

**APPENDIX 27-A**  
**ACCESS ROADS - DEACTIVATION PLAN**

---

# SEABRIDGE GOLD

## Seabridge Gold Inc.

KSM Project

# ACCESS ROADS - DEACTIVATION PLAN

Prepared by:

McElhanney Consulting Services Ltd. – Prince George BC

[www.mcelhanney.com](http://www.mcelhanney.com)

250 261 2229

Bob Parolin PEng | Project Engineer

Randy Ollenberger AScT | Project Manager

December 27, 2012



## Table of Contents

|          |   |          |
|----------|---|----------|
| <b>1</b> | <b>Objectives</b>                             | <b>2</b> |
| <b>2</b> | <b>Deactivation Procedures</b>                | <b>3</b> |
| <b>3</b> | <b>Cost Estimates</b>                         | <b>5</b> |
| 3.1      | Coulter Creek Access Road (Total 35 km) ..... | 5        |
| 3.2      | North Treaty Lower Road (km 0 to km 3) .....  | 6        |
| <b>4</b> | <b>Conclusion</b>                             | <b>8</b> |

*H:\PROJ\2341\1500-1599\1506 Seabridge KSM Project\100.0 Roads\100.3 Engineering\Road Deactivation Plan\1506 2012\227 Access Roads - Deactivation Plan.docx*

# 1 OBJECTIVES

When Seabridge Gold Inc. (Seabridge) determines that select KSM Access Roads are no longer required to supply, maintain, or access the KSM Mine Site and facilities, then the road prism and associated structures shall be permanently deactivated in keeping with the overall operations plans, and requirements of the Special Use Permit (SUP).

Road deactivation covered by this plan includes only those primary access roads constructed under requirements of the Special Use Permit that will no longer be required upon completion of the active mining process. This basically includes the Coulter Creek Access Road (CCAR) in its entirety, once mining operations have ended. The total road length is approximately 35km.

Also included is the portion of the Lower North Treaty Access Road, south of the Southeast Dam at the Tailings Management Facility (TMF), from approximately km 0 to km 3. This road can be deactivated approximately mid-mine life, once the south cells of the TMF are established, and the Upper North Treaty Access Road is placed in service. Mine tailings will cover the road north of the southeast dam so no specific deactivation is required for that section.

The Treaty Creek Access Road (TCAR), including the North Treaty Upper Road, will provide long term access to the plant site and MTT tunnel portal. In addition, the portion of the TCAR extending west from the intersection with the Upper North Treaty Road (km 17.9) to the MTT mid-tunnel saddle access point (km 33), will also be maintained for long term access. These roads will be required for long term access after mining operations have been completed, for monitoring and safety purposes, so they will not be deactivated.

The intent of road deactivation is to place the roads in a self-maintaining state that will indefinitely protect adjacent resources. Road deactivation activities typically include, but are not limited to:

- Remove bridges and stream culverts to restore or maintain natural drainage patterns. Provide for long-term safe fish passage and protection of fish habitat where required.
- Stabilize the road prism and clearing width for long term integrity, while minimizing impact of silt and sediment transport on other forest resources.
- Barricade the road in a clearly visible manner to restrict access beyond the limits of existing public/private access road networks.
- Enhance productive growing sites for the re-establishment of vegetation cover.

## 2 DEACTIVATION PROCEDURES

Reference: Ministry of Forests, Lands and Natural Resource Operations – Engineering Manual (Latest Revision Date: November 29, 2012).

A Qualified Registered Professional must prepare, sign and seal the detailed Deactivation Prescription(s) for the project, or components thereof. On a project of this size it is anticipated that Deactivation Prescriptions would be prepared on a time line appropriate with the long term nature of this project. Detailed Deactivation Prescriptions would be prepared at some future date, and would consider then current regulatory requirements. However, it is anticipated that future requirements should generally be consistent with current requirements, as outlined in the referenced Engineering Manual, Chapter 7 “Road Deactivation”.

Generally phases of Deactivation Prescription development would follow a procedure of office review, field assessments, followed by preparation of appropriate maps and reporting to adequately convey the intention of the Qualified Registered Professional in achieving the desired end result. Proposed Deactivation Prescriptions will be subject to review and acceptance by Regulatory Agencies having jurisdiction at the time.

Road de-activation activities shall be managed by personnel having appropriate training and experience in the industry. The Qualified Registered Professional will be required to provide overall field review of the deactivation activities to ensure conformance with the intent of the Deactivation Prescription(s). Due to unforeseen conditions it might be necessary to modify the prescription(s) during field activities, and protocols should be established for the types and level of changes that can be made on site.

Upon completion of the deactivation, the Qualified Registered Professional shall sign and seal a Statement of Works Conformance, or similar depending on regulations in place at the time, stating that the works have been completed in accordance with the prescription(s), and accepted practice. Final acceptance will be subject to regulatory approvals.

Further to the foregoing discussion, the majority of the de-activation will be achieved through application of the following actions or construction techniques.

### Scarification:

The road surface will be scarified to below the ballast depth with a dozer and ripper tooth to promote cross flow drainage and provide a better bonding layer for pulled-back fill material. Scarification will also provide for an improved rooting medium and aid in re-vegetation.

### Water-bars:

A water-bar is a wide shallow swale constructed across the road surface to intercept runoff and divert the flow onto a stable fill slope. The number, spacing and skew of the water bars is dependent on terrain and road grade. Where appropriate, construction of larger fords or armored swales can be utilized.

### Cross Ditching

A cross ditch is excavated across the road subgrade to divert ditch line water onto stable, non-erodible slopes below the road. Well compacted and/or armored ditch blocks are required to divert the flow into the cross ditches. Cross ditches will also be installed to re-establish original drainage patterns where more than one watercourse has been combined during construction.

### Partial Side-Cast Pullback:

Partial pullback of side-cast material will be carried out to the extent required to ensure the long-term stability of the road embankment fills. The retrieved soil will be placed and compacted against the cut slope and sufficient water bars and cross ditches installed to prevent water from flowing into the pulled back fill.

### Removal of Cross Culverts:

All steel, HDPE, or other culvert materials will be removed and disposed of in the nearest approved landfill, or recycled, in accordance with current regulations. The culvert soil cover and fill material will be excavated and pulled back to a stable slope angle. Excavated material will be placed and compacted on site or end hauled to a suitable disposal area. The original stream bed elevation will be re-established if feasible, and/or riprap/granular scour protection placed in the streambed and at the outlet.

### Removal of Bridges:

All bridges will be removed and bridge components salvaged to an off-site location. Bridge superstructure components including guard rails, deck panels, steel girders, bearing assemblies etc. will be removed. Concrete abutments will be excavated for removal. Steel pipe piles will be pulled or cut off below the ground level and back-filled. Bridge approach end fills will be pulled back and left in a stable state.

### Re-Vegetation:

Due to the overall length of the road, manual hand broadcast seeding is likely not practical. Helicopter broadcast seeding with an approved seed mix and fertilizer is a viable alternative, and would be carried out on all newly exposed and scarified mineral soil.

Other procedures might need to be used in select locations, as required, in meeting the objectives of the road deactivation. This might include construction of blanket drains, french drains, full road pullback, gully restorations, bioengineering etc.

### 3 COST ESTIMATES

For cost estimating purposes, all culverts and bridges are assumed to be removed and salvaged from the site. Avalanche sheds (if applicable), berms or other control structures will be left in place provided they do not represent a slope stability hazard.

Road deactivation covered in this plan includes only those roads that will no longer be required upon completion of the active mining process. This cost estimate is based on a “high-level” assessment of potential detailed Deactivation Prescription requirements, and may be subject to revision. The cost estimate(s) as presented provide an “order-of-magnitude” estimate of overall costs that might be anticipated in de-activating the roads in accordance with current regulatory requirements. All estimates are based on 2012 Canadian Dollar costs.

#### 3.1 COULTER CREEK ACCESS ROAD (TOTAL 35 KM)

| ACTIVITY  | COST      |
|---|-----------|
| <u>Scarification</u><br>6m road width x 35 km x 90% (rock cuts) = 189,000 sq.m<br>Dozer c/w ripper \$260/hr / 300 sq.m./hr = \$0.90/sq.m.<br>Cost = 189,000 x m2 @ \$0.90/m2 =  | \$170,100 |
| <u>Waterbars</u><br>Average 8/km x 35km = 280<br>Excavator \$205/hr / 3 waterbars/hr - \$68.33 /waterbar<br>Cost = 280 waterbars @ \$68.33 each =   | \$19,130  |
| <u>Cross Ditching</u><br>Average 4/km x 35km – 140 cross ditches<br>Excavator \$205/hr / 1 cross ditch/hr = \$205 /cross ditch<br>Cost = 140 cross ditches @ \$205 each =   | \$28,700  |
| <u>Partial Side Cast Pullback</u><br>Pullback 20% of Excavated Materials (incl. Borrow)<br>= 1,120,000 m3 x 20% = 224,000 m3<br>Excavator \$205/hr / 50m3/hr = \$4.10 /m3<br>224,000 m3 x \$4.10 =  | \$918,400 |
| <u>Removal of Cross Culverts</u><br>240 cross drains and minor culverts (approx.)<br><br>Excavate culverts-<br>3 hours @ \$205/hr = \$615 each x 240 = \$147,600<br>Dispose of Culverts - \$300 each x 240 = \$72,000<br><br>2 “Major” Culverts-<br>Excavate culverts | \$219,600 |

**Seabridge Gold Inc.**

## Access Roads - Deactivation Plan

| ACTIVITY  | COST               |
|---|--------------------|
| 16 hours @ 205/hr = \$3280 each x 2 = \$6560<br>Dispose of Major Culverts - \$3000 Each x 2 = \$6000<br>Cost =  | \$12,560           |
| <u>Removal of Bridges</u><br>5 Simple span bridges<br>Remove bridge w/ 50 tonne crane and backhoe<br>= 5 @ \$25,000 each<br>Salvage structure – 5 x \$10,000 each<br>Cost – 5 x \$35,000 =                  | \$175,000          |
| <u>Multiple Span Bridges</u><br>1 Multiple span bridges<br>Remove bridges = 30% of installed cost<br>= \$850,000 x 30% = \$255,000<br>Remove Unuk River bridge<br>= \$1,400,000 x 30% = \$420,000<br>Cost = | \$675,000          |
| <u>Re-vegetation</u><br>Average 12m wide x 35,000m long x 80% = 33.6 hectares<br>Helicopter broadcast seeding @ \$3000/ha =   | \$100,800          |
| Road Deactivation Cost (Canadian Dollars – Year 2012)   | \$2,319,290        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision<br>(30% of Total)  | \$695,787          |
| <b>Total Estimated Cost – Coulter Creek Access Road (CCAR)</b>  | <b>\$3,015,077</b> |

**3.2 NORTH TREATY LOWER ROAD (KM 0 TO KM 3)**

| ACTIVITY  | COST     |
|---|----------|
| <u>Scarification</u><br>8m road width x 3 km x 90% = 21,600 sq.m<br>Dozer c/w ripper \$260/hr / 300 sq.m./hr = \$0.90/sq.m.<br>Cost = 21,600 x m2 @ \$0.90/m2 = | \$19,440 |
| <u>Waterbars</u><br>Average 8/km x 3km = 24<br>Excavator \$205/hr / 3 waterbars/hr - \$68.33 /waterbar<br>Cost = 24 waterbars @ \$68.33 each =                  | \$1640   |



**Seabridge Gold Inc.**

## Access Roads - Deactivation Plan

| ACTIVITY   | COST             |
|--|------------------|
| <u>Cross Ditching</u><br>Average 4/km x 3km – 12 cross ditches<br>Excavator \$205/hr / 1 cross ditch/hr = \$205 /cross ditch<br>Cost =12 cross ditches @ \$205 each =  | \$2460           |
| <u>Partial Side-cast Pullback</u><br>Pullback 20% of Excavated Materials (incl. Borrow)<br>=52,000 m3 x 20% = 10,400 m3<br>Excavator \$205/hr / 50m3/hr = \$4.10 /m3<br>10,400 m3 x \$4.10 =                     | \$42,640         |
| <u>Removal of Cross Culverts</u><br>45 cross drains and minor culverts (approx.)<br><br>Excavate culverts-<br>3 hours @ \$205/hr = \$615 each x 45 = \$27,675<br>Dispose of Culverts - \$300 each x 45 =\$13,500 | \$41,175         |
| <u>Re-Vegetation</u><br>Average 14m wide x 3,000m long x 80% = 4.2 hectares<br>Helicopter broadcast seeding @ \$3000/ha =  | \$12,600         |
| Road Deactivation Cost (Canadian Dollars – Year 2012)  | \$119,955        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision (30% of Total)  | \$35,987         |
| <b>Total Estimated Project Cost (Lower North Treaty km 0 to 3)</b>   | <b>\$155,942</b> |

Total Road Deactivation Costs for Roads anticipated to be de-activated upon completion of mining operations is summarized as follows:

|   |                    |
|---|--------------------|
| Total Road Deactivation Costs in 2012 Canadian Dollars                  | \$2,439,245        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision (30% of Total) | \$731,774          |
| <b>TOTAL Estimated Project Cost (excluding taxes)</b>                   | <b>\$3,171,019</b> |


## 4 CONCLUSION

A combination of the above deactivation procedures will be carried out, as appropriate, to ensure the long term stability of the deactivated KSM Project Access Roads are maintained. The detailed future Deactivations Prescription(s) will take precedent and dictate the level of deactivation implemented on the road prism and cleared right-of-way.

The overall objectives and procedures for road deactivation, as defined in this report, are consistent with current practice. Due to the proposed long-term nature of this project it is anticipated that regulatory requirements will change going forward. However, it is expected that the basic objectives of road deactivation in providing long term stability will be applied in future.

Submitted by:

McElhanney Consulting Services Ltd.

 *Bob Parolin* 12/27/2012

Bob Parolin PEng  
Project Engineer

*R. Ollenberger*

Randy Ollenberger ASCT  
Project Manager

H:\PROJ\2341\1500-1599\1506 Seabridge KSM Project\100.0 Roads\100.3 Engineering\Road Deactivation Plan\1506 2012 1227 Access Roads - Deactivation Plan.docx

# SEABRIDGE GOLD

## Seabridge Gold Inc.

KSM Project

# ACCESS ROADS - DEACTIVATION PLAN

Prepared by:

McElhanney Consulting Services Ltd. – Prince George BC

[www.mcelhanney.com](http://www.mcelhanney.com)

250 261 2229

Bob Parolin PEng | Project Engineer

Randy Ollenberger AScT | Project Manager

December 27, 2012



## Table of Contents

|          |   |          |
|----------|---|----------|
| <b>1</b> | <b>Objectives</b>                             | <b>2</b> |
| <b>2</b> | <b>Deactivation Procedures</b>                | <b>3</b> |
| <b>3</b> | <b>Cost Estimates</b>                         | <b>5</b> |
| 3.1      | Coulter Creek Access Road (Total 35 km) ..... | 5        |
| 3.2      | North Treaty Lower Road (km 0 to km 3) .....  | 6        |
| <b>4</b> | <b>Conclusion</b>                             | <b>8</b> |

*H:\PROJ\2341\1500-1599\1506 Seabridge KSM Project\100.0 Roads\100.3 Engineering\Road Deactivation Plan\1506 2012\227 Access Roads - Deactivation Plan.docx*

# 1 OBJECTIVES

When Seabridge Gold Inc. (Seabridge) determines that select KSM Access Roads are no longer required to supply, maintain, or access the KSM Mine Site and facilities, then the road prism and associated structures shall be permanently deactivated in keeping with the overall operations plans, and requirements of the Special Use Permit (SUP).

Road deactivation covered by this plan includes only those primary access roads constructed under requirements of the Special Use Permit that will no longer be required upon completion of the active mining process. This basically includes the Coulter Creek Access Road (CCAR) in its entirety, once mining operations have ended. The total road length is approximately 35km.

Also included is the portion of the Lower North Treaty Access Road, south of the Southeast Dam at the Tailings Management Facility (TMF), from approximately km 0 to km 3. This road can be deactivated approximately mid-mine life, once the south cells of the TMF are established, and the Upper North Treaty Access Road is placed in service. Mine tailings will cover the road north of the southeast dam so no specific deactivation is required for that section.

The Treaty Creek Access Road (TCAR), including the North Treaty Upper Road, will provide long term access to the plant site and MTT tunnel portal. In addition, the portion of the TCAR extending west from the intersection with the Upper North Treaty Road (km 17.9) to the MTT mid-tunnel saddle access point (km 33), will also be maintained for long term access. These roads will be required for long term access after mining operations have been completed, for monitoring and safety purposes, so they will not be deactivated.

The intent of road deactivation is to place the roads in a self-maintaining state that will indefinitely protect adjacent resources. Road deactivation activities typically include, but are not limited to:

- Remove bridges and stream culverts to restore or maintain natural drainage patterns. Provide for long-term safe fish passage and protection of fish habitat where required.
- Stabilize the road prism and clearing width for long term integrity, while minimizing impact of silt and sediment transport on other forest resources.
- Barricade the road in a clearly visible manner to restrict access beyond the limits of existing public/private access road networks.
- Enhance productive growing sites for the re-establishment of vegetation cover.

## 2 DEACTIVATION PROCEDURES

Reference: Ministry of Forests, Lands and Natural Resource Operations – Engineering Manual (Latest Revision Date: November 29, 2012).

A Qualified Registered Professional must prepare, sign and seal the detailed Deactivation Prescription(s) for the project, or components thereof. On a project of this size it is anticipated that Deactivation Prescriptions would be prepared on a time line appropriate with the long term nature of this project. Detailed Deactivation Prescriptions would be prepared at some future date, and would consider then current regulatory requirements. However, it is anticipated that future requirements should generally be consistent with current requirements, as outlined in the referenced Engineering Manual, Chapter 7 “Road Deactivation”.

Generally phases of Deactivation Prescription development would follow a procedure of office review, field assessments, followed by preparation of appropriate maps and reporting to adequately convey the intention of the Qualified Registered Professional in achieving the desired end result. Proposed Deactivation Prescriptions will be subject to review and acceptance by Regulatory Agencies having jurisdiction at the time.

Road de-activation activities shall be managed by personnel having appropriate training and experience in the industry. The Qualified Registered Professional will be required to provide overall field review of the deactivation activities to ensure conformance with the intent of the Deactivation Prescription(s). Due to unforeseen conditions it might be necessary to modify the prescription(s) during field activities, and protocols should be established for the types and level of changes that can be made on site.

Upon completion of the deactivation, the Qualified Registered Professional shall sign and seal a Statement of Works Conformance, or similar depending on regulations in place at the time, stating that the works have been completed in accordance with the prescription(s), and accepted practice. Final acceptance will be subject to regulatory approvals.

Further to the foregoing discussion, the majority of the de-activation will be achieved through application of the following actions or construction techniques.

### Scarification:

The road surface will be scarified to below the ballast depth with a dozer and ripper tooth to promote cross flow drainage and provide a better bonding layer for pulled-back fill material. Scarification will also provide for an improved rooting medium and aid in re-vegetation.

### Water-bars:

A water-bar is a wide shallow swale constructed across the road surface to intercept runoff and divert the flow onto a stable fill slope. The number, spacing and skew of the water bars is dependent on terrain and road grade. Where appropriate, construction of larger fords or armored swales can be utilized.

### Cross Ditching

A cross ditch is excavated across the road subgrade to divert ditch line water onto stable, non-erodible slopes below the road. Well compacted and/or armored ditch blocks are required to divert the flow into the cross ditches. Cross ditches will also be installed to re-establish original drainage patterns where more than one watercourse has been combined during construction.

### Partial Side-Cast Pullback:

Partial pullback of side-cast material will be carried out to the extent required to ensure the long-term stability of the road embankment fills. The retrieved soil will be placed and compacted against the cut slope and sufficient water bars and cross ditches installed to prevent water from flowing into the pulled back fill.

### Removal of Cross Culverts:

All steel, HDPE, or other culvert materials will be removed and disposed of in the nearest approved landfill, or recycled, in accordance with current regulations. The culvert soil cover and fill material will be excavated and pulled back to a stable slope angle. Excavated material will be placed and compacted on site or end hauled to a suitable disposal area. The original stream bed elevation will be re-established if feasible, and/or riprap/granular scour protection placed in the streambed and at the outlet.

### Removal of Bridges:

All bridges will be removed and bridge components salvaged to an off-site location. Bridge superstructure components including guard rails, deck panels, steel girders, bearing assemblies etc. will be removed. Concrete abutments will be excavated for removal. Steel pipe piles will be pulled or cut off below the ground level and back-filled. Bridge approach end fills will be pulled back and left in a stable state.

### Re-Vegetation:

Due to the overall length of the road, manual hand broadcast seeding is likely not practical. Helicopter broadcast seeding with an approved seed mix and fertilizer is a viable alternative, and would be carried out on all newly exposed and scarified mineral soil.

Other procedures might need to be used in select locations, as required, in meeting the objectives of the road deactivation. This might include construction of blanket drains, french drains, full road pullback, gully restorations, bioengineering etc.

### 3 COST ESTIMATES

For cost estimating purposes, all culverts and bridges are assumed to be removed and salvaged from the site. Avalanche sheds (if applicable), berms or other control structures will be left in place provided they do not represent a slope stability hazard.

Road deactivation covered in this plan includes only those roads that will no longer be required upon completion of the active mining process. This cost estimate is based on a “high-level” assessment of potential detailed Deactivation Prescription requirements, and may be subject to revision. The cost estimate(s) as presented provide an “order-of-magnitude” estimate of overall costs that might be anticipated in de-activating the roads in accordance with current regulatory requirements. All estimates are based on 2012 Canadian Dollar costs.

#### 3.1 COULTER CREEK ACCESS ROAD (TOTAL 35 KM)

| ACTIVITY  | COST      |
|---|-----------|
| <u>Scarification</u><br>6m road width x 35 km x 90% (rock cuts) = 189,000 sq.m<br>Dozer c/w ripper \$260/hr / 300 sq.m./hr = \$0.90/sq.m.<br>Cost = 189,000 x m2 @ \$0.90/m2 =  | \$170,100 |
| <u>Waterbars</u><br>Average 8/km x 35km = 280<br>Excavator \$205/hr / 3 waterbars/hr - \$68.33 /waterbar<br>Cost = 280 waterbars @ \$68.33 each =   | \$19,130  |
| <u>Cross Ditching</u><br>Average 4/km x 35km – 140 cross ditches<br>Excavator \$205/hr / 1 cross ditch/hr = \$205 /cross ditch<br>Cost = 140 cross ditches @ \$205 each =   | \$28,700  |
| <u>Partial Side Cast Pullback</u><br>Pullback 20% of Excavated Materials (incl. Borrow)<br>= 1,120,000 m3 x 20% = 224,000 m3<br>Excavator \$205/hr / 50m3/hr = \$4.10 /m3<br>224,000 m3 x \$4.10 =  | \$918,400 |
| <u>Removal of Cross Culverts</u><br>240 cross drains and minor culverts (approx.)<br><br>Excavate culverts-<br>3 hours @ \$205/hr = \$615 each x 240 = \$147,600<br>Dispose of Culverts - \$300 each x 240 = \$72,000<br><br>2 “Major” Culverts-<br>Excavate culverts | \$219,600 |



**Seabridge Gold Inc.**

## Access Roads - Deactivation Plan

| ACTIVITY  | COST               |
|---|--------------------|
| 16 hours @ 205/hr = \$3280 each x 2 = \$6560<br>Dispose of Major Culverts - \$3000 Each x 2 = \$6000<br>Cost =  | \$12,560           |
| <u>Removal of Bridges</u><br>5 Simple span bridges<br>Remove bridge w/ 50 tonne crane and backhoe<br>= 5 @ \$25,000 each<br>Salvage structure – 5 x \$10,000 each<br>Cost – 5 x \$35,000 =                  | \$175,000          |
| <u>Multiple Span Bridges</u><br>1 Multiple span bridges<br>Remove bridges = 30% of installed cost<br>= \$850,000 x 30% = \$255,000<br>Remove Unuk River bridge<br>= \$1,400,000 x 30% = \$420,000<br>Cost = | \$675,000          |
| <u>Re-vegetation</u><br>Average 12m wide x 35,000m long x 80% = 33.6 hectares<br>Helicopter broadcast seeding @ \$3000/ha =   | \$100,800          |
| Road Deactivation Cost (Canadian Dollars – Year 2012)   | \$2,319,290        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision<br>(30% of Total)  | \$695,787          |
| <b>Total Estimated Cost – Coulter Creek Access Road (CCAR)</b>  | <b>\$3,015,077</b> |

**3.2 NORTH TREATY LOWER ROAD (KM 0 TO KM 3)**

| ACTIVITY  | COST     |
|---|----------|
| <u>Scarification</u><br>8m road width x 3 km x 90% = 21,600 sq.m<br>Dozer c/w ripper \$260/hr / 300 sq.m./hr = \$0.90/sq.m.<br>Cost = 21,600 x m2 @ \$0.90/m2 = | \$19,440 |
| <u>Waterbars</u><br>Average 8/km x 3km = 24<br>Excavator \$205/hr / 3 waterbars/hr - \$68.33 /waterbar<br>Cost = 24 waterbars @ \$68.33 each =                  | \$1640   |

**Seabridge Gold Inc.**

## Access Roads - Deactivation Plan

| ACTIVITY   | COST             |
|--|------------------|
| <u>Cross Ditching</u><br>Average 4/km x 3km – 12 cross ditches<br>Excavator \$205/hr / 1 cross ditch/hr = \$205 /cross ditch<br>Cost =12 cross ditches @ \$205 each =  | \$2460           |
| <u>Partial Side-cast Pullback</u><br>Pullback 20% of Excavated Materials (incl. Borrow)<br>=52,000 m3 x 20% = 10,400 m3<br>Excavator \$205/hr / 50m3/hr = \$4.10 /m3<br>10,400 m3 x \$4.10 =                     | \$42,640         |
| <u>Removal of Cross Culverts</u><br>45 cross drains and minor culverts (approx.)<br><br>Excavate culverts-<br>3 hours @ \$205/hr = \$615 each x 45 = \$27,675<br>Dispose of Culverts - \$300 each x 45 =\$13,500 | \$41,175         |
| <u>Re-Vegetation</u><br>Average 14m wide x 3,000m long x 80% = 4.2 hectares<br>Helicopter broadcast seeding @ \$3000/ha =  | \$12,600         |
| Road Deactivation Cost (Canadian Dollars – Year 2012)  | \$119,955        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision (30% of Total)  | \$35,987         |
| <b>Total Estimated Project Cost (Lower North Treaty km 0 to 3)</b>   | <b>\$155,942</b> |

Total Road Deactivation Costs for Roads anticipated to be de-activated upon completion of mining operations is summarized as follows:

|   |                    |
|---|--------------------|
| Total Road Deactivation Costs in 2012 Canadian Dollars                  | \$2,439,245        |
| Camp Cost, Crew Transport, Miscellaneous and Supervision (30% of Total) | \$731,774          |
| <b>TOTAL Estimated Project Cost (excluding taxes)</b>                   | <b>\$3,171,019</b> |

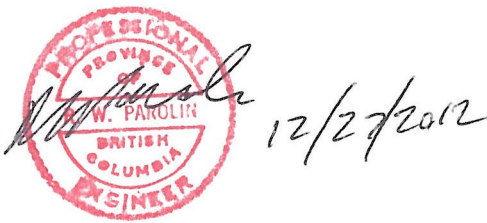
## 4 CONCLUSION

A combination of the above deactivation procedures will be carried out, as appropriate, to ensure the long term stability of the deactivated KSM Project Access Roads are maintained. The detailed future Deactivations Prescription(s) will take precedent and dictate the level of deactivation implemented on the road prism and cleared right-of-way.


The overall objectives and procedures for road deactivation, as defined in this report, are consistent with current practice. Due to the proposed long-term nature of this project it is anticipated that regulatory requirements will change going forward. However, it is expected that the basic objectives of road deactivation in providing long term stability will be applied in future.

Submitted by:

McElhanney Consulting Services Ltd.



Bob Parolin PEng  
Project Engineer



Randy Ollenberger ASCT  
Project Manager

H:\PROJ\2341\1500-1599\1506 Seabridge KSM Project\100.0 Roads\100.3 Engineering\Road Deactivation Plan\1506 2012 1227 Access Roads - Deactivation Plan.docx