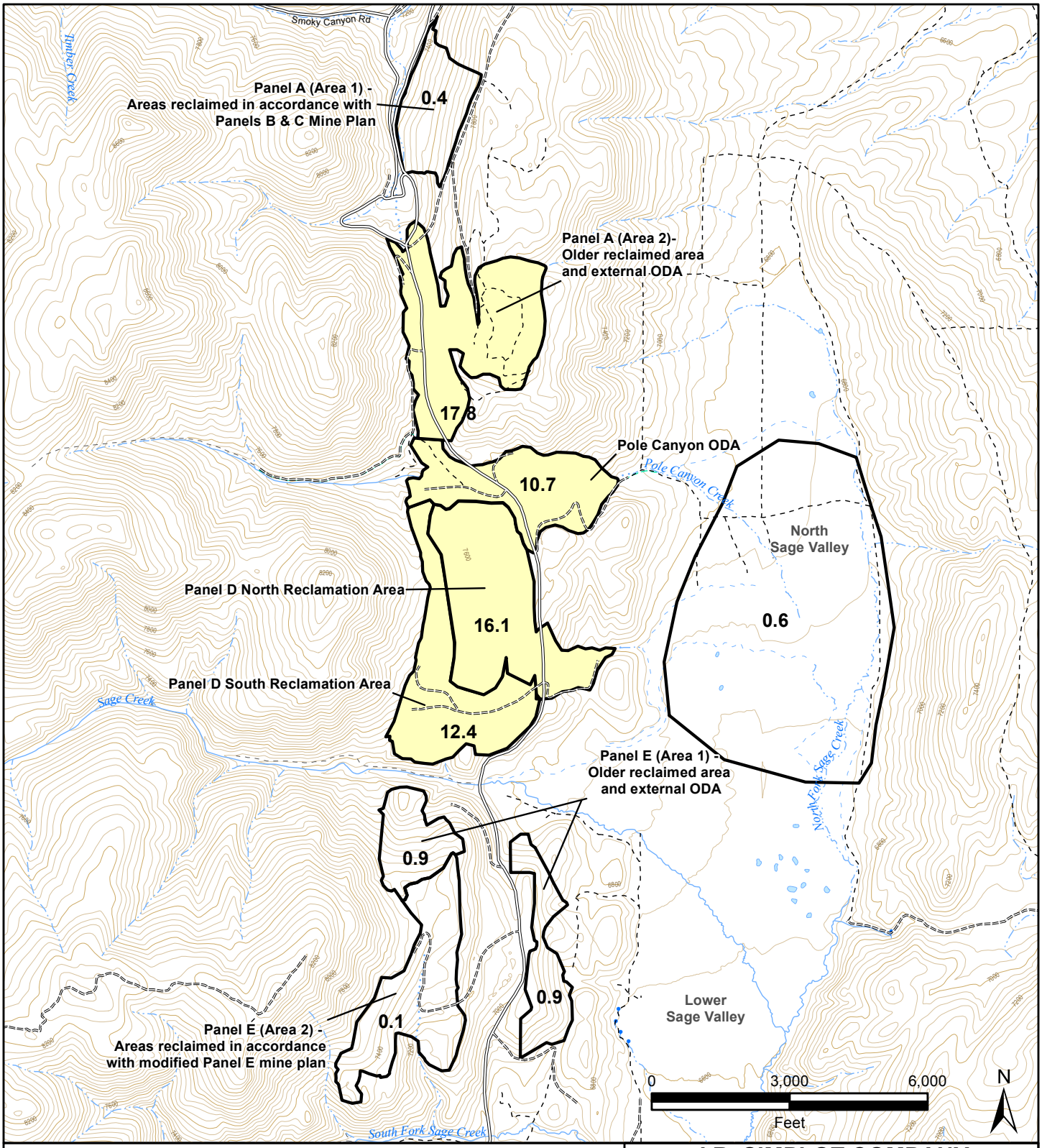
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY PANEL SELENIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_11_DeerMouse_Se.mxd



Legend

Selenium HQ; Eastern Cottontail

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-12

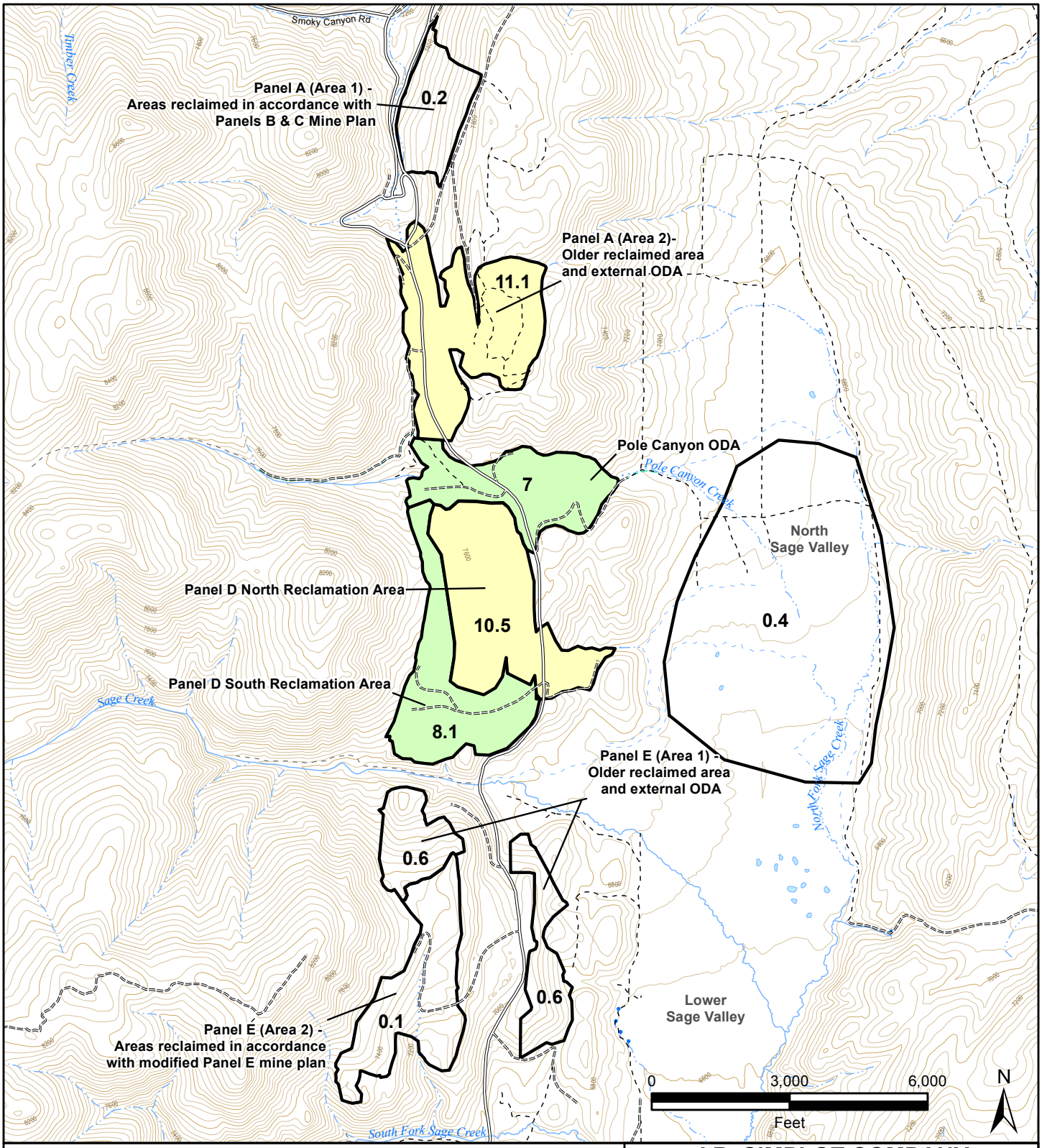
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; EASTERN COTTONTAIL

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_12_EastCtnTail_Se.mxd



Legend

Selenium HQ; Mule Deer

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-13

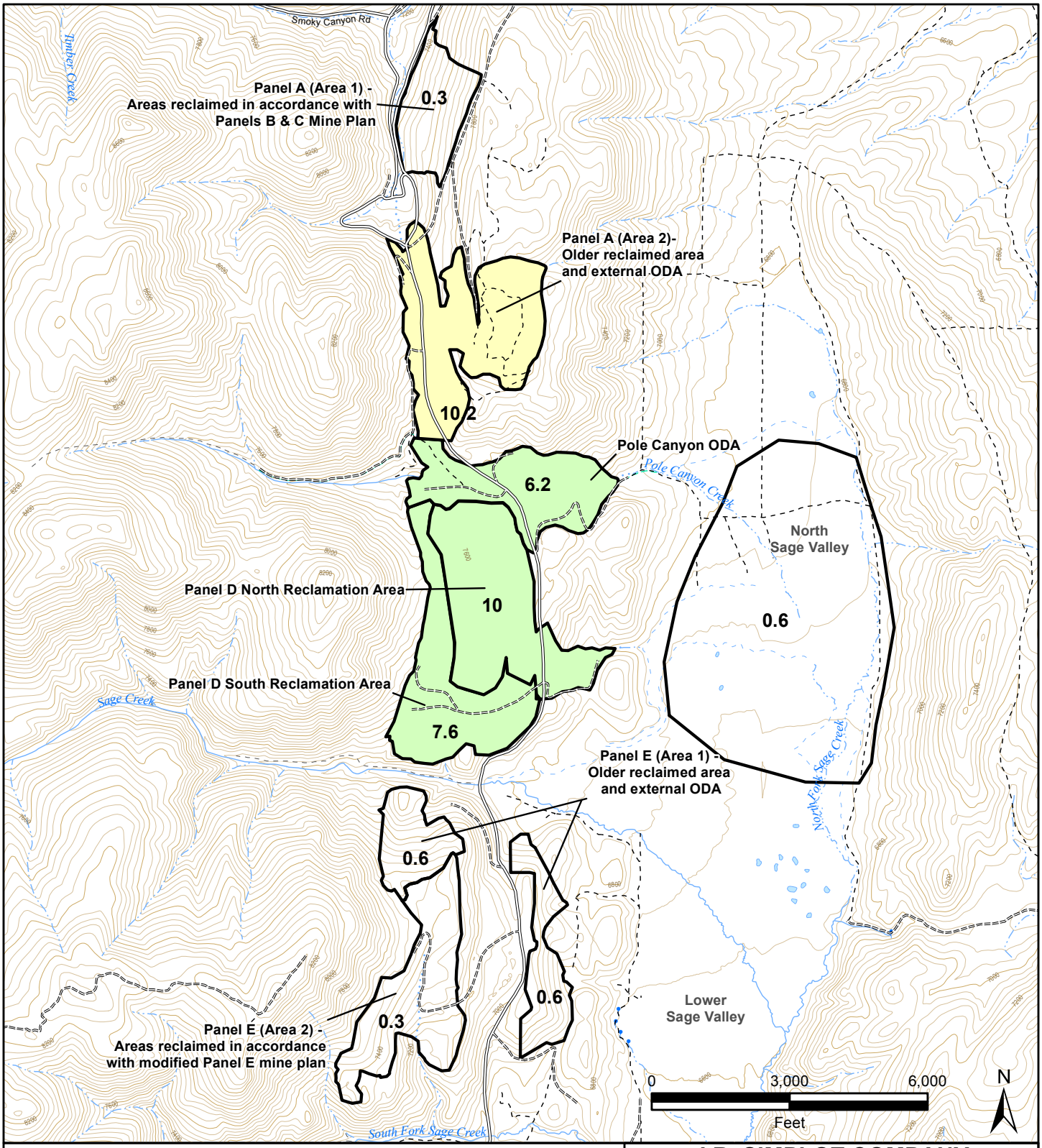
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; MULE DEER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_13_MuleDeer_Se.mxd



Legend

Selenium HQ; Northern Bobwhite

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-14

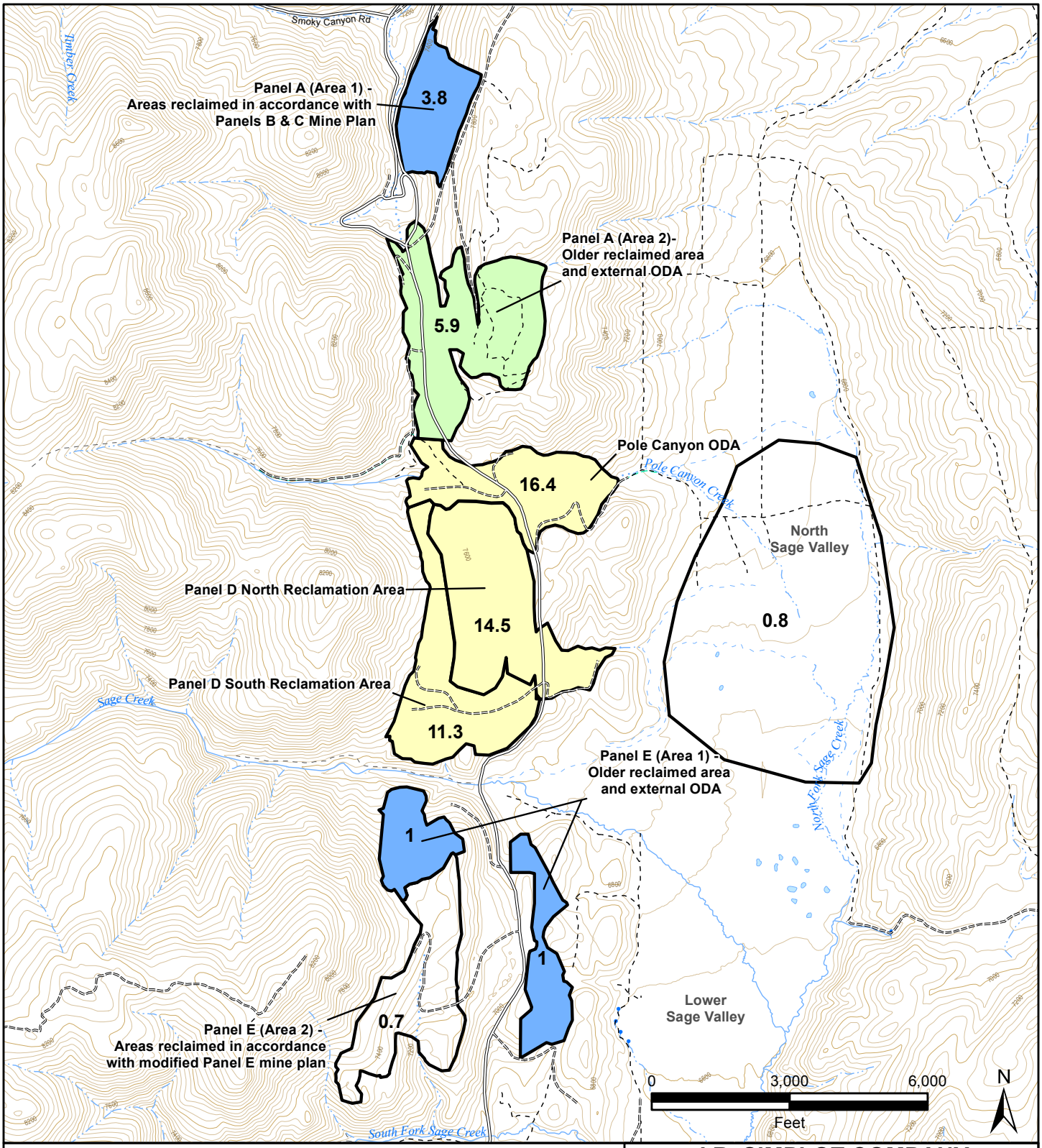
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_14_NrthnBobwht_Se.mxd



Legend

Selenium HQ; Northern Harrier

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)
- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-15

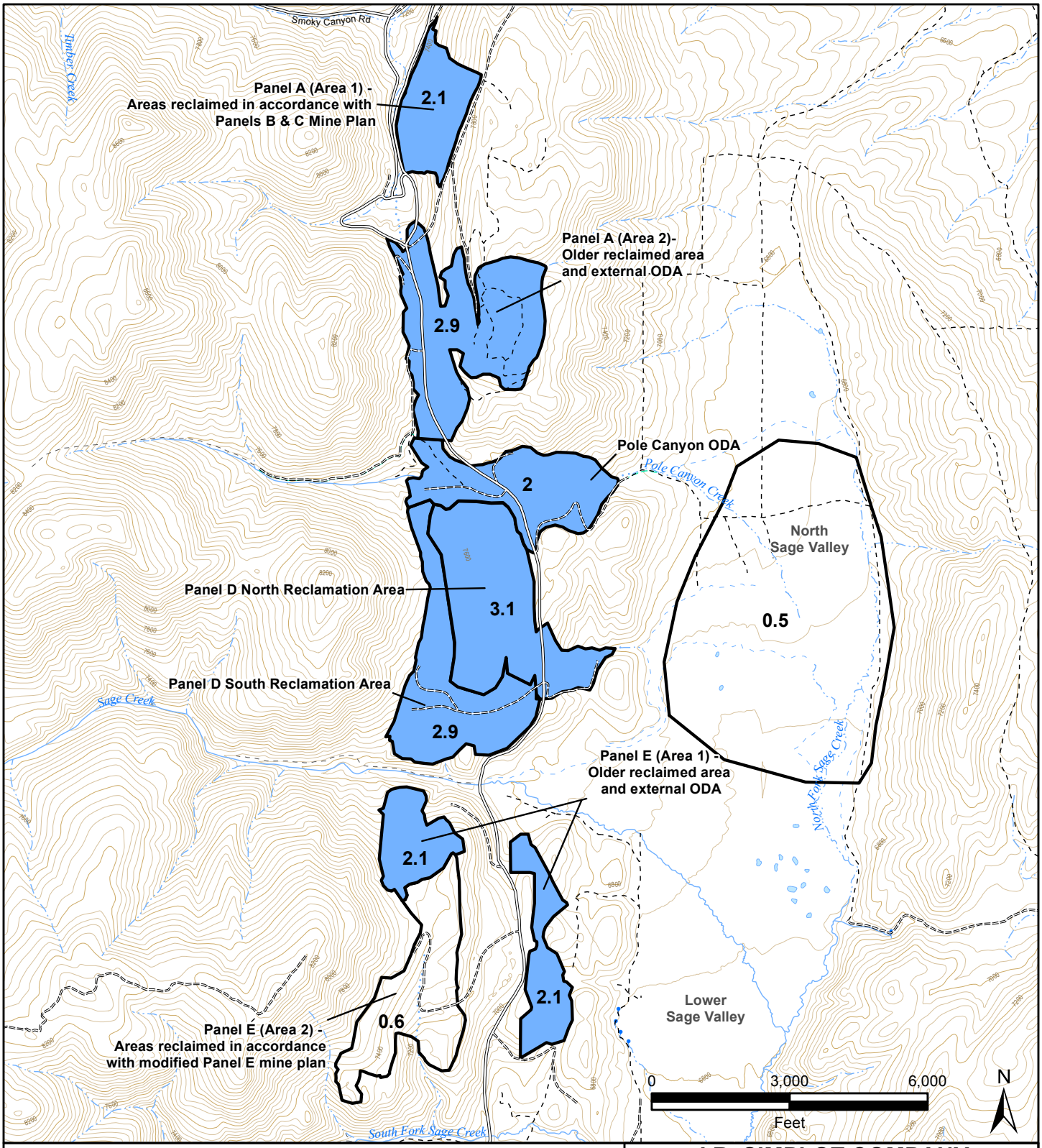
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL SELENIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_15_NrthrnHarr_Se.mxd



Legend

Selenium HQ; American Robin

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-16

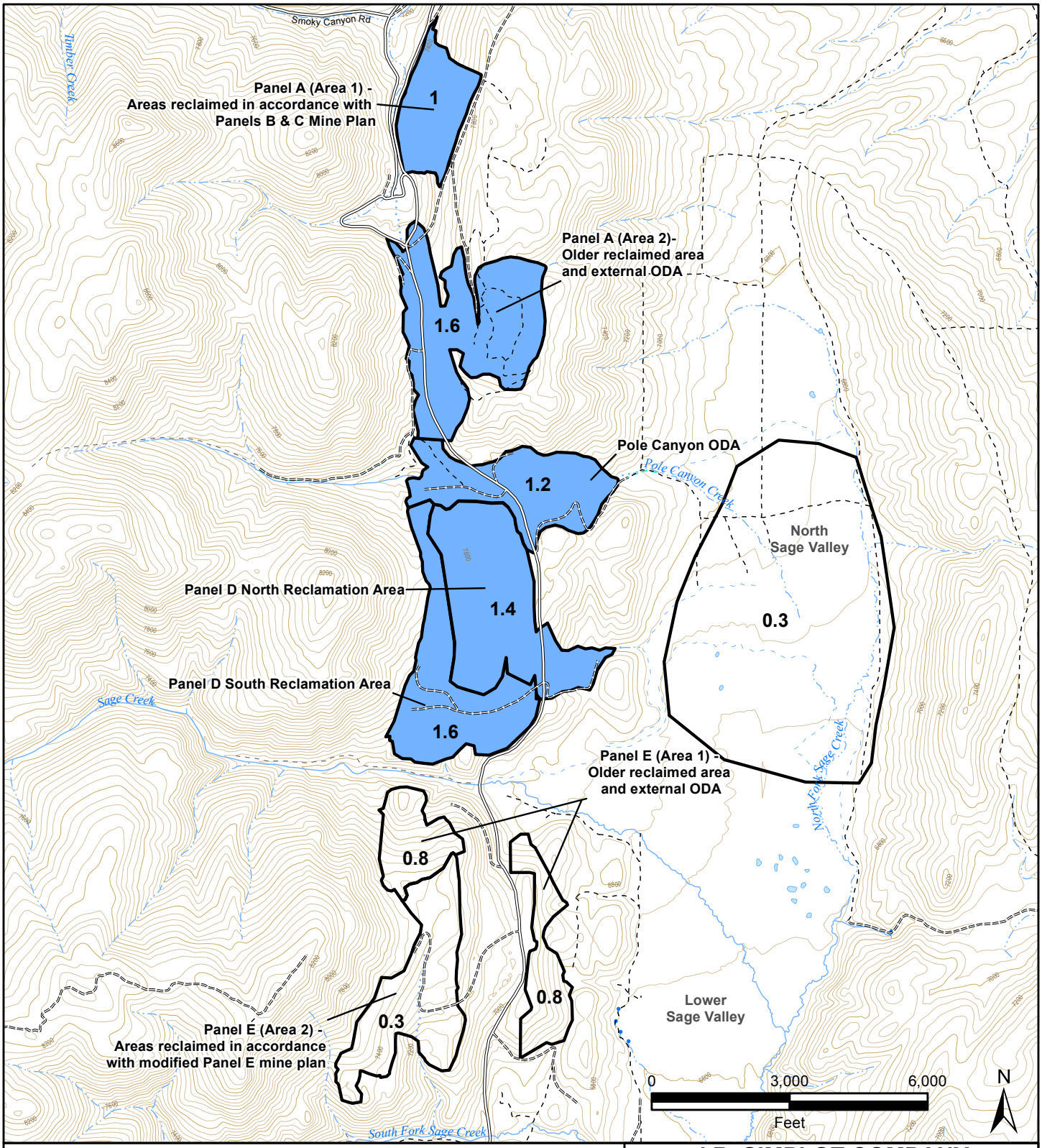
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL VANADIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_16_AmRobin_V.mxd



Legend

Vanadium HQ; Northern Bobwhite

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-17

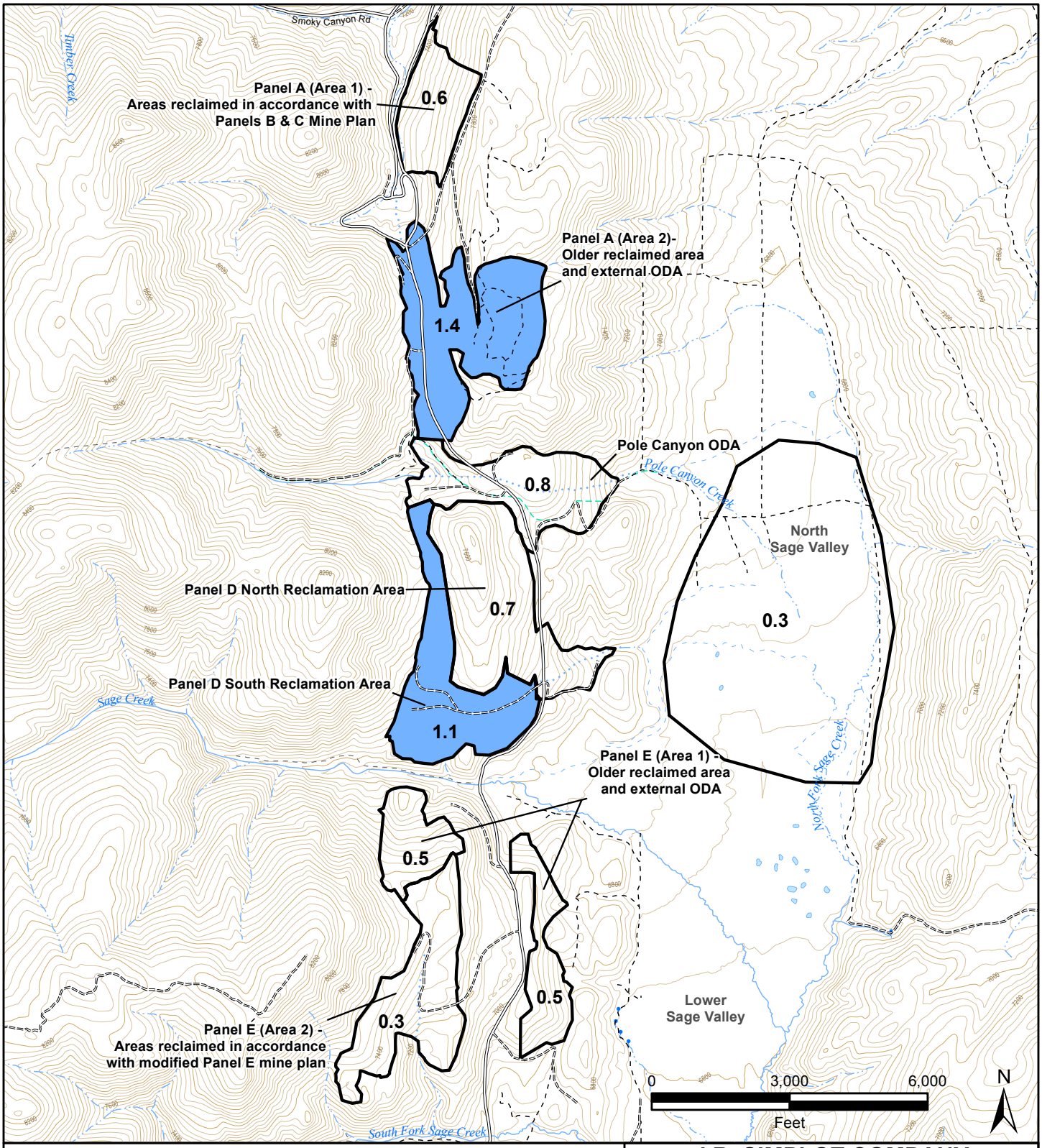
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL VANADIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_17_NrthnBobwht_V.mxd



Legend

Vanadium HQ; Northern Harrier

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-18

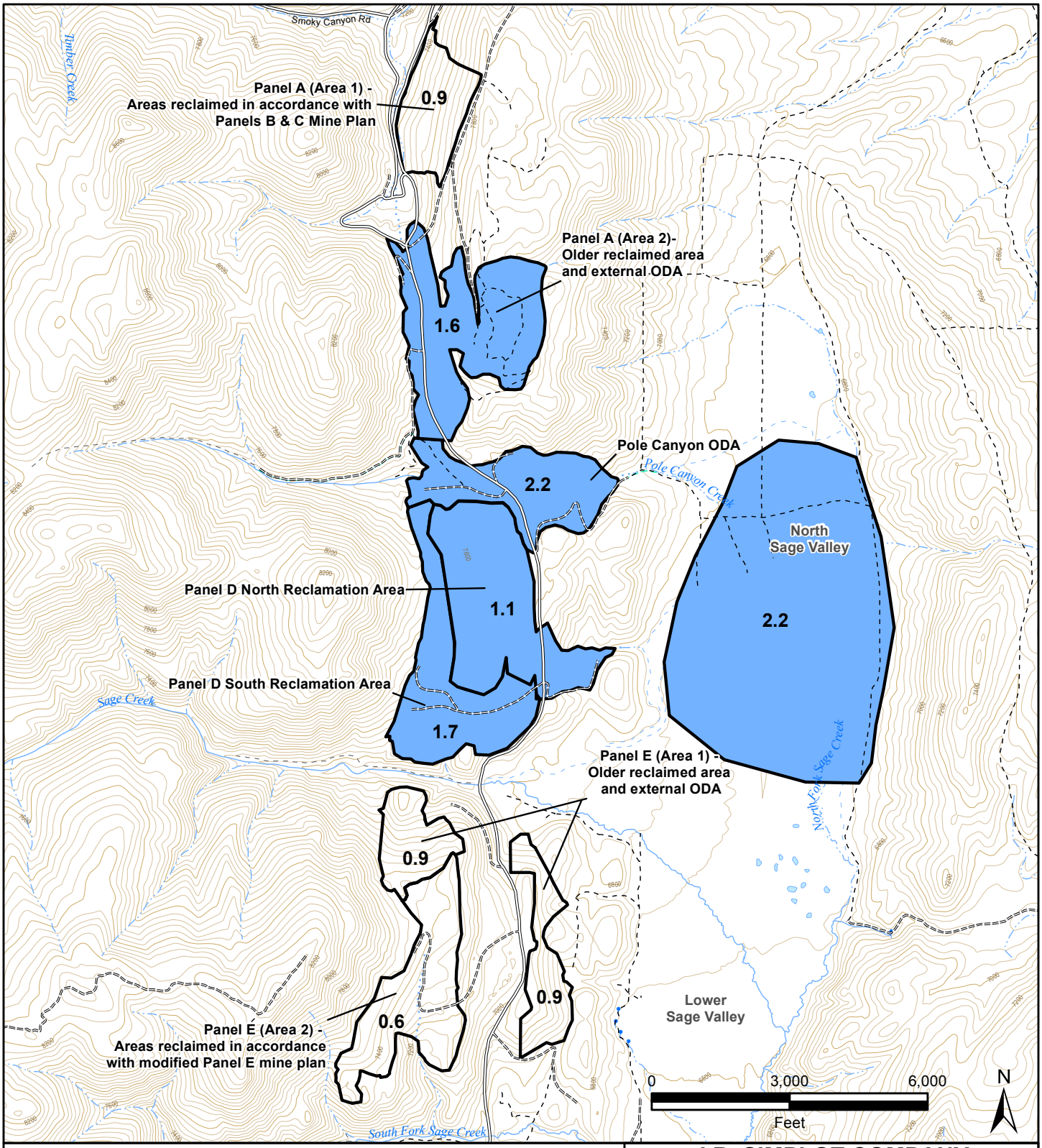
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL VANADIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_18_NrthrnHarr_V.mxd



Legend

Zinc HQ; Northern Harrier

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-19

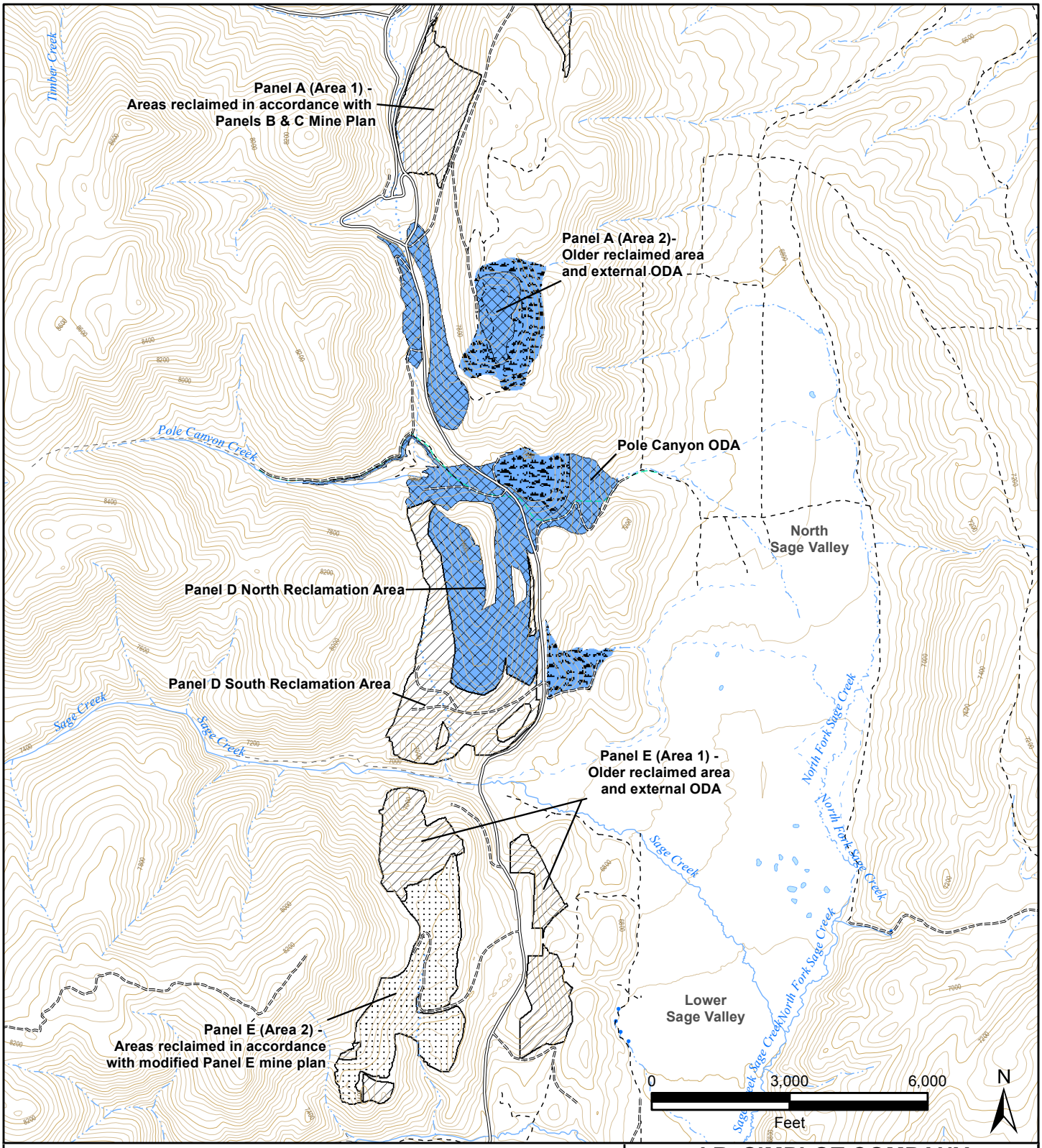
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND 95UCL EPCS BY PANEL ZINC; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_19_NrthrnHarr_Zn.mxd



Legend

HQ	Reclamation Areas
< 1	COVER_TYPE
1 - 5	TOPSOIL DINWOODY CHERT
5 - 10	NO TOPSOIL NO CHERT
10 - 25	TOPSOIL OVER CHERT
25 - 50	TOPSOIL NO CHERT
> 50	

Reclamation Type	HQ
Dinwoody	0.3
No Cover	1.2
Topsoil Chert	0.8
Topsoil Only	1.2

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-20

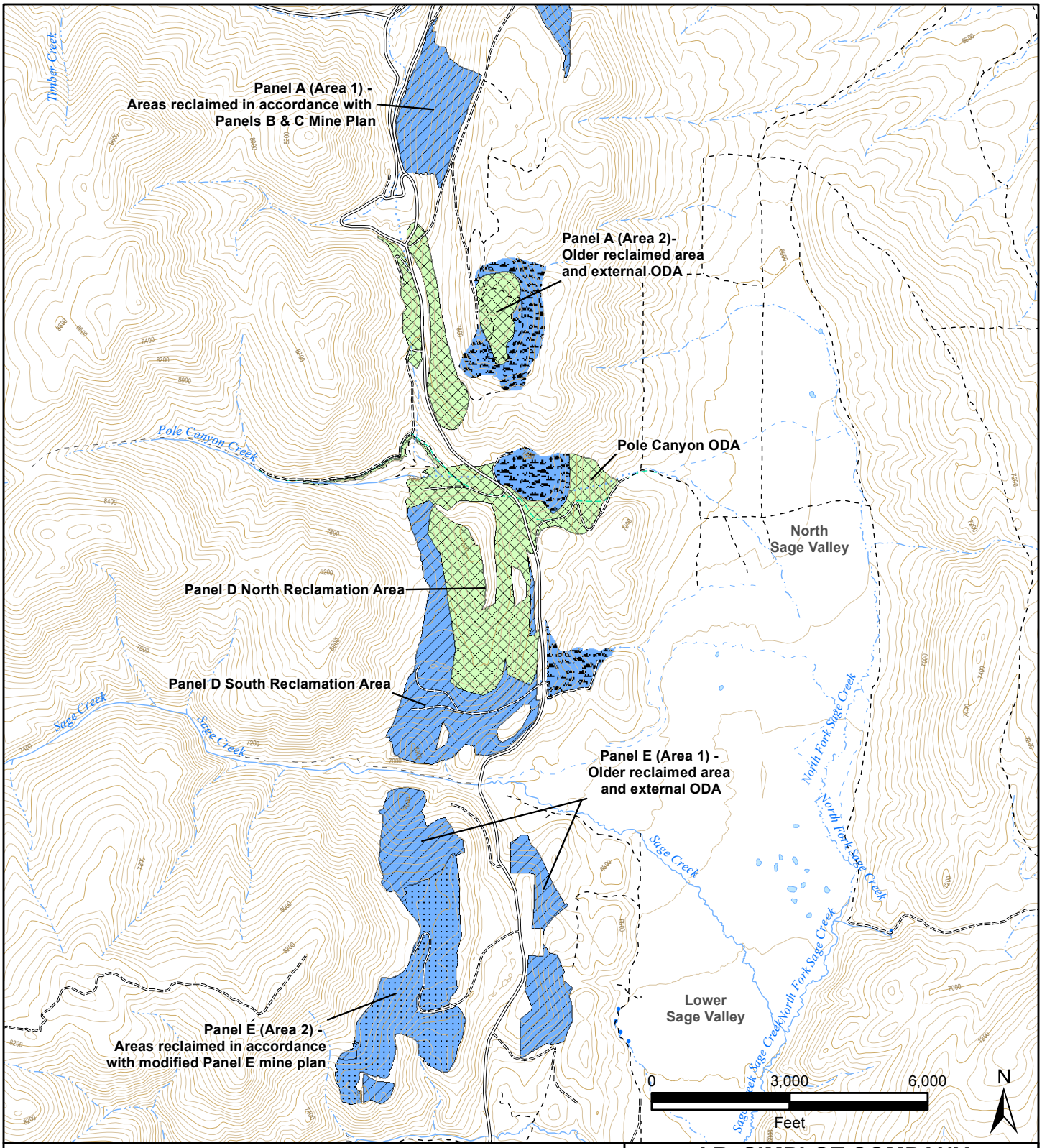
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE CADMIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_20_DeerMse_Cd_Rec.mxd



Legend

HQ	Reclamation Areas
< 1	COVER_TYPE
1 - 5	TOPSOIL DINWOODY CHERT
5 - 10	NO TOPSOIL NO CHERT
10 - 25	TOPSOIL OVER CHERT
25 - 50	TOPSOIL NO CHERT
> 50	

Reclamation Type	HQ
Dinwoody	1.6
No Cover	2.2
Topsoil Chert	2.5
Topsoil Only	5.9

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-21

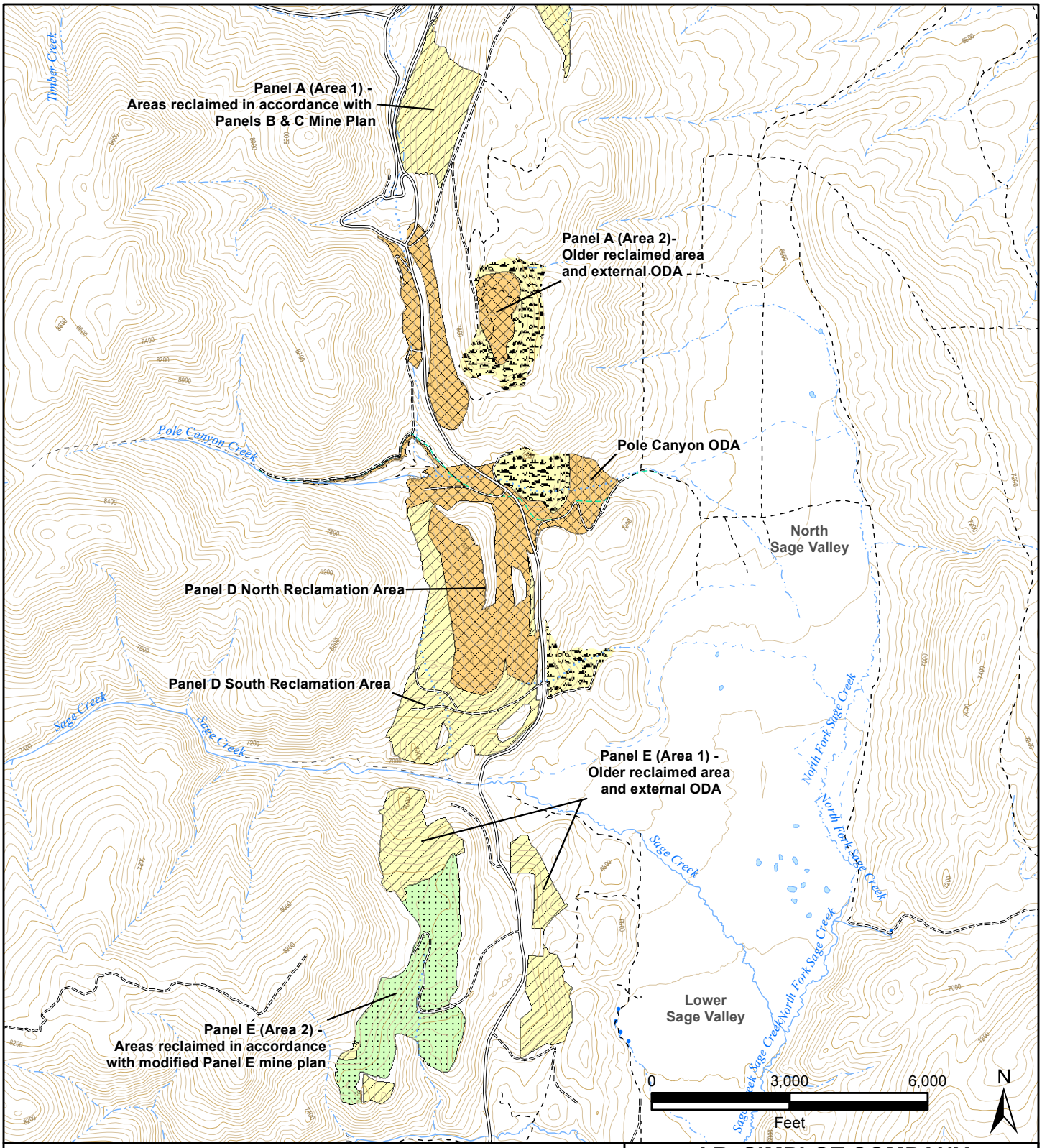
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE COPPER; COYOTE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_21_Coyote_Cu_Rec.mxd



Legend

COVER_TYPE

- TOPSOIL OVER CHERT
- TOPSOIL NO CHERT
- TOPSOIL DINWOODY CHERT
- NO TOPSOIL NO CHERT

HQ

- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

Reclamation Type	HQ
Dinwoody	7.6
No Cover	10.2
Topsoil Chert	11.8
Topsoil Only	28.0

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-22

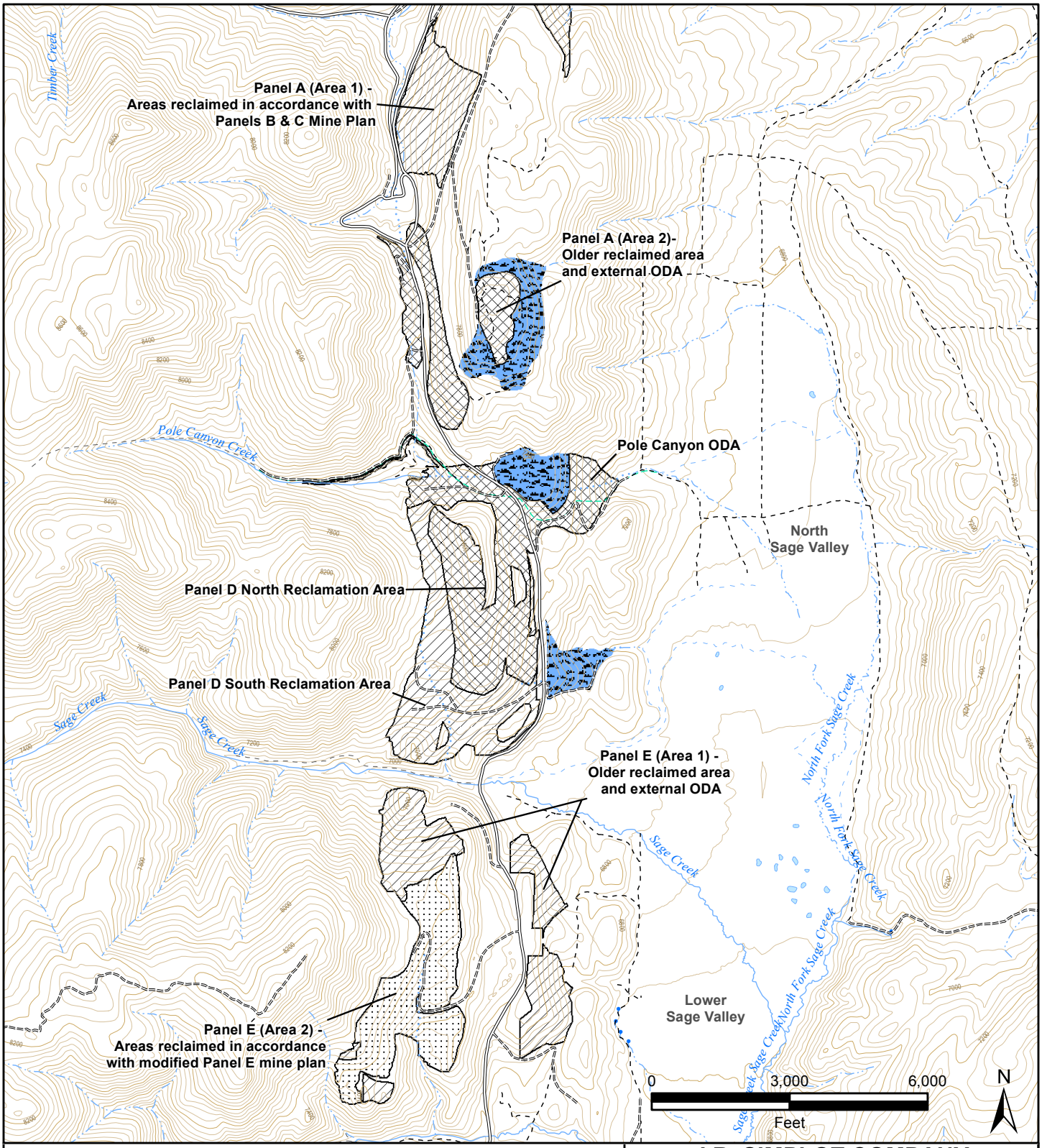
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE COPPER; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_22_NrthrnHarr_Cu_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.3
No Cover	3.1
Topsoil Chert	0.5
Topsoil Only	0.2

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-23

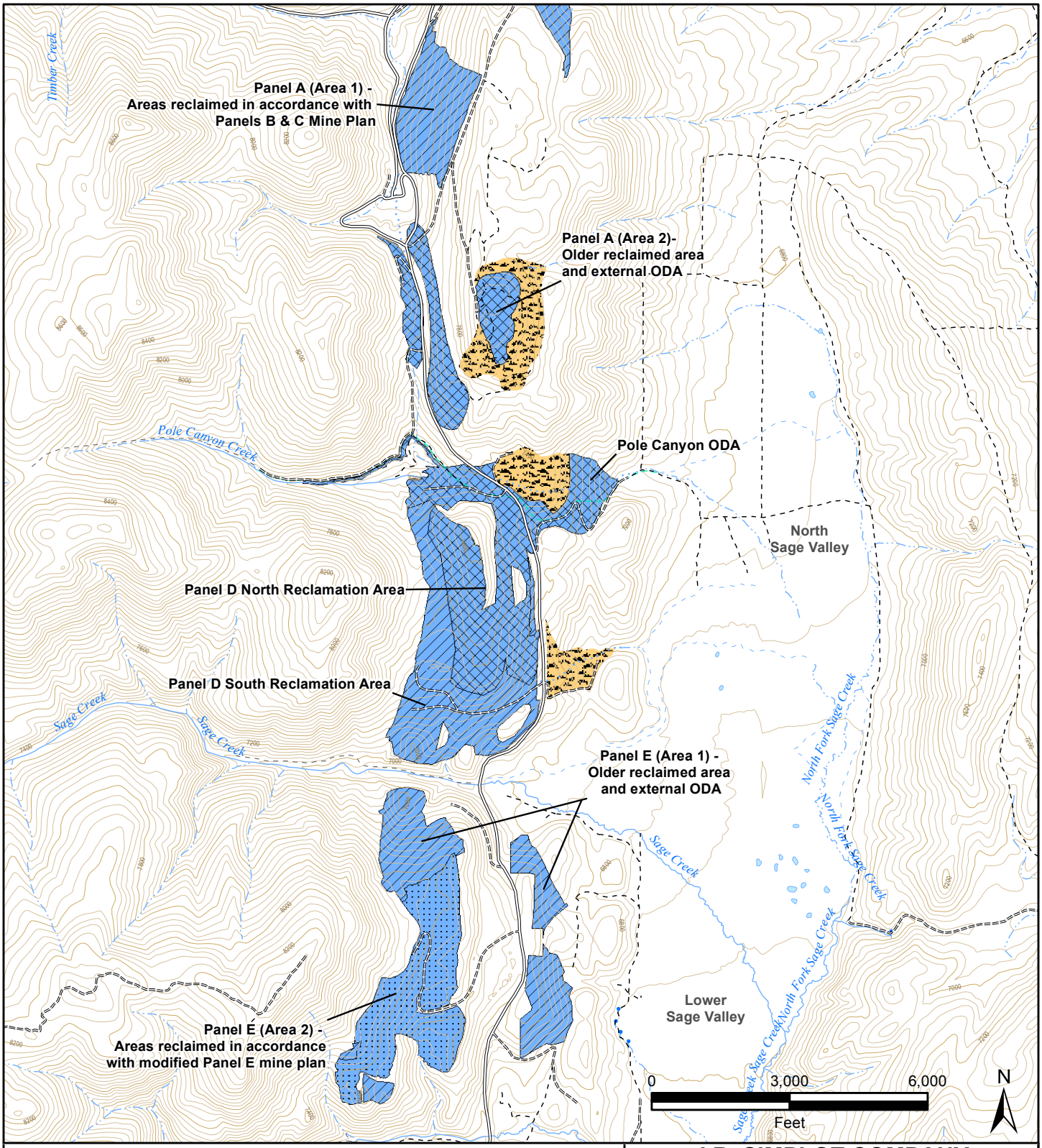
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE LEAD; COYOTE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_23_Coyote_Pb_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	2.6
No Cover	26.4
Topsoil Chert	4.2
Topsoil Only	1.9

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-24

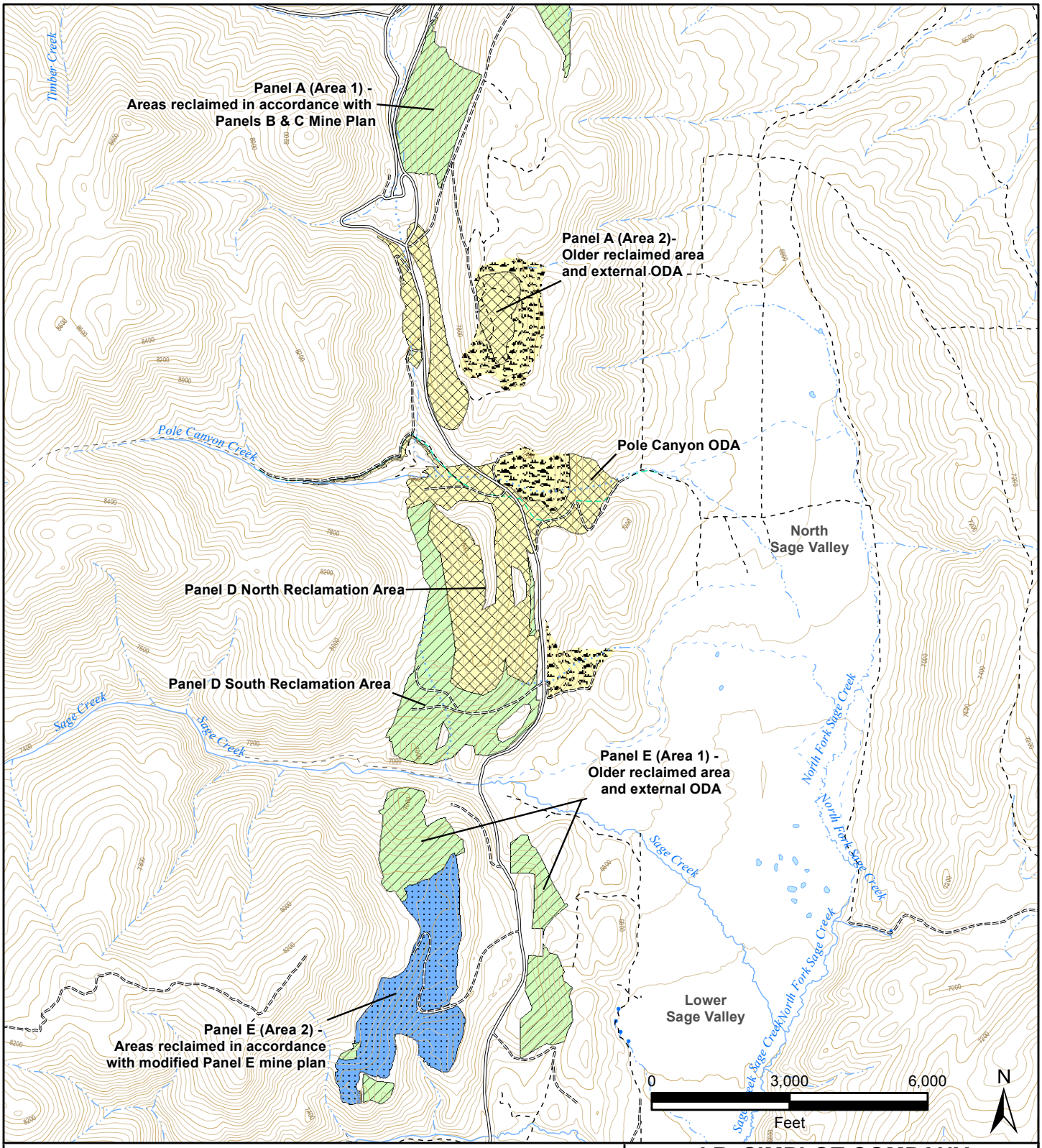
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE LEAD; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_24_NrthrnHarr_Pb_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	1.9
No Cover	24.4
Topsoil Chert	9.7
Topsoil Only	16.9

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-25

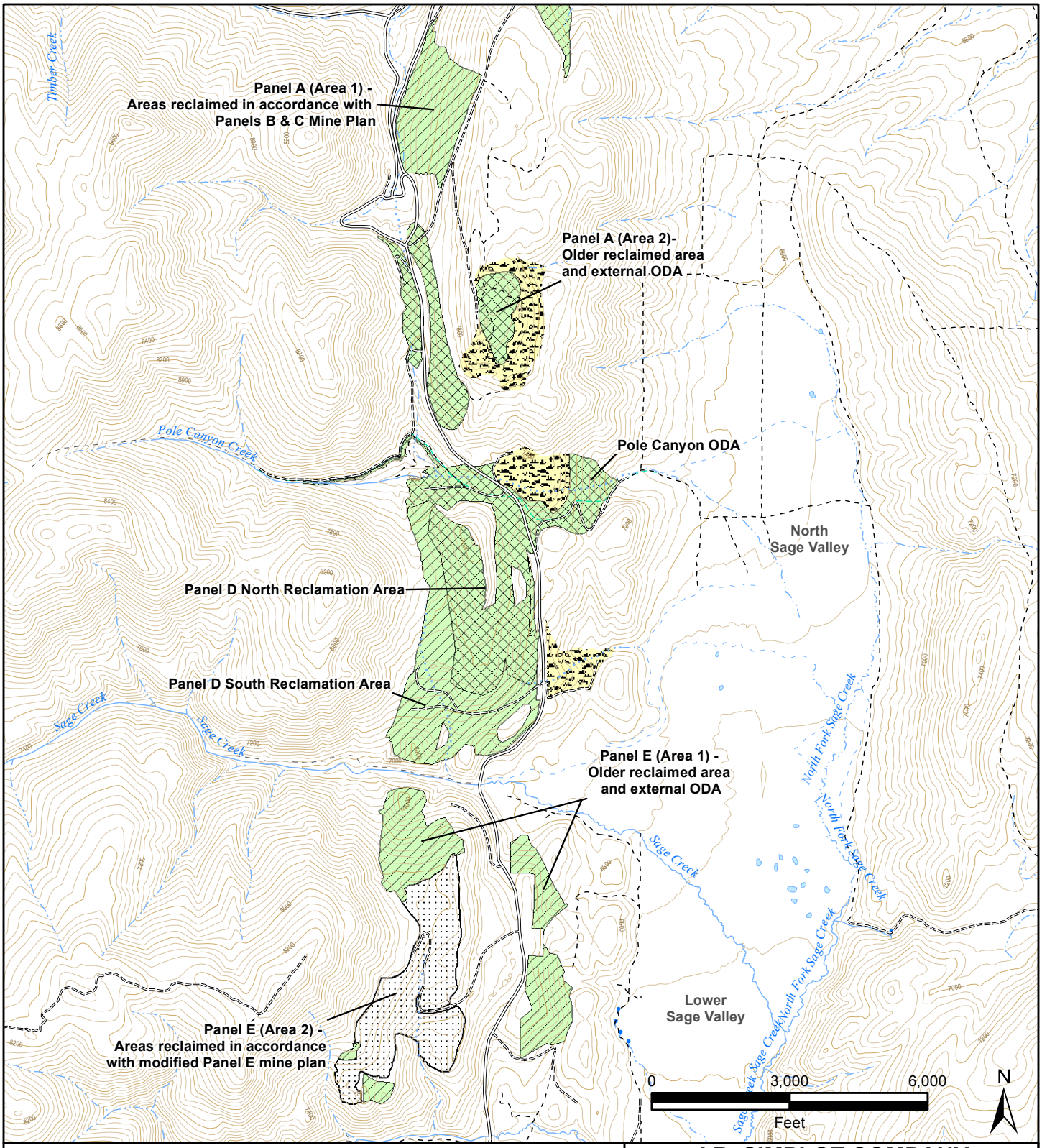
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_25_AmRobin_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.6
No Cover	11.0
Topsoil Chert	5.7
Topsoil Only	9.8

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-26

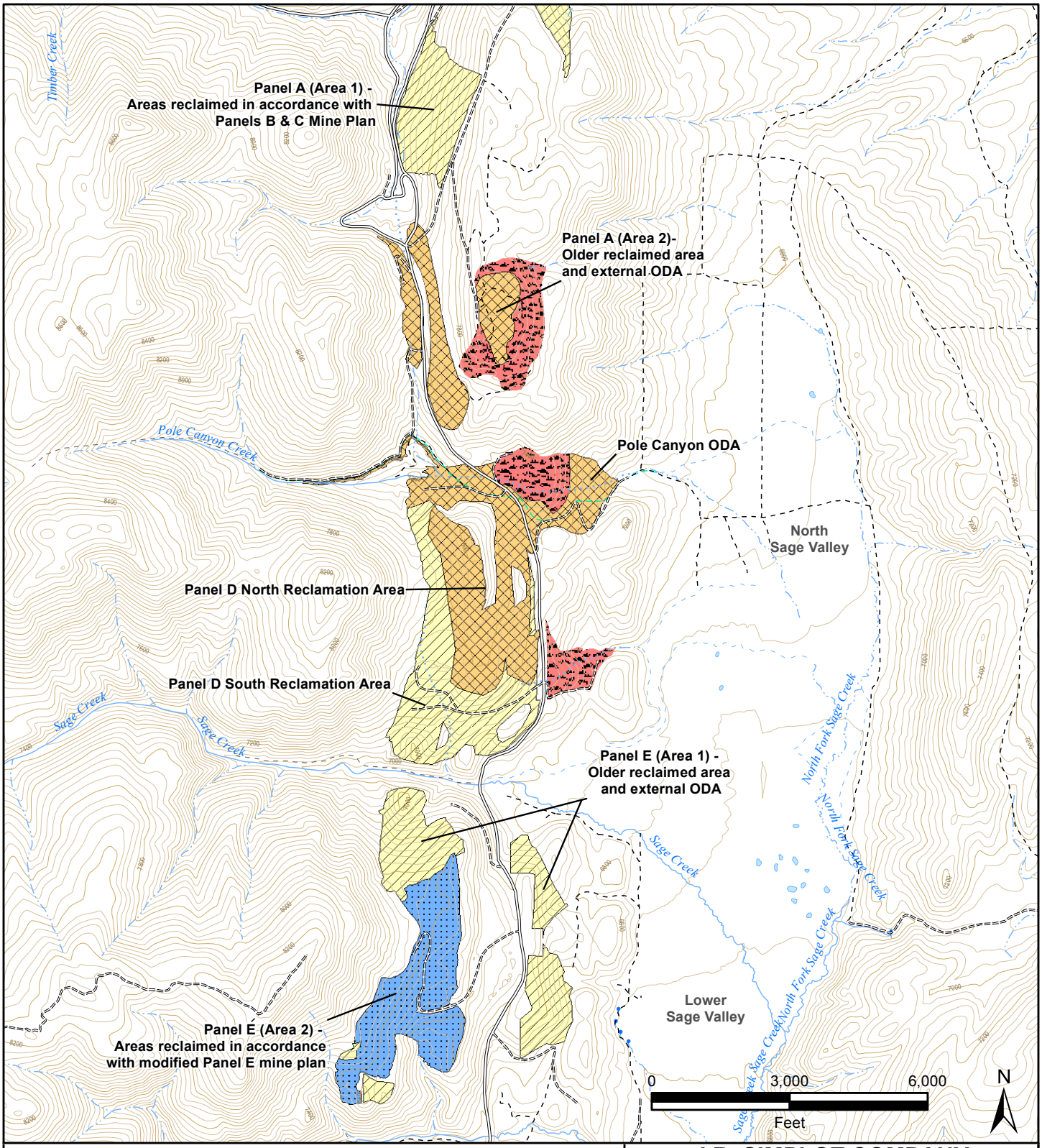
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; COYOTE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_26_Coyote_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	4.4
No Cover	60.2
Topsoil Chert	23.5
Topsoil Only	42.9

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-27

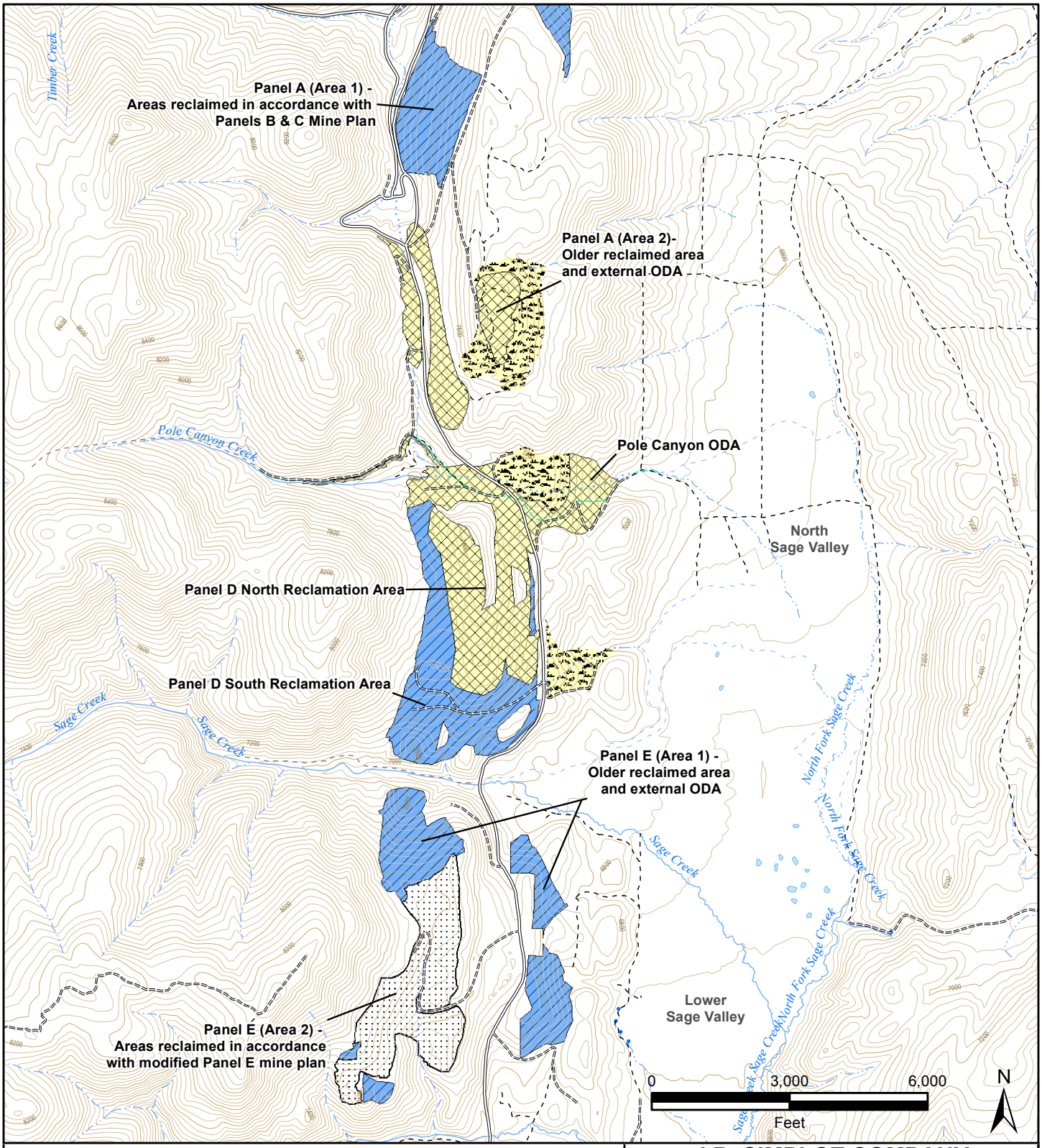
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_27_DeerMse_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.1
No Cover	12.7
Topsoil Chert	3.6
Topsoil Only	12.3

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-28

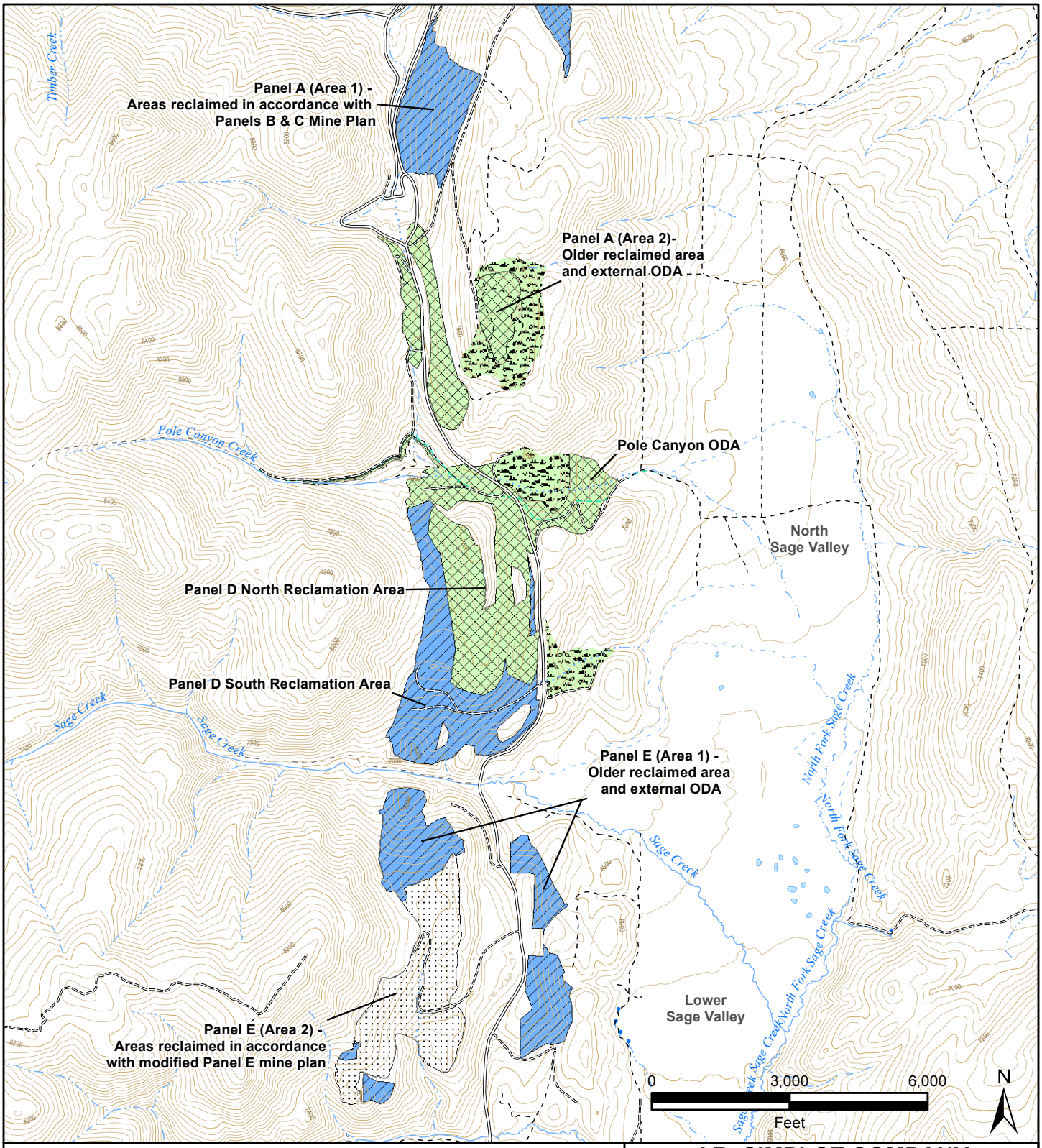
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; EASTERN COTTONTAIL

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_28_EastCtnTail_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.1
No Cover	8.2
Topsoil Chert	2.3
Topsoil Only	7.7

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-29

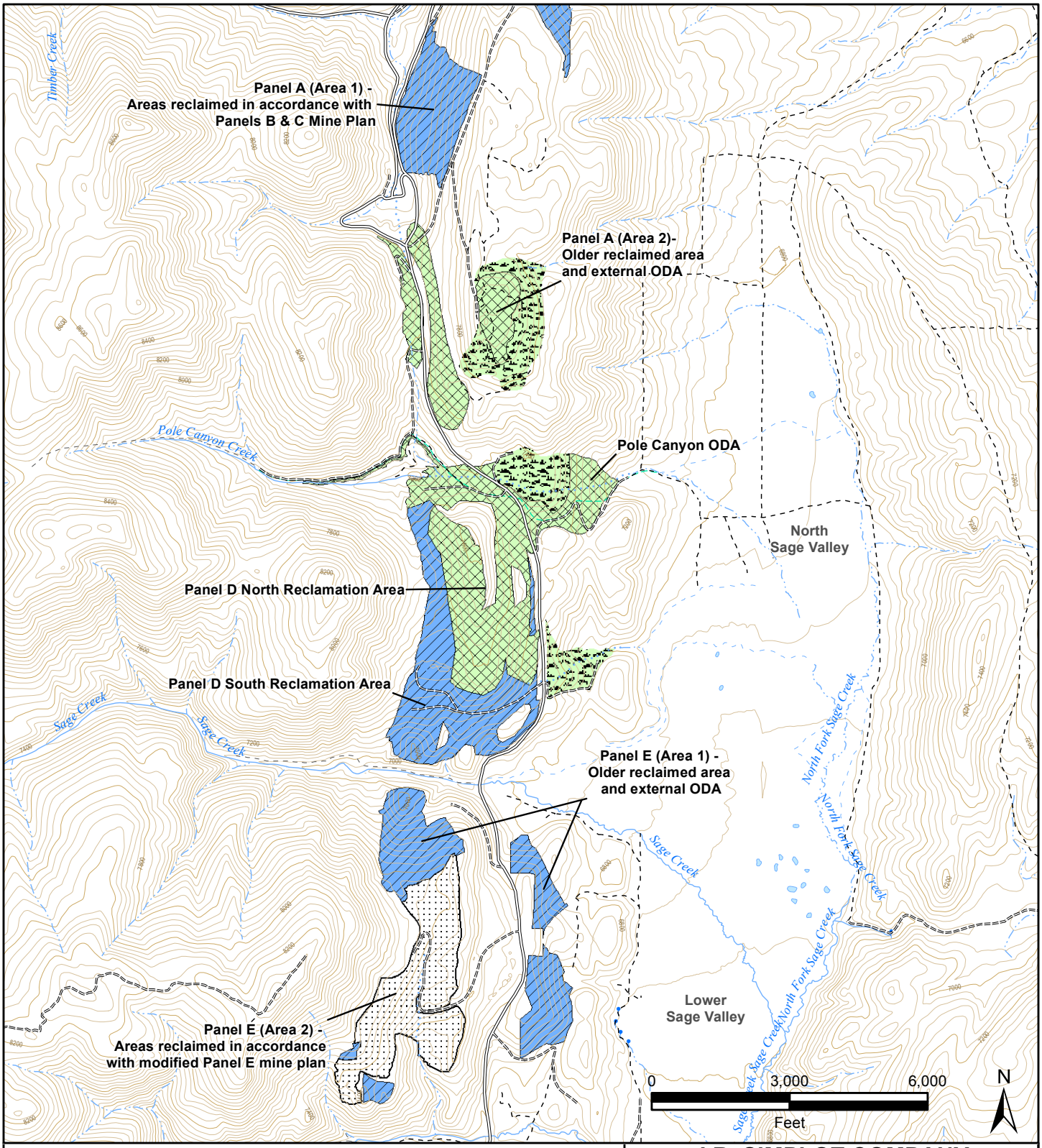
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; MULE DEER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_29_MuleDeer_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.3
No Cover	8.7
Topsoil Chert	2.8
Topsoil Only	7.6

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-30

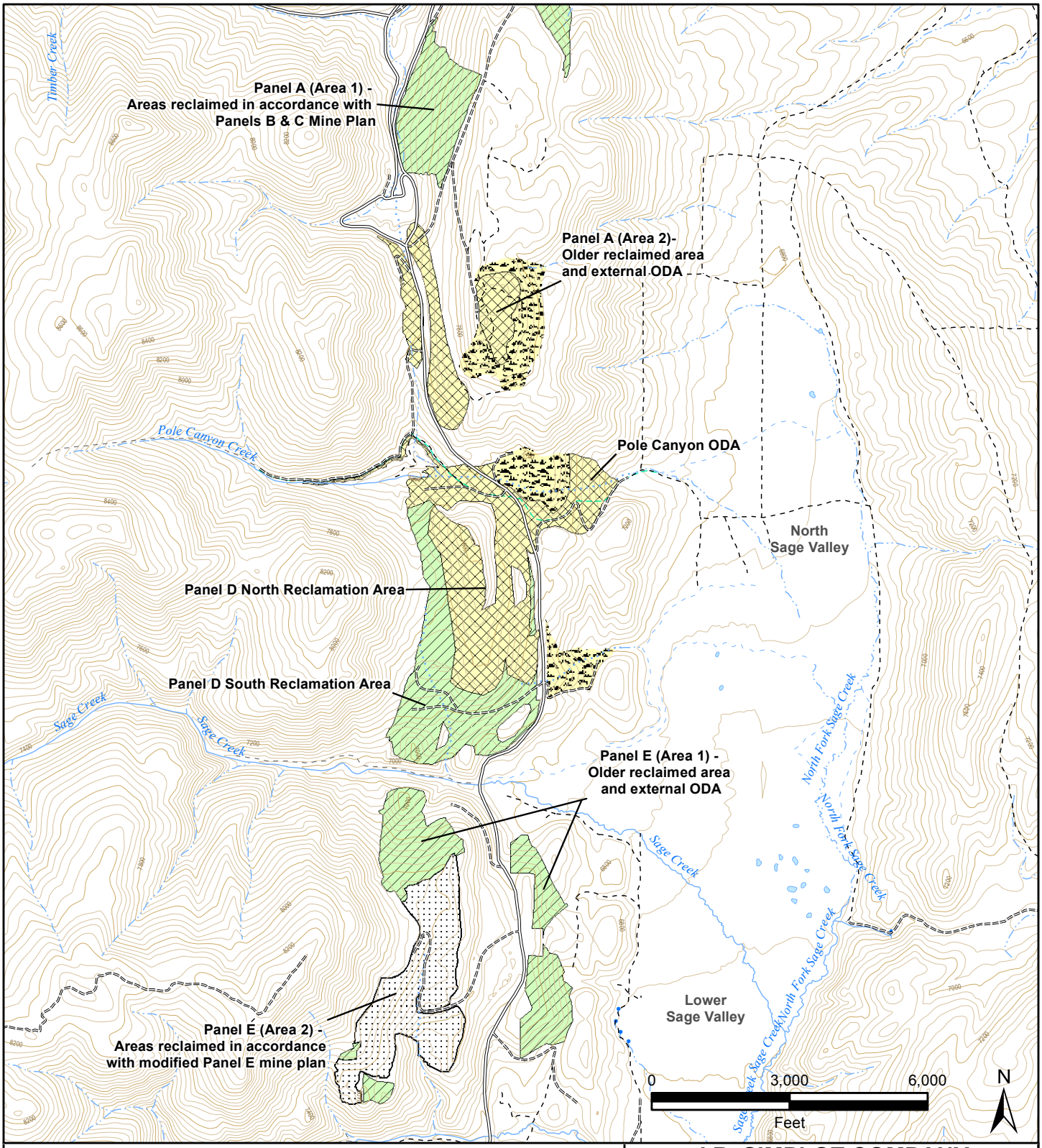
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_30_NrthnBobwht_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.7
No Cover	13.1
Topsoil Chert	7.0
Topsoil Only	11.6

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-31

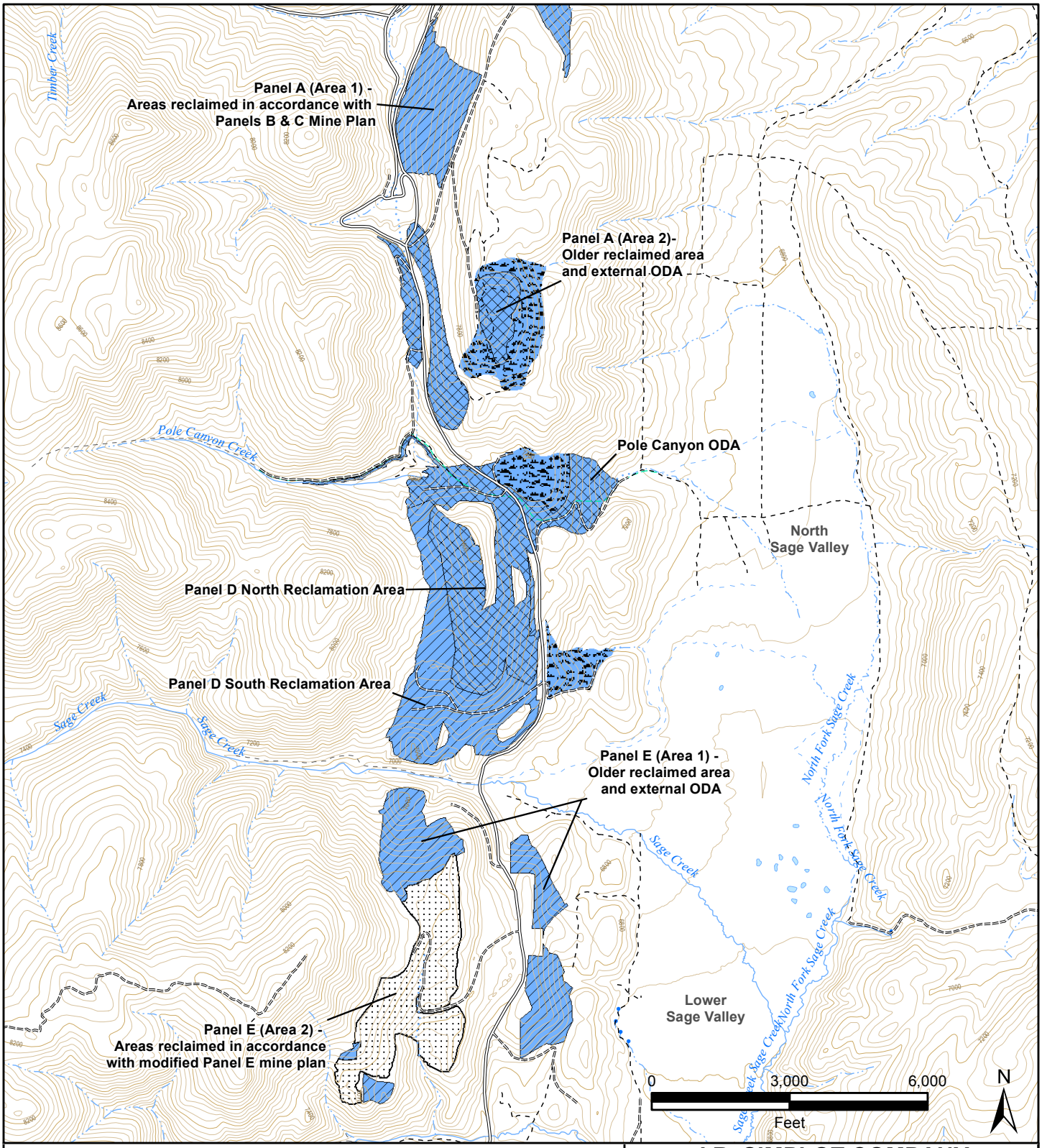
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE SELENIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_31_NrthrnHarr_Se_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.6
No Cover	3.8
Topsoil Chert	2.1
Topsoil Only	2.0

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-32

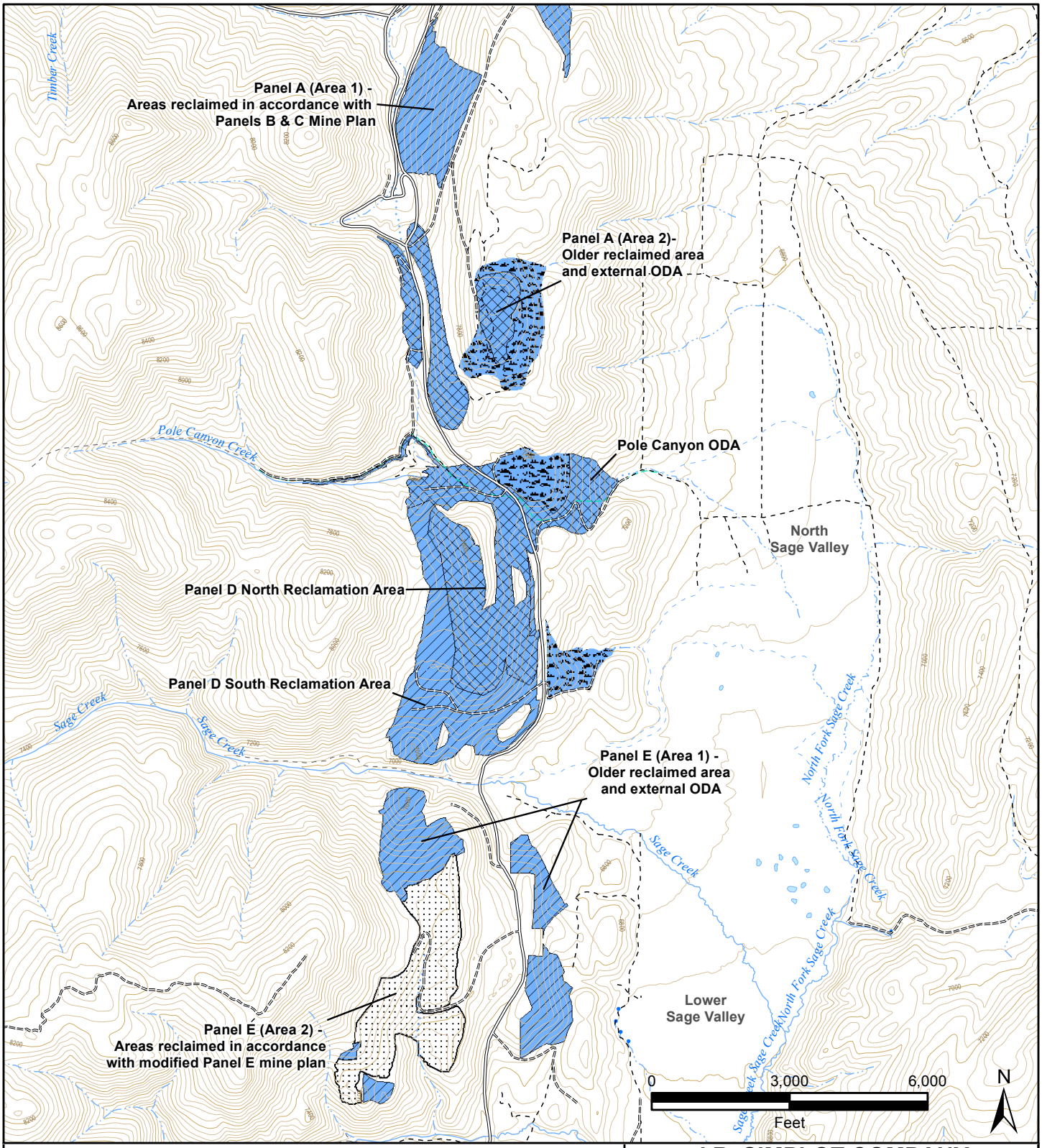
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE VANADIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_32_AmRobin_V_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.3
No Cover	2.0
Topsoil Chert	1.0
Topsoil Only	1.1

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-33

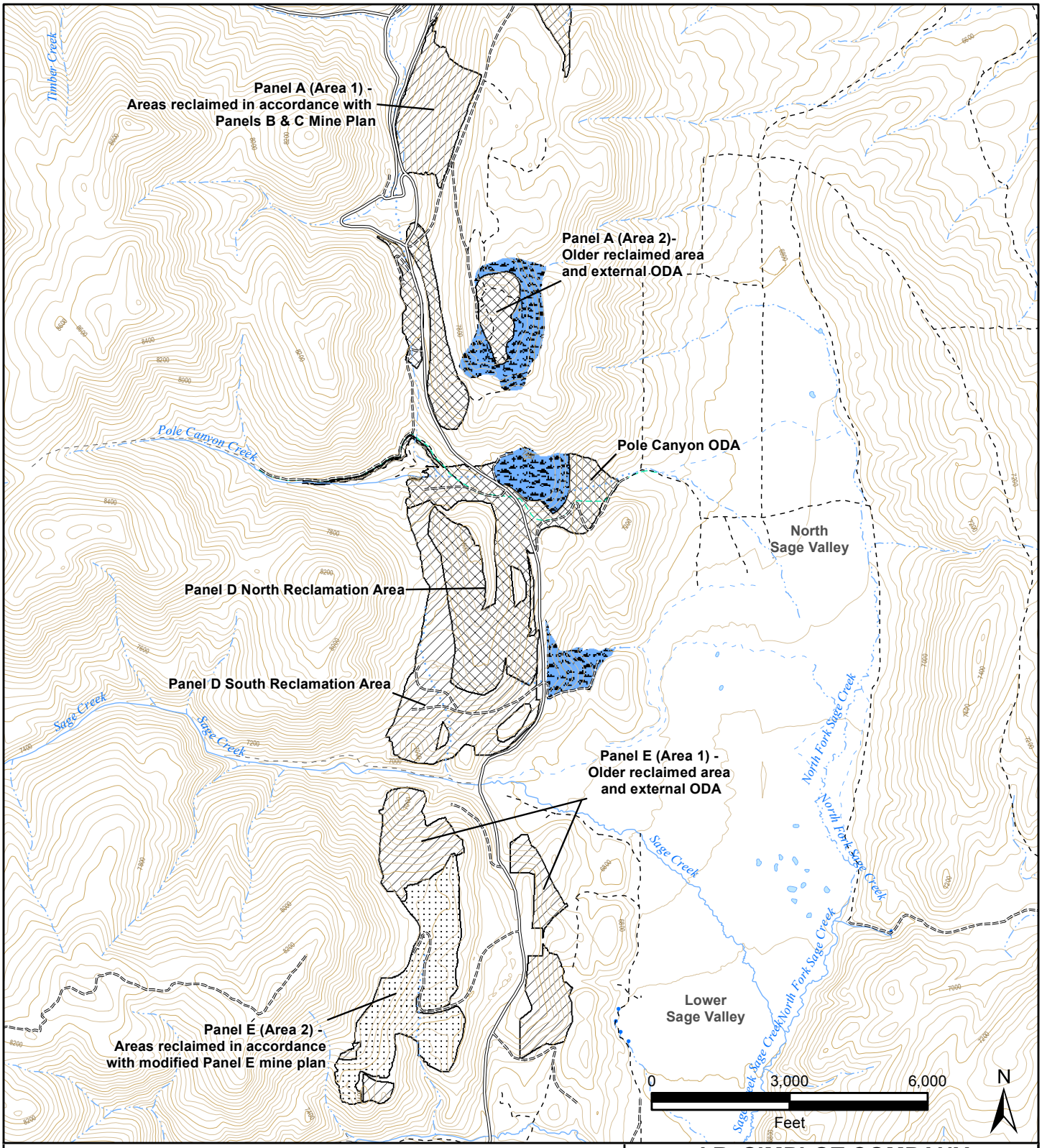
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE VANADIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_33_NrthnBobwht_V_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.3
No Cover	1.3
Topsoil Chert	0.6
Topsoil Only	0.8

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-34

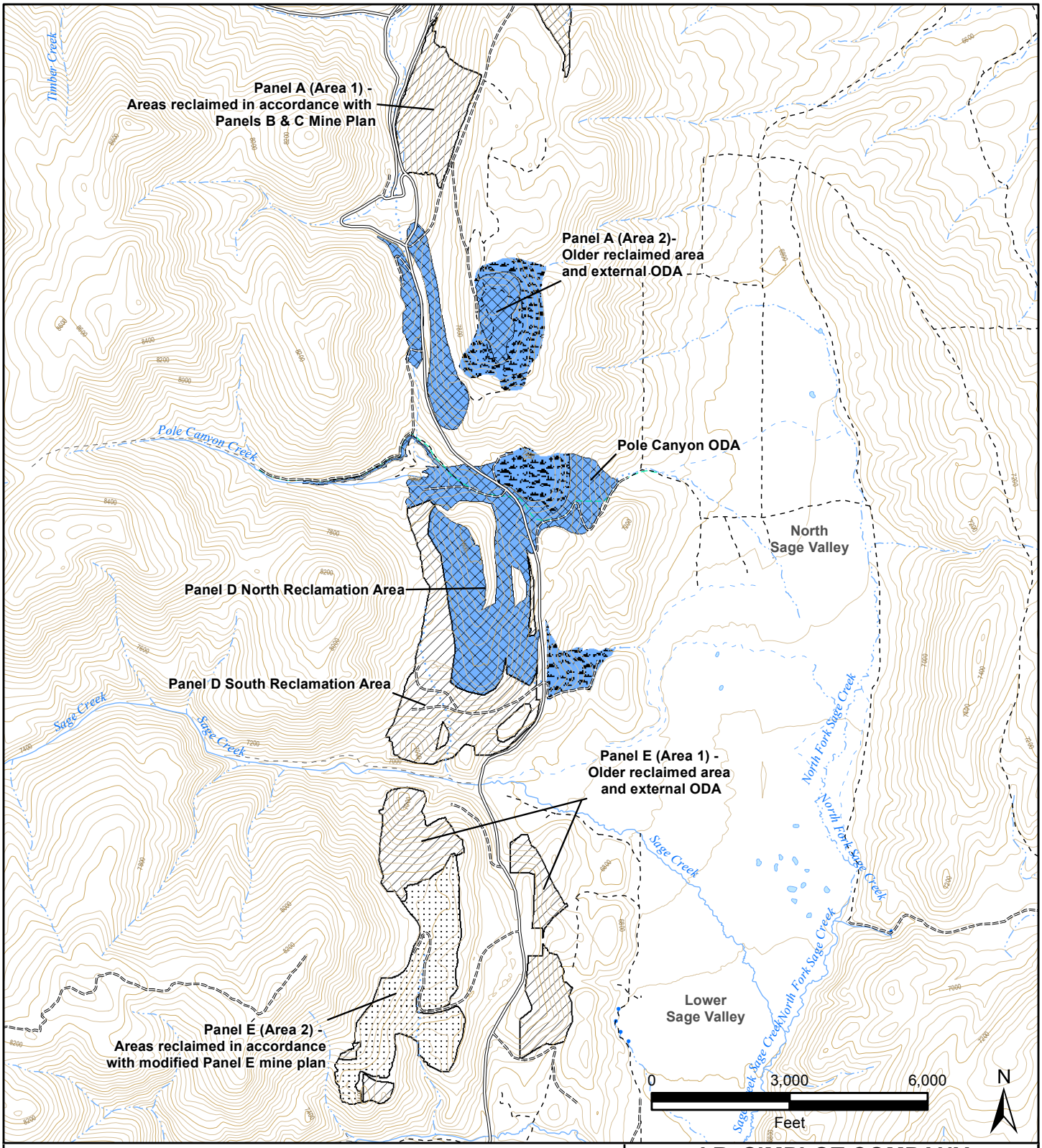
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE VANADIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_34_NrthnHarr_V_Rec.mxd



Legend

HQ	COVER_TYPE
< 1	TOPSOIL OVER CHERT
1 - 5	TOPSOIL NO CHERT
5 - 10	TOPSOIL DINWOODY CHERT
10 - 25	NO TOPSOIL NO CHERT
25 - 50	
> 50	

Reclamation Type	HQ
Dinwoody	0.6
No Cover	1.3
Topsoil Chert	1.0
Topsoil Only	1.4

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-35

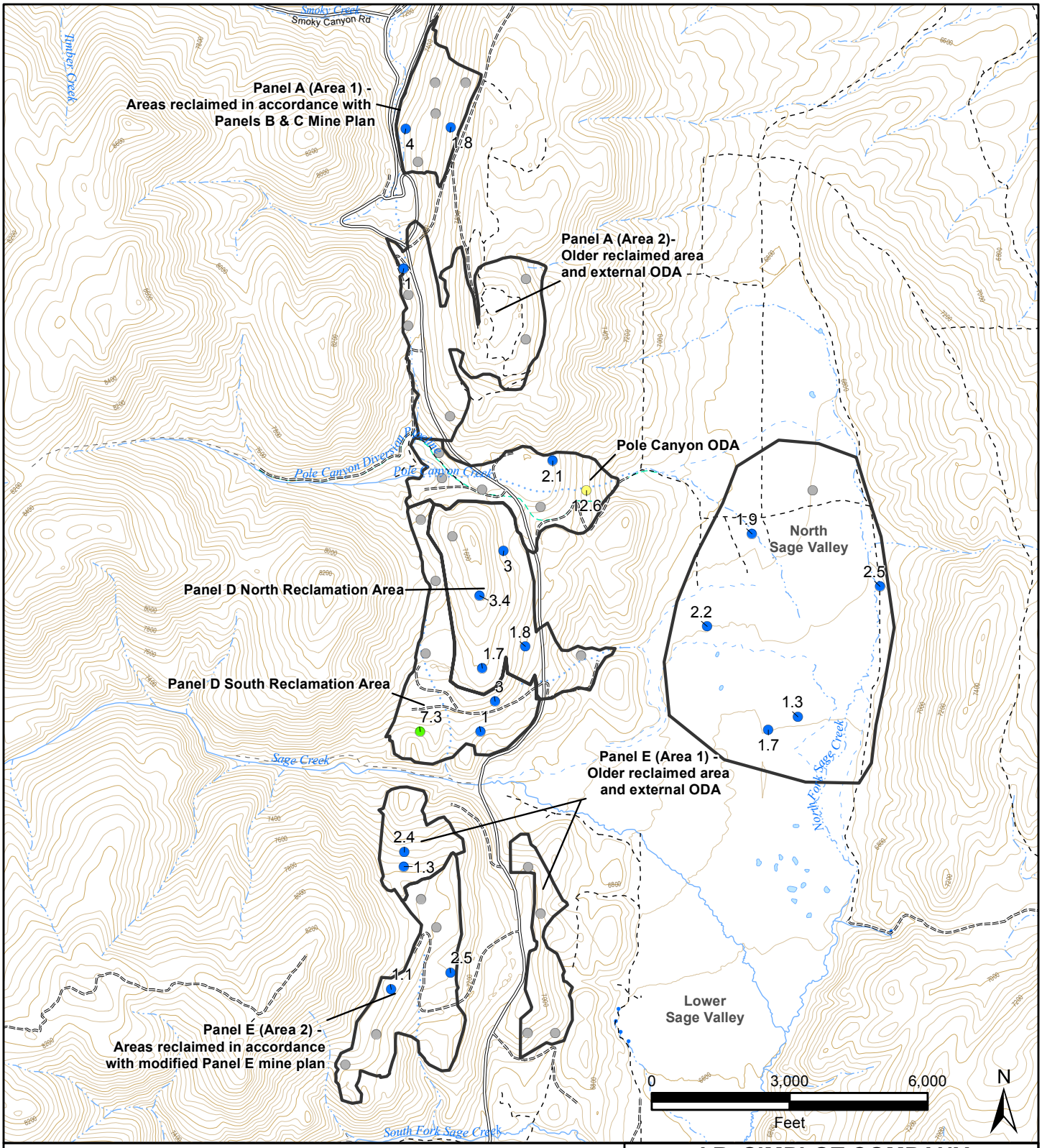
HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL TRV AND 95UCL EPCS BY RECLAMATION TYPE ZINC; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_35_NrthnHarr_Zn_Rec.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-36

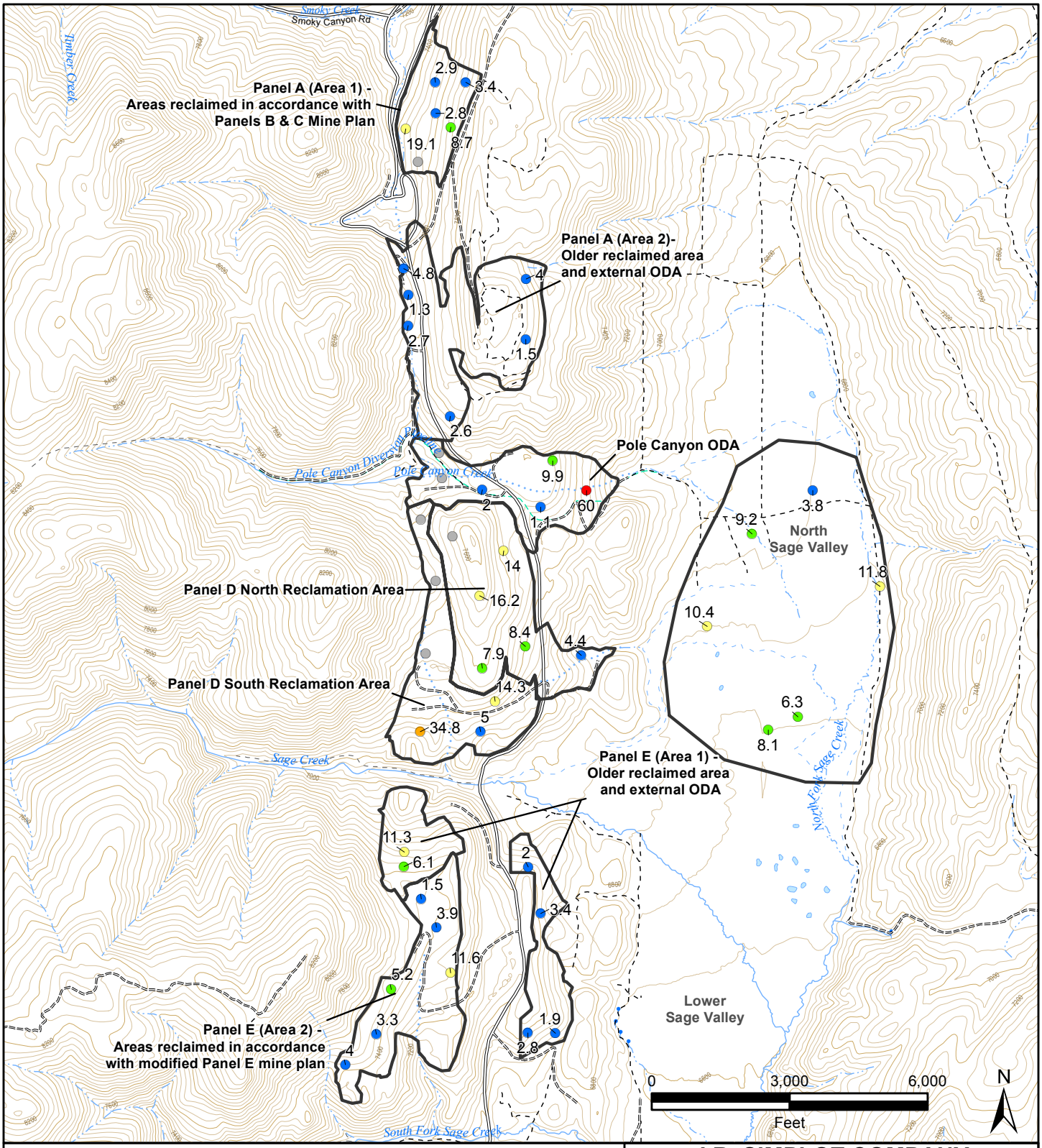
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; COPPER; COYOTE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_36_Coyote_Cu.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-37

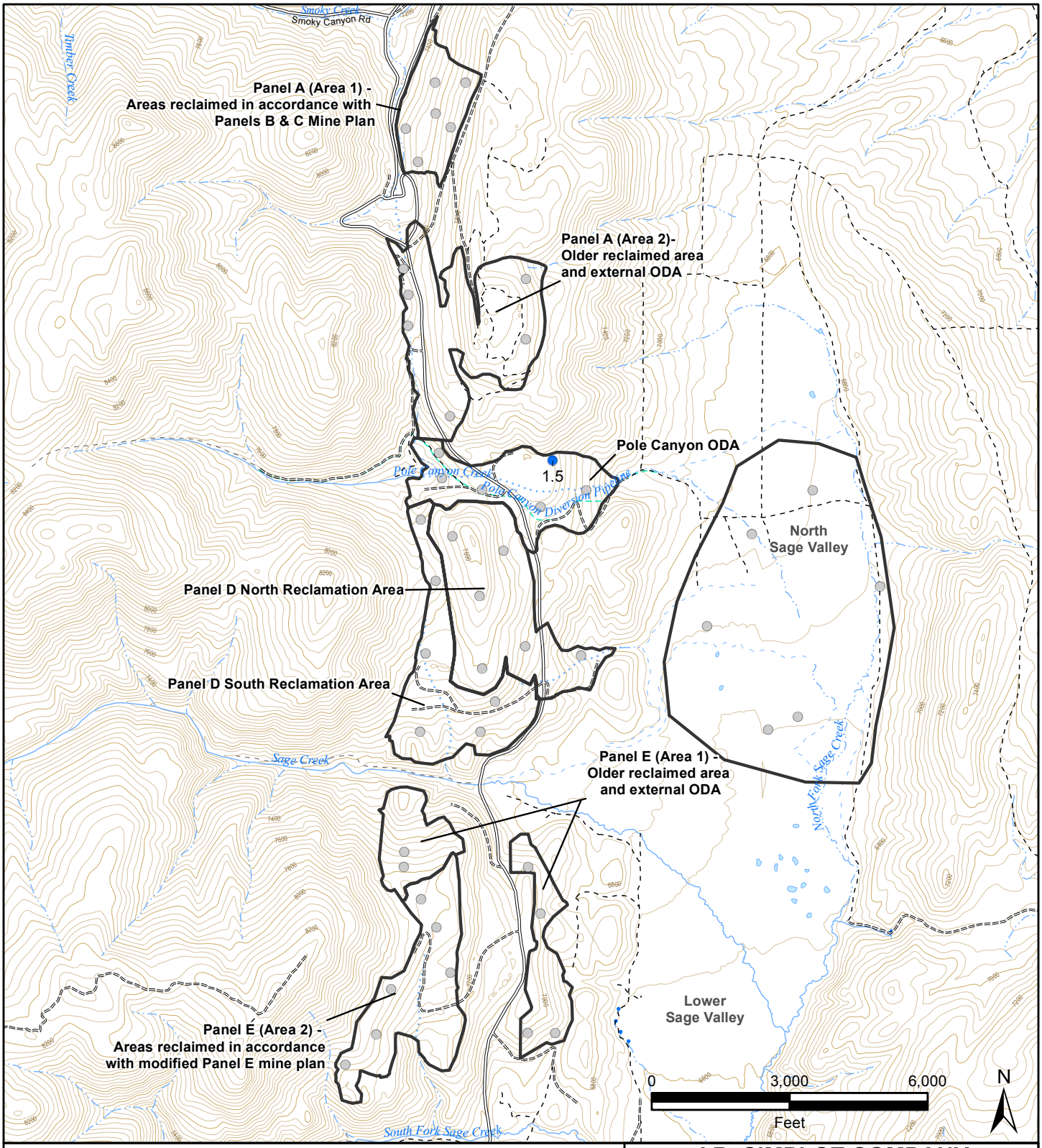
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; COPPER; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_37_NrthnHarrier_Cu.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-38

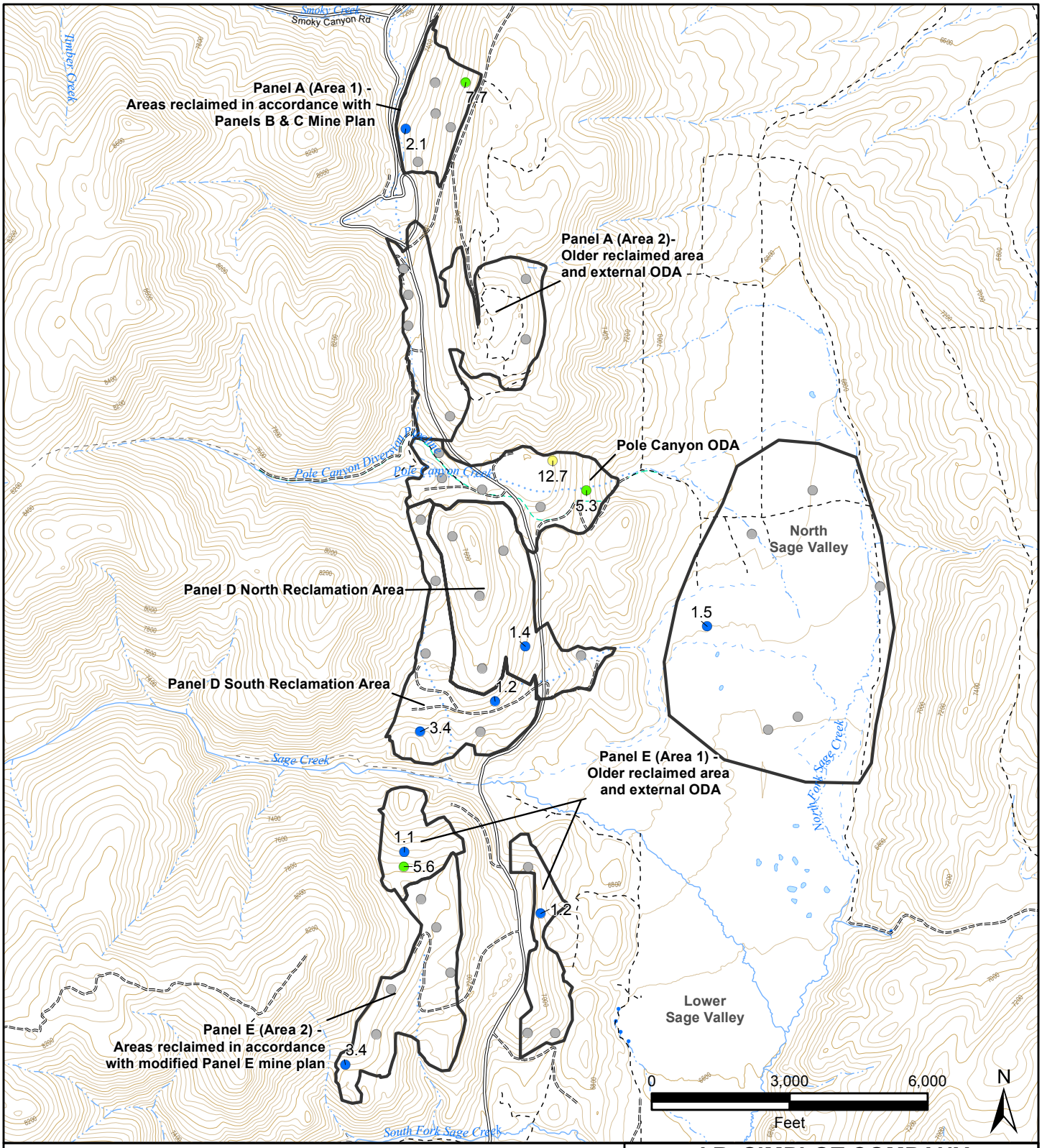
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; LEAD; COYOTE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_38_Coyote_Pb.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-39

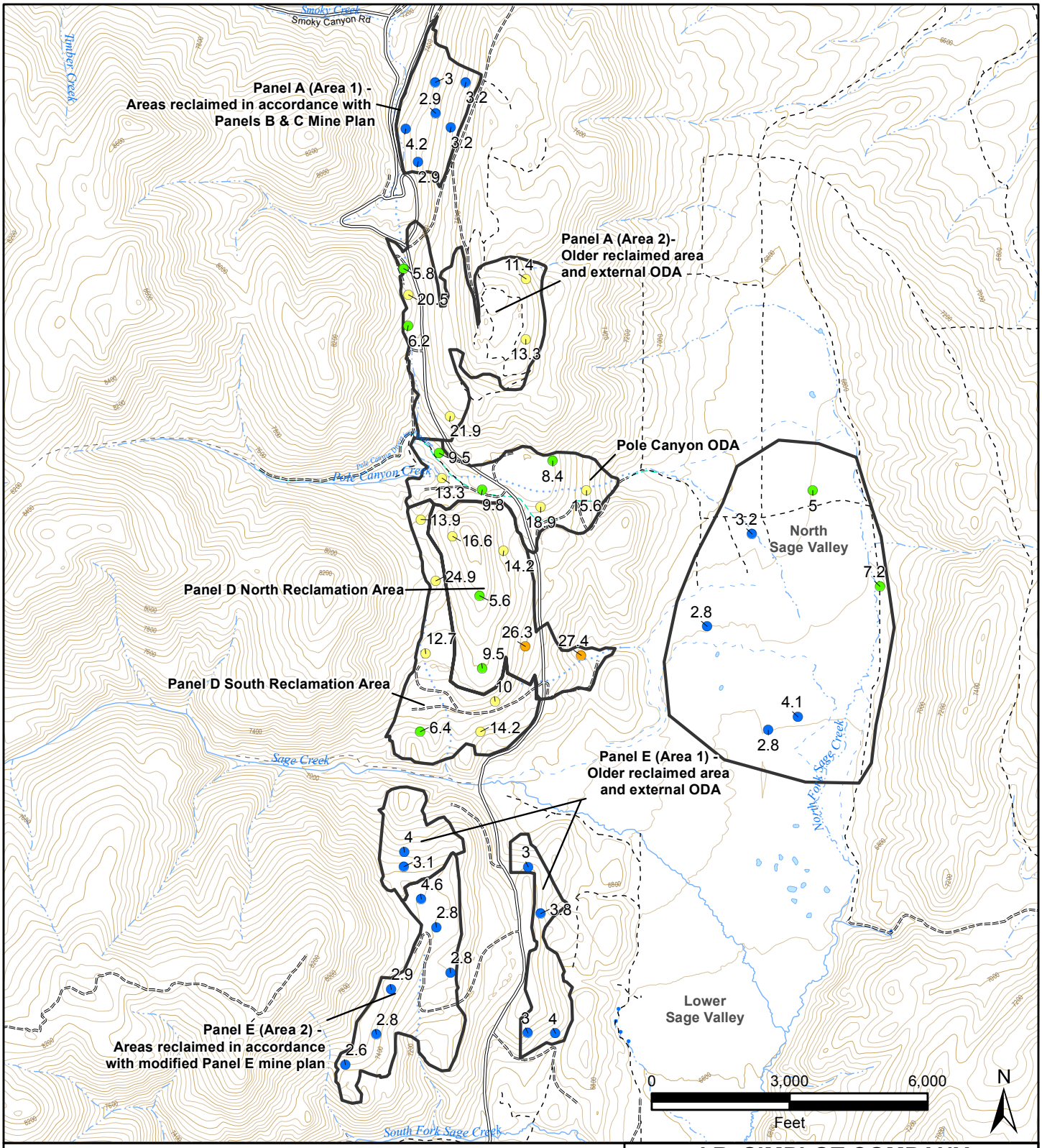
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; LEAD; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_39_NrthnHarrier_Pb.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-40

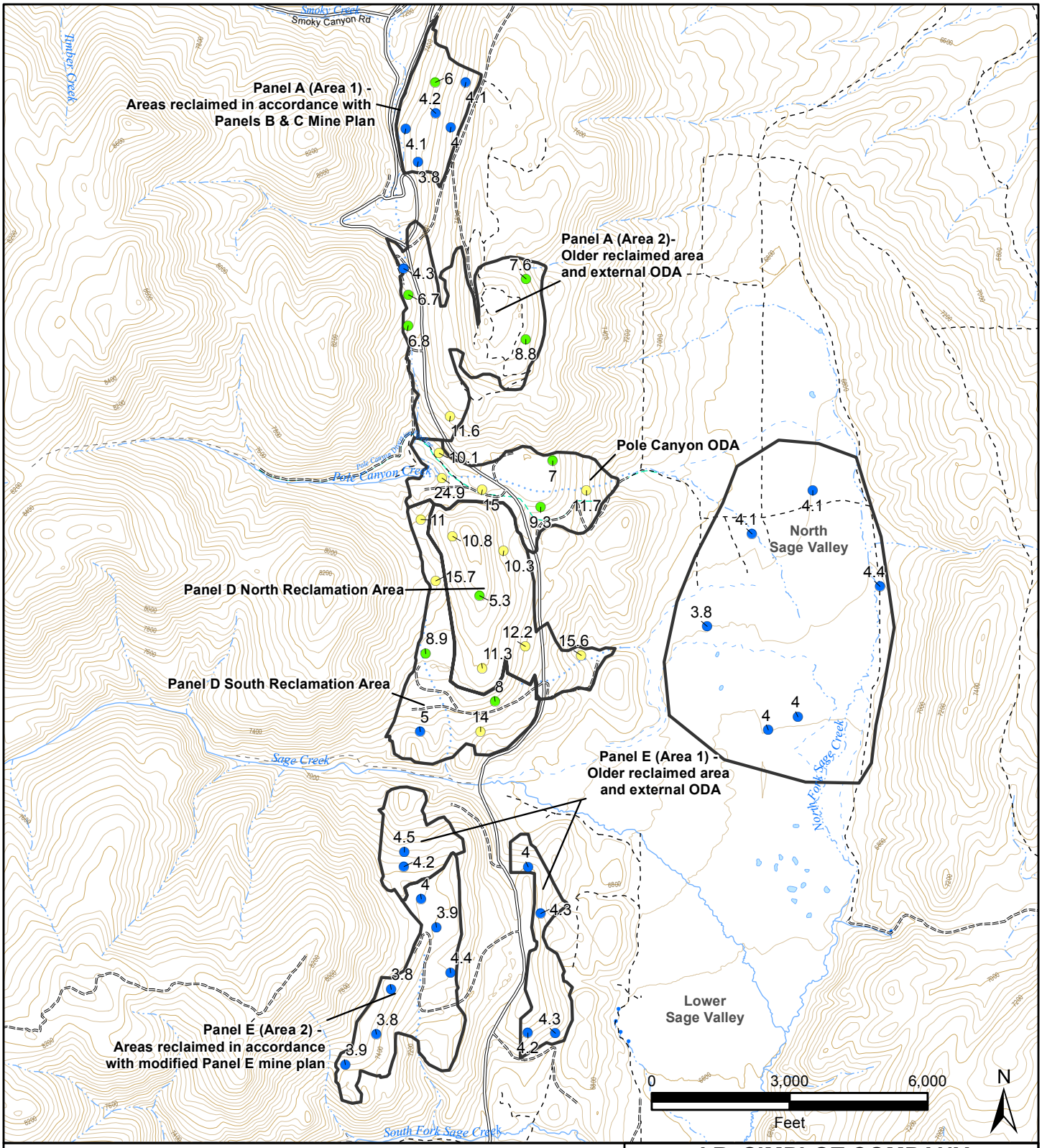
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_40_AmerRob_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-41

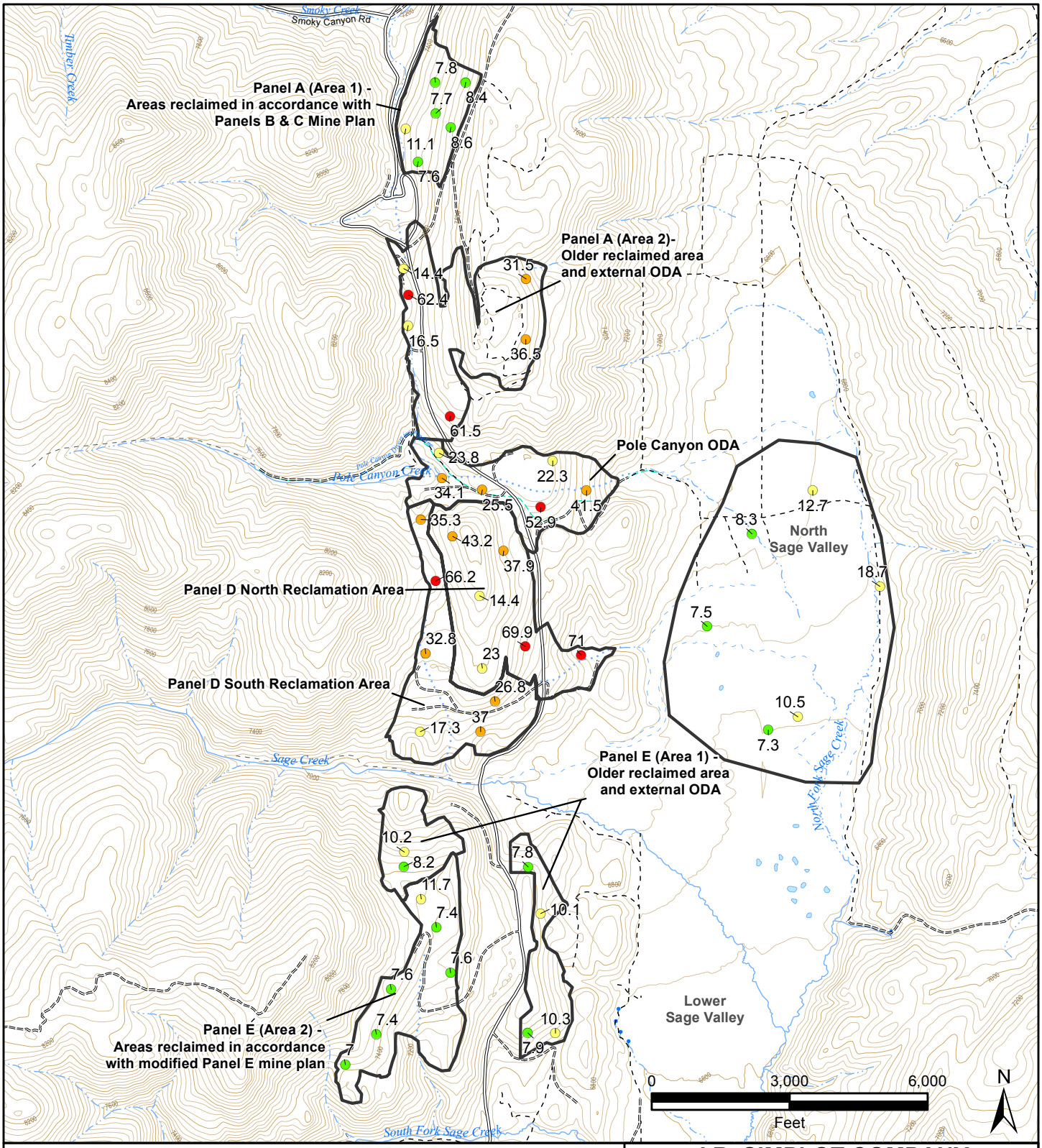
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; COYOTE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_41_Coyote_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-42

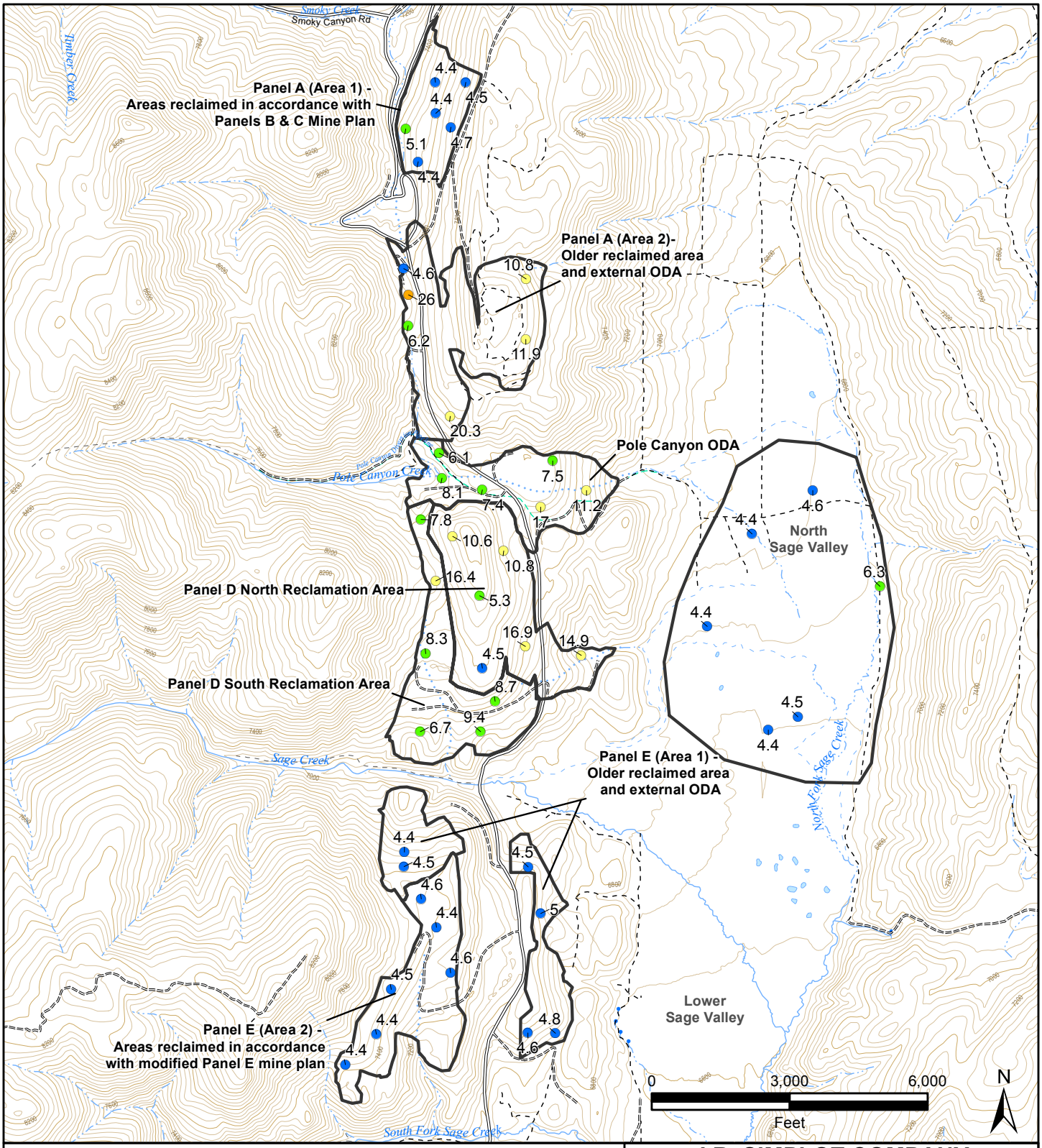
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_42_DeerMse_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-43

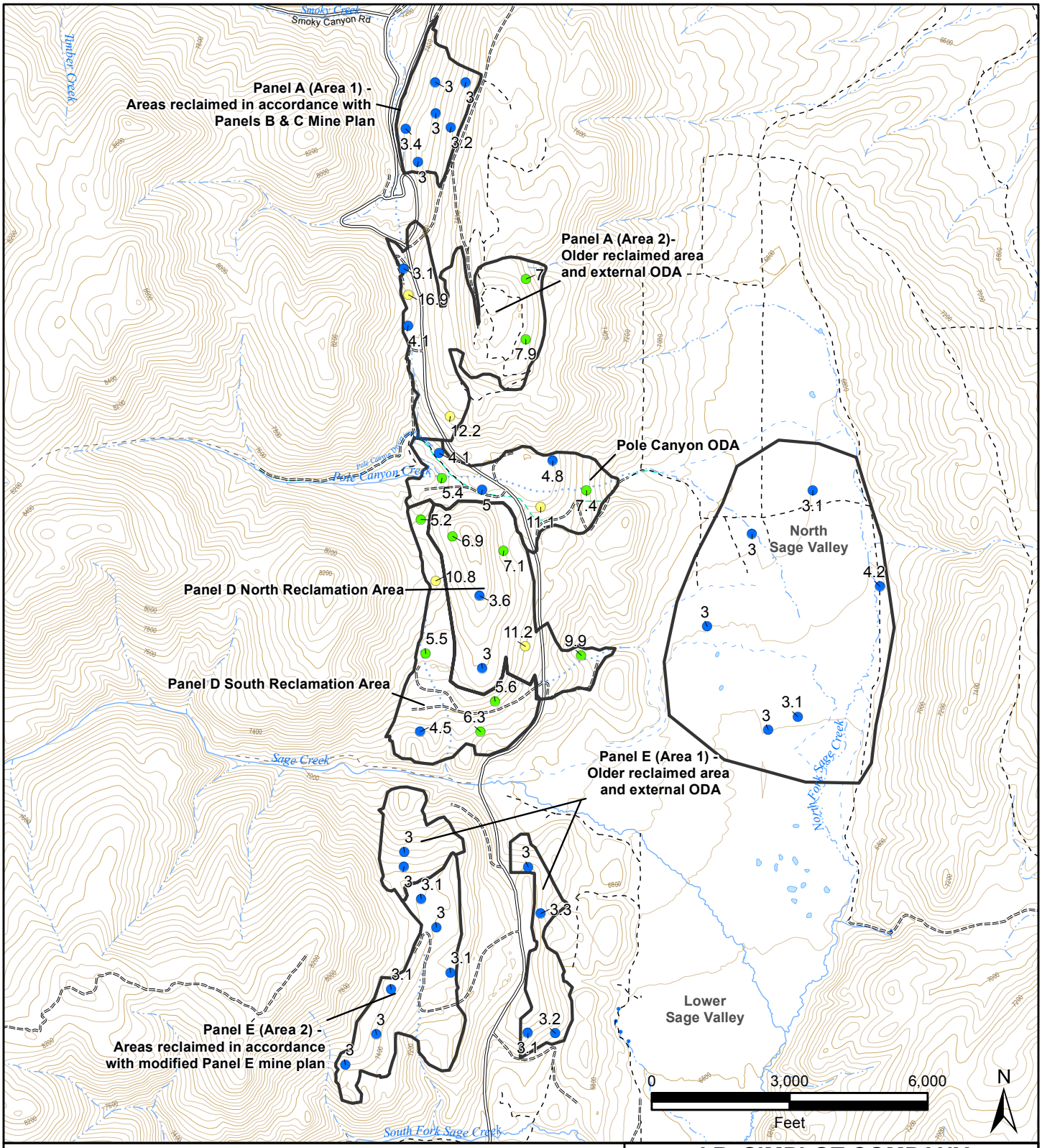
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; EASTERN COTTONTAIL

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_43_EastCottntail_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-44

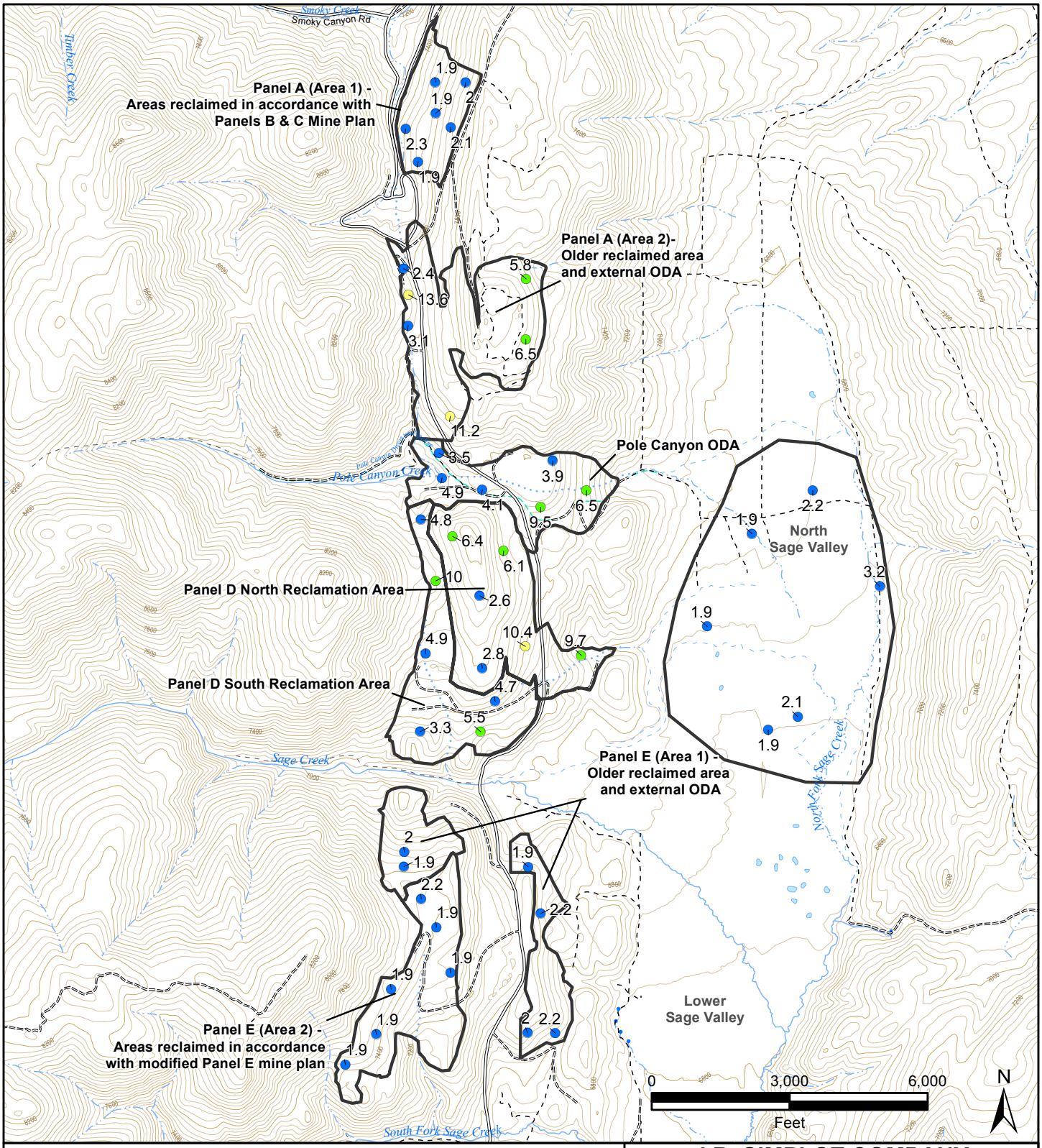
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; MULE DEER

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_44_MuleDeer_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-45

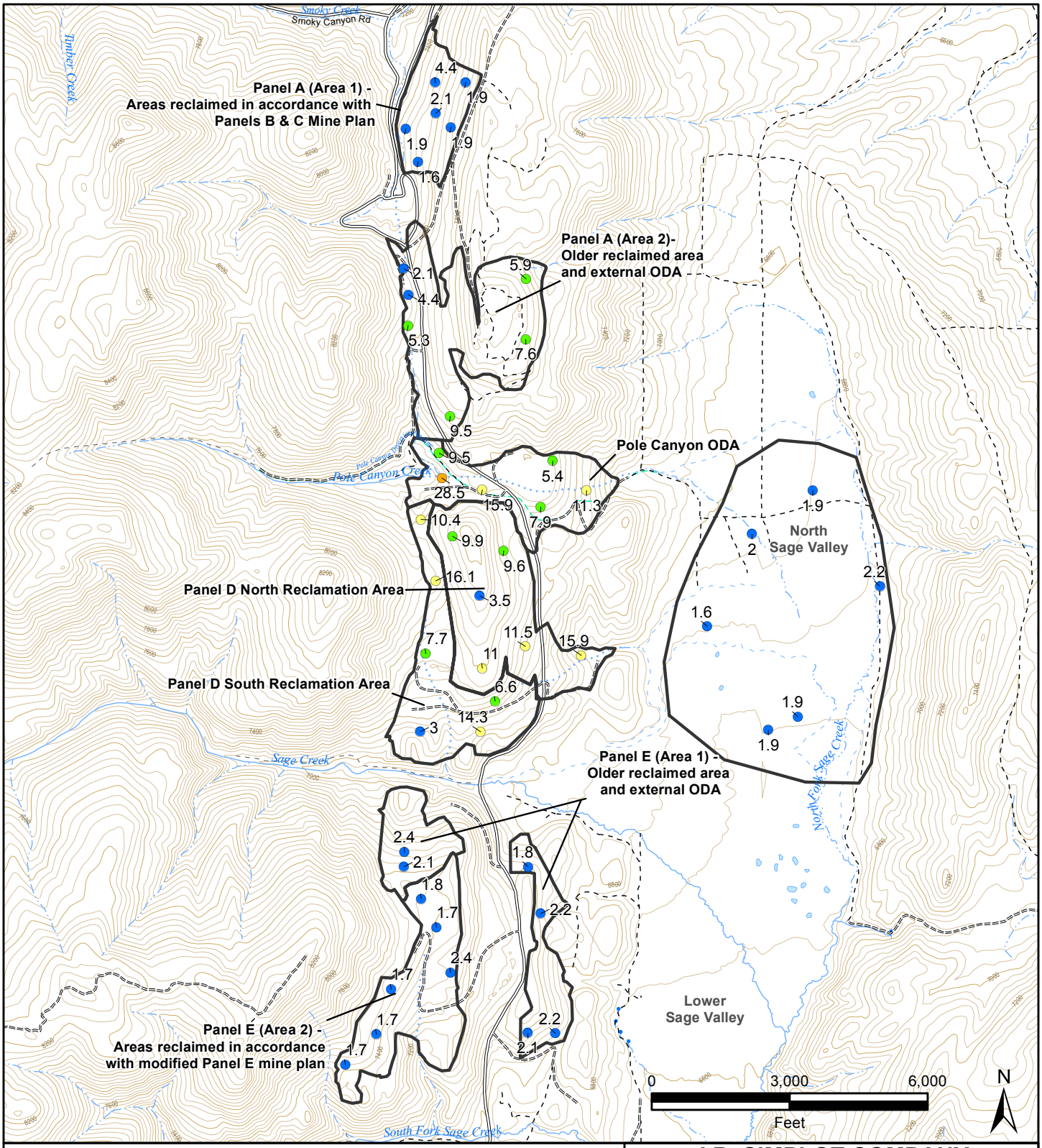
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_45_NrthnBobWht_Se.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-46

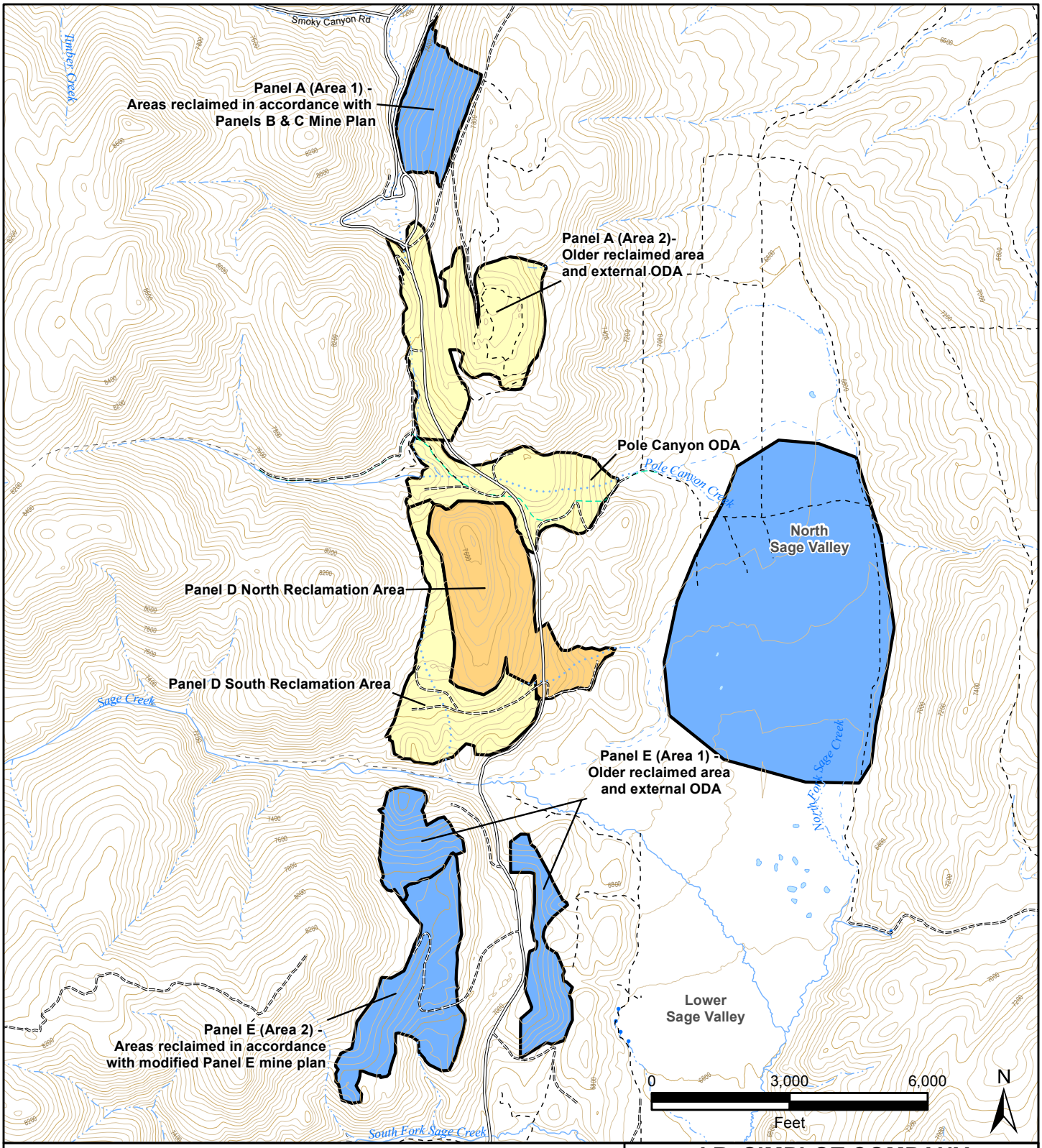
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; SELENIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_46_NrthnHarrier_Se.mxd



Legend

HQ			
< 1	Minor Road	Perennial Stream
1 - 5	Unimproved Road	Intemittent Stream
5 - 10	Trail (4WD)	Canal Ditch
10 - 25	Trail (Other than 4WD)	Historic Flow Path
25 - 50	Index Contour (200 ft)	Pipeline
> 50	Intermediate Contour (40 ft)	Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-47

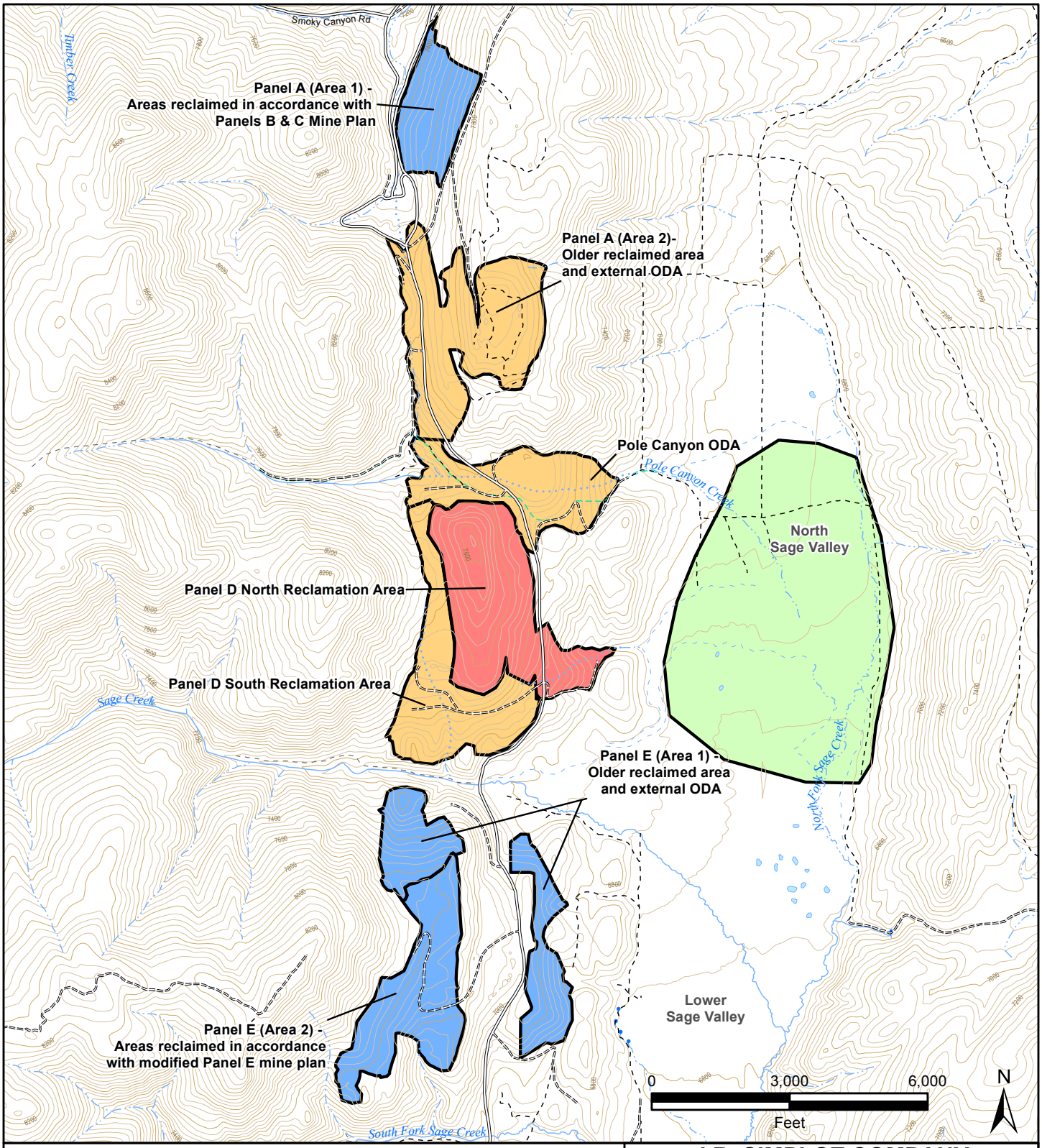
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY PANEL SELENIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_47_AmRobin_Se_GeoNOAEL.mxd



Legend

HQ		
< 1	Minor Road	Perennial Stream
1 - 5	Unimproved Road	Intemittent Stream
5 - 10	Trail (4WD)	Canal Ditch
10 - 25	Trail (Other than 4WD)	Historic Flow Path
25 - 50	Index Contour (200 ft)	Pipeline
> 50	Intermediate Contour (40 ft)	Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-48

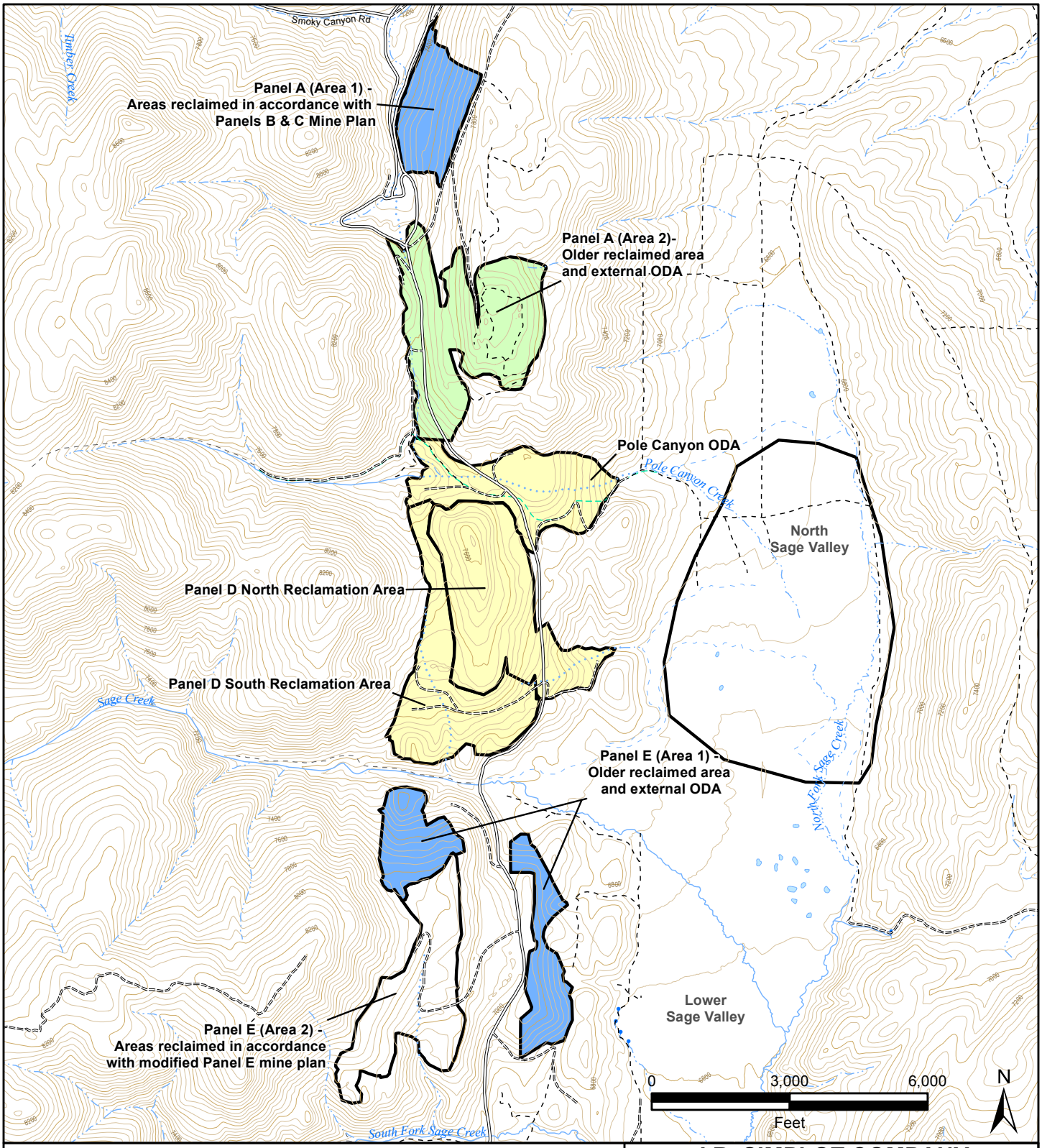
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY PANEL SELENIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_48_DeerMouse_Se_GeoNOAEL.mxd



Legend

HQ		
< 1	Minor Road	Perennial Stream
1 - 5	Unimproved Road	Intemittent Stream
5 - 10	Trail (4WD)	Canal Ditch
10 - 25	Trail (Other than 4WD)	Historic Flow Path
25 - 50	Index Contour (200 ft)	Pipeline
> 50	Intermediate Contour (40 ft)	Lake/Pond

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-49

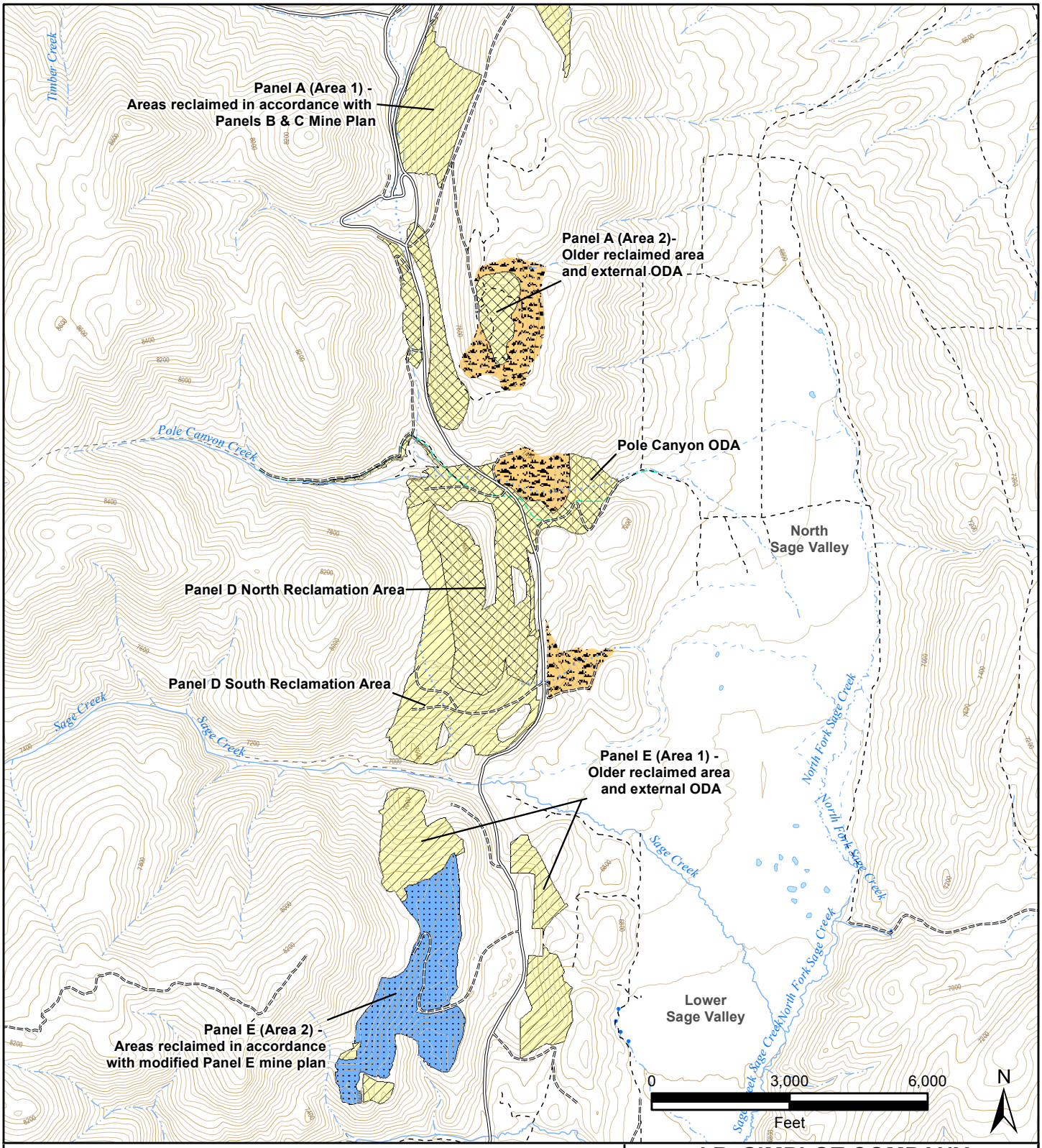
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY PANEL SELENIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_49_NrthrnHarr_Se_GeoNOAEL.mxd



Legend

HQ	Reclamation Areas
< 1	COVER_TYPE
1 - 5	TOPSOIL DINWOODY CHERT
5 - 10	NO TOPSOIL NO CHERT
10 - 25	TOPSOIL OVER CHERT
25 - 50	TOPSOIL NO CHERT
> 50	

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-50

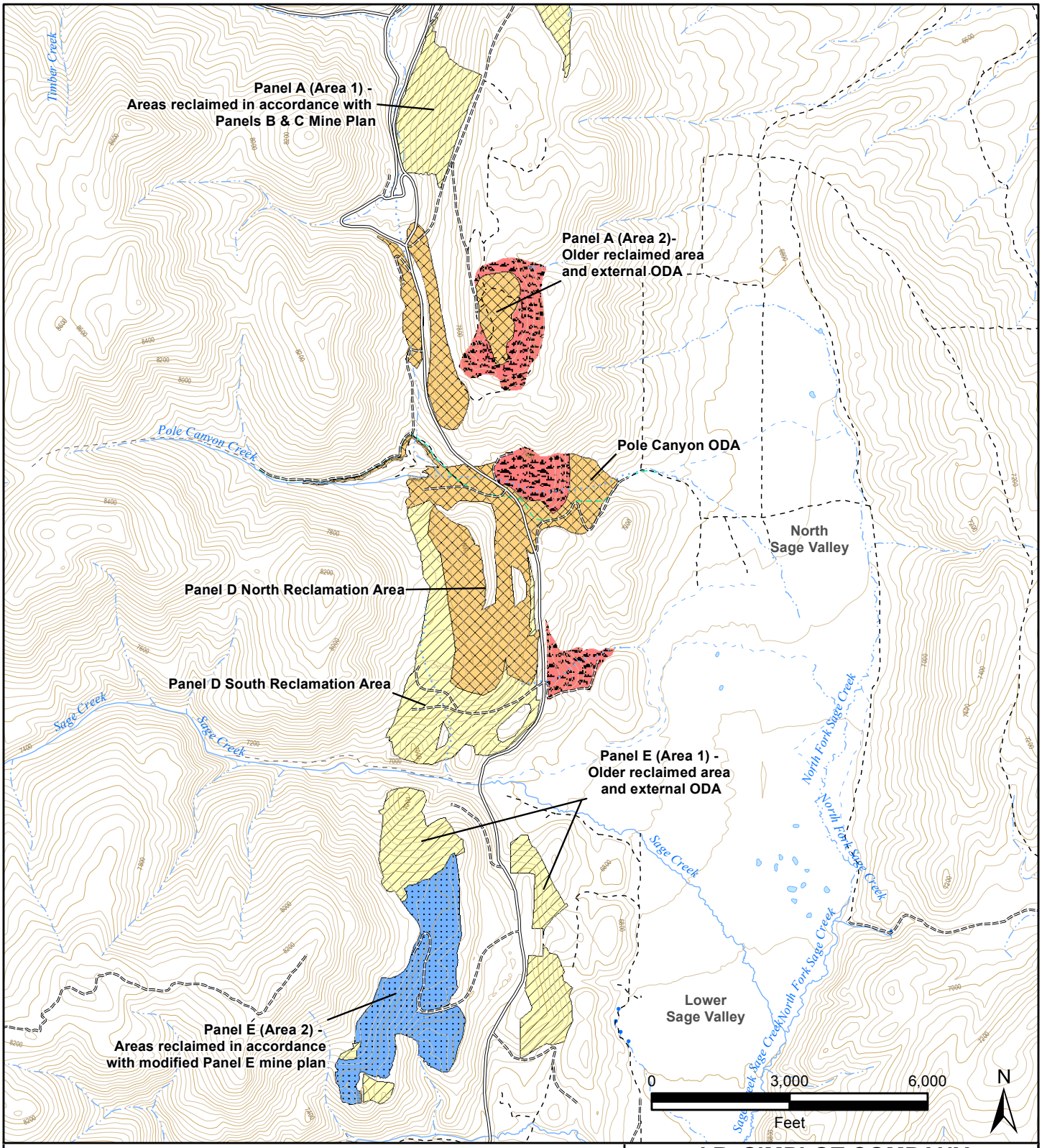
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY RECLAMATION TYPE SELENIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RFS\ERA\Revised20141209\Fig4_50_AmRobin_Se_GeoNOAEL.mxd



Legend

HQ	Reclamation Areas
< 1	COVER_TYPE
1 - 5	TOPSOIL DINWOODY CHERT
5 - 10	NO TOPSOIL NO CHERT
10 - 25	TOPSOIL OVER CHERT
25 - 50	TOPSOIL NO CHERT
> 50	

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-51

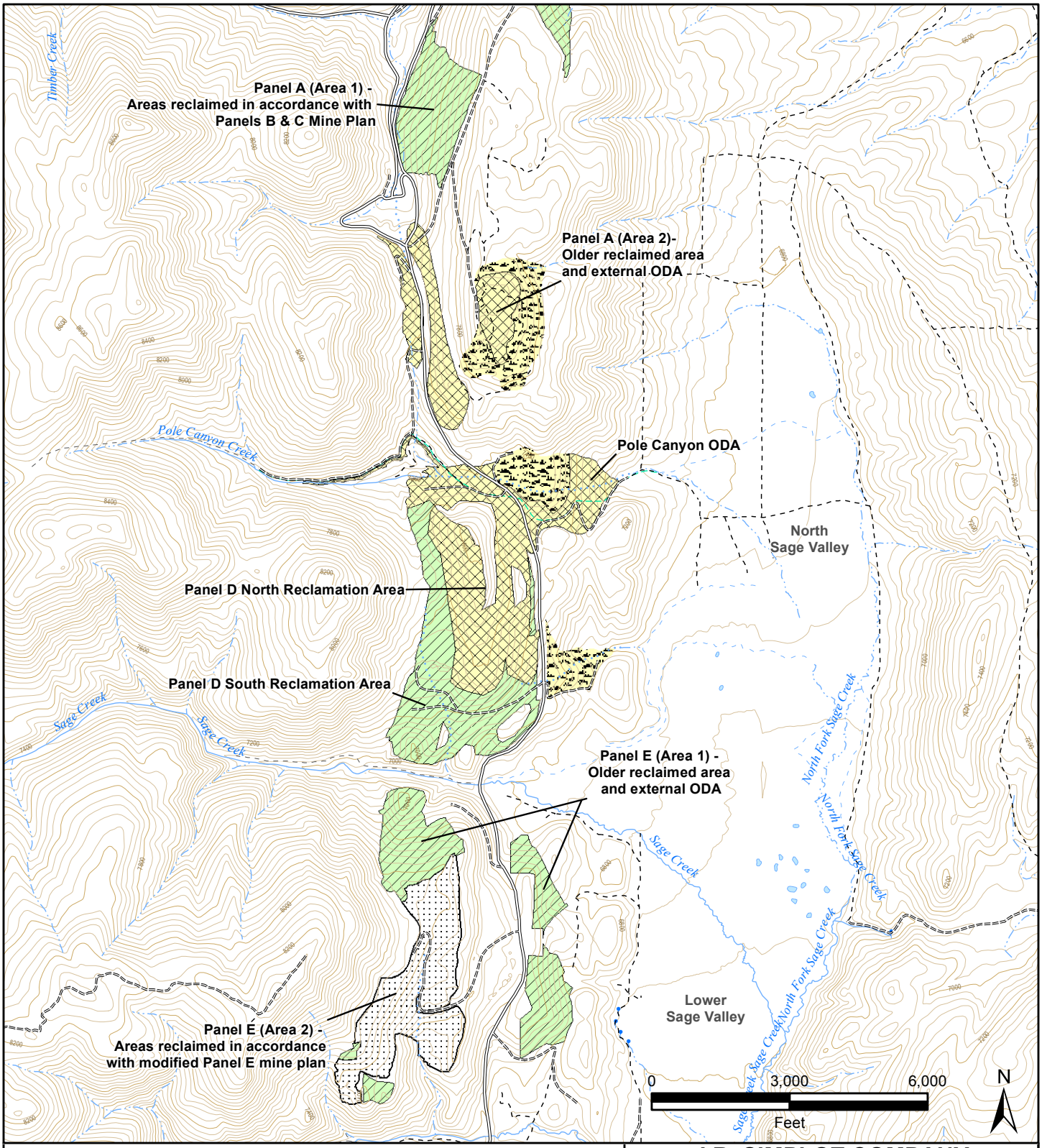
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY RECLAMATION TYPE SELENIUM; DEER MOUSE

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_51_DeerMouse_Se_GeoNOAEL.mxd



Legend

HQ	Reclamation Areas
< 1	COVER_TYPE
1 - 5	TOPSOIL DINWOODY CHERT
5 - 10	NO TOPSOIL NO CHERT
10 - 25	TOPSOIL OVER CHERT
25 - 50	TOPSOIL NO CHERT
> 50	

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-52

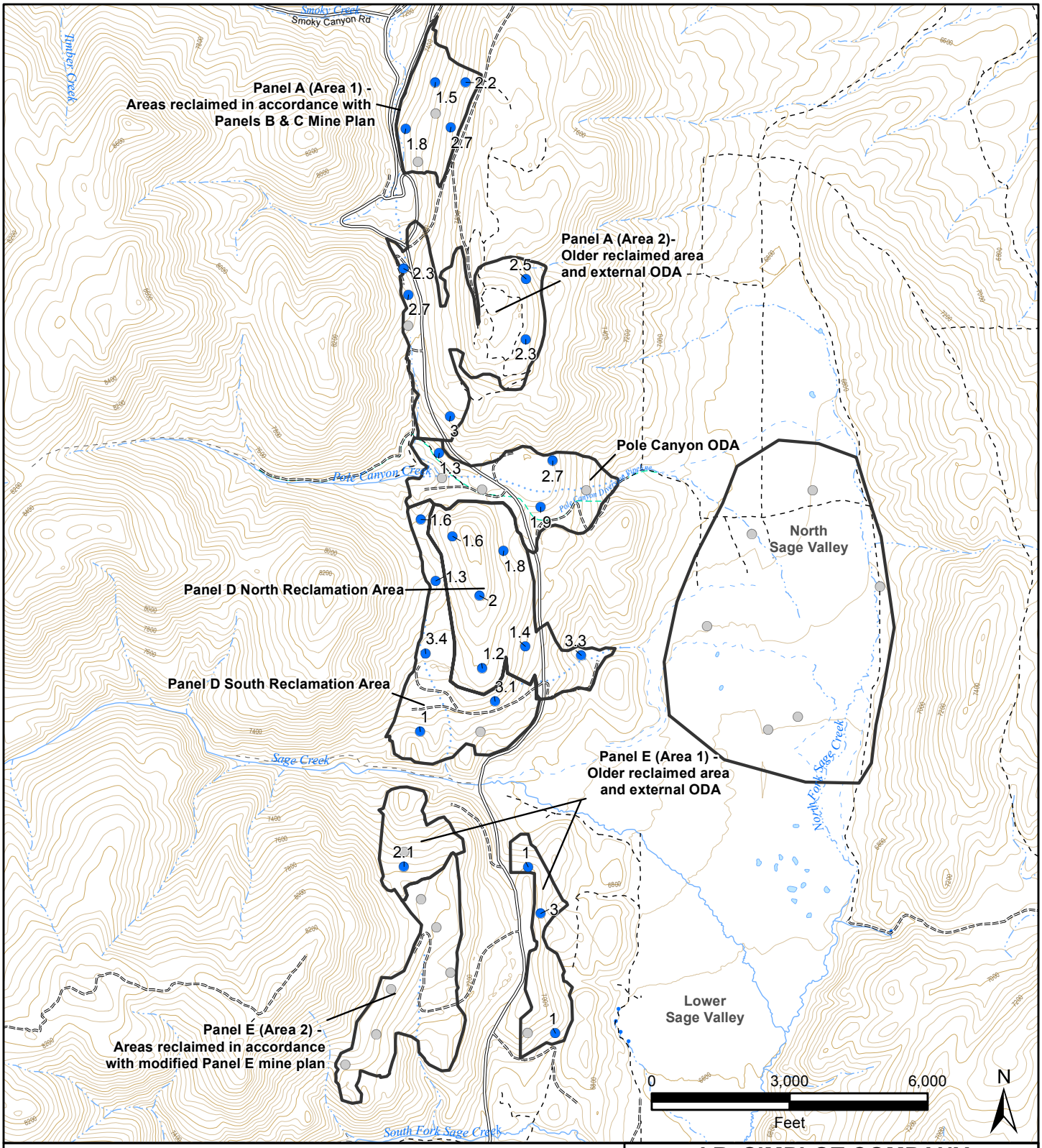
HAZARD QUOTIENTS CALCULATED USING THE GEOMETRIC MEAN NOAEL TRVS BY RECLAMATION TYPE SELENIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_52_NrthrnHarr_Se_GeoNOAEL.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-53

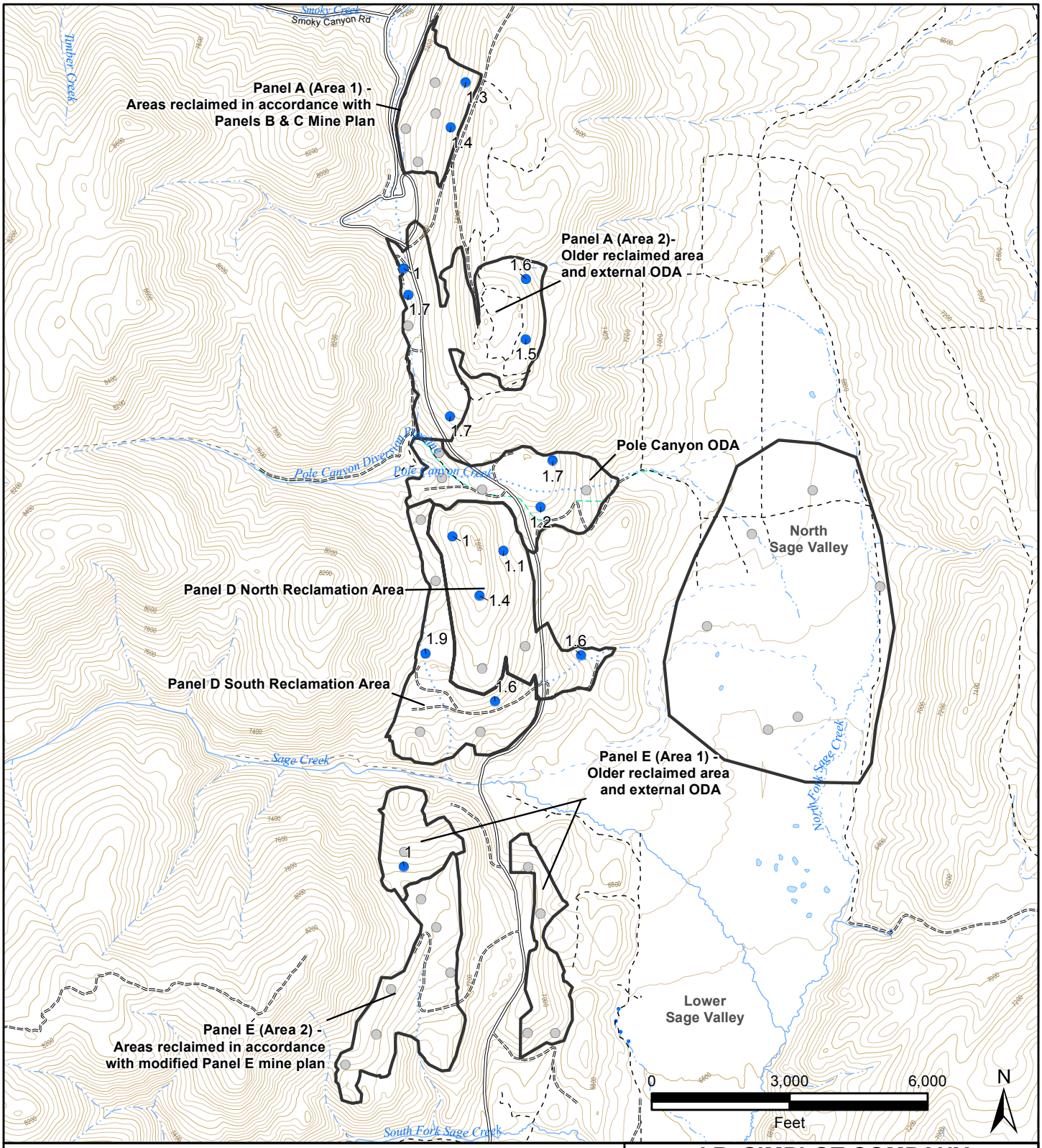
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; VANADIUM; AMERICAN ROBIN

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_53_American Robin_V.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-54

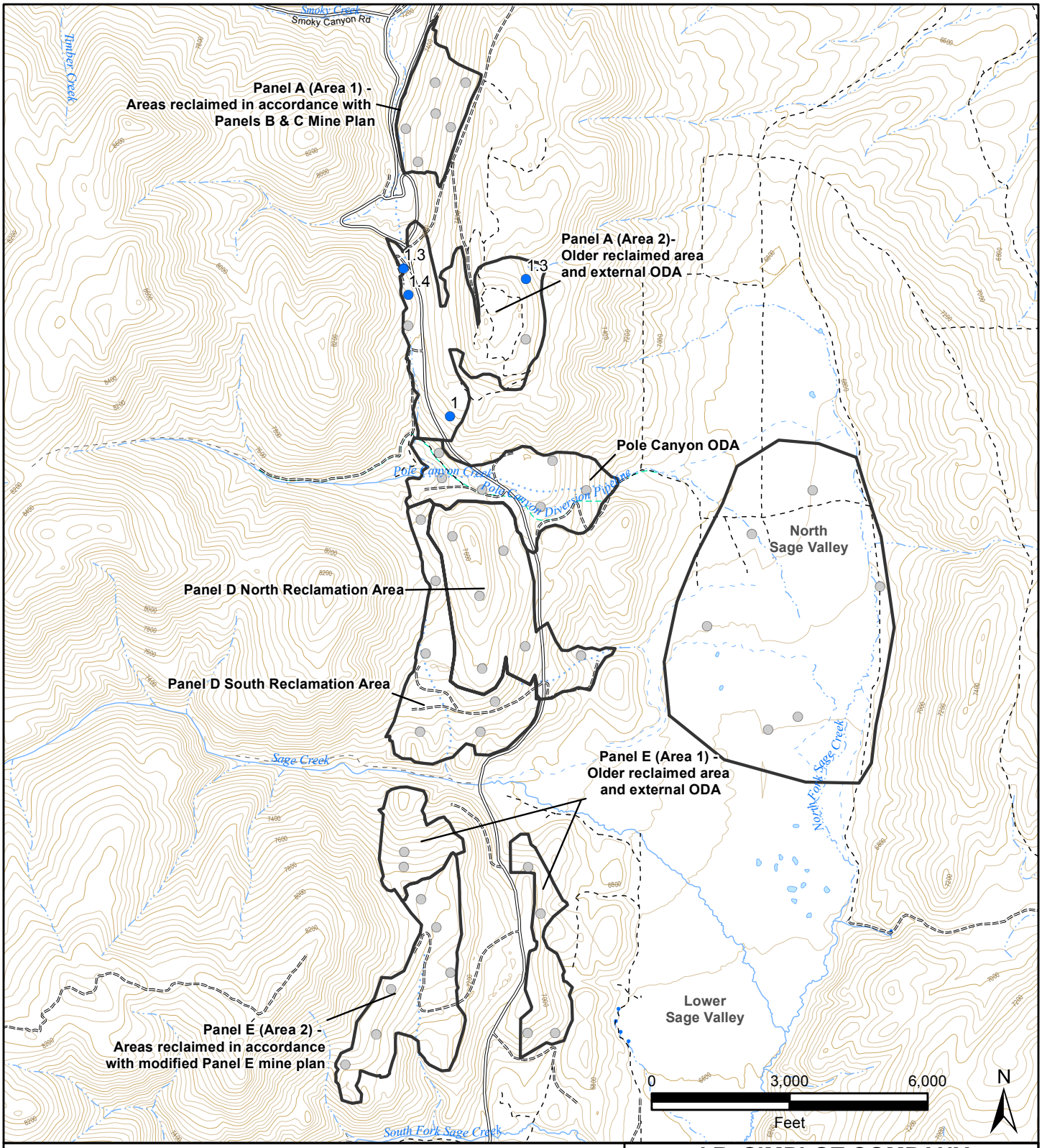
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; VANADIUM; NORTHERN BOBWHITE

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_54_NorthBobwhite_V.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-55

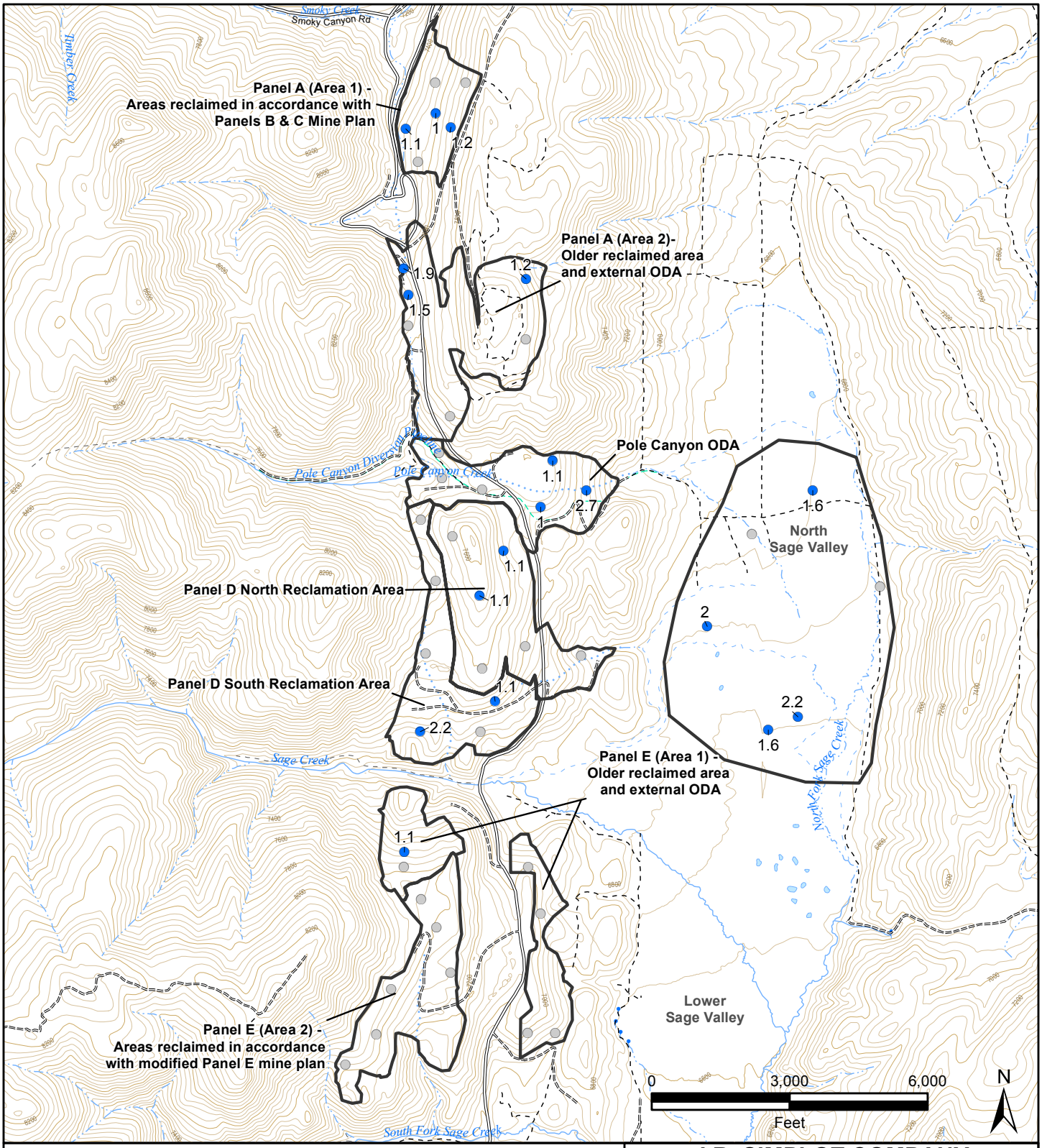
LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; VANADIUM; NORTHERN HARRIER

DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_55_NrthrnHarr_V.mxd



Legend

HQ

- < 1
- 1- 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

- Perennial Stream
- Intemittent Stream
- Canal Ditch
- Historic Flow Path
- Pipeline
- Lake/Pond
- Exposure Area

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 4-56

LOCATION-BY-LOCATION HAZARD QUOTIENTS CALCULATED USING THE LOWEST LOAEL AND TIER 1 EXPOSURE PARAMETERS; ZINC; NORTHERN HARRIER

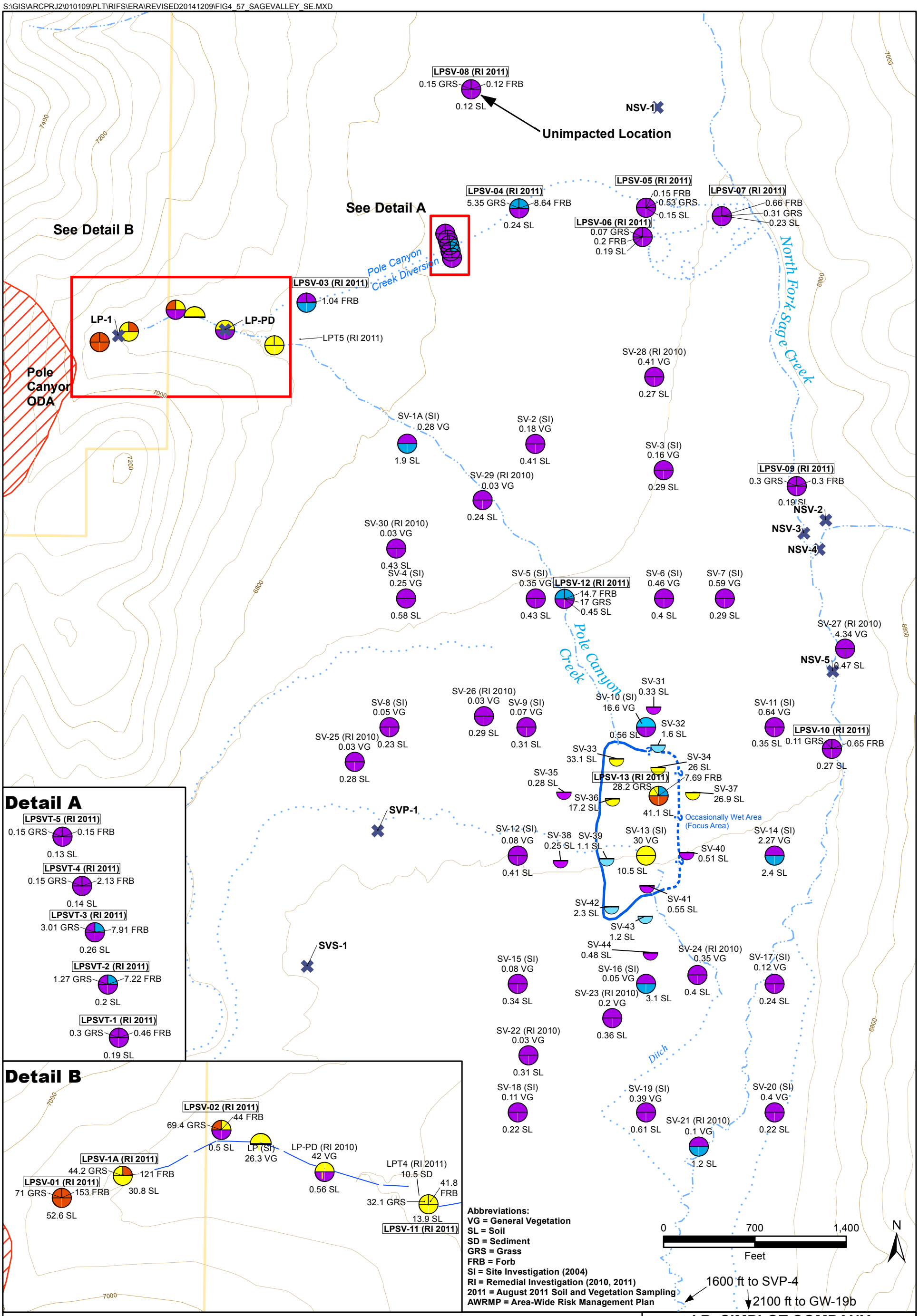
DATE: SEPT. 2015

BY: CRL | FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig4_56_NorthnHarrier_Zn.mxd

S:\GIS\ARCPRJ2\010109\PLT\RIFS\ERA\REVISED20141209\FIG4_57_SAGEVALLEY_SE.MXD



Selenium Concentration (mg/Kg) in Vegetation

- < 5
- 5 - 25 Greater Than AWRMP Removal Action Level for Plants
- 26 - 50
- > 51

Selenium Concentration (mg/Kg) in Soil

- < 0.63 Less than the NOAEL-based EcoSSL
- 0.63 - 5.20 Greater Than AWRMP Removal Action Level for Riparian/Fluvial Soils
- 5.21 - 39.0 Greater Than Human Health Screening Benchmark
- > 39.0

Surface Water Monitoring Location (includes Sage Valley Ponds)

Selenium Results Key

General Vegetation — Soil

General Grass Sample / General Forb Sample — Soil

Note: Non-detect results are presented without the qualifiers. See Appendix E in Remedial Investigation Report for vegetation results that include the validation qualifiers.

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

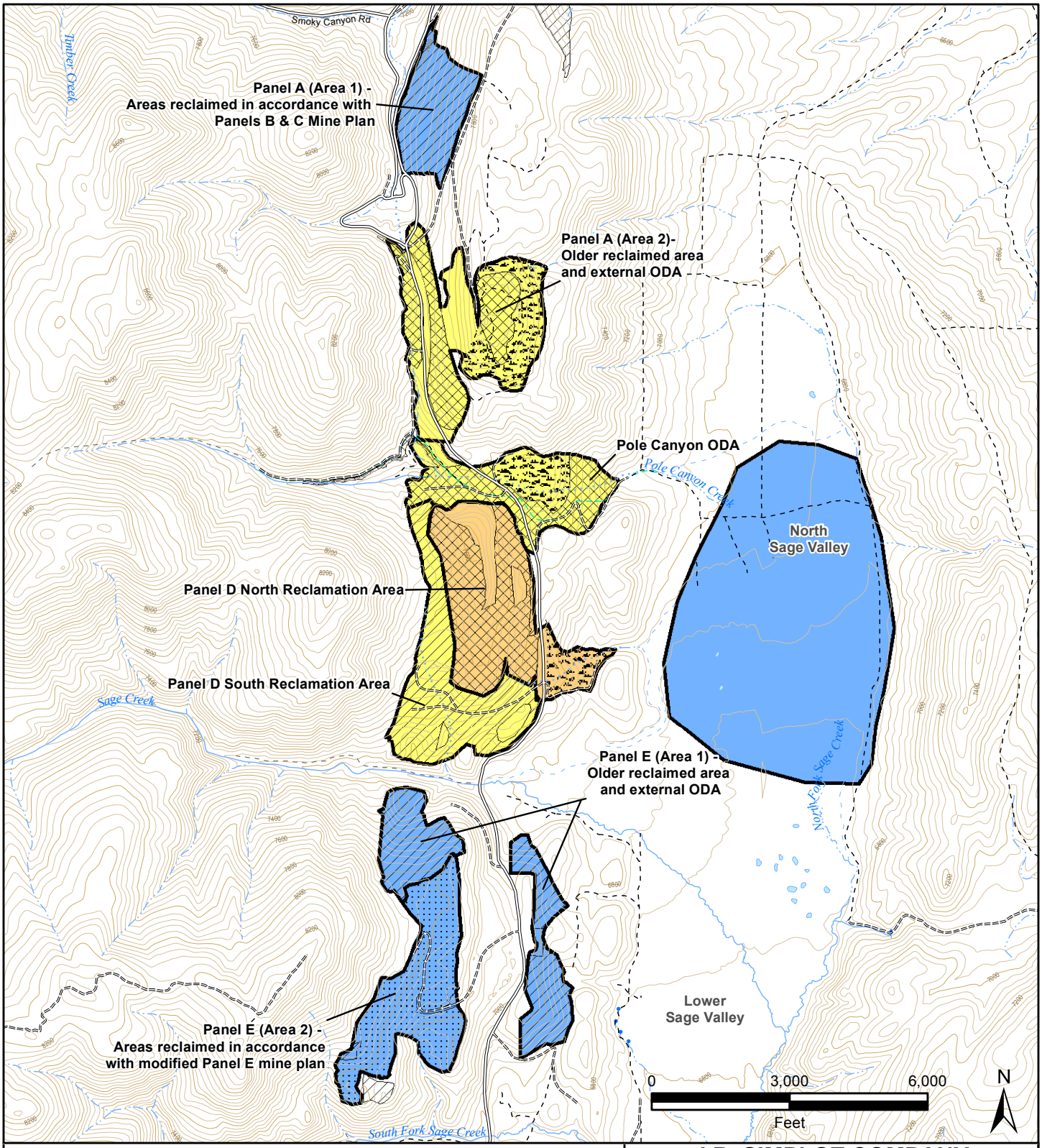
FIGURE 4-57

SELENIUM CONCENTRATIONS IN NORTH SAGE VALLEY SURFACE SOILS

DATE: SEPT. 2015

BY: CRL FOR: FLC

FORMATION ENVIRONMENTAL



Legend

Cover Type

- TOPSOIL DINWOODY CHERT
- NO TOPSOIL NO CHERT
- TOPSOIL OVER CHERT
- TOPSOIL NO CHERT

Selenium Risk

- Lowest Risk
- Moderate - High Risk
- Highest Risk

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Index Contour (200 ft)
- Intermediate Contour (40 ft)

J.R. SIMPLOT COMPANY

SMOKY CANYON MINE - SSERA

FIGURE 6-1

SUMMARY OF SELENIUM RISK

DATE: SEPT. 2015

BY: CRL, DKG FOR: JMA

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010109\plt\RIFS\ERA\Revised20141209\Fig6_1_SeRiskSumm.mxd