

## *APPENDIX M – Economic Appraisal*

- 1) *Option P2 Summary, Benefits and Costs – Approach 1*
- 2) *Option P2 Summary, Benefits and Costs – Approach 2*
- 3) *Option P4 Summary, Benefits and Costs – Approach 1*
- 4) *Option P4 Summary, Benefits and Costs – Approach 2*
- 5) *Option P5 Summary, Benefits and Costs – Approach 1*
- 6) *Option P5 Summary, Benefits and Costs – Approach 2*

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## *Option P2 Summary, Benefits and Costs – Approach 1*

## Project Summary Sheet

**Client/Authority**

Perth &amp; Kinross Council

Prepared (date)

Aug-16

Printed

Jan-17

**Project name**

Comrie and Dalginross Flood Prevention Scheme

Prepared by

A Williamson

Checked by

S Gilliland

**Project reference**

Base date for estimates (year 0)

1020714

Checked date

Aug-16

Scaling factor (e.g. £m, £k, £)

Jan-2020

Principle land use band

£

Discount rate

A

(3.5% - 2.5%)

**Costs and benefits of options**

|  | <b>Costs and benefits £</b> |                                      |   |
|--|-----------------------------|--------------------------------------|---|
|  | Option N (Do Nothing)       | Option M (Do Minimum) -<br>Base Case | Flood Defences (200yr<br>SoP) - Option P2 |
| <b>PV costs PVc</b>  | 0                           | 547,160                              | 22,135,903                                |
| <b>PV costs PVc (with Optimism bias = 40.8% and Risk = 0%)</b> | 0                           | 770,401                              | 31,167,351                                |
| <b>PV damage PVd</b>   | 60,651,342                  | 21,456,250                           | 2,293,096                                 |
| <b>PV damage avoided</b>                                       |                             | 39,195,092                           | 58,358,246                                |
| <b>PV assets Pva</b>   | 0                           | 0                                    | 0   |
| <b>PV asset protection benefits</b>                            |                             | 0                                    | 0   |
| <b>Intangible Benefits</b>                                     |                             | 0                                    | 4,115,902                                 |
| <b>Total PV benefits PVb</b>                                   |                             | 39,195,092                           | 62,474,148                                |
| <b>Net Present Value NPV</b>                                   |                             | 38,424,691                           | 31,306,796                                |
| <b>Average benefit/cost ratio</b>                              |                             | 50.88                                | 2.00                                      |
| <b>Incremental benefit/cost ratio</b>                          |                             |                                      | 0.77                                      |

Highest b/c

-

**Brief description of options:**

Option N (Do Nothing)

Do Nothing (i.e.walk away) - Failure of Existing Defences

Option M (Do Minimum) - Base Case

Do Minimum maintenance

Flood Defences (200yr SoP) - Option P2

Option P2 - Walls and embankments Only (200yr SoP)

**Notes:**

- 1) Benefits will normally be expressed either in terms of damage avoided or asset values protected. Care is needed to avoid double counting
- 2) PV damage avoided is calculated as PV damage (No Project) - PV damage (Option)  
 PV asset protection benefits are calculated as PVa (Option) - PVa (No Project)  
 PV benefits calculated as PV damage avoided + PV asset protection benefits
- 3) Incremental benefit/cost ratio is calculated as:  
 $(PVb(\text{current option}) - PVb(\text{previous option})) / (PVc(\text{current option}) - PVc(\text{previous option}))$

**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**  
Perth & Kinross Council  
**Project name**  
Comrie and Dalginross Flood Prevention Scheme  
**Project reference**  
1020714  
Base date for estimates (year 0)  
Jan-2020  
Scaling factor (e.g. £m, £k, £)  
£  
Discount rate  
3.5% 3.0% 2.5%

**Results (£)**

|                  |                              |  |   |
|------------------|------------------------------|--|---|
|                  | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P2</b> |
| <b>PV losses</b> | <b>60,651,342</b>            | <b>21,456,250</b>                        | <b>2,293,096</b>                              |

**Prepared (date)**  
Aug-16  
**Printed**  
Jan-2017  
**Prepared by**  
A Williamson  
**Checked by**  
S Gilliland  
**Checked date**  
Aug-16

| Year | Discount Factor | Option N (Do Nothing) |            |            |            |             | Option M (Do Minimum) - Base Case |            |           |            |            | Flood Defences (200yr SoP) - Option P2 |           |           |         |           | Flood Defences (200yr SoP) - Option P2 |            |
|------|-----------------|-----------------------|------------|------------|------------|-------------|-----------------------------------|------------|-----------|------------|------------|--|-----------|-----------|---------|-----------|--|------------|
|      |                 | residen.              | commerc.   | Write-off  | TOTALS     | PV          | residen.                          | commerc.   | Write-off | TOTALS     | PV         | residen.                               | commerc.  | Write-off | TOTALS  | PV        | TOTALS                                 | PV         |
|      |                 | cash sum              | 65,988,106 | 1,730,448  | 48,234,124 | 115,952,678 | 60,651,342                        | 46,611,983 | 414,404   | 10,046,443 | 57,072,829 | 21,456,250                             | 9,352,015 | 398,970   | 0       | 9,750,985 | 2,293,096                              | 13,987,190 |
| 0    | 1.000           | 855,994               | 7,379      | 22,669,505 | 23,532,878 | 23,532,878  | 404,602                           | 1,512      | 3,399,943 | 3,806,057  | 3,806,057  | 35,777                                 | 1,493     | 0         | 37,270  | 37,270    | 132,561                                | 132,561    |
| 1    | 0.966           | 855,994               | 7,379      | 0          | 863,373    | 834,177     | 404,602                           | 1,512      | 0         | 406,114    | 392,380    | 35,777                                 | 1,493     | 0         | 37,270  | 36,010    | 132,561                                | 128,079    |
| 2    | 0.934           | 855,994               | 7,379      | 0          | 863,373    | 805,968     | 404,602                           | 1,512      | 0         | 406,114    | 379,111    | 35,777                                 | 1,493     | 0         | 37,270  | 34,792    | 132,561                                | 123,748    |
| 3    | 0.902           | 855,994               | 7,379      | 0          | 863,373    | 778,713     | 404,602                           | 1,512      | 0         | 406,114    | 366,291    | 35,777                                 | 1,493     | 0         | 37,270  | 33,616    | 132,561                                | 119,563    |
| 4    | 0.871           | 855,994               | 7,379      | 0          | 863,373    | 752,380     | 404,602                           | 1,512      | 0         | 406,114    | 353,904    | 35,777                                 | 1,493     | 0         | 37,270  | 32,479    | 132,561                                | 115,520    |
| 5    | 0.842           | 679,028               | 20,018     | 16,706,566 | 17,405,612 | 14,655,058  | 361,621                           | 2,642      | 6,546,061 | 6,910,323  | 5,818,307  | 63,178                                 | 2,625     | 0         | 65,802  | 55,404    | 137,741                                | 115,974    |
| 6    | 0.814           | 679,028               | 20,018     | 0          | 699,046    | 568,674     | 361,621                           | 2,642      | 0         | 364,263    | 296,328    | 63,178                                 | 2,625     | 0         | 65,802  | 53,530    | 137,741                                | 112,052    |
| 7    | 0.786           | 679,028               | 20,018     | 0          | 699,046    | 549,444     | 361,621                           | 2,642      | 0         | 364,263    | 286,307    | 63,178                                 | 2,625     | 0         | 65,802  | 51,720    | 137,741                                | 108,263    |
| 8    | 0.759           | 679,028               | 20,018     | 0          | 699,046    | 530,864     | 361,621                           | 2,642      | 0         | 364,263    | 276,625    | 63,178                                 | 2,625     | 0         | 65,802  | 49,971    | 137,741                                | 104,602    |
| 9    | 0.734           | 679,028               | 20,018     | 0          | 699,046    | 512,912     | 361,621                           | 2,642      | 0         | 364,263    | 267,271    | 63,178                                 | 2,625     | 0         | 65,802  | 48,281    | 137,741                                | 101,065    |
| 10   | 0.709           | 679,028               | 20,018     | 0          | 699,046    | 495,567     | 361,621                           | 2,642      | 0         | 364,263    | 258,233    | 63,178                                 | 2,625     | 0         | 65,802  | 46,648    | 137,741                                | 97,647     |
| 11   | 0.685           | 679,028               | 20,018     | 0          | 699,046    | 478,809     | 361,621                           | 2,642      | 0         | 364,263    | 249,500    | 63,178                                 | 2,625     | 0         | 65,802  | 45,071    | 137,741                                | 94,345     |
| 12   | 0.662           | 679,028               | 20,018     | 0          | 699,046    | 462,617     | 361,621                           | 2,642      | 0         | 364,263    | 241,063    | 63,178                                 | 2,625     | 0         | 65,802  | 43,547    | 137,741                                | 91,155     |
| 13   | 0.639           | 679,028               | 20,018     | 0          | 699,046    | 446,973     | 361,621                           | 2,642      | 0         | 364,263    | 232,911    | 63,178                                 | 2,625     | 0         | 65,802  | 42,074    | 137,741                                | 88,072     |
| 14   | 0.618           | 679,028               | 20,018     | 0          | 699,046    | 431,858     | 361,621                           | 2,642      | 0         | 364,263    | 225,035    | 63,178                                 | 2,625     | 0         | 65,802  | 40,651    | 137,741                                | 85,094     |
| 15   | 0.597           | 679,028               | 20,018     | 0          | 699,046    | 417,254     | 361,621                           | 2,642      | 0         | 364,263    | 217,425    | 63,178                                 | 2,625     | 0         | 65,802  | 39,277    | 137,741                                | 82,216     |
| 16   | 0.577           | 679,028               | 20,018     | 0          | 699,046    | 403,144     | 361,621                           | 2,642      | 0         | 364,263    | 210,073    | 63,178                                 | 2,625     | 0         | 65,802  | 37,948    | 137,741                                | 79,436     |
| 17   | 0.557           | 679,028               | 20,018     | 0          | 699,046    | 389,511     | 361,621                           | 2,642      | 0         | 364,263    | 202,969    | 63,178                                 | 2,625     | 0         | 65,802  | 36,665    | 137,741                                | 76,750     |
| 18   | 0.538           | 679,028               | 20,018     | 0          | 699,046    | 376,339     | 361,621                           | 2,642      | 0         | 364,263    | 196,105    | 63,178                                 | 2,625     | 0         | 65,802  | 35,425    | 137,741                                | 74,154     |
| 19   | 0.520           | 679,028               | 20,018     | 0          | 699,046    | 363,613     | 361,621                           | 2,642      | 0         | 364,263    | 189,473    | 63,178                                 | 2,625     | 0         | 65,802  | 34,227    | 137,741                                | 71,647     |
| 20   | 0.503           | 679,028               | 20,018     | 0          | 699,046    | 351,317     | 361,621                           | 2,642      | 0         | 364,263    | 183,066    | 63,178                                 | 2,625     | 0         | 65,802  | 33,070    | 137,741                                | 69,224     |
| 21   | 0.486           | 679,028               | 20,018     | 0          | 699,046    | 339,436     | 361,621                           | 2,642      | 0         | 364,263    | 176,875    | 63,178                                 | 2,625     | 0         | 65,802  | 31,952    | 137,741                                | 66,883     |
| 22   | 0.469           | 679,028               | 20,018     | 0          | 699,046    | 327,958     | 361,621                           | 2,642      | 0         | 364,263    | 170,894    | 63,178                                 | 2,625     | 0         | 65,802  | 30,871    | 137,741                                | 64,621     |
| 23   | 0.453           | 679,028               | 20,018     | 0          | 699,046    | 316,868     | 361,621                           | 2,642      | 0         | 364,263    | 165,115    | 63,178                                 | 2,625     | 0         | 65,802  | 29,827    | 137,741                                | 62,436     |
| 24   | 0.438           | 679,028               | 20,018     | 0          | 699,046    | 306,152     | 361,621                           | 2,642      | 0         | 364,263    | 159,532    | 63,178                                 | 2,625     | 0         | 65,802  | 28,819    | 137,741                                | 60,325     |
| 25   | 0.423           | 679,028               | 20,018     | 0          | 699,046    | 295,799     | 361,621                           | 2,642      | 0         | 364,263    | 154,137    | 63,178                                 | 2,625     | 0         | 65,802  | 27,844    | 137,741                                | 58,285     |
| 26   | 0.409           | 679,028               | 20,018     | 0          | 699,046    | 285,796     | 361,621                           | 2,642      | 0         | 364,263    | 148,924    | 63,178                                 | 2,625     | 0         | 65,802  | 26,902    | 137,741                                | 56,314     |
| 27   | 0.395           | 679,028               | 20,018     | 0          | 699,046    | 276,132     | 361,621                           | 2,642      | 0         | 364,263    | 143,888    | 63,178                                 | 2,625     | 0         | 65,802  | 25,993    | 137,741                                | 54,409     |
| 28   | 0.382           | 679,028               | 20,018     | 0          | 699,046    | 266,794     | 361,621                           | 2,642      | 0         | 364,263    | 139,023    | 63,178                                 | 2,625     | 0         | 65,802  | 25,114    | 137,741                                | 52,569     |
| 29   | 0.369           | 679,028               | 20,018     | 0          | 699,046    | 257,772     | 361,621                           | 2,642      | 0         | 364,263    | 134,321    | 63,178                                 | 2,625     | 0         | 65,802  | 24,264    | 137,741                                | 50,792     |
| 30   | 0.356           | 679,028               | 20,018     | 0          | 699,046    | 249,055     | 361,621                           | 2,642      | 0         | 364,263    | 129,779    | 63,178                                 | 2,625     | 0         | 65,802  | 23,444    | 137,741                                | 49,074     |
| 31   | 0.346           | 679,028               | 20,018     | 0          | 699,046    | 241,801     | 361,621                           | 2,642      | 0         | 364,263    | 125,999    | 63,178                                 | 2,625     | 0         | 65,802  | 22,761    | 137,741                                | 47,645     |
| 32   | 0.336           | 679,028               | 20,018     | 0          | 699,046    | 234,758     | 361,621                           | 2,642      | 0         | 364,263    | 122,329    | 63,178                                 | 2,625     | 0         | 65,802  | 22,098    | 137,741                                | 46,257     |
| 33   | 0.326           | 679,028               | 20,018     | 0          | 699,046    | 227,921     | 361,621                           | 2,642      | 0         | 364,263    | 118,766    | 63,178                                 | 2,625     | 0         | 65,802  | 21,454    | 137,741                                | 44,910     |
| 34   | 0.317           | 679,028               | 20,018     | 0          | 699,046    | 221,282     | 361,621                           | 2,642      | 0         | 364,263    | 115,307    | 63,178                                 | 2,625     | 0         | 65,802  | 20,830    | 137,741                                | 43,602     |
| 35   | 0.307           | 635,958               | 16,816     | 8,858,050  | 9,510,824  | 2,922,951   | 519,082                           | 5,040      | 100,439   | 624,561    | 191,946    | 111,966                                | 4,812     | 0         | 116,778 | 35,889    | 141,418                                | 43,462     |
| 36   | 0.298           | 635,958               | 16,816     | 3          | 652,777    | 194,774     | 519,082                           | 5,040      | 0         | 524,122    | 156,386    | 111,966                                | 4,812     | 0         | 116,778 | 34,844    | 141,418                                | 42,196     |
| 37   | 0.290           | 635,958               | 16,816     | 0          | 652,774    | 189,100     | 519,082                           | 5,040      | 0         | 524,122    | 151,831    | 111,966                                | 4,812     | 0         | 116,778 | 33,829    | 141,418                                | 40,967     |
| 38   | 0.281           | 635,958               | 16,816     | 0          | 652,774    | 183,592     | 519,082                           | 5,040      | 0         | 524,122    | 147,409    | 111,966                                | 4,812     | 0         | 116,778 | 32,844    | 141,418                                | 39,774     |
| 39   | 0.273           | 635,958               | 16,816     | 0          | 652,774    | 178,245     | 519,082                           | 5,040      | 0         | 524,122    | 143,116    | 111,966                                | 4,812     | 0         | 116,778 | 31,887    | 141,418                                | 38,615     |
| 40   | 0.265           | 635,958               | 16,816     | 0          | 652,774    | 173,053     | 519,082                           | 5,040      | 0         | 524,122    | 138,947    | 111,966                                | 4,812     | 0         | 116,778 | 30,958    | 141,418                                | 37,516     |
| 41   | 0.257           | 635,958               | 16,816     | 0          | 652,774    | 168,013     | 519,082                           | 5,040      | 0         | 524,122    | 134,900    | 111,966                                | 4,812     | 0         | 116,778 | 30,057    | 141,418                                | 36,399     |
| 42   | 0.250           | 635,958               | 16,816     | 0          | 652,774    | 163,119     | 519,082                           | 5,040      | 0         | 524,122    | 130,971    | 111,966                                | 4,812     | 0         | 116,778 | 29,181    | 141,418                                | 35,338     |
| 43   | 0.243           | 635,958               | 16,816     | 0          | 652,774    | 158,368     | 519,082                           | 5,040      | 0         | 524,122    | 127,156    | 111,966                                | 4,812     | 0         | 116,778 | 28,331    | 141,418                                | 34,309     |
| 44   | 0.236           | 635,958               | 16,816     | 0          | 652,774    | 153,756     | 519,082                           | 5,040      | 0         | 524,122    | 123,453    | 111,966                                | 4,812     | 0         | 116,778 | 27,506    | 141,418                                | 33,310     |
| 45   | 0.229           | 635,958               | 16,816     | 0          | 652,774    | 149,277     | 519,082                           | 5,040      | 0         | 524,122    | 119,857    | 111,966                                | 4,812     | 0         | 116,778 | 26,705    | 141,418                                | 32,340     |
| 46   | 0.222           | 635,958               | 16,816     | 0          | 652,774    | 144,929     | 519,082                           | 5,040      | 0         | 524,122    | 116,366    | 111,966                                | 4,812     | 0         | 116,778 | 25,927    | 141,418                                | 31,398     |
| 47   | 0.216           | 635,958               | 16,816     | 0          | 652,774    | 140,708     | 519,082                           | 5,040      | 0         | 524,122    | 112,977    | 111,966                                | 4,812     | 0         | 116,778 | 25,172    | 141,418                                | 30,483     |
| 48   | 0.209           | 635,958               | 16,816     | 0          | 652,774    | 136,610     | 519,082                           | 5,040      | 0         | 524,122    | 109,686    | 111,966                                | 4,812     | 0         | 116,778 | 24,439    | 141,418                                | 29,595     |
| 49   | 0.203           | 635,958               | 16,816     | 0          | 652,774    | 132,631     | 519,082                           | 5,040      | 0         | 524,122    | 106,491    | 111,966                                | 4,812     | 0         | 116,778 | 23,727    | 141,418                                | 28,733     |
| 50   | 0.197           | 635,958               | 16,816     | 0          | 652,774    | 128,768     | 519,082                           | 5,040      | 0         | 524,122    | 103,390    | 111,                                   |           |           |         |           |  |            |

|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC

**Present Value Costs for all options**

Sheet Nr. 10

**Client/Authority**  
Perth & Kinross Council

**Project name**  
Comrie and Dalginross Flood Prevention Scheme

**Project reference**  
1020714

Base date for estimates (year 0) Jan-2020 29.821

Scaling factor (e.g. £m, £k, £) £

Discount rate 3.5% 3.0% 2.5%

| Results £             |                        |  |
|-----------------------|------------------------|--|
| Option N (Do Nothing) | Do Minimum maintenance | Option P2 - Walls and embankments Only (200yr SoP) |
| 0                     | 547,160                | 22,135,903   |

Prepared (date) Aug-16  
Printed Jan-2017  
Prepared by A Williamson  
Checked by S Gilliland  
Checked date Aug-16

PV total costs

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |           |       | TOTALS:   |         | Flood Defences (200yr SoP) - Option P2 |            |        | TOTALS:    |            |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|-----------|-------|-----------|---------|--|------------|--------|------------|------------|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint.    | Other | Cash      | PV      | Capital                                | Maint.     | Other  | Cash       | PV         |
|      | <b>cash sum</b> | 0                     | 0      | 0     | 0       | 0  | 0                                 | 1,834,800 | 0     | 1,834,800 | 547,160 | 34,765,280                             | 4,534,068  | 0      | 39,299,348 | 22,135,903 |
| 0    | 2020            | 0                     | 1.000  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 17,382,640                             | 0          | 0      | 17,382,640 | 17,382,640 |
| 1    | 2021            | 1                     | 0.966  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 17,728                                 | 46,266     | 46,266 | 46,266     | 44,701     |
| 2    | 2022            | 2                     | 0.934  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 17,128                                 | 46,266     | 46,266 | 46,266     | 43,190     |
| 3    | 2023            | 3                     | 0.902  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 16,549                                 | 46,266     | 46,266 | 46,266     | 41,729     |
| 4    | 2024            | 4                     | 0.871  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 15,989                                 | 46,266     | 46,266 | 46,266     | 40,318     |
| 5    | 2025            | 5                     | 0.842  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 15,449                                 | 46,266     | 46,266 | 46,266     | 38,955     |
| 6    | 2026            | 6                     | 0.814  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 14,926                                 | 46,266     | 46,266 | 46,266     | 37,637     |
| 7    | 2027            | 7                     | 0.786  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 14,421                                 | 46,266     | 46,266 | 46,266     | 36,365     |
| 8    | 2028            | 8                     | 0.759  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 13,934                                 | 46,266     | 46,266 | 46,266     | 35,135     |
| 9    | 2029            | 9                     | 0.734  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 13,462                                 | 46,266     | 46,266 | 46,266     | 33,947     |
| 10   | 2030            | 10                    | 0.709  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 13,007                                 | 46,266     | 46,266 | 46,266     | 32,799     |
| 11   | 2031            | 11                    | 0.685  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 12,567                                 | 46,266     | 46,266 | 46,266     | 31,690     |
| 12   | 2032            | 12                    | 0.662  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 12,142                                 | 46,266     | 46,266 | 46,266     | 30,618     |
| 13   | 2033            | 13                    | 0.639  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 11,732                                 | 46,266     | 46,266 | 46,266     | 29,583     |
| 14   | 2034            | 14                    | 0.618  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 11,335                                 | 46,266     | 46,266 | 46,266     | 28,582     |
| 15   | 2035            | 15                    | 0.597  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 10,952                                 | 46,266     | 46,266 | 46,266     | 27,616     |
| 16   | 2036            | 16                    | 0.577  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 10,581                                 | 46,266     | 46,266 | 46,266     | 26,682     |
| 17   | 2037            | 17                    | 0.557  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 10,224                                 | 46,266     | 46,266 | 46,266     | 25,780     |
| 18   | 2038            | 18                    | 0.538  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 9,878                                  | 46,266     | 46,266 | 46,266     | 24,908     |
| 19   | 2039            | 19                    | 0.520  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 9,544                                  | 46,266     | 46,266 | 46,266     | 24,066     |
| 20   | 2040            | 20                    | 0.503  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 9,221                                  | 46,266     | 46,266 | 46,266     | 23,252     |
| 21   | 2041            | 21                    | 0.486  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 8,909                                  | 46,266     | 46,266 | 46,266     | 22,465     |
| 22   | 2042            | 22                    | 0.469  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 8,608                                  | 46,266     | 46,266 | 46,266     | 21,706     |
| 23   | 2043            | 23                    | 0.453  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 8,317                                  | 46,266     | 46,266 | 46,266     | 20,972     |
| 24   | 2044            | 24                    | 0.438  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 8,036                                  | 46,266     | 46,266 | 46,266     | 20,263     |
| 25   | 2045            | 25                    | 0.423  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 7,764                                  | 46,266     | 46,266 | 46,266     | 19,577     |
| 26   | 2046            | 26                    | 0.409  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 7,501                                  | 46,266     | 46,266 | 46,266     | 18,915     |
| 27   | 2047            | 27                    | 0.395  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 7,248                                  | 46,266     | 46,266 | 46,266     | 18,276     |
| 28   | 2048            | 28                    | 0.382  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 7,003                                  | 46,266     | 46,266 | 46,266     | 17,658     |
| 29   | 2049            | 29                    | 0.369  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 6,766                                  | 46,266     | 46,266 | 46,266     | 17,061     |
| 30   | 2050            | 30                    | 0.356  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 6,537                                  | 46,266     | 46,266 | 46,266     | 16,484     |
| 31   | 2051            | 31                    | 0.346  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 6,347                                  | 46,266     | 46,266 | 46,266     | 16,003     |
| 32   | 2052            | 32                    | 0.336  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 6,162                                  | 46,266     | 46,266 | 46,266     | 15,537     |
| 33   | 2053            | 33                    | 0.326  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,982                                  | 46,266     | 46,266 | 46,266     | 15,085     |
| 34   | 2054            | 34                    | 0.317  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,808                                  | 46,266     | 46,266 | 46,266     | 14,645     |
| 35   | 2055            | 35                    | 0.307  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,639                                  | 46,266     | 46,266 | 46,266     | 14,219     |
| 36   | 2056            | 36                    | 0.298  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,475                                  | 46,266     | 46,266 | 46,266     | 13,805     |
| 37   | 2057            | 37                    | 0.290  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,315                                  | 46,266     | 46,266 | 46,266     | 13,403     |
| 38   | 2058            | 38                    | 0.281  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,160                                  | 46,266     | 46,266 | 46,266     | 13,012     |
| 39   | 2059            | 39                    | 0.273  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 5,010                                  | 46,266     | 46,266 | 46,266     | 12,633     |
| 40   | 2060            | 40                    | 0.265  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,864                                  | 46,266     | 46,266 | 46,266     | 12,265     |
| 41   | 2061            | 41                    | 0.257  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,722                                  | 46,266     | 46,266 | 46,266     | 11,908     |
| 42   | 2062            | 42                    | 0.250  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,585                                  | 46,266     | 46,266 | 46,266     | 11,561     |
| 43   | 2063            | 43                    | 0.243  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,451                                  | 46,266     | 46,266 | 46,266     | 11,225     |
| 44   | 2064            | 44                    | 0.236  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,322                                  | 46,266     | 46,266 | 46,266     | 10,898     |
| 45   | 2065            | 45                    | 0.229  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,196                                  | 46,266     | 46,266 | 46,266     | 10,580     |
| 46   | 2066            | 46                    | 0.222  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 4,074                                  | 46,266     | 46,266 | 46,266     | 10,272     |
| 47   | 2067            | 47                    | 0.216  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,955                                  | 46,266     | 46,266 | 46,266     | 9,973      |
| 48   | 2068            | 48                    | 0.209  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,840                                  | 46,266     | 46,266 | 46,266     | 9,682      |
| 49   | 2069            | 49                    | 0.203  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,728                                  | 46,266     | 46,266 | 46,266     | 9,400      |
| 50   | 2070            | 50                    | 0.197  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,619                                  | 17,382,640 | 0      | 17,382,640 | 3,428,947  |
| 51   | 2071            | 51                    | 0.192  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,514                                  | 46,266     | 46,266 | 46,266     | 8,861      |
| 52   | 2072            | 52                    | 0.186  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,412                                  | 46,266     | 46,266 | 46,266     | 8,603      |
| 53   | 2073            | 53                    | 0.181  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,312                                  | 46,266     | 46,266 | 46,266     | 8,352      |
| 54   | 2074            | 54                    | 0.175  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,216                                  | 46,266     | 46,266 | 46,266     | 8,109      |
| 55   | 2075            | 55                    | 0.170  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,122                                  | 46,266     | 46,266 | 46,266     | 7,873      |
| 56   | 2076            | 56                    | 0.165  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 3,031                                  | 46,266     | 46,266 | 46,266     | 7,643      |
| 57   | 2077            | 57                    | 0.160  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 2,943                                  | 46,266     | 46,266 | 46,266     | 7,421      |
| 58   | 2078            | 58                    | 0.156  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 2,857                                  | 46,266     | 46,266 | 46,266     | 7,205      |
| 59   | 2079            | 59                    | 0.151  | 0     | 0       | 0  | 0                                 | 0         | 0     | 18,348    | 18,348  | 2,774                                  | 46,266     | 46,266 | 46,266     | 6,995      |



|    |      |    |       |   |   |   |   |        |        |       |        |        |       |
|----|------|----|-------|---|---|---|---|--------|--------|-------|--------|--------|-------|
| 60 | 2080 | 60 | 0.147 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,693 | 46,266 | 46,266 | 6,791 |
| 61 | 2081 | 61 | 0.143 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,615 | 46,266 | 46,266 | 6,593 |
| 62 | 2082 | 62 | 0.138 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,539 | 46,266 | 46,266 | 6,401 |
| 63 | 2083 | 63 | 0.134 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,465 | 46,266 | 46,266 | 6,215 |
| 64 | 2084 | 64 | 0.130 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,393 | 46,266 | 46,266 | 6,034 |
| 65 | 2085 | 65 | 0.127 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,323 | 46,266 | 46,266 | 5,858 |
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 46,266 | 46,266 | 5,687 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 46,266 | 46,266 | 5,522 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 46,266 | 46,266 | 5,361 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 46,266 | 46,266 | 5,205 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 46,266 | 46,266 | 5,053 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 46,266 | 46,266 | 4,906 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 46,266 | 46,266 | 4,763 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 46,266 | 46,266 | 4,624 |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 46,266 | 46,266 | 4,490 |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 46,266 | 46,266 | 4,380 |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 46,266 | 46,266 | 4,273 |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 46,266 | 46,266 | 4,169 |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 46,266 | 46,266 | 4,067 |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 46,266 | 46,266 | 3,968 |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 46,266 | 46,266 | 3,871 |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 46,266 | 46,266 | 3,777 |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 46,266 | 46,266 | 3,685 |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 46,266 | 46,266 | 3,595 |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 46,266 | 46,266 | 3,507 |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 46,266 | 46,266 | 3,422 |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 46,266 | 46,266 | 3,338 |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 46,266 | 46,266 | 3,257 |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 46,266 | 46,266 | 3,177 |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 46,266 | 46,266 | 3,100 |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 46,266 | 46,266 | 3,024 |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 46,266 | 46,266 | 2,951 |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 46,266 | 46,266 | 2,879 |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 46,266 | 46,266 | 2,808 |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 46,266 | 46,266 | 2,740 |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 46,266 | 46,266 | 2,673 |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 46,266 | 46,266 | 2,608 |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 46,266 | 46,266 | 2,544 |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 46,266 | 46,266 | 2,482 |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 46,266 | 46,266 | 2,422 |

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## *Option P2 Summary, Benefits and Costs – Approach 2*



## Project Summary Sheet

|   |                 |               |
|---|-----------------|---------------|
| <b>Client/Authority</b>                       | Prepared (date) | Aug-16        |
| Perth & Kinross Council                       | Printed         | Jan-17        |
| <b>Project name</b>                           | Prepared by     | A Williamson  |
| Comrie and Dalginross Flood Prevention Scheme | Checked by      | S Gilliland   |
| <b>Project reference</b>                      | Checked date    | Aug-16        |
| Base date for estimates (year 0)              |                 | 1020714       |
| Scaling factor (e.g. £m, £k, £)               |                 | Jan-2020      |
| Principle land use band                       |                 | £             |
| Discount rate                                 |                 | A             |
| <b>Costs and benefits of options</b>          |                 | (3.5% - 2.5%) |

|   | Costs and benefits £  |                                   |  |
|---|-----------------------|-----------------------------------|--|
|   | Option N (Do Nothing) | Option M (Do Minimum) - Base Case | Flood Defences (200yr SoP) - Option P2 |
| <b>PV costs PVc</b>   | 0                     | 547,160                           | 24,737,352                             |
| <b>PV costs PVc (with Optimism bias = 58.2% and Risk = 12.5%)</b> | 0                     | 865,607                           | 39,134,491                             |
| <b>PV damage PVd</b>  | 60,651,342            | 21,456,250                        | 2,293,096                              |
| <b>PV damage avoided</b>  |                       | 39,195,092                        | 58,358,246                             |
| <b>PV assets Pva</b>  | 0                     | 0                                 | 0                                      |
| <b>PV asset protection benefits</b>                               |                       | 0                                 | 0                                      |
| <b>Intangible Benefits</b>  |                       | 0                                 | 4,115,902                              |
| <b>Total PV benefits PVb</b>                                      |                       | 39,195,092                        | 62,474,148                             |
| <b>Net Present Value NPV</b>                                      |                       | 38,329,485                        | 23,339,657                             |
| <b>Average benefit/cost ratio</b>                                 |                       | 45.28                             | 1.60                                   |
| <b>Incremental benefit/cost ratio</b>                             |                       |                                   | 0.61                                   |

Highest b/c -

**Brief description of options:**

|  |   |
|--|---|
| Option N (Do Nothing)                  | Do Nothing (i.e.walk away) - Failure of Existing Defences |
| Option M (Do Minimum) - Base Case      | Do Minimum maintenance                                    |
| Flood Defences (200yr SoP) - Option P2 | option P2 - Walls and embankments Only (200yr SoP)        |

**Notes:**

- 1) Benefits will normally be expressed either in terms of damage avoided or asset values protected. Care is needed to avoid double counting
- 2) PV damage avoided is calculated as PV damage (No Project) - PV damage (Option)  
 PV asset protection benefits are calculated as PVa (Option) - PVa (No Project)  
 PV benefits calculated as PV damage avoided + PV asset protection benefits
- 3) Incremental benefit/cost ratio is calculated as:  

$$(PVb(\text{current option}) - PVb(\text{previous option})) / (PVc(\text{current option}) - PVc(\text{previous option}))$$

**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**  
Perth & Kinross Council

**Project name**  
Comrie and Dalginross Flood Prevention Scheme

**Project reference**  
1020714

Base date for estimates (year 0)  
Jan-2020

Scaling factor (e.g. £m, £k, £)  
£

Discount rate  
3.5% 3.0% 2.5%

Results (£)

|           |                              |  |   |
|-----------|------------------------------|--|---|
|           | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P2</b> |
| PV losses | 60,651,342                   | 21,456,250                               | 2,293,096                                     |

Prepared (date)  
Aug-16

Printed  
Jan-2017

Prepared by  
A Williamson

Checked by  
S Gilliland

Checked date  
Aug-16

| Year | Discount Factor | Option N (Do Nothing) |            |            |            |             | Option M (Do Minimum) - Base Case |            |           |            |            | Flood Defences (200yr SoP) - Option P2 |           |           |         |           | Flood Defences (200yr SoP) - Option P2 |            |
|------|-----------------|-----------------------|------------|------------|------------|-------------|-----------------------------------|------------|-----------|------------|------------|--|-----------|-----------|---------|-----------|--|------------|
|      |                 | residen.              | commerc.   | Write-off  | TOTALS     | PV          | residen.                          | commerc.   | Write-off | TOTALS     | PV         | residen.                               | commerc.  | Write-off | TOTALS  | PV        | TOTALS                                 | PV         |
|      |                 | cash sum              | 65,988,106 | 1,730,448  | 48,234,124 | 115,952,678 | 60,651,342                        | 46,611,983 | 414,404   | 10,046,443 | 57,072,829 | 21,456,250                             | 9,352,015 | 398,970   | 0       | 9,750,985 | 2,293,096                              | 13,987,190 |
| 0    | 1.000           | 855,994               | 7,379      | 22,669,505 | 23,532,878 | 23,532,878  | 404,602                           | 1,512      | 3,399,943 | 3,806,057  | 3,806,057  | 35,777                                 | 1,493     | 0         | 37,270  | 37,270    | 132,561                                | 132,561    |
| 1    | 0.966           | 855,994               | 7,379      | 0          | 863,373    | 834,177     | 404,602                           | 1,512      | 0         | 406,114    | 392,380    | 35,777                                 | 1,493     | 0         | 37,270  | 36,010    | 132,561                                | 128,079    |
| 2    | 0.934           | 855,994               | 7,379      | 0          | 863,373    | 805,968     | 404,602                           | 1,512      | 0         | 406,114    | 379,111    | 35,777                                 | 1,493     | 0         | 37,270  | 34,792    | 132,561                                | 123,748    |
| 3    | 0.902           | 855,994               | 7,379      | 0          | 863,373    | 778,713     | 404,602                           | 1,512      | 0         | 406,114    | 366,291    | 35,777                                 | 1,493     | 0         | 37,270  | 33,616    | 132,561                                | 119,563    |
| 4    | 0.871           | 855,994               | 7,379      | 0          | 863,373    | 752,380     | 404,602                           | 1,512      | 0         | 406,114    | 353,904    | 35,777                                 | 1,493     | 0         | 37,270  | 32,479    | 132,561                                | 115,520    |
| 5    | 0.842           | 679,028               | 20,018     | 16,706,566 | 17,405,612 | 14,655,058  | 361,621                           | 2,642      | 6,546,061 | 6,910,323  | 5,818,307  | 63,178                                 | 2,625     | 0         | 65,802  | 55,404    | 137,741                                | 115,974    |
| 6    | 0.814           | 679,028               | 20,018     | 0          | 699,046    | 568,674     | 361,621                           | 2,642      | 0         | 364,263    | 296,328    | 63,178                                 | 2,625     | 0         | 65,802  | 53,530    | 137,741                                | 112,052    |
| 7    | 0.786           | 679,028               | 20,018     | 0          | 699,046    | 549,444     | 361,621                           | 2,642      | 0         | 364,263    | 286,307    | 63,178                                 | 2,625     | 0         | 65,802  | 51,720    | 137,741                                | 108,263    |
| 8    | 0.759           | 679,028               | 20,018     | 0          | 699,046    | 530,864     | 361,621                           | 2,642      | 0         | 364,263    | 276,625    | 63,178                                 | 2,625     | 0         | 65,802  | 49,971    | 137,741                                | 104,602    |
| 9    | 0.734           | 679,028               | 20,018     | 0          | 699,046    | 512,912     | 361,621                           | 2,642      | 0         | 364,263    | 267,271    | 63,178                                 | 2,625     | 0         | 65,802  | 48,281    | 137,741                                | 101,065    |
| 10   | 0.709           | 679,028               | 20,018     | 0          | 699,046    | 495,567     | 361,621                           | 2,642      | 0         | 364,263    | 258,233    | 63,178                                 | 2,625     | 0         | 65,802  | 46,648    | 137,741                                | 97,647     |
| 11   | 0.685           | 679,028               | 20,018     | 0          | 699,046    | 478,809     | 361,621                           | 2,642      | 0         | 364,263    | 249,500    | 63,178                                 | 2,625     | 0         | 65,802  | 45,071    | 137,741                                | 94,345     |
| 12   | 0.662           | 679,028               | 20,018     | 0          | 699,046    | 462,617     | 361,621                           | 2,642      | 0         | 364,263    | 241,063    | 63,178                                 | 2,625     | 0         | 65,802  | 43,547    | 137,741                                | 91,155     |
| 13   | 0.639           | 679,028               | 20,018     | 0          | 699,046    | 446,973     | 361,621                           | 2,642      | 0         | 364,263    | 232,911    | 63,178                                 | 2,625     | 0         | 65,802  | 42,074    | 137,741                                | 88,072     |
| 14   | 0.618           | 679,028               | 20,018     | 0          | 699,046    | 431,858     | 361,621                           | 2,642      | 0         | 364,263    | 225,035    | 63,178                                 | 2,625     | 0         | 65,802  | 40,651    | 137,741                                | 85,094     |
| 15   | 0.597           | 679,028               | 20,018     | 0          | 699,046    | 417,254     | 361,621                           | 2,642      | 0         | 364,263    | 217,425    | 63,178                                 | 2,625     | 0         | 65,802  | 39,277    | 137,741                                | 82,216     |
| 16   | 0.577           | 679,028               | 20,018     | 0          | 699,046    | 403,144     | 361,621                           | 2,642      | 0         | 364,263    | 210,073    | 63,178                                 | 2,625     | 0         | 65,802  | 37,948    | 137,741                                | 79,436     |
| 17   | 0.557           | 679,028               | 20,018     | 0          | 699,046    | 389,511     | 361,621                           | 2,642      | 0         | 364,263    | 202,969    | 63,178                                 | 2,625     | 0         | 65,802  | 36,665    | 137,741                                | 76,750     |
| 18   | 0.538           | 679,028               | 20,018     | 0          | 699,046    | 376,339     | 361,621                           | 2,642      | 0         | 364,263    | 196,105    | 63,178                                 | 2,625     | 0         | 65,802  | 35,425    | 137,741                                | 74,154     |
| 19   | 0.520           | 679,028               | 20,018     | 0          | 699,046    | 363,613     | 361,621                           | 2,642      | 0         | 364,263    | 189,473    | 63,178                                 | 2,625     | 0         | 65,802  | 34,227    | 137,741                                | 71,647     |
| 20   | 0.503           | 679,028               | 20,018     | 0          | 699,046    | 351,317     | 361,621                           | 2,642      | 0         | 364,263    | 183,066    | 63,178                                 | 2,625     | 0         | 65,802  | 33,070    | 137,741                                | 69,224     |
| 21   | 0.486           | 679,028               | 20,018     | 0          | 699,046    | 339,436     | 361,621                           | 2,642      | 0         | 364,263    | 176,875    | 63,178                                 | 2,625     | 0         | 65,802  | 31,952    | 137,741                                | 66,883     |
| 22   | 0.469           | 679,028               | 20,018     | 0          | 699,046    | 327,958     | 361,621                           | 2,642      | 0         | 364,263    | 170,894    | 63,178                                 | 2,625     | 0         | 65,802  | 30,871    | 137,741                                | 64,621     |
| 23   | 0.453           | 679,028               | 20,018     | 0          | 699,046    | 316,868     | 361,621                           | 2,642      | 0         | 364,263    | 165,115    | 63,178                                 | 2,625     | 0         | 65,802  | 29,827    | 137,741                                | 62,436     |
| 24   | 0.438           | 679,028               | 20,018     | 0          | 699,046    | 306,152     | 361,621                           | 2,642      | 0         | 364,263    | 159,532    | 63,178                                 | 2,625     | 0         | 65,802  | 28,819    | 137,741                                | 60,325     |
| 25   | 0.423           | 679,028               | 20,018     | 0          | 699,046    | 295,799     | 361,621                           | 2,642      | 0         | 364,263    | 154,137    | 63,178                                 | 2,625     | 0         | 65,802  | 27,844    | 137,741                                | 58,285     |
| 26   | 0.409           | 679,028               | 20,018     | 0          | 699,046    | 285,796     | 361,621                           | 2,642      | 0         | 364,263    | 148,924    | 63,178                                 | 2,625     | 0         | 65,802  | 26,902    | 137,741                                | 56,314     |
| 27   | 0.395           | 679,028               | 20,018     | 0          | 699,046    | 276,132     | 361,621                           | 2,642      | 0         | 364,263    | 143,888    | 63,178                                 | 2,625     | 0         | 65,802  | 25,993    | 137,741                                | 54,409     |
| 28   | 0.382           | 679,028               | 20,018     | 0          | 699,046    | 266,794     | 361,621                           | 2,642      | 0         | 364,263    | 139,023    | 63,178                                 | 2,625     | 0         | 65,802  | 25,114    | 137,741                                | 52,569     |
| 29   | 0.369           | 679,028               | 20,018     | 0          | 699,046    | 257,772     | 361,621                           | 2,642      | 0         | 364,263    | 134,321    | 63,178                                 | 2,625     | 0         | 65,802  | 24,264    | 137,741                                | 50,792     |
| 30   | 0.356           | 679,028               | 20,018     | 0          | 699,046    | 249,055     | 361,621                           | 2,642      | 0         | 364,263    | 129,779    | 63,178                                 | 2,625     | 0         | 65,802  | 23,444    | 137,741                                | 49,074     |
| 31   | 0.346           | 679,028               | 20,018     | 0          | 699,046    | 241,801     | 361,621                           | 2,642      | 0         | 364,263    | 125,999    | 63,178                                 | 2,625     | 0         | 65,802  | 22,761    | 137,741                                | 47,645     |
| 32   | 0.336           | 679,028               | 20,018     | 0          | 699,046    | 234,758     | 361,621                           | 2,642      | 0         | 364,263    | 122,329    | 63,178                                 | 2,625     | 0         | 65,802  | 22,098    | 137,741                                | 46,257     |
| 33   | 0.326           | 679,028               | 20,018     | 0          | 699,046    | 227,921     | 361,621                           | 2,642      | 0         | 364,263    | 118,766    | 63,178                                 | 2,625     | 0         | 65,802  | 21,454    | 137,741                                | 44,910     |
| 34   | 0.317           | 679,028               | 20,018     | 0          | 699,046    | 221,282     | 361,621                           | 2,642      | 0         | 364,263    | 115,307    | 63,178                                 | 2,625     | 0         | 65,802  | 20,830    | 137,741                                | 43,602     |
| 35   | 0.307           | 635,958               | 16,816     | 8,858,050  | 9,510,824  | 2,922,951   | 519,082                           | 5,040      | 100,439   | 624,561    | 191,946    | 111,966                                | 4,812     | 0         | 116,778 | 35,889    | 141,418                                | 43,462     |
| 36   | 0.298           | 635,958               | 16,816     | 3          | 652,777    | 194,774     | 519,082                           | 5,040      | 0         | 524,122    | 156,386    | 111,966                                | 4,812     | 0         | 116,778 | 34,844    | 141,418                                | 42,196     |
| 37   | 0.290           | 635,958               | 16,816     | 0          | 652,774    | 189,100     | 519,082                           | 5,040      | 0         | 524,122    | 151,831    | 111,966                                | 4,812     | 0         | 116,778 | 33,829    | 141,418                                | 40,967     |
| 38   | 0.281           | 635,958               | 16,816     | 0          | 652,774    | 183,592     | 519,082                           | 5,040      | 0         | 524,122    | 147,409    | 111,966                                | 4,812     | 0         | 116,778 | 32,844    | 141,418                                | 39,774     |
| 39   | 0.273           | 635,958               | 16,816     | 0          | 652,774    | 178,245     | 519,082                           | 5,040      | 0         | 524,122    | 143,116    | 111,966                                | 4,812     | 0         | 116,778 | 31,887    | 141,418                                | 38,615     |
| 40   | 0.265           | 635,958               | 16,816     | 0          | 652,774    | 173,053     | 519,082                           | 5,040      | 0         | 524,122    | 138,947    | 111,966                                | 4,812     | 0         | 116,778 | 30,958    | 141,418                                | 37,516     |
| 41   | 0.257           | 635,958               | 16,816     | 0          | 652,774    | 168,013     | 519,082                           | 5,040      | 0         | 524,122    | 134,900    | 111,966                                | 4,812     | 0         | 116,778 | 30,057    | 141,418                                | 36,399     |
| 42   | 0.250           | 635,958               | 16,816     | 0          | 652,774    | 163,119     | 519,082                           | 5,040      | 0         | 524,122    | 130,971    | 111,966                                | 4,812     | 0         | 116,778 | 29,181    | 141,418                                | 35,338     |
| 43   | 0.243           | 635,958               | 16,816     | 0          | 652,774    | 158,368     | 519,082                           | 5,040      | 0         | 524,122    | 127,156    | 111,966                                | 4,812     | 0         | 116,778 | 28,331    | 141,418                                | 34,309     |
| 44   | 0.236           | 635,958               | 16,816     | 0          | 652,774    | 153,756     | 519,082                           | 5,040      | 0         | 524,122    | 123,453    | 111,966                                | 4,812     | 0         | 116,778 | 27,506    | 141,418                                | 33,310     |
| 45   | 0.229           | 635,958               | 16,816     | 0          | 652,774    | 149,277     | 519,082                           | 5,040      | 0         | 524,122    | 119,857    | 111,966                                | 4,812     | 0         | 116,778 | 26,705    | 141,418                                | 32,340     |
| 46   | 0.222           | 635,958               | 16,816     | 0          | 652,774    | 144,929     | 519,082                           | 5,040      | 0         | 524,122    | 116,366    | 111,966                                | 4,812     | 0         | 116,778 | 25,927    | 141,418                                | 31,398     |
| 47   | 0.216           | 635,958               | 16,816     | 0          | 652,774    | 140,708     | 519,082                           | 5,040      | 0         | 524,122    | 112,977    | 111,966                                | 4,812     | 0         | 116,778 | 25,172    | 141,418                                | 30,483     |
| 48   | 0.209           | 635,958               | 16,816     | 0          | 652,774    | 136,610     | 519,082                           | 5,040      | 0         | 524,122    | 109,686    | 111,966                                | 4,812     | 0         | 116,778 | 24,439    | 141,418                                | 29,595     |
| 49   | 0.203           | 635,958               | 16,816     | 0          | 652,774    | 132,631     | 519,082                           | 5,040      | 0         | 524,122    | 106,491    | 111,966                                | 4,812     | 0         | 116,778 | 23,727    | 141,418                                | 28,733     |
| 50   | 0.197           | 635,958               | 16,816     | 0          | 652,774    | 128,768     | 519,082                           | 5,040      | 0         | 524,122    | 103,390    | 111,966                                | 4,        |           |         |           |  |            |

|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC

Present Value Costs for all options

Sheet Nr. 10

**Client/Authority**  
Perth & Kinross Council

**Project name**  
Comrie and Dalginross Flood Prevention Scheme

**Project reference** 1020714

Base date for estimates (year 0) Jan-2020 29.821

Scaling factor (e.g. £m, £k, £) £

Discount rate 3.5% 3.0% 2.5%

| Results £             |                        |  |
|-----------------------|------------------------|--|
| Option N (Do Nothing) | Do Minimum maintenance | option P2 - Walls and embankments Only (200yr SoP) |
| 0                     | 547,160                | 24,737,352   |

Prepared (date) Aug-16  
Printed Jan-2017  
Prepared by A Williamson  
Checked by S Gilliland  
Checked date Aug-16

| PV total costs | Option M (Do Minimum) - Base Case |           |       | TOTALS:   |         | Flood Defences (200yr SoP) - Option P2 |           |       | TOTALS:    |            |
|----------------|-----------------------------------|-----------|-------|-----------|---------|--|-----------|-------|------------|------------|
|                | Capital                           | Maint.    | Other | Cash      | PV      | Capital                                | Maint.    | Other | Cash       | PV         |
|                | 0                                 | 1,834,800 | 0     | 1,834,800 | 547,160 | 39,110,941                             | 4,534,068 | 0     | 43,645,009 | 24,737,352 |

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |        |        | TOTALS: |            | Flood Defences (200yr SoP) - Option P2 |            |            | TOTALS:    |    |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|--------|--------|---------|------------|--|------------|------------|------------|----|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint. | Other  | Cash    | PV         | Capital                                | Maint.     | Other      | Cash       | PV |
| 0    | 1.000           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 18,348  | 19,555,471 | 0                                      | 0          | 19,555,471 | 19,555,471 |    |
| 1    | 0.966           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 17,728  | 0          | 46,266                                 | 0          | 46,266     | 44,701     |    |
| 2    | 0.934           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 17,128  | 0          | 46,266                                 | 0          | 46,266     | 43,190     |    |
| 3    | 0.902           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 16,549  | 0          | 46,266                                 | 0          | 46,266     | 41,729     |    |
| 4    | 0.871           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 15,989  | 0          | 46,266                                 | 0          | 46,266     | 40,318     |    |
| 5    | 0.842           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 15,449  | 0          | 46,266                                 | 0          | 46,266     | 38,955     |    |
| 6    | 0.814           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 14,926  | 0          | 46,266                                 | 0          | 46,266     | 37,637     |    |
| 7    | 0.786           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 14,421  | 0          | 46,266                                 | 0          | 46,266     | 36,365     |    |
| 8    | 0.759           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 13,934  | 0          | 46,266                                 | 0          | 46,266     | 35,135     |    |
| 9    | 0.734           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 13,462  | 0          | 46,266                                 | 0          | 46,266     | 33,947     |    |
| 10   | 0.709           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 13,007  | 0          | 46,266                                 | 0          | 46,266     | 32,799     |    |
| 11   | 0.685           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 12,567  | 0          | 46,266                                 | 0          | 46,266     | 31,690     |    |
| 12   | 0.662           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 12,142  | 0          | 46,266                                 | 0          | 46,266     | 30,618     |    |
| 13   | 0.639           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 11,732  | 0          | 46,266                                 | 0          | 46,266     | 29,583     |    |
| 14   | 0.618           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 11,335  | 0          | 46,266                                 | 0          | 46,266     | 28,582     |    |
| 15   | 0.597           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 10,952  | 0          | 46,266                                 | 0          | 46,266     | 27,616     |    |
| 16   | 0.577           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 10,581  | 0          | 46,266                                 | 0          | 46,266     | 26,682     |    |
| 17   | 0.557           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 10,224  | 0          | 46,266                                 | 0          | 46,266     | 25,780     |    |
| 18   | 0.538           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 9,878   | 0          | 46,266                                 | 0          | 46,266     | 24,908     |    |
| 19   | 0.520           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 9,544   | 0          | 46,266                                 | 0          | 46,266     | 24,066     |    |
| 20   | 0.503           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 9,221   | 0          | 46,266                                 | 0          | 46,266     | 23,252     |    |
| 21   | 0.486           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 8,909   | 0          | 46,266                                 | 0          | 46,266     | 22,465     |    |
| 22   | 0.469           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 8,608   | 0          | 46,266                                 | 0          | 46,266     | 21,706     |    |
| 23   | 0.453           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 8,317   | 0          | 46,266                                 | 0          | 46,266     | 20,972     |    |
| 24   | 0.438           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 8,036   | 0          | 46,266                                 | 0          | 46,266     | 20,263     |    |
| 25   | 0.423           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 7,764   | 0          | 46,266                                 | 0          | 46,266     | 19,577     |    |
| 26   | 0.409           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 7,501   | 0          | 46,266                                 | 0          | 46,266     | 18,915     |    |
| 27   | 0.395           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 7,248   | 0          | 46,266                                 | 0          | 46,266     | 18,276     |    |
| 28   | 0.382           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 7,003   | 0          | 46,266                                 | 0          | 46,266     | 17,658     |    |
| 29   | 0.369           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 6,766   | 0          | 46,266                                 | 0          | 46,266     | 17,061     |    |
| 30   | 0.356           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 6,537   | 0          | 46,266                                 | 0          | 46,266     | 16,484     |    |
| 31   | 0.346           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 6,317   | 0          | 46,266                                 | 0          | 46,266     | 16,003     |    |
| 32   | 0.336           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 6,102   | 0          | 46,266                                 | 0          | 46,266     | 15,537     |    |
| 33   | 0.326           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 5,892   | 0          | 46,266                                 | 0          | 46,266     | 15,085     |    |
| 34   | 0.317           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 5,688   | 0          | 46,266                                 | 0          | 46,266     | 14,645     |    |
| 35   | 0.307           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 5,489   | 0          | 46,266                                 | 0          | 46,266     | 14,219     |    |
| 36   | 0.298           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 5,295   | 0          | 46,266                                 | 0          | 46,266     | 13,805     |    |
| 37   | 0.290           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 5,105   | 0          | 46,266                                 | 0          | 46,266     | 13,403     |    |
| 38   | 0.281           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,919   | 0          | 46,266                                 | 0          | 46,266     | 13,012     |    |
| 39   | 0.273           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,737   | 0          | 46,266                                 | 0          | 46,266     | 12,633     |    |
| 40   | 0.265           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,559   | 0          | 46,266                                 | 0          | 46,266     | 12,265     |    |
| 41   | 0.257           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,385   | 0          | 46,266                                 | 0          | 46,266     | 11,908     |    |
| 42   | 0.250           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,215   | 0          | 46,266                                 | 0          | 46,266     | 11,561     |    |
| 43   | 0.243           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 4,049   | 0          | 46,266                                 | 0          | 46,266     | 11,225     |    |
| 44   | 0.236           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,887   | 0          | 46,266                                 | 0          | 46,266     | 10,898     |    |
| 45   | 0.229           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,729   | 0          | 46,266                                 | 0          | 46,266     | 10,580     |    |
| 46   | 0.222           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,574   | 0          | 46,266                                 | 0          | 46,266     | 10,272     |    |
| 47   | 0.216           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,422   | 0          | 46,266                                 | 0          | 46,266     | 9,973      |    |
| 48   | 0.209           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,273   | 0          | 46,266                                 | 0          | 46,266     | 9,682      |    |
| 49   | 0.203           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 3,127   | 0          | 46,266                                 | 0          | 46,266     | 9,400      |    |
| 50   | 0.197           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,984   | 19,555,471 | 0                                      | 19,555,471 | 3,857,565  |            |    |
| 51   | 0.192           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,844   | 0          | 46,266                                 | 0          | 46,266     | 8,861      |    |
| 52   | 0.186           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,706   | 0          | 46,266                                 | 0          | 46,266     | 8,603      |    |
| 53   | 0.181           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,571   | 0          | 46,266                                 | 0          | 46,266     | 8,352      |    |
| 54   | 0.175           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,438   | 0          | 46,266                                 | 0          | 46,266     | 8,109      |    |
| 55   | 0.170           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,308   | 0          | 46,266                                 | 0          | 46,266     | 7,873      |    |
| 56   | 0.165           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,180   | 0          | 46,266                                 | 0          | 46,266     | 7,643      |    |
| 57   | 0.160           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 2,054   | 0          | 46,266                                 | 0          | 46,266     | 7,421      |    |
| 58   | 0.156           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,931   | 0          | 46,266                                 | 0          | 46,266     | 7,205      |    |
| 59   | 0.151           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,810   | 0          | 46,266                                 | 0          | 46,266     | 6,995      |    |
| 60   | 0.147           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,691   | 0          | 46,266                                 | 0          | 46,266     | 6,791      |    |
| 61   | 0.143           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,574   | 0          | 46,266                                 | 0          | 46,266     | 6,593      |    |
| 62   | 0.138           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,459   | 0          | 46,266                                 | 0          | 46,266     | 6,401      |    |
| 63   | 0.134           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,346   | 0          | 46,266                                 | 0          | 46,266     | 6,215      |    |
| 64   | 0.130           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,235   | 0          | 46,266                                 | 0          | 46,266     | 6,034      |    |
| 65   | 0.127           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0      | 18,348 | 1,126   | 0          | 46,266                                 | 0          | 46,266     | 5,858      |    |



|    |      |    |       |   |   |   |   |        |        |       |        |        |       |
|----|------|----|-------|---|---|---|---|--------|--------|-------|--------|--------|-------|
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 46,266 | 46,266 | 5,687 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 46,266 | 46,266 | 5,522 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 46,266 | 46,266 | 5,361 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 46,266 | 46,266 | 5,205 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 46,266 | 46,266 | 5,053 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 46,266 | 46,266 | 4,906 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 46,266 | 46,266 | 4,763 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 46,266 | 46,266 | 4,624 |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 46,266 | 46,266 | 4,490 |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 46,266 | 46,266 | 4,380 |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 46,266 | 46,266 | 4,273 |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 46,266 | 46,266 | 4,169 |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 46,266 | 46,266 | 4,067 |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 46,266 | 46,266 | 3,968 |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 46,266 | 46,266 | 3,871 |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 46,266 | 46,266 | 3,777 |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 46,266 | 46,266 | 3,685 |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 46,266 | 46,266 | 3,595 |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 46,266 | 46,266 | 3,507 |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 46,266 | 46,266 | 3,422 |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 46,266 | 46,266 | 3,338 |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 46,266 | 46,266 | 3,257 |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 46,266 | 46,266 | 3,177 |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 46,266 | 46,266 | 3,100 |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 46,266 | 46,266 | 3,024 |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 46,266 | 46,266 | 2,951 |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 46,266 | 46,266 | 2,879 |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 46,266 | 46,266 | 2,808 |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 46,266 | 46,266 | 2,740 |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 46,266 | 46,266 | 2,673 |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 46,266 | 46,266 | 2,608 |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 46,266 | 46,266 | 2,544 |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 46,266 | 46,266 | 2,482 |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 46,266 | 46,266 | 2,422 |

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## *Option P4 Summary, Benefits and Costs – Approach 1*





**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**

Perth & Kinross Council

**Project name**

Comrie and Dalginross Flood Prevention Scheme

**Project reference**

1020714

Base date for estimates (year 0)

Jan-2020

Scaling factor (e.g. £m, £k, £)

£

Discount rate

3.5% 3.0% 2.5%

**Results (£)**

|                  |                              |  |   |
|------------------|------------------------------|--|---|
|                  | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P4</b> |
| <b>PV losses</b> | <b>60,651,342</b>            | <b>21,456,250</b>                        | <b>2,293,096</b>                              |

**Prepared (date)**

Aug-16

**Printed**

Jan-2017

**Prepared by**

A Williamson

**Checked by**

S Gilliland

**Checked date**

Aug-16

| Year | Discount Factor | Option N (Do Nothing) |           |            |             |            | Option M (Do Minimum) - Base Case |            |            |            |            | Flood Defences (200yr SoP) - Option P4 |           |           |           |           | Flood Defences (200yr SoP) - Option P4 |           |         |         |
|------|-----------------|-----------------------|-----------|------------|-------------|------------|-----------------------------------|------------|------------|------------|------------|--|-----------|-----------|-----------|-----------|--|-----------|---------|---------|
|      |                 | residen.              | commerc.  | Write-off  | TOTALS      | PV         | residen.                          | commerc.   | Write-off  | TOTALS     | PV         | residen.                               | commerc.  | Write-off | TOTALS    | PV        | TOTALS                                 | PV        |         |         |
|      | <b>cash sum</b> | 65,988,106            | 1,730,448 | 48,234,124 | 115,952,678 | 60,651,342 | 46,611,983                        | 414,404    | 10,046,443 | 57,072,829 | 21,456,250 | 9,352,015                              | 398,970   | 0         | 9,750,985 | 2,293,096 | 13,987,190                             | 4,115,902 |         |         |
| 0    | 2020            | 0                     | 1.000     | 855,994    | 7,379       | 22,669,505 | 23,532,878                        | 23,532,878 | 404,602    | 1,512      | 3,399,943  | 3,806,057                              | 3,806,057 | 35,777    | 1,493     | 0         | 37,270                                 | 37,270    | 132,561 | 132,561 |
| 1    | 2021            | 1                     | 0.966     | 855,994    | 7,379       | 0          | 863,373                           | 834,177    | 404,602    | 1,512      | 0          | 406,114                                | 392,380   | 35,777    | 1,493     | 0         | 37,270                                 | 36,010    | 132,561 | 128,079 |
| 2    | 2022            | 2                     | 0.934     | 855,994    | 7,379       | 0          | 863,373                           | 805,968    | 404,602    | 1,512      | 0          | 406,114                                | 379,111   | 35,777    | 1,493     | 0         | 37,270                                 | 34,792    | 132,561 | 123,748 |
| 3    | 2023            | 3                     | 0.902     | 855,994    | 7,379       | 0          | 863,373                           | 778,713    | 404,602    | 1,512      | 0          | 406,114                                | 366,291   | 35,777    | 1,493     | 0         | 37,270                                 | 33,616    | 132,561 | 119,563 |
| 4    | 2024            | 4                     | 0.871     | 855,994    | 7,379       | 0          | 863,373                           | 752,380    | 404,602    | 1,512      | 0          | 406,114                                | 353,904   | 35,777    | 1,493     | 0         | 37,270                                 | 32,479    | 132,561 | 115,520 |
| 5    | 2025            | 5                     | 0.842     | 679,028    | 20,018      | 16,706,566 | 17,405,612                        | 14,655,058 | 361,621    | 2,642      | 6,546,061  | 6,910,323                              | 5,818,307 | 63,178    | 2,625     | 0         | 65,802                                 | 55,404    | 137,741 | 115,974 |
| 6    | 2026            | 6                     | 0.814     | 679,028    | 20,018      | 0          | 699,046                           | 568,674    | 361,621    | 2,642      | 0          | 364,263                                | 296,328   | 63,178    | 2,625     | 0         | 65,802                                 | 53,530    | 137,741 | 112,052 |
| 7    | 2027            | 7                     | 0.786     | 679,028    | 20,018      | 0          | 699,046                           | 549,444    | 361,621    | 2,642      | 0          | 364,263                                | 286,307   | 63,178    | 2,625     | 0         | 65,802                                 | 51,720    | 137,741 | 108,263 |
| 8    | 2028            | 8                     | 0.759     | 679,028    | 20,018      | 0          | 699,046                           | 530,864    | 361,621    | 2,642      | 0          | 364,263                                | 276,625   | 63,178    | 2,625     | 0         | 65,802                                 | 49,971    | 137,741 | 104,602 |
| 9    | 2029            | 9                     | 0.734     | 679,028    | 20,018      | 0          | 699,046                           | 512,912    | 361,621    | 2,642      | 0          | 364,263                                | 267,271   | 63,178    | 2,625     | 0         | 65,802                                 | 48,281    | 137,741 | 101,065 |
| 10   | 2030            | 10                    | 0.709     | 679,028    | 20,018      | 0          | 699,046                           | 495,567    | 361,621    | 2,642      | 0          | 364,263                                | 258,233   | 63,178    | 2,625     | 0         | 65,802                                 | 46,648    | 137,741 | 97,647  |
| 11   | 2031            | 11                    | 0.685     | 679,028    | 20,018      | 0          | 699,046                           | 478,809    | 361,621    | 2,642      | 0          | 364,263                                | 249,500   | 63,178    | 2,625     | 0         | 65,802                                 | 45,071    | 137,741 | 94,345  |
| 12   | 2032            | 12                    | 0.662     | 679,028    | 20,018      | 0          | 699,046                           | 462,617    | 361,621    | 2,642      | 0          | 364,263                                | 241,063   | 63,178    | 2,625     | 0         | 65,802                                 | 43,547    | 137,741 | 91,155  |
| 13   | 2033            | 13                    | 0.639     | 679,028    | 20,018      | 0          | 699,046                           | 446,973    | 361,621    | 2,642      | 0          | 364,263                                | 232,911   | 63,178    | 2,625     | 0         | 65,802                                 | 42,074    | 137,741 | 88,072  |
| 14   | 2034            | 14                    | 0.618     | 679,028    | 20,018      | 0          | 699,046                           | 431,858    | 361,621    | 2,642      | 0          | 364,263                                | 225,035   | 63,178    | 2,625     | 0         | 65,802                                 | 40,651    | 137,741 | 85,094  |
| 15   | 2035            | 15                    | 0.597     | 679,028    | 20,018      | 0          | 699,046                           | 417,254    | 361,621    | 2,642      | 0          | 364,263                                | 217,425   | 63,178    | 2,625     | 0         | 65,802                                 | 39,277    | 137,741 | 82,216  |
| 16   | 2036            | 16                    | 0.577     | 679,028    | 20,018      | 0          | 699,046                           | 403,144    | 361,621    | 2,642      | 0          | 364,263                                | 210,073   | 63,178    | 2,625     | 0         | 65,802                                 | 37,948    | 137,741 | 79,436  |
| 17   | 2037            | 17                    | 0.557     | 679,028    | 20,018      | 0          | 699,046                           | 389,511    | 361,621    | 2,642      | 0          | 364,263                                | 202,969   | 63,178    | 2,625     | 0         | 65,802                                 | 36,665    | 137,741 | 76,750  |
| 18   | 2038            | 18                    | 0.538     | 679,028    | 20,018      | 0          | 699,046                           | 376,339    | 361,621    | 2,642      | 0          | 364,263                                | 196,105   | 63,178    | 2,625     | 0         | 65,802                                 | 35,425    | 137,741 | 74,154  |
| 19   | 2039            | 19                    | 0.520     | 679,028    | 20,018      | 0          | 699,046                           | 363,613    | 361,621    | 2,642      | 0          | 364,263                                | 189,473   | 63,178    | 2,625     | 0         | 65,802                                 | 34,227    | 137,741 | 71,647  |
| 20   | 2040            | 20                    | 0.503     | 679,028    | 20,018      | 0          | 699,046                           | 351,317    | 361,621    | 2,642      | 0          | 364,263                                | 183,066   | 63,178    | 2,625     | 0         | 65,802                                 | 33,070    | 137,741 | 69,224  |
| 21   | 2041            | 21                    | 0.486     | 679,028    | 20,018      | 0          | 699,046                           | 339,436    | 361,621    | 2,642      | 0          | 364,263                                | 176,875   | 63,178    | 2,625     | 0         | 65,802                                 | 31,952    | 137,741 | 66,883  |
| 22   | 2042            | 22                    | 0.469     | 679,028    | 20,018      | 0          | 699,046                           | 327,958    | 361,621    | 2,642      | 0          | 364,263                                | 170,894   | 63,178    | 2,625     | 0         | 65,802                                 | 30,871    | 137,741 | 64,621  |
| 23   | 2043            | 23                    | 0.453     | 679,028    | 20,018      | 0          | 699,046                           | 316,868    | 361,621    | 2,642      | 0          | 364,263                                | 165,115   | 63,178    | 2,625     | 0         | 65,802                                 | 29,827    | 137,741 | 62,436  |
| 24   | 2044            | 24                    | 0.438     | 679,028    | 20,018      | 0          | 699,046                           | 306,152    | 361,621    | 2,642      | 0          | 364,263                                | 159,532   | 63,178    | 2,625     | 0         | 65,802                                 | 28,819    | 137,741 | 60,325  |
| 25   | 2045            | 25                    | 0.423     | 679,028    | 20,018      | 0          | 699,046                           | 295,799    | 361,621    | 2,642      | 0          | 364,263                                | 154,137   | 63,178    | 2,625     | 0         | 65,802                                 | 27,844    | 137,741 | 58,285  |
| 26   | 2046            | 26                    | 0.409     | 679,028    | 20,018      | 0          | 699,046                           | 285,796    | 361,621    | 2,642      | 0          | 364,263                                | 148,924   | 63,178    | 2,625     | 0         | 65,802                                 | 26,902    | 137,741 | 56,314  |
| 27   | 2047            | 27                    | 0.395     | 679,028    | 20,018      | 0          | 699,046                           | 276,132    | 361,621    | 2,642      | 0          | 364,263                                | 143,888   | 63,178    | 2,625     | 0         | 65,802                                 | 25,993    | 137,741 | 54,409  |
| 28   | 2048            | 28                    | 0.382     | 679,028    | 20,018      | 0          | 699,046                           | 266,794    | 361,621    | 2,642      | 0          | 364,263                                | 139,023   | 63,178    | 2,625     | 0         | 65,802                                 | 25,114    | 137,741 | 52,569  |
| 29   | 2049            | 29                    | 0.369     | 679,028    | 20,018      | 0          | 699,046                           | 257,772    | 361,621    | 2,642      | 0          | 364,263                                | 134,321   | 63,178    | 2,625     | 0         | 65,802                                 | 24,264    | 137,741 | 50,792  |
| 30   | 2050            | 30                    | 0.356     | 679,028    | 20,018      | 0          | 699,046                           | 249,055    | 361,621    | 2,642      | 0          | 364,263                                | 129,779   | 63,178    | 2,625     | 0         | 65,802                                 | 23,444    | 137,741 | 49,074  |
| 31   | 2051            | 31                    | 0.346     | 679,028    | 20,018      | 0          | 699,046                           | 241,801    | 361,621    | 2,642      | 0          | 364,263                                | 125,999   | 63,178    | 2,625     | 0         | 65,802                                 | 22,761    | 137,741 | 47,645  |
| 32   | 2052            | 32                    | 0.336     | 679,028    | 20,018      | 0          | 699,046                           | 234,758    | 361,621    | 2,642      | 0          | 364,263                                | 122,329   | 63,178    | 2,625     | 0         | 65,802                                 | 22,098    | 137,741 | 46,257  |
| 33   | 2053            | 33                    | 0.326     | 679,028    | 20,018      | 0          | 699,046                           | 227,921    | 361,621    | 2,642      | 0          | 364,263                                | 118,766   | 63,178    | 2,625     | 0         | 65,802                                 | 21,454    | 137,741 | 44,910  |
| 34   | 2054            | 34                    | 0.317     | 679,028    | 20,018      | 0          | 699,046                           | 221,282    | 361,621    | 2,642      | 0          | 364,263                                | 115,307   | 63,178    | 2,625     | 0         | 65,802                                 | 20,830    | 137,741 | 43,602  |
| 35   | 2055            | 35                    | 0.307     | 635,958    | 16,816      | 8,858,050  | 9,510,824                         | 2,922,951  | 519,082    | 5,040      | 100,439    | 624,561                                | 191,946   | 111,966   | 4,812     | 0         | 116,778                                | 35,889    | 141,418 | 43,462  |
| 36   | 2056            | 36                    | 0.298     | 635,958    | 16,816      | 3          | 652,777                           | 194,774    | 519,082    | 5,040      | 0          | 524,122                                | 156,386   | 111,966   | 4,812     | 0         | 116,778                                | 34,844    | 141,418 | 42,196  |
| 37   | 2057            | 37                    | 0.290     | 635,958    | 16,816      | 0          | 652,774                           | 189,100    | 519,082    | 5,040      | 0          | 524,122                                | 151,831   | 111,966   | 4,812     | 0         | 116,778                                | 33,829    | 141,418 | 40,967  |
| 38   | 2058            | 38                    | 0.281     | 635,958    | 16,816      | 0          | 652,774                           | 183,592    | 519,082    | 5,040      | 0          | 524,122                                | 147,409   | 111,966   | 4,812     | 0         | 116,778                                | 32,844    | 141,418 | 39,774  |
| 39   | 2059            | 39                    | 0.273     | 635,958    | 16,816      | 0          | 652,774                           | 178,245    | 519,082    | 5,040      | 0          | 524,122                                | 143,116   | 111,966   | 4,812     | 0         | 116,778                                | 31,887    | 141,418 | 38,615  |
| 40   | 2060            | 40                    | 0.265     | 635,958    | 16,816      | 0          | 652,774                           | 173,053    | 519,082    | 5,040      | 0          | 524,122                                | 138,947   | 111,966   | 4,812     | 0         | 116,778                                | 30,958    | 141,418 | 37,516  |
| 41   | 2061            | 41                    | 0.257     | 635,958    | 16,816      | 0          | 652,774                           | 168,013    | 519,082    | 5,040      | 0          | 524,122                                | 134,900   | 111,966   | 4,812     | 0         | 116,778                                | 30,057    | 141,418 | 36,399  |
| 42   | 2062            | 42                    | 0.250     | 635,958    | 16,816      | 0          | 652,774                           | 163,119    | 519,082    | 5,040      | 0          | 524,122                                | 130,971   | 111,966   | 4,812     | 0         | 116,778                                | 29,181    | 141,418 | 35,338  |
| 43   | 2063            | 43                    | 0.243     | 635,958    | 16,816      | 0          | 652,774                           | 158,368    | 519,082    | 5,040      | 0          | 524,122                                | 127,156   | 111,966   | 4,812     | 0         | 116,778                                | 28,331    | 141,418 | 34,309  |

|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC

Present Value Costs for all options

Client/Authority  
Perth & Kinross Council

Project name  
Comrie and Dalginross Flood Prevention Scheme

Project reference  
1020714

Base date for estimates (year 0)  
Jan-2020

Scaling factor (e.g. £m, £k, £)  
£

Discount rate  
3.5% 3.0% 2.5%

| Results £             |                        |  |
|-----------------------|------------------------|--|
| Option N (Do Nothing) | Do Minimum maintenance | Option P4 - Walls & Embankments with Ruchill Storage (200yr SoP) |
| 0                     | 547,160                | 58,780,218   |

Prepared (date)  
Aug-16

Printed  
Jan-2017

Prepared by  
A Williamson

Checked by  
S Gilliland

Checked date  
Aug-16

PV total costs

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |           |       | TOTALS:   |         | Flood Defences (200yr SoP) - Option P4 |            |            | TOTALS:     |            |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|-----------|-------|-----------|---------|--|------------|------------|-------------|------------|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint.    | Other | Cash      | PV      | Capital                                | Maint.     | Other      | Cash        | PV         |
|      |                 | 0                     | 0      | 0     | 0       | 0  | 0                                 | 1,834,800 | 0     | 1,834,800 | 547,160 | 91,568,250                             | 13,573,593 | 0          | 105,141,843 | 58,780,218 |
| 0    | 2020            | 1.000                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 18,348  | 45,784,125                             | 0          | 0          | 45,784,125  | 45,784,125 |
| 1    | 2021            | 0.966                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 17,728  |  | 138,506    |            | 138,506     | 133,822    |
| 2    | 2022            | 0.934                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 17,128  |  | 138,506    |            | 138,506     | 129,297    |
| 3    | 2023            | 0.902                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 16,549  |  | 138,506    |            | 138,506     | 124,925    |
| 4    | 2024            | 0.871                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 15,989  |  | 138,506    |            | 138,506     | 120,700    |
| 5    | 2025            | 0.842                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 15,449  |  | 138,506    |            | 138,506     | 116,618    |
| 6    | 2026            | 0.814                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 14,926  |  | 138,506    |            | 138,506     | 112,675    |
| 7    | 2027            | 0.786                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 14,421  |  | 138,506    |            | 138,506     | 108,865    |
| 8    | 2028            | 0.759                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 13,934  |  | 138,506    |            | 138,506     | 105,183    |
| 9    | 2029            | 0.734                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 13,462  |  | 138,506    |            | 138,506     | 101,626    |
| 10   | 2030            | 0.709                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 13,007  |  | 138,506    |            | 138,506     | 98,190     |
| 11   | 2031            | 0.685                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 12,567  |  | 138,506    |            | 138,506     | 94,869     |
| 12   | 2032            | 0.662                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 12,142  |  | 138,506    |            | 138,506     | 91,661     |
| 13   | 2033            | 0.639                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 11,732  |  | 138,506    |            | 138,506     | 88,561     |
| 14   | 2034            | 0.618                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 11,335  |  | 138,506    |            | 138,506     | 85,567     |
| 15   | 2035            | 0.597                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 10,952  |  | 138,506    |            | 138,506     | 82,673     |
| 16   | 2036            | 0.577                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 10,581  |  | 138,506    |            | 138,506     | 79,877     |
| 17   | 2037            | 0.557                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 10,224  |  | 138,506    |            | 138,506     | 77,176     |
| 18   | 2038            | 0.538                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 9,878   |  | 138,506    |            | 138,506     | 74,566     |
| 19   | 2039            | 0.520                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 9,544   |  | 138,506    |            | 138,506     | 72,045     |
| 20   | 2040            | 0.503                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 9,221   |  | 138,506    |            | 138,506     | 69,608     |
| 21   | 2041            | 0.486                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 8,909   |  | 138,506    |            | 138,506     | 67,255     |
| 22   | 2042            | 0.469                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 8,608   |  | 138,506    |            | 138,506     | 64,980     |
| 23   | 2043            | 0.453                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 8,317   |  | 138,506    |            | 138,506     | 62,783     |
| 24   | 2044            | 0.438                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 8,036   |  | 138,506    |            | 138,506     | 60,660     |
| 25   | 2045            | 0.423                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 7,764   |  | 138,506    |            | 138,506     | 58,608     |
| 26   | 2046            | 0.409                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 7,501   |  | 138,506    |            | 138,506     | 56,626     |
| 27   | 2047            | 0.395                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 7,248   |  | 138,506    |            | 138,506     | 54,712     |
| 28   | 2048            | 0.382                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 7,003   |  | 138,506    |            | 138,506     | 52,861     |
| 29   | 2049            | 0.369                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 6,766   |  | 138,506    |            | 138,506     | 51,074     |
| 30   | 2050            | 0.356                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 6,537   |  | 138,506    |            | 138,506     | 49,347     |
| 31   | 2051            | 0.346                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 6,347   |  | 138,506    |            | 138,506     | 47,909     |
| 32   | 2052            | 0.336                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 6,162   |  | 138,506    |            | 138,506     | 46,514     |
| 33   | 2053            | 0.326                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,982   |  | 138,506    |            | 138,506     | 45,159     |
| 34   | 2054            | 0.317                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,808   |  | 138,506    |            | 138,506     | 43,844     |
| 35   | 2055            | 0.307                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,639   |  | 138,506    |            | 138,506     | 42,567     |
| 36   | 2056            | 0.298                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,475   |  | 138,506    |            | 138,506     | 41,327     |
| 37   | 2057            | 0.290                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,315   |  | 138,506    |            | 138,506     | 40,123     |
| 38   | 2058            | 0.281                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,160   |  | 138,506    |            | 138,506     | 38,955     |
| 39   | 2059            | 0.273                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 5,010   |  | 138,506    |            | 138,506     | 37,820     |
| 40   | 2060            | 0.265                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,864   |  | 138,506    |            | 138,506     | 36,719     |
| 41   | 2061            | 0.257                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,722   |  | 138,506    |            | 138,506     | 35,649     |
| 42   | 2062            | 0.250                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,585   |  | 138,506    |            | 138,506     | 34,611     |
| 43   | 2063            | 0.243                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,451   |  | 138,506    |            | 138,506     | 33,603     |
| 44   | 2064            | 0.236                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,322   |  | 138,506    |            | 138,506     | 32,624     |
| 45   | 2065            | 0.229                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,196   |  | 138,506    |            | 138,506     | 31,674     |
| 46   | 2066            | 0.222                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 4,074   |  | 138,506    |            | 138,506     | 30,751     |
| 47   | 2067            | 0.216                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,955   |  | 138,506    |            | 138,506     | 29,856     |
| 48   | 2068            | 0.209                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,840   |  | 138,506    |            | 138,506     | 28,986     |
| 49   | 2069            | 0.203                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,728   |  | 138,506    |            | 138,506     | 28,142     |
| 50   | 2070            | 0.197                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,619   | 45,784,125                             | 0          | 45,784,125 | 9,031,501   |            |
| 51   | 2071            | 0.192                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,514   |  | 138,506    |            | 138,506     | 26,526     |
| 52   | 2072            | 0.186                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,412   |  | 138,506    |            | 138,506     | 25,754     |
| 53   | 2073            | 0.181                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,312   |  | 138,506    |            | 138,506     | 25,004     |
| 54   | 2074            | 0.175                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,216   |  | 138,506    |            | 138,506     | 24,275     |
| 55   | 2075            | 0.170                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,122   |  | 138,506    |            | 138,506     | 23,568     |
| 56   | 2076            | 0.165                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 3,031   |  | 138,506    |            | 138,506     | 22,882     |
| 57   | 2077            | 0.160                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,943   |  | 138,506    |            | 138,506     | 22,215     |
| 58   | 2078            | 0.156                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,857   |  | 138,506    |            | 138,506     | 21,568     |
| 59   | 2079            | 0.151                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,774   |  | 138,506    |            | 138,506     | 20,940     |
| 60   | 2080            | 0.147                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,693   |  | 138,506    |            | 138,506     | 20,330     |
| 61   | 2081            | 0.143                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,615   |  | 138,506    |            | 138,506     | 19,738     |
| 62   | 2082            | 0.138                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,539   |  | 138,506    |            | 138,506     | 19,163     |
| 63   | 2083            | 0.134                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,465   |  | 138,506    |            | 138,506     | 18,605     |
| 64   | 2084            | 0.130                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,393   |  | 138,506    |            | 138,506     | 18,063     |
| 65   | 2085            | 0.127                 | 0      | 0     | 0       | 0  |                                   | 18,348    |       | 18,348    | 2,323   |  | 138,506    |            | 138,506     | 17,537     |

|    |      |    |       |   |   |   |   |        |        |       |         |         |        |
|----|------|----|-------|---|---|---|---|--------|--------|-------|---------|---------|--------|
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 138,506 | 138,506 | 17,026 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 138,506 | 138,506 | 16,530 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 138,506 | 138,506 | 16,049 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 138,506 | 138,506 | 15,581 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 138,506 | 138,506 | 15,128 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 138,506 | 138,506 | 14,687 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 138,506 | 138,506 | 14,259 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 138,506 | 138,506 | 13,844 |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 138,506 | 138,506 | 13,441 |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 138,506 | 138,506 | 13,113 |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 138,506 | 138,506 | 12,793 |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 138,506 | 138,506 | 12,481 |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 138,506 | 138,506 | 12,177 |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 138,506 | 138,506 | 11,880 |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 138,506 | 138,506 | 11,590 |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 138,506 | 138,506 | 11,307 |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 138,506 | 138,506 | 11,031 |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 138,506 | 138,506 | 10,762 |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 138,506 | 138,506 | 10,500 |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 138,506 | 138,506 | 10,244 |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 138,506 | 138,506 | 9,994  |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 138,506 | 138,506 | 9,750  |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 138,506 | 138,506 | 9,512  |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 138,506 | 138,506 | 9,280  |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 138,506 | 138,506 | 9,054  |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 138,506 | 138,506 | 8,833  |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 138,506 | 138,506 | 8,618  |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 138,506 | 138,506 | 8,408  |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 138,506 | 138,506 | 8,202  |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 138,506 | 138,506 | 8,002  |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 138,506 | 138,506 | 7,807  |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 138,506 | 138,506 | 7,617  |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 138,506 | 138,506 | 7,431  |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 138,506 | 138,506 | 7,250  |

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## *Option P4 Summary, Benefits and Costs – Approach 2*



## Project Summary Sheet

|                                  |   |                 |              |
|----------------------------------|---|-----------------|--------------|
| <b>Client/Authority</b>          | Perth & Kinross Council                       | Prepared (date) | Aug-16       |
| <b>Project name</b>              | Comrie and Dalginross Flood Prevention Scheme | Printed         | Jan-17       |
| <b>Project reference</b>         | 1020714                                       | Prepared by     | A Williamson |
| Base date for estimates (year 0) | Jan-2020                                      | Checked by      | S Gilliland  |
| Scaling factor (e.g. £m, £k, £)  | £   | Checked date    | Aug-16       |
| Principle land use band          | A   |                 |              |
| Discount rate                    | (3.5% - 2.5%)                                 |                 |              |

**Costs and benefits of options**

|  | Costs and benefits £  |                                   |  |
|--|-----------------------|-----------------------------------|--|
|  | Option N (Do Nothing) | Option M (Do Minimum) - Base Case | Flood Defences (200yr SoP) - Option P4 |
| PV costs PVc   | 0                     | 547,160                           | 65,632,171                             |
| PV costs PVc (with Optimism bias = 58.2% and Risk = 12.5%) | 0                     | 865,607                           | 103,830,094                            |
| PV damage PVd  | 60,651,342            | 21,456,250                        | 2,293,096                              |
| PV damage avoided  |                       | 39,195,092                        | 58,358,246                             |
| PV assets Pva  | 0                     | 0                                 | 0                                      |
| PV asset protection benefits                               |                       | 0                                 | 0                                      |
| Intangible Benefits  |                       | 0                                 | 4,115,902                              |
| <b>Total PV benefits PVb</b>                               |                       | 39,195,092                        | 62,474,148                             |
| <b>Net Present Value NPV</b>                               |                       | 38,329,485                        | -41,355,947                            |
| <b>Average benefit/cost ratio</b>                          |                       | 45.28                             | 0.60                                   |
| <b>Incremental benefit/cost ratio</b>                      |                       |                                   | 0.23                                   |

Highest b/c -

**Brief description of options:**

|  |  |
|--|--|
| Option N (Do Nothing)                  | Do Nothing (i.e.walk away) - Failure of Existing Defences        |
| Option M (Do Minimum) - Base Case      | Do Minimum maintenance   |
| Flood Defences (200yr SoP) - Option P4 | Option P4 - Walls & Embankments with Ruchill Storage (200yr SoP) |

**Notes:**

- 1) Benefits will normally be expressed either in terms of damage avoided or asset values protected. Care is needed to avoid double counting
- 2) PV damage avoided is calculated as PV damage (No Project) - PV damage (Option)  
 PV asset protection benefits are calculated as PVa (Option) - PVa (No Project)  
 PV benefits calculated as PV damage avoided + PV asset protection benefits
- 3) Incremental benefit/cost ratio is calculated as:  

$$(PVb(\text{current option}) - PVb(\text{previous option})) / (PVc(\text{current option}) - PVc(\text{previous option}))$$

**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**  
Perth & Kinross Council

**Project name**  
Comrie and Dalginross Flood Prevention Scheme

**Project reference**  
1020714

Base date for estimates (year 0)  
Jan-2020

Scaling factor (e.g. £m, £k, £)  
£

Discount rate  
3.5% 3.0% 2.5%

**Results (£)**

|           |                              |  |   |
|-----------|------------------------------|--|---|
|           | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P4</b> |
| PV losses | 60,651,342                   | 21,456,250                               | 2,293,096                                     |

**Prepared (date)**  
Aug-16

**Printed**  
Jan-2017

**Prepared by**  
A Williamson

**Checked by**  
S Gilliland

**Checked date**  
Aug-16

| Year | Discount Factor | Option N (Do Nothing) |            |           |            |             | Option M (Do Minimum) - Base Case |            |           |            |            | Flood Defences (200yr SoP) - Option P4 |           |           |        |           | Flood Defences (200yr SoP) - Option P4 |            |           |         |         |
|------|-----------------|-----------------------|------------|-----------|------------|-------------|-----------------------------------|------------|-----------|------------|------------|--|-----------|-----------|--------|-----------|--|------------|-----------|---------|---------|
|      |                 | residen.              | commerc.   | Write-off | TOTALS     | PV          | residen.                          | commerc.   | Write-off | TOTALS     | PV         | residen.                               | commerc.  | Write-off | TOTALS | PV        | TOTALS                                 | PV         |           |         |         |
|      |                 | cash sum              | 65,988,106 | 1,730,448 | 48,234,124 | 115,952,678 | 60,651,342                        | 46,611,983 | 414,404   | 10,046,443 | 57,072,829 | 21,456,250                             | 9,352,015 | 398,970   | 0      | 9,750,985 | 2,293,096                              | 13,987,190 | 4,115,902 |         |         |
| 0    | 2020            | 0                     | 1.000      | 855,994   | 7,379      | 22,669,505  | 23,532,878                        | 23,532,878 | 404,602   | 1,512      | 3,399,943  | 3,806,057                              | 3,806,057 | 35,777    | 1,493  | 0         | 37,270                                 | 37,270     | 2020      | 132,561 | 132,561 |
| 1    | 2021            | 1                     | 0.966      | 855,994   | 7,379      | 0           | 863,373                           | 834,177    | 404,602   | 1,512      | 0          | 406,114                                | 392,380   | 35,777    | 1,493  | 0         | 37,270                                 | 36,010     | 2021      | 132,561 | 128,079 |
| 2    | 2022            | 2                     | 0.934      | 855,994   | 7,379      | 0           | 863,373                           | 805,968    | 404,602   | 1,512      | 0          | 406,114                                | 379,111   | 35,777    | 1,493  | 0         | 37,270                                 | 34,792     | 2022      | 132,561 | 123,748 |
| 3    | 2023            | 3                     | 0.902      | 855,994   | 7,379      | 0           | 863,373                           | 778,713    | 404,602   | 1,512      | 0          | 406,114                                | 366,291   | 35,777    | 1,493  | 0         | 37,270                                 | 33,616     | 2023      | 132,561 | 119,563 |
| 4    | 2024            | 4                     | 0.871      | 855,994   | 7,379      | 0           | 863,373                           | 752,380    | 404,602   | 1,512      | 0          | 406,114                                | 353,904   | 35,777    | 1,493  | 0         | 37,270                                 | 32,479     | 2024      | 132,561 | 115,520 |
| 5    | 2025            | 5                     | 0.842      | 679,028   | 20,018     | 16,706,566  | 17,405,612                        | 14,655,058 | 361,621   | 2,642      | 6,546,061  | 6,910,323                              | 5,818,307 | 63,178    | 2,625  | 0         | 65,802                                 | 55,404     | 2025      | 137,741 | 115,974 |
| 6    | 2026            | 6                     | 0.814      | 679,028   | 20,018     | 0           | 699,046                           | 568,674    | 361,621   | 2,642      | 0          | 364,263                                | 296,328   | 63,178    | 2,625  | 0         | 65,802                                 | 53,530     | 2026      | 137,741 | 112,052 |
| 7    | 2027            | 7                     | 0.786      | 679,028   | 20,018     | 0           | 699,046                           | 549,444    | 361,621   | 2,642      | 0          | 364,263                                | 286,307   | 63,178    | 2,625  | 0         | 65,802                                 | 51,720     | 2027      | 137,741 | 108,263 |
| 8    | 2028            | 8                     | 0.759      | 679,028   | 20,018     | 0           | 699,046                           | 530,864    | 361,621   | 2,642      | 0          | 364,263                                | 276,625   | 63,178    | 2,625  | 0         | 65,802                                 | 49,971     | 2028      | 137,741 | 104,602 |
| 9    | 2029            | 9                     | 0.734      | 679,028   | 20,018     | 0           | 699,046                           | 512,912    | 361,621   | 2,642      | 0          | 364,263                                | 267,271   | 63,178    | 2,625  | 0         | 65,802                                 | 48,281     | 2029      | 137,741 | 101,065 |
| 10   | 2030            | 10                    | 0.709      | 679,028   | 20,018     | 0           | 699,046                           | 495,567    | 361,621   | 2,642      | 0          | 364,263                                | 258,233   | 63,178    | 2,625  | 0         | 65,802                                 | 46,648     | 2030      | 137,741 | 97,647  |
| 11   | 2031            | 11                    | 0.685      | 679,028   | 20,018     | 0           | 699,046                           | 478,809    | 361,621   | 2,642      | 0          | 364,263                                | 249,500   | 63,178    | 2,625  | 0         | 65,802                                 | 45,071     | 2031      | 137,741 | 94,345  |
| 12   | 2032            | 12                    | 0.662      | 679,028   | 20,018     | 0           | 699,046                           | 462,617    | 361,621   | 2,642      | 0          | 364,263                                | 241,063   | 63,178    | 2,625  | 0         | 65,802                                 | 43,547     | 2032      | 137,741 | 91,155  |
| 13   | 2033            | 13                    | 0.639      | 679,028   | 20,018     | 0           | 699,046                           | 446,973    | 361,621   | 2,642      | 0          | 364,263                                | 232,911   | 63,178    | 2,625  | 0         | 65,802                                 | 42,074     | 2033      | 137,741 | 88,072  |
| 14   | 2034            | 14                    | 0.618      | 679,028   | 20,018     | 0           | 699,046                           | 431,858    | 361,621   | 2,642      | 0          | 364,263                                | 225,035   | 63,178    | 2,625  | 0         | 65,802                                 | 40,651     | 2034      | 137,741 | 85,094  |
| 15   | 2035            | 15                    | 0.597      | 679,028   | 20,018     | 0           | 699,046                           | 417,254    | 361,621   | 2,642      | 0          | 364,263                                | 217,425   | 63,178    | 2,625  | 0         | 65,802                                 | 39,277     | 2035      | 137,741 | 82,216  |
| 16   | 2036            | 16                    | 0.577      | 679,028   | 20,018     | 0           | 699,046                           | 403,144    | 361,621   | 2,642      | 0          | 364,263                                | 210,073   | 63,178    | 2,625  | 0         | 65,802                                 | 37,948     | 2036      | 137,741 | 79,436  |
| 17   | 2037            | 17                    | 0.557      | 679,028   | 20,018     | 0           | 699,046                           | 389,511    | 361,621   | 2,642      | 0          | 364,263                                | 202,969   | 63,178    | 2,625  | 0         | 65,802                                 | 36,665     | 2037      | 137,741 | 76,750  |
| 18   | 2038            | 18                    | 0.538      | 679,028   | 20,018     | 0           | 699,046                           | 376,339    | 361,621   | 2,642      | 0          | 364,263                                | 196,105   | 63,178    | 2,625  | 0         | 65,802                                 | 35,425     | 2038      | 137,741 | 74,154  |
| 19   | 2039            | 19                    | 0.520      | 679,028   | 20,018     | 0           | 699,046                           | 363,613    | 361,621   | 2,642      | 0          | 364,263                                | 189,473   | 63,178    | 2,625  | 0         | 65,802                                 | 34,227     | 2039      | 137,741 | 71,647  |
| 20   | 2040            | 20                    | 0.503      | 679,028   | 20,018     | 0           | 699,046                           | 351,317    | 361,621   | 2,642      | 0          | 364,263                                | 183,066   | 63,178    | 2,625  | 0         | 65,802                                 | 33,070     | 2040      | 137,741 | 69,224  |
| 21   | 2041            | 21                    | 0.486      | 679,028   | 20,018     | 0           | 699,046                           | 339,436    | 361,621   | 2,642      | 0          | 364,263                                | 176,875   | 63,178    | 2,625  | 0         | 65,802                                 | 31,952     | 2041      | 137,741 | 66,883  |
| 22   | 2042            | 22                    | 0.469      | 679,028   | 20,018     | 0           | 699,046                           | 327,958    | 361,621   | 2,642      | 0          | 364,263                                | 170,894   | 63,178    | 2,625  | 0         | 65,802                                 | 30,871     | 2042      | 137,741 | 64,621  |
| 23   | 2043            | 23                    | 0.453      | 679,028   | 20,018     | 0           | 699,046                           | 316,868    | 361,621   | 2,642      | 0          | 364,263                                | 165,115   | 63,178    | 2,625  | 0         | 65,802                                 | 29,827     | 2043      | 137,741 | 62,436  |
| 24   | 2044            | 24                    | 0.438      | 679,028   | 20,018     | 0           | 699,046                           | 306,152    | 361,621   | 2,642      | 0          | 364,263                                | 159,532   | 63,178    | 2,625  | 0         | 65,802                                 | 28,819     | 2044      | 137,741 | 60,325  |
| 25   | 2045            | 25                    | 0.423      | 679,028   | 20,018     | 0           | 699,046                           | 295,799    | 361,621   | 2,642      | 0          | 364,263                                | 154,137   | 63,178    | 2,625  | 0         | 65,802                                 | 27,844     | 2045      | 137,741 | 58,285  |
| 26   | 2046            | 26                    | 0.409      | 679,028   | 20,018     | 0           | 699,046                           | 285,796    | 361,621   | 2,642      | 0          | 364,263                                | 148,924   | 63,178    | 2,625  | 0         | 65,802                                 | 26,902     | 2046      | 137,741 | 56,314  |
| 27   | 2047            | 27                    | 0.395      | 679,028   | 20,018     | 0           | 699,046                           | 276,132    | 361,621   | 2,642      | 0          | 364,263                                | 143,888   | 63,178    | 2,625  | 0         | 65,802                                 | 25,993     | 2047      | 137,741 | 54,409  |
| 28   | 2048            | 28                    | 0.382      | 679,028   | 20,018     | 0           | 699,046                           | 266,794    | 361,621   | 2,642      | 0          | 364,263                                | 139,023   | 63,178    | 2,625  | 0         | 65,802                                 | 25,114     | 2048      | 137,741 | 52,569  |
| 29   | 2049            | 29                    | 0.369      | 679,028   | 20,018     | 0           | 699,046                           | 257,772    | 361,621   | 2,642      | 0          | 364,263                                | 134,321   | 63,178    | 2,625  | 0         | 65,802                                 | 24,264     | 2049      | 137,741 | 50,792  |
| 30   | 2050            | 30                    | 0.356      | 679,028   | 20,018     | 0           | 699,046                           | 249,055    | 361,621   | 2,642      | 0          | 364,263                                | 129,779   | 63,178    | 2,625  | 0         | 65,802                                 | 23,444     | 2050      | 137,741 | 49,074  |
| 31   | 2051            | 31                    | 0.346      | 679,028   | 20,018     | 0           | 699,046                           | 241,801    | 361,621   | 2,642      | 0          | 364,263                                | 125,999   | 63,178    | 2,625  | 0         | 65,802                                 | 22,761     | 2051      | 137,741 | 47,645  |
| 32   | 2052            | 32                    | 0.336      | 679,028   | 20,018     | 0           | 699,046                           | 234,758    | 361,621   | 2,642      | 0          | 364,263                                | 122,329   | 63,178    | 2,625  | 0         | 65,802                                 | 22,098     | 2052      | 137,741 | 46,257  |
| 33   | 2053            | 33                    | 0.326      | 679,028   | 20,018     | 0           | 699,046                           | 227,921    | 361,621   | 2,642      | 0          | 364,263                                | 118,766   | 63,178    | 2,625  | 0         | 65,802                                 | 21,454     | 2053      | 137,741 | 44,910  |
| 34   | 2054            | 34                    | 0.317      | 679,028   | 20,018     | 0           | 699,046                           | 221,282    | 361,621   | 2,642      | 0          | 364,263                                | 115,307   | 63,178    | 2,625  | 0         | 65,802                                 | 20,830     | 2054      | 137,741 | 43,602  |
| 35   | 2055            | 35                    | 0.307      | 635,958   | 16,816     | 8,858,050   | 9,510,824                         | 2,922,951  | 519,082   | 5,040      | 100,439    | 624,561                                | 191,946   | 111,966   | 4,812  | 0         | 116,778                                | 35,889     | 2055      | 141,418 | 43,462  |
| 36   | 2056            | 36                    | 0.298      | 635,958   | 16,816     | 3           | 652,777                           | 194,774    | 519,082   | 5,040      | 0          | 524,122                                | 156,386   | 111,966   | 4,812  | 0         | 116,778                                | 34,844     | 2056      | 141,418 | 42,196  |
| 37   | 2057            | 37                    | 0.290      | 635,958   | 16,816     | 0           | 652,774                           | 189,100    | 519,082   | 5,040      | 0          | 524,122                                | 151,831   | 111,966   | 4,812  | 0         | 116,778                                | 33,829     | 2057      | 141,418 | 40,967  |
| 38   | 2058            | 38                    | 0.281      | 635,958   | 16,816     | 0           | 652,774                           | 183,592    | 519,082   | 5,040      | 0          | 524,122                                | 147,409   | 111,966   | 4,812  | 0         | 116,778                                | 32,844     | 2058      | 141,418 | 39,774  |
| 39   | 2059            | 39                    | 0.273      | 635,958   | 16,816     | 0           | 652,774                           | 178,245    | 519,082   | 5,040      | 0          | 524,122                                | 143,116   | 111,966   | 4,812  | 0         | 116,778                                | 31,887     | 2059      | 141,418 | 38,615  |
| 40   | 2060            | 40                    | 0.265      | 635,958   | 16,816     | 0           | 652,774                           | 173,053    | 519,082   | 5,040      | 0          | 524,122                                | 138,947   | 111,966   | 4,812  | 0         | 116,778                                | 30,958     | 2060      | 141,418 | 36,516  |
| 41   | 2061            | 41                    | 0.257      | 635,958   | 16,816     | 0           | 652,774                           | 168,013    | 519,082   | 5,040      | 0          | 524,122                                | 134,900   | 111,966   | 4,812  | 0         | 116,778                                | 30,057     | 2061      | 141,418 | 36,399  |
| 42   | 2062            | 42                    | 0.250      | 635,958   | 16,816     | 0           | 652,774                           | 163,119    | 519,082   | 5,040      | 0          | 524,122                                | 130,971   | 111,966   | 4,812  | 0         | 116,778                                | 29,181     | 2062      | 141,418 | 35,338  |
| 43   | 2063            | 43                    | 0.243      | 635,958   | 16,816     | 0           | 652,774                           | 158,368    | 519,082   | 5,040      | 0          | 524,122                                | 127,156   | 111,966   | 4,812  | 0         | 116,778                                | 28,331     | 2063      | 141,418 | 34,309  |
| 44   | 2064            | 44                    | 0.236      | 635,958   | 16,816     | 0           | 652,774                           | 153,756    | 519,082   | 5,040      | 0          | 524,122                                | 123,453   | 111,966   | 4,812  | 0         | 116,778                                | 27,506     | 2064      | 141,418 |         |



|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC

Present Value Costs for all options

Client/Authority  
Perth & Kinross Council

Project name  
Comrie and Dalginross Flood Prevention Scheme

Project reference  
1020714

Base date for estimates (year 0)  
Jan-2020

Scaling factor (e.g. £m, £k, £)  
£

Discount rate  
3.5% 3.0% 2.5%

| Results £             |                        |  |
|-----------------------|------------------------|--|
| Option N (Do Nothing) | Do Minimum maintenance | Option P4 - Walls & Embankments with Ruchill Storage (200yr SoP) |
| 0                     | 547,160                | 65,632,171   |

Prepared (date)  
Aug-16

Printed  
Jan-2017

Prepared by  
A Williamson

Checked by  
S Gilliland

Checked date  
Aug-16

PV total costs

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |           |        | TOTALS:   |            | Flood Defences (200yr SoP) - Option P4 |            |            | TOTALS:     |            |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|-----------|--------|-----------|------------|--|------------|------------|-------------|------------|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint.    | Other  | Cash      | PV         | Capital                                | Maint.     | Other      | Cash        | PV         |
|      |                 | 0                     | 0      | 0     | 0       | 0  | 0                                 | 1,834,800 | 0      | 1,834,800 | 547,160    | 103,014,281                            | 13,573,593 | 0          | 116,587,874 | 65,632,171 |
| 0    | 1.000           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 51,507,140 | 0                                      | 0          | 51,507,140 | 51,507,140  |            |
| 1    | 0.966           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 17,728    | 0          | 138,506                                | 0          | 138,506    | 133,822     |            |
| 2    | 0.934           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 17,128    | 0          | 138,506                                | 0          | 138,506    | 129,297     |            |
| 3    | 0.902           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 16,549    | 0          | 138,506                                | 0          | 138,506    | 124,925     |            |
| 4    | 0.871           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 15,989    | 0          | 138,506                                | 0          | 138,506    | 120,700     |            |
| 5    | 0.842           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 15,449    | 0          | 138,506                                | 0          | 138,506    | 116,618     |            |
| 6    | 0.814           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 14,926    | 0          | 138,506                                | 0          | 138,506    | 112,675     |            |
| 7    | 0.786           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 14,421    | 0          | 138,506                                | 0          | 138,506    | 108,865     |            |
| 8    | 0.759           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 13,934    | 0          | 138,506                                | 0          | 138,506    | 105,183     |            |
| 9    | 0.734           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 13,462    | 0          | 138,506                                | 0          | 138,506    | 101,626     |            |
| 10   | 0.709           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 13,007    | 0          | 138,506                                | 0          | 138,506    | 98,190      |            |
| 11   | 0.685           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 12,567    | 0          | 138,506                                | 0          | 138,506    | 94,869      |            |
| 12   | 0.662           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 12,142    | 0          | 138,506                                | 0          | 138,506    | 91,661      |            |
| 13   | 0.639           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 11,732    | 0          | 138,506                                | 0          | 138,506    | 88,561      |            |
| 14   | 0.618           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 11,335    | 0          | 138,506                                | 0          | 138,506    | 85,567      |            |
| 15   | 0.597           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 10,952    | 0          | 138,506                                | 0          | 138,506    | 82,673      |            |
| 16   | 0.577           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 10,581    | 0          | 138,506                                | 0          | 138,506    | 79,877      |            |
| 17   | 0.557           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 10,224    | 0          | 138,506                                | 0          | 138,506    | 77,176      |            |
| 18   | 0.538           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 9,878     | 0          | 138,506                                | 0          | 138,506    | 74,566      |            |
| 19   | 0.520           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 9,544     | 0          | 138,506                                | 0          | 138,506    | 72,045      |            |
| 20   | 0.503           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 9,221     | 0          | 138,506                                | 0          | 138,506    | 69,608      |            |
| 21   | 0.486           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 8,909     | 0          | 138,506                                | 0          | 138,506    | 67,255      |            |
| 22   | 0.469           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 8,608     | 0          | 138,506                                | 0          | 138,506    | 64,980      |            |
| 23   | 0.453           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 8,317     | 0          | 138,506                                | 0          | 138,506    | 62,783      |            |
| 24   | 0.438           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 8,036     | 0          | 138,506                                | 0          | 138,506    | 60,660      |            |
| 25   | 0.423           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 7,764     | 0          | 138,506                                | 0          | 138,506    | 58,608      |            |
| 26   | 0.409           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 7,501     | 0          | 138,506                                | 0          | 138,506    | 56,626      |            |
| 27   | 0.395           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 7,248     | 0          | 138,506                                | 0          | 138,506    | 54,712      |            |
| 28   | 0.382           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 7,003     | 0          | 138,506                                | 0          | 138,506    | 52,861      |            |
| 29   | 0.369           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 6,766     | 0          | 138,506                                | 0          | 138,506    | 51,074      |            |
| 30   | 0.356           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 6,537     | 0          | 138,506                                | 0          | 138,506    | 49,347      |            |
| 31   | 0.346           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 6,347     | 0          | 138,506                                | 0          | 138,506    | 47,909      |            |
| 32   | 0.336           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 6,162     | 0          | 138,506                                | 0          | 138,506    | 46,514      |            |
| 33   | 0.326           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,982     | 0          | 138,506                                | 0          | 138,506    | 45,159      |            |
| 34   | 0.317           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,808     | 0          | 138,506                                | 0          | 138,506    | 43,844      |            |
| 35   | 0.307           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,639     | 0          | 138,506                                | 0          | 138,506    | 42,567      |            |
| 36   | 0.298           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,475     | 0          | 138,506                                | 0          | 138,506    | 41,327      |            |
| 37   | 0.290           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,315     | 0          | 138,506                                | 0          | 138,506    | 40,123      |            |
| 38   | 0.281           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,160     | 0          | 138,506                                | 0          | 138,506    | 38,955      |            |
| 39   | 0.273           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 5,010     | 0          | 138,506                                | 0          | 138,506    | 37,820      |            |
| 40   | 0.265           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,864     | 0          | 138,506                                | 0          | 138,506    | 36,719      |            |
| 41   | 0.257           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,722     | 0          | 138,506                                | 0          | 138,506    | 35,649      |            |
| 42   | 0.250           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,585     | 0          | 138,506                                | 0          | 138,506    | 34,611      |            |
| 43   | 0.243           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,451     | 0          | 138,506                                | 0          | 138,506    | 33,603      |            |
| 44   | 0.236           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,322     | 0          | 138,506                                | 0          | 138,506    | 32,624      |            |
| 45   | 0.229           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,196     | 0          | 138,506                                | 0          | 138,506    | 31,674      |            |
| 46   | 0.222           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 4,074     | 0          | 138,506                                | 0          | 138,506    | 30,751      |            |
| 47   | 0.216           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,955     | 0          | 138,506                                | 0          | 138,506    | 29,856      |            |
| 48   | 0.209           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,840     | 0          | 138,506                                | 0          | 138,506    | 28,986      |            |
| 49   | 0.203           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,728     | 0          | 138,506                                | 0          | 138,506    | 28,142      |            |
| 50   | 0.197           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,619     | 51,507,140 | 0                                      | 51,507,140 | 10,160,439 |             |            |
| 51   | 0.192           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,514     | 0          | 138,506                                | 0          | 138,506    | 26,526      |            |
| 52   | 0.186           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,412     | 0          | 138,506                                | 0          | 138,506    | 25,754      |            |
| 53   | 0.181           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,312     | 0          | 138,506                                | 0          | 138,506    | 25,004      |            |
| 54   | 0.175           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,216     | 0          | 138,506                                | 0          | 138,506    | 24,275      |            |
| 55   | 0.170           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,122     | 0          | 138,506                                | 0          | 138,506    | 23,568      |            |
| 56   | 0.165           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 3,031     | 0          | 138,506                                | 0          | 138,506    | 22,882      |            |
| 57   | 0.160           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,943     | 0          | 138,506                                | 0          | 138,506    | 22,215      |            |
| 58   | 0.156           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,857     | 0          | 138,506                                | 0          | 138,506    | 21,568      |            |
| 59   | 0.151           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,774     | 0          | 138,506                                | 0          | 138,506    | 20,940      |            |
| 60   | 0.147           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,693     | 0          | 138,506                                | 0          | 138,506    | 20,330      |            |
| 61   | 0.143           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,615     | 0          | 138,506                                | 0          | 138,506    | 19,738      |            |
| 62   | 0.138           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,539     | 0          | 138,506                                | 0          | 138,506    | 19,163      |            |
| 63   | 0.134           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,465     | 0          | 138,506                                | 0          | 138,506    | 18,605      |            |
| 64   | 0.130           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,393     | 0          | 138,506                                | 0          | 138,506    | 18,063      |            |
| 65   | 0.127           | 0                     | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 2,323     | 0          | 138,506                                | 0          | 138,506    | 17,537      |            |

|    |      |    |       |   |   |   |   |        |        |       |         |         |        |
|----|------|----|-------|---|---|---|---|--------|--------|-------|---------|---------|--------|
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 138,506 | 138,506 | 17,026 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 138,506 | 138,506 | 16,530 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 138,506 | 138,506 | 16,049 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 138,506 | 138,506 | 15,581 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 138,506 | 138,506 | 15,128 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 138,506 | 138,506 | 14,687 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 138,506 | 138,506 | 14,259 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 138,506 | 138,506 | 13,844 |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 138,506 | 138,506 | 13,441 |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 138,506 | 138,506 | 13,113 |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 138,506 | 138,506 | 12,793 |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 138,506 | 138,506 | 12,481 |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 138,506 | 138,506 | 12,177 |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 138,506 | 138,506 | 11,880 |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 138,506 | 138,506 | 11,590 |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 138,506 | 138,506 | 11,307 |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 138,506 | 138,506 | 11,031 |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 138,506 | 138,506 | 10,762 |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 138,506 | 138,506 | 10,500 |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 138,506 | 138,506 | 10,244 |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 138,506 | 138,506 | 9,994  |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 138,506 | 138,506 | 9,750  |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 138,506 | 138,506 | 9,512  |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 138,506 | 138,506 | 9,280  |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 138,506 | 138,506 | 9,054  |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 138,506 | 138,506 | 8,833  |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 138,506 | 138,506 | 8,618  |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 138,506 | 138,506 | 8,408  |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 138,506 | 138,506 | 8,202  |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 138,506 | 138,506 | 8,002  |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 138,506 | 138,506 | 7,807  |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 138,506 | 138,506 | 7,617  |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 138,506 | 138,506 | 7,431  |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 138,506 | 138,506 | 7,250  |

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## *Option P5 Summary, Benefits and Costs – Approach 1*

## Project Summary Sheet

|   |                 |              |
|---|-----------------|--------------|
| <b>Client/Authority</b>                       | Prepared (date) | Aug-16       |
| Perth & Kinross Council                       | Printed         | Jan-17       |
| <b>Project name</b>                           | Prepared by     | A Williamson |
| Comrie and Dalginross Flood Prevention Scheme | Checked by      | S Gilliland  |
| <b>Project reference</b>                      | Checked date    | Aug-16       |
| Base date for estimates (year 0)              | 1020714         |              |
| Scaling factor (e.g. £m, £k, £)               | Jan-2020        |              |
| Principle land use band                       | £               |              |
| Discount rate                                 | A               |              |
|   | (3.5% - 2.5%)   |              |

### Costs and benefits of options

|  | Costs and benefits £  |                                      |   |
|--|-----------------------|--------------------------------------|---|
|  | Option N (Do Nothing) | Option M (Do Minimum) -<br>Base Case | Flood Defences (200yr<br>SoP) - Option P5 |
| <b>PV costs PVc</b>  | 0                     | 547,160                              | 44,234,479                                |
| <b>PV costs PVc (with Optimism bias = 40.8% and Risk = 0%)</b> | 0                     | 770,401                              | 62,282,146                                |
| <b>PV damage PVd</b>   | 60,651,342            | 21,456,250                           | 2,293,096                                 |
| <b>PV damage avoided</b>                                       |                       | 39,195,092                           | 58,358,246                                |
| <b>PV assets Pva</b>   | 0                     | 0                                    | 0   |
| <b>PV asset protection benefits</b>                            |                       | 0                                    | 0   |
| <b>Intangible Benefits</b>                                     |                       | 0                                    | 4,115,902                                 |
| <b>Total PV benefits PVb</b>                                   |                       | 39,195,092                           | 62,474,148                                |
| <b>Net Present Value NPV</b>                                   |                       | 38,424,691                           | 192,001                                   |
| <b>Average benefit/cost ratio</b>                              |                       | 50.88                                | 1.00                                      |
| <b>Incremental benefit/cost ratio</b>                          |                       |                                      | 0.38                                      |

Highest b/c -

### Brief description of options:

|  |   |
|--|---|
| Option N (Do Nothing)                  | Do Nothing (i.e.walk away) - Failure of Existing Defences           |
| Option M (Do Minimum) - Base Case      | Do Minimum maintenance  |
| Flood Defences (200yr SoP) - Option P5 | Option P5 - Walls & Embankments with River Earn Storage (200yr SoP) |

### Notes:

- 1) Benefits will normally be expressed either in terms of damage avoided or asset values protected. Care is needed to avoid double counting
- 2) PV damage avoided is calculated as PV damage (No Project) - PV damage (Option)  
 PV asset protection benefits are calculated as PVa (Option) - PVa (No Project)  
 PV benefits calculated as PV damage avoided + PV asset protection benefits
- 3) Incremental benefit/cost ratio is calculated as:  

$$\frac{(PVb(\text{current option}) - PVb(\text{previous option}))}{(PVc(\text{current option}) - PVc(\text{previous option}))}$$



**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**  
Perth & Kinross Council  
**Project name**  
Comrie and Dalginross Flood Prevention Scheme  
**Project reference**  
1020714  
Base date for estimates (year 0)  
Jan-2020  
Scaling factor (e.g. £m, £k, £)  
£  
Discount rate  
3.5% 3.0% 2.5%

**Results (£)**

|                  |                              |  |   |
|------------------|------------------------------|--|---|
|                  | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P5</b> |
| <b>PV losses</b> | <b>60,651,342</b>            | <b>21,456,250</b>                        | <b>2,293,096</b>                              |

**Prepared (date)** Aug-16  
**Printed** Jan-2017  
**Prepared by** A Williamson  
**Checked by** S Gilliland  
**Checked date** Aug-16

| Year | Discount Factor | Option N (Do Nothing) |           |            |             |            | Option M (Do Minimum) - Base Case |            |            |            |            | Flood Defences (200yr SoP) - Option P5 |           |           |           |           | Flood Defences (200yr SoP) - Option P5 |           |     |
|------|-----------------|-----------------------|-----------|------------|-------------|------------|-----------------------------------|------------|------------|------------|------------|--|-----------|-----------|-----------|-----------|--|-----------|-----|
|      |                 | residen.              | commerc.  | Write-off  | TOTALS      | PV         | residen.                          | commerc.   | Write-off  | TOTALS     | PV         | residen.                               | commerc.  | Write-off | TOTALS    | PV        | TOTALS                                 | PV        |     |
|      | <b>cash sum</b> | 65,988,106            | 1,730,448 | 48,234,124 | 115,952,678 | 60,651,342 | 46,611,983                        | 414,404    | 10,046,443 | 57,072,829 | 21,456,250 | 9,352,015                              | 398,970   | 0         | 9,750,985 | 2,293,096 | 13,987,190                             | 4,115,902 |     |
| 0    | 2020            | 0                     | 1.000     | 855,994    | 7,379       | 22,669,505 | 23,532,878                        | 23,532,878 | 404,602    | 1,512      | 3,399,943  | 3,806,057                              | 3,806,057 | 35,777    | 1,493     | 0         | 37,270                                 | 37,270    | 0%  |
| 1    | 2021            | 1                     | 0.966     | 855,994    | 7,379       | 0          | 863,373                           | 834,177    | 404,602    | 1,512      | 0          | 406,114                                | 392,380   | 35,777    | 1,493     | 0         | 37,270                                 | 36,010    | 0%  |
| 2    | 2022            | 2                     | 0.934     | 855,994    | 7,379       | 0          | 863,373                           | 805,968    | 404,602    | 1,512      | 0          | 406,114                                | 379,111   | 35,777    | 1,493     | 0         | 37,270                                 | 34,792    | 0%  |
| 3    | 2023            | 3                     | 0.902     | 855,994    | 7,379       | 0          | 863,373                           | 778,713    | 404,602    | 1,512      | 0          | 406,114                                | 366,291   | 35,777    | 1,493     | 0         | 37,270                                 | 33,616    | 0%  |
| 4    | 2024            | 4                     | 0.871     | 855,994    | 7,379       | 0          | 863,373                           | 752,380    | 404,602    | 1,512      | 0          | 406,114                                | 353,904   | 35,777    | 1,493     | 0         | 37,270                                 | 32,479    | 0%  |
| 5    | 2025            | 5                     | 0.842     | 679,028    | 20,018      | 16,706,566 | 17,405,612                        | 14,655,058 | 361,621    | 2,642      | 6,546,061  | 6,910,323                              | 5,818,307 | 63,178    | 2,625     | 0         | 65,802                                 | 55,404    | 10% |
| 6    | 2026            | 6                     | 0.814     | 679,028    | 20,018      | 0          | 699,046                           | 568,674    | 361,621    | 2,642      | 0          | 364,263                                | 296,328   | 63,178    | 2,625     | 0         | 65,802                                 | 53,530    | 10% |
| 7    | 2027            | 7                     | 0.786     | 679,028    | 20,018      | 0          | 699,046                           | 549,444    | 361,621    | 2,642      | 0          | 364,263                                | 286,307   | 63,178    | 2,625     | 0         | 65,802                                 | 51,720    | 10% |
| 8    | 2028            | 8                     | 0.759     | 679,028    | 20,018      | 0          | 699,046                           | 530,864    | 361,621    | 2,642      | 0          | 364,263                                | 276,625   | 63,178    | 2,625     | 0         | 65,802                                 | 49,971    | 10% |
| 9    | 2029            | 9                     | 0.734     | 679,028    | 20,018      | 0          | 699,046                           | 512,912    | 361,621    | 2,642      | 0          | 364,263                                | 267,271   | 63,178    | 2,625     | 0         | 65,802                                 | 48,281    | 10% |
| 10   | 2030            | 10                    | 0.709     | 679,028    | 20,018      | 0          | 699,046                           | 495,567    | 361,621    | 2,642      | 0          | 364,263                                | 258,233   | 63,178    | 2,625     | 0         | 65,802                                 | 46,648    | 10% |
| 11   | 2031            | 11                    | 0.685     | 679,028    | 20,018      | 0          | 699,046                           | 478,809    | 361,621    | 2,642      | 0          | 364,263                                | 249,500   | 63,178    | 2,625     | 0         | 65,802                                 | 45,071    | 10% |
| 12   | 2032            | 12                    | 0.662     | 679,028    | 20,018      | 0          | 699,046                           | 462,617    | 361,621    | 2,642      | 0          | 364,263                                | 241,063   | 63,178    | 2,625     | 0         | 65,802                                 | 43,547    | 10% |
| 13   | 2033            | 13                    | 0.639     | 679,028    | 20,018      | 0          | 699,046                           | 446,973    | 361,621    | 2,642      | 0          | 364,263                                | 232,911   | 63,178    | 2,625     | 0         | 65,802                                 | 42,074    | 10% |
| 14   | 2034            | 14                    | 0.618     | 679,028    | 20,018      | 0          | 699,046                           | 431,858    | 361,621    | 2,642      | 0          | 364,263                                | 225,035   | 63,178    | 2,625     | 0         | 65,802                                 | 40,651    | 10% |
| 15   | 2035            | 15                    | 0.597     | 679,028    | 20,018      | 0          | 699,046                           | 417,254    | 361,621    | 2,642      | 0          | 364,263                                | 217,425   | 63,178    | 2,625     | 0         | 65,802                                 | 39,277    | 10% |
| 16   | 2036            | 16                    | 0.577     | 679,028    | 20,018      | 0          | 699,046                           | 403,144    | 361,621    | 2,642      | 0          | 364,263                                | 210,073   | 63,178    | 2,625     | 0         | 65,802                                 | 37,948    | 10% |
| 17   | 2037            | 17                    | 0.557     | 679,028    | 20,018      | 0          | 699,046                           | 389,511    | 361,621    | 2,642      | 0          | 364,263                                | 202,969   | 63,178    | 2,625     | 0         | 65,802                                 | 36,665    | 10% |
| 18   | 2038            | 18                    | 0.538     | 679,028    | 20,018      | 0          | 699,046                           | 376,339    | 361,621    | 2,642      | 0          | 364,263                                | 196,105   | 63,178    | 2,625     | 0         | 65,802                                 | 35,425    | 10% |
| 19   | 2039            | 19                    | 0.520     | 679,028    | 20,018      | 0          | 699,046                           | 363,613    | 361,621    | 2,642      | 0          | 364,263                                | 189,473   | 63,178    | 2,625     | 0         | 65,802                                 | 34,227    | 10% |
| 20   | 2040            | 20                    | 0.503     | 679,028    | 20,018      | 0          | 699,046                           | 351,317    | 361,621    | 2,642      | 0          | 364,263                                | 183,066   | 63,178    | 2,625     | 0         | 65,802                                 | 33,070    | 10% |
| 21   | 2041            | 21                    | 0.486     | 679,028    | 20,018      | 0          | 699,046                           | 339,436    | 361,621    | 2,642      | 0          | 364,263                                | 176,875   | 63,178    | 2,625     | 0         | 65,802                                 | 31,952    | 10% |
| 22   | 2042            | 22                    | 0.469     | 679,028    | 20,018      | 0          | 699,046                           | 327,958    | 361,621    | 2,642      | 0          | 364,263                                | 170,894   | 63,178    | 2,625     | 0         | 65,802                                 | 30,871    | 10% |
| 23   | 2043            | 23                    | 0.453     | 679,028    | 20,018      | 0          | 699,046                           | 316,868    | 361,621    | 2,642      | 0          | 364,263                                | 165,115   | 63,178    | 2,625     | 0         | 65,802                                 | 29,827    | 10% |
| 24   | 2044            | 24                    | 0.438     | 679,028    | 20,018      | 0          | 699,046                           | 306,152    | 361,621    | 2,642      | 0          | 364,263                                | 159,532   | 63,178    | 2,625     | 0         | 65,802                                 | 28,819    | 10% |
| 25   | 2045            | 25                    | 0.423     | 679,028    | 20,018      | 0          | 699,046                           | 295,799    | 361,621    | 2,642      | 0          | 364,263                                | 154,137   | 63,178    | 2,625     | 0         | 65,802                                 | 27,844    | 10% |
| 26   | 2046            | 26                    | 0.409     | 679,028    | 20,018      | 0          | 699,046                           | 285,796    | 361,621    | 2,642      | 0          | 364,263                                | 148,924   | 63,178    | 2,625     | 0         | 65,802                                 | 26,902    | 10% |
| 27   | 2047            | 27                    | 0.395     | 679,028    | 20,018      | 0          | 699,046                           | 276,132    | 361,621    | 2,642      | 0          | 364,263                                | 143,888   | 63,178    | 2,625     | 0         | 65,802                                 | 25,993    | 10% |
| 28   | 2048            | 28                    | 0.382     | 679,028    | 20,018      | 0          | 699,046                           | 266,794    | 361,621    | 2,642      | 0          | 364,263                                | 139,023   | 63,178    | 2,625     | 0         | 65,802                                 | 25,114    | 10% |
| 29   | 2049            | 29                    | 0.369     | 679,028    | 20,018      | 0          | 699,046                           | 257,772    | 361,621    | 2,642      | 0          | 364,263                                | 134,321   | 63,178    | 2,625     | 0         | 65,802                                 | 24,264    | 10% |
| 30   | 2050            | 30                    | 0.356     | 679,028    | 20,018      | 0          | 699,046                           | 249,055    | 361,621    | 2,642      | 0          | 364,263                                | 129,779   | 63,178    | 2,625     | 0         | 65,802                                 | 23,444    | 10% |
| 31   | 2051            | 31                    | 0.346     | 679,028    | 20,018      | 0          | 699,046                           | 241,801    | 361,621    | 2,642      | 0          | 364,263                                | 125,999   | 63,178    | 2,625     | 0         | 65,802                                 | 22,761    | 10% |
| 32   | 2052            | 32                    | 0.336     | 679,028    | 20,018      | 0          | 699,046                           | 234,758    | 361,621    | 2,642      | 0          | 364,263                                | 122,329   | 63,178    | 2,625     | 0         | 65,802                                 | 22,098    | 10% |
| 33   | 2053            | 33                    | 0.326     | 679,028    | 20,018      | 0          | 699,046                           | 227,921    | 361,621    | 2,642      | 0          | 364,263                                | 118,766   | 63,178    | 2,625     | 0         | 65,802                                 | 21,454    | 10% |
| 34   | 2054            | 34                    | 0.317     | 679,028    | 20,018      | 0          | 699,046                           | 221,282    | 361,621    | 2,642      | 0          | 364,263                                | 115,307   | 63,178    | 2,625     | 0         | 65,802                                 | 20,830    | 10% |
| 35   | 2055            | 35                    | 0.307     | 635,958    | 16,816      | 8,858,050  | 9,510,824                         | 2,922,951  | 519,082    | 5,040      | 100,439    | 624,561                                | 191,946   | 111,966   | 4,812     | 0         | 116,778                                | 35,889    | 10% |
| 36   | 2056            | 36                    | 0.298     | 635,958    | 16,816      | 3          | 652,777                           | 194,774    | 519,082    | 5,040      | 0          | 524,122                                | 156,386   | 111,966   | 4,812     | 0         | 116,778                                | 34,844    | 10% |
| 37   | 2057            | 37                    | 0.290     | 635,958    | 16,816      | 0          | 652,774                           | 189,100    | 519,082    | 5,040      | 0          | 524,122                                | 151,831   | 111,966   | 4,812     | 0         | 116,778                                | 33,829    | 10% |
| 38   | 2058            | 38                    | 0.281     | 635,958    | 16,816      | 0          | 652,774                           | 183,592    | 519,082    | 5,040      | 0          | 524,122                                | 147,409   | 111,966   | 4,812     | 0         | 116,778                                | 32,844    | 10% |
| 39   | 2059            | 39                    | 0.273     | 635,958    | 16,816      | 0          | 652,774                           | 178,245    | 519,082    | 5,040      | 0          | 524,122                                | 143,116   | 111,966   | 4,812     | 0         | 116,778                                | 31,887    | 10% |
| 40   | 2060            | 40                    | 0.265     | 635,958    | 16,816      | 0          | 652,774                           | 173,053    | 519,082    | 5,040      | 0          | 524,122                                | 138,947   | 111,966   | 4,812     | 0         | 116,778                                | 30,958    | 10% |
| 41   | 2061            | 41                    | 0.257     | 635,958    | 16,816      | 0          | 652,774                           | 168,013    | 519,082    | 5,040      | 0          | 524,122                                | 134,900   | 111,966   | 4,812     | 0         | 116,778                                | 30,057    | 10% |
| 42   | 2062            | 42                    | 0.250     | 635,958    | 16,816      | 0          | 652,774                           | 163,119    | 519,082    | 5,040      | 0          | 524,122                                | 130,971   | 111,966   | 4,812     | 0         | 116,778                                | 29,181    | 10% |
| 43   | 2063            | 43                    | 0.243     | 635,958    | 16,816      | 0          | 652,774                           | 158,368    | 519,082    | 5,040      | 0          | 524,122                                | 127,156   | 111,966   | 4,812     | 0         | 116,778                                | 28,331    | 10% |
| 44   | 2064            | 44                    | 0.236     | 635,958    | 16,816      | 0          | 652,774                           | 153,756    | 519,082    | 5,040      | 0          | 524,122                                | 123,453   | 111,966   | 4,812     | 0         | 116,778                                | 27,506    | 10% |
| 45   | 2065            | 45                    | 0.229     | 635,958    | 16,816      | 0          | 652,774                           | 149,277    | 519,082    | 5,040      | 0          | 524,122                                | 119,857   | 111,966   | 4,812     | 0         | 116,778                                | 26,705    | 10% |
| 46   | 2066            | 46                    | 0.222     | 635,958    | 16,816      | 0          | 652,774                           | 144,929    | 519,082    | 5,040      | 0          | 524,122                                | 116,366   | 111,966   | 4,812     | 0         | 116,778                                | 25,927    | 10% |
| 47   | 2067            | 47                    | 0.216     | 635,958    | 16,816      | 0          | 652,774                           | 140,708    | 519,082    | 5,040      | 0          | 524,122                                | 112,977   | 111,966   | 4,812     | 0         | 116,778                                | 25,172    | 10% |
| 48   | 2068            | 48                    | 0.209     | 635,958    | 16,816      | 0          | 652,774                           | 136,610    | 519,082    | 5,040      | 0          | 524,122                                | 109,686   | 111,966   | 4,812     | 0         | 116,778                                | 24,439    | 10% |
| 49   | 2069            | 49                    | 0.203     | 635,958    | 16,816      | 0          | 652,774                           | 132,631    | 519,082    | 5,040      | 0          | 524,122                                | 106,491   | 111,966   | 4,812     | 0         | 116,778                                | 23,727    | 10% |
| 50   | 2070            | 50                    | 0.197     | 635,958    | 16,816      | 0          | 652,774                           | 128,768    | 519,082    | 5,040      |            |  |           |           |           |           |  |           |     |

|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC



**Present Value Costs for all options**

Sheet Nr. 10

**Client/Authority**  
Perth & Kinross Council

**Project name**  
Comrie and Dalginross Flood Prevention Scheme

**Project reference** 1020714

Base date for estimates (year 0) Jan-2020 29.821

Scaling factor (e.g. £m, £k, £) £

Discount rate 3.5% 3.0% 2.5%

| Results £             |                        |   |
|-----------------------|------------------------|---|
| Option N (Do Nothing) | Do Minimum maintenance | Option P5 - Walls & Embankments with River Earn Storage (200yr SoP) |
| 0                     | 547,160                | 44,234,479  |

Prepared (date) Aug-16  
Printed Jan-2017  
Prepared by A Williamson  
Checked by S Gilliland  
Checked date Aug-16

PV total costs

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |           |       | TOTALS:   |         | Flood Defences (200yr SoP) - Option P5 |           |       | TOTALS:    |            |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|-----------|-------|-----------|---------|--|-----------|-------|------------|------------|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint.    | Other | Cash      | PV      | Capital                                | Maint.    | Other | Cash       | PV         |
|      | cash sum        | 0                     | 0      | 0     | 0       | 0  | 0                                 | 1,834,800 | 0     | 1,834,800 | 547,160 | 69,241,202                             | 9,533,388 | 0     | 78,774,590 | 44,234,479 |

|    |      |    |       |   |   |   |   |        |   |        |        |            |        |            |            |            |
|----|------|----|-------|---|---|---|---|--------|---|--------|--------|------------|--------|------------|------------|------------|
| 0  | 2020 | 0  | 1.000 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 18,348 | 34,620,601 | 0      | 0          | 34,620,601 | 34,620,601 |
| 1  | 2021 | 1  | 0.966 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 17,728 |            | 97,279 |            | 97,279     | 93,990     |
| 2  | 2022 | 2  | 0.934 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 17,128 |            | 97,279 |            | 97,279     | 90,811     |
| 3  | 2023 | 3  | 0.902 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 16,549 |            | 97,279 |            | 97,279     | 87,741     |
| 4  | 2024 | 4  | 0.871 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 15,989 |            | 97,279 |            | 97,279     | 84,773     |
| 5  | 2025 | 5  | 0.842 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 15,449 |            | 97,279 |            | 97,279     | 81,907     |
| 6  | 2026 | 6  | 0.814 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 14,926 |            | 97,279 |            | 97,279     | 79,137     |
| 7  | 2027 | 7  | 0.786 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 14,421 |            | 97,279 |            | 97,279     | 76,461     |
| 8  | 2028 | 8  | 0.759 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 13,934 |            | 97,279 |            | 97,279     | 73,875     |
| 9  | 2029 | 9  | 0.734 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 13,462 |            | 97,279 |            | 97,279     | 71,377     |
| 10 | 2030 | 10 | 0.709 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 13,007 |            | 97,279 |            | 97,279     | 68,963     |
| 11 | 2031 | 11 | 0.685 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 12,567 |            | 97,279 |            | 97,279     | 66,631     |
| 12 | 2032 | 12 | 0.662 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 12,142 |            | 97,279 |            | 97,279     | 64,378     |
| 13 | 2033 | 13 | 0.639 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 11,732 |            | 97,279 |            | 97,279     | 62,201     |
| 14 | 2034 | 14 | 0.618 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 11,335 |            | 97,279 |            | 97,279     | 60,097     |
| 15 | 2035 | 15 | 0.597 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 10,952 |            | 97,279 |            | 97,279     | 58,065     |
| 16 | 2036 | 16 | 0.577 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 10,581 |            | 97,279 |            | 97,279     | 56,102     |
| 17 | 2037 | 17 | 0.557 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 10,224 |            | 97,279 |            | 97,279     | 54,204     |
| 18 | 2038 | 18 | 0.538 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 9,878  |            | 97,279 |            | 97,279     | 52,371     |
| 19 | 2039 | 19 | 0.520 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 9,544  |            | 97,279 |            | 97,279     | 50,600     |
| 20 | 2040 | 20 | 0.503 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 9,221  |            | 97,279 |            | 97,279     | 48,889     |
| 21 | 2041 | 21 | 0.486 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 8,909  |            | 97,279 |            | 97,279     | 47,236     |
| 22 | 2042 | 22 | 0.469 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 8,608  |            | 97,279 |            | 97,279     | 45,639     |
| 23 | 2043 | 23 | 0.453 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 8,317  |            | 97,279 |            | 97,279     | 44,095     |
| 24 | 2044 | 24 | 0.438 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 8,036  |            | 97,279 |            | 97,279     | 42,604     |
| 25 | 2045 | 25 | 0.423 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 7,764  |            | 97,279 |            | 97,279     | 41,164     |
| 26 | 2046 | 26 | 0.409 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 7,501  |            | 97,279 |            | 97,279     | 39,772     |
| 27 | 2047 | 27 | 0.395 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 7,248  |            | 97,279 |            | 97,279     | 38,427     |
| 28 | 2048 | 28 | 0.382 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 7,003  |            | 97,279 |            | 97,279     | 37,127     |
| 29 | 2049 | 29 | 0.369 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 6,766  |            | 97,279 |            | 97,279     | 35,872     |
| 30 | 2050 | 30 | 0.356 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 6,537  |            | 97,279 |            | 97,279     | 34,659     |
| 31 | 2051 | 31 | 0.346 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 6,347  |            | 97,279 |            | 97,279     | 33,649     |
| 32 | 2052 | 32 | 0.336 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 6,162  |            | 97,279 |            | 97,279     | 32,669     |
| 33 | 2053 | 33 | 0.326 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,982  |            | 97,279 |            | 97,279     | 31,718     |
| 34 | 2054 | 34 | 0.317 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,808  |            | 97,279 |            | 97,279     | 30,794     |
| 35 | 2055 | 35 | 0.307 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,639  |            | 97,279 |            | 97,279     | 29,897     |
| 36 | 2056 | 36 | 0.298 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,475  |            | 97,279 |            | 97,279     | 29,026     |
| 37 | 2057 | 37 | 0.290 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,315  |            | 97,279 |            | 97,279     | 28,181     |
| 38 | 2058 | 38 | 0.281 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,160  |            | 97,279 |            | 97,279     | 27,360     |
| 39 | 2059 | 39 | 0.273 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 5,010  |            | 97,279 |            | 97,279     | 26,563     |
| 40 | 2060 | 40 | 0.265 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,864  |            | 97,279 |            | 97,279     | 25,789     |
| 41 | 2061 | 41 | 0.257 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,722  |            | 97,279 |            | 97,279     | 25,038     |
| 42 | 2062 | 42 | 0.250 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,585  |            | 97,279 |            | 97,279     | 24,309     |
| 43 | 2063 | 43 | 0.243 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,451  |            | 97,279 |            | 97,279     | 23,601     |
| 44 | 2064 | 44 | 0.236 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,322  |            | 97,279 |            | 97,279     | 22,913     |
| 45 | 2065 | 45 | 0.229 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,196  |            | 97,279 |            | 97,279     | 22,246     |
| 46 | 2066 | 46 | 0.222 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 4,074  |            | 97,279 |            | 97,279     | 21,598     |
| 47 | 2067 | 47 | 0.216 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,955  |            | 97,279 |            | 97,279     | 20,969     |
| 48 | 2068 | 48 | 0.209 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,840  |            | 97,279 |            | 97,279     | 20,358     |
| 49 | 2069 | 49 | 0.203 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,728  |            | 97,279 |            | 97,279     | 19,765     |
| 50 | 2070 | 50 | 0.197 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,619  | 34,620,601 | 0      | 34,620,601 | 6,829,354  |            |
| 51 | 2071 | 51 | 0.192 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,514  |            | 97,279 |            | 97,279     | 18,631     |
| 52 | 2072 | 52 | 0.186 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,412  |            | 97,279 |            | 97,279     | 18,088     |
| 53 | 2073 | 53 | 0.181 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,312  |            | 97,279 |            | 97,279     | 17,561     |
| 54 | 2074 | 54 | 0.175 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,216  |            | 97,279 |            | 97,279     | 17,050     |
| 55 | 2075 | 55 | 0.170 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,122  |            | 97,279 |            | 97,279     | 16,553     |
| 56 | 2076 | 56 | 0.165 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 3,031  |            | 97,279 |            | 97,279     | 16,071     |
| 57 | 2077 | 57 | 0.160 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,943  |            | 97,279 |            | 97,279     | 15,603     |
| 58 | 2078 | 58 | 0.156 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,857  |            | 97,279 |            | 97,279     | 15,148     |
| 59 | 2079 | 59 | 0.151 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,774  |            | 97,279 |            | 97,279     | 14,707     |
| 60 | 2080 | 60 | 0.147 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,693  |            | 97,279 |            | 97,279     | 14,279     |
| 61 | 2081 | 61 | 0.143 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,615  |            | 97,279 |            | 97,279     | 13,863     |
| 62 | 2082 | 62 | 0.138 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,539  |            | 97,279 |            | 97,279     | 13,459     |
| 63 | 2083 | 63 | 0.134 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,465  |            | 97,279 |            | 97,279     | 13,067     |
| 64 | 2084 | 64 | 0.130 | 0 | 0 | 0 | 0 | 18,348 | 0 | 18,348 | 2,393  |            | 97,279 |            | 97,279     | 12,687     |

|    |      |    |       |   |   |   |   |        |        |       |        |        |        |
|----|------|----|-------|---|---|---|---|--------|--------|-------|--------|--------|--------|
| 65 | 2085 | 65 | 0.127 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,323 | 97,279 | 97,279 | 12,317 |
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 97,279 | 97,279 | 11,958 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 97,279 | 97,279 | 11,610 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 97,279 | 97,279 | 11,272 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 97,279 | 97,279 | 10,944 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 97,279 | 97,279 | 10,625 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 97,279 | 97,279 | 10,315 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 97,279 | 97,279 | 10,015 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 97,279 | 97,279 | 9,723  |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 97,279 | 97,279 | 9,440  |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 97,279 | 97,279 | 9,210  |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 97,279 | 97,279 | 8,985  |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 97,279 | 97,279 | 8,766  |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 97,279 | 97,279 | 8,552  |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 97,279 | 97,279 | 8,344  |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 97,279 | 97,279 | 8,140  |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 97,279 | 97,279 | 7,942  |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 97,279 | 97,279 | 7,748  |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 97,279 | 97,279 | 7,559  |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 97,279 | 97,279 | 7,375  |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 97,279 | 97,279 | 7,195  |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 97,279 | 97,279 | 7,019  |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 97,279 | 97,279 | 6,848  |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 97,279 | 97,279 | 6,681  |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 97,279 | 97,279 | 6,518  |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 97,279 | 97,279 | 6,359  |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 97,279 | 97,279 | 6,204  |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 97,279 | 97,279 | 6,053  |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 97,279 | 97,279 | 5,905  |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 97,279 | 97,279 | 5,761  |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 97,279 | 97,279 | 5,620  |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 97,279 | 97,279 | 5,483  |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 97,279 | 97,279 | 5,350  |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 97,279 | 97,279 | 5,219  |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 97,279 | 97,279 | 5,092  |

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## *Option P5 Summary, Benefits and Costs – Approach 2*

## Project Summary Sheet

**Client/Authority**

Perth &amp; Kinross Council

**Project name**

Comrie and Dalginross Flood Prevention Scheme

**Project reference**

Base date for estimates (year 0)

Scaling factor (e.g. £m, £k, £)

Principle land use band

Discount rate

**Costs and benefits of options**

|  | Costs and benefits £  |                                      |   |
|--|-----------------------|--------------------------------------|---|
|  | Option N (Do Nothing) | Option M (Do Minimum) -<br>Base Case | Flood Defences (200yr<br>SoP) - Option P5 |
| PV costs PVc   | 0                     | 547,160                              | 49,415,723                                |
| PV costs PVc (with Optimism bias = 58.2% and Risk = 12.5%) | 0                     | 865,607                              | 78,175,674                                |
| PV damage PVd  | 60,651,342            | 21,456,250                           | 2,293,096                                 |
| PV damage avoided  |                       | 39,195,092                           | 58,358,246                                |
| PV assets Pva  | 0                     | 0                                    | 0   |
| PV asset protection benefits                               |                       | 0                                    | 0   |
| Intangible Benefits  |                       | 0                                    | 4,115,902                                 |
| Total PV benefits PVb                                      |                       | 39,195,092                           | 62,474,148                                |
| Net Present Value NPV                                      |                       | 38,329,485                           | -15,701,527                               |
| Average benefit/cost ratio                                 |                       | 45.28                                | 0.80                                      |
| Incremental benefit/cost ratio                             |                       |                                      | 0.30                                      |

Highest b/c

-

**Brief description of options:**

Option N (Do Nothing)

Do Nothing (i.e.walk away) - Failure of Existing Defences

Option M (Do Minimum) - Base Case

Do Minimum maintenance

Flood Defences (200yr SoP) - Option P5

Option P5 - Walls &amp; Embankments with River Earn Storage (200yr SoP)

**Notes:**

- 1) Benefits will normally be expressed either in terms of damage avoided or asset values protected. Care is needed to avoid double counting
- 2) PV damage avoided is calculated as PV damage (No Project) - PV damage (Option)  
 PV asset protection benefits are calculated as PVa (Option) - PVa (No Project)  
 PV benefits calculated as PV damage avoided + PV asset protection benefits
- 3) Incremental benefit/cost ratio is calculated as:  

$$(PVb(\text{current option}) - PVb(\text{previous option})) / (PVc(\text{current option}) - PVc(\text{previous option}))$$

Prepared (date)

Aug-16

Printed

Jan-17

Prepared by

A Williamson

Checked by

S Gilliland

Checked date

Aug-16

**Present Value Losses and Benefits**

Sheet Nr. 9

**Client/Authority**  
Perth & Kinross Council  
**Project name**  
Comrie and Dalginross Flood Prevention Scheme  
**Project reference**  
1020714  
Base date for estimates (year 0)  
Jan-2020  
Scaling factor (e.g. £m, £k, £)  
£  
Discount rate  
3.5% 3.0% 2.5%

Results (£)

|           |                              |  |   |
|-----------|------------------------------|--|---|
|           | <b>Option N (Do Nothing)</b> | <b>Option M (Do Minimum) - Base Case</b> | <b>Flood Defences (200yr SoP) - Option P5</b> |
| PV losses | 60,651,342                   | 21,456,250                               | 2,293,096                                     |

Prepared (date)  
Aug-16  
Printed  
Jan-2017  
Prepared by  
A Williamson  
Checked by  
S Gilliland  
Checked date  
Aug-16

| Year | Discount Factor | Option N (Do Nothing) |           |            |             |            | Option M (Do Minimum) - Base Case |          |            |            |            | Flood Defences (200yr SoP) - Option P5 |          |           |           |           |
|------|-----------------|-----------------------|-----------|------------|-------------|------------|-----------------------------------|----------|------------|------------|------------|--|----------|-----------|-----------|-----------|
|      |                 | residen.              | commerc.  | Write-off  | TOTALS      | PV         | residen.                          | commerc. | Write-off  | TOTALS     | PV         | residen.                               | commerc. | Write-off | TOTALS    | PV        |
|      | <b>cash sum</b> | 65,988,106            | 1,730,448 | 48,234,124 | 115,952,678 | 60,651,342 | 46,611,983                        | 414,404  | 10,046,443 | 57,072,829 | 21,456,250 | 9,352,015                              | 398,970  | 0         | 9,750,985 | 2,293,096 |

| Flood Defences (200yr SoP) - Option P5 |           |
|--|-----------|
| TOTALS                                 | PV        |
| 13,987,190                             | 4,115,902 |

|    |      |    |       |         |        |            |            |            |         |       |           |           |           |         |       |   |         |        |        |
|----|------|----|-------|---------|--------|------------|------------|------------|---------|-------|-----------|-----------|-----------|---------|-------|---|---------|--------|--------|
| 0  | 2020 | 0  | 1.000 | 855,994 | 7,379  | 22,669,505 | 23,532,878 | 23,532,878 | 404,602 | 1,512 | 3,399,943 | 3,806,057 | 3,806,057 | 35,777  | 1,493 | 0 | 37,270  | 37,270 | 0% CC  |
| 1  | 2021 | 1  | 0.966 | 855,994 | 7,379  | 0          | 863,373    | 834,177    | 404,602 | 1,512 | 0         | 406,114   | 392,380   | 35,777  | 1,493 | 0 | 37,270  | 36,010 |        |
| 2  | 2022 | 2  | 0.934 | 855,994 | 7,379  | 0          | 863,373    | 805,968    | 404,602 | 1,512 | 0         | 406,114   | 379,111   | 35,777  | 1,493 | 0 | 37,270  | 34,792 |        |
| 3  | 2023 | 3  | 0.902 | 855,994 | 7,379  | 0          | 863,373    | 778,713    | 404,602 | 1,512 | 0         | 406,114   | 366,291   | 35,777  | 1,493 | 0 | 37,270  | 33,616 |        |
| 4  | 2024 | 4  | 0.871 | 855,994 | 7,379  | 0          | 863,373    | 752,380    | 404,602 | 1,512 | 0         | 406,114   | 353,904   | 35,777  | 1,493 | 0 | 37,270  | 32,479 |        |
| 5  | 2025 | 5  | 0.842 | 679,028 | 20,018 | 16,706,566 | 17,405,612 | 14,655,058 | 361,621 | 2,642 | 6,546,061 | 6,910,323 | 5,818,307 | 63,178  | 2,625 | 0 | 65,802  | 55,404 | 10% CC |
| 6  | 2026 | 6  | 0.814 | 679,028 | 20,018 | 0          | 699,046    | 568,674    | 361,621 | 2,642 | 0         | 364,263   | 296,328   | 63,178  | 2,625 | 0 | 65,802  | 53,530 |        |
| 7  | 2027 | 7  | 0.786 | 679,028 | 20,018 | 0          | 699,046    | 549,444    | 361,621 | 2,642 | 0         | 364,263   | 286,307   | 63,178  | 2,625 | 0 | 65,802  | 51,720 |        |
| 8  | 2028 | 8  | 0.759 | 679,028 | 20,018 | 0          | 699,046    | 530,864    | 361,621 | 2,642 | 0         | 364,263   | 276,625   | 63,178  | 2,625 | 0 | 65,802  | 49,971 |        |
| 9  | 2029 | 9  | 0.734 | 679,028 | 20,018 | 0          | 699,046    | 512,912    | 361,621 | 2,642 | 0         | 364,263   | 267,271   | 63,178  | 2,625 | 0 | 65,802  | 48,281 |        |
| 10 | 2030 | 10 | 0.709 | 679,028 | 20,018 | 0          | 699,046    | 495,567    | 361,621 | 2,642 | 0         | 364,263   | 258,233   | 63,178  | 2,625 | 0 | 65,802  | 46,648 |        |
| 11 | 2031 | 11 | 0.685 | 679,028 | 20,018 | 0          | 699,046    | 478,809    | 361,621 | 2,642 | 0         | 364,263   | 249,500   | 63,178  | 2,625 | 0 | 65,802  | 45,071 |        |
| 12 | 2032 | 12 | 0.662 | 679,028 | 20,018 | 0          | 699,046    | 462,617    | 361,621 | 2,642 | 0         | 364,263   | 241,063   | 63,178  | 2,625 | 0 | 65,802  | 43,547 |        |
| 13 | 2033 | 13 | 0.639 | 679,028 | 20,018 | 0          | 699,046    | 446,973    | 361,621 | 2,642 | 0         | 364,263   | 232,911   | 63,178  | 2,625 | 0 | 65,802  | 42,074 |        |
| 14 | 2034 | 14 | 0.618 | 679,028 | 20,018 | 0          | 699,046    | 431,858    | 361,621 | 2,642 | 0         | 364,263   | 225,035   | 63,178  | 2,625 | 0 | 65,802  | 40,651 |        |
| 15 | 2035 | 15 | 0.597 | 679,028 | 20,018 | 0          | 699,046    | 417,254    | 361,621 | 2,642 | 0         | 364,263   | 217,425   | 63,178  | 2,625 | 0 | 65,802  | 39,277 |        |
| 16 | 2036 | 16 | 0.577 | 679,028 | 20,018 | 0          | 699,046    | 403,144    | 361,621 | 2,642 | 0         | 364,263   | 210,073   | 63,178  | 2,625 | 0 | 65,802  | 37,948 |        |
| 17 | 2037 | 17 | 0.557 | 679,028 | 20,018 | 0          | 699,046    | 389,511    | 361,621 | 2,642 | 0         | 364,263   | 202,969   | 63,178  | 2,625 | 0 | 65,802  | 36,665 |        |
| 18 | 2038 | 18 | 0.538 | 679,028 | 20,018 | 0          | 699,046    | 376,339    | 361,621 | 2,642 | 0         | 364,263   | 196,105   | 63,178  | 2,625 | 0 | 65,802  | 35,425 |        |
| 19 | 2039 | 19 | 0.520 | 679,028 | 20,018 | 0          | 699,046    | 363,613    | 361,621 | 2,642 | 0         | 364,263   | 189,473   | 63,178  | 2,625 | 0 | 65,802  | 34,227 |        |
| 20 | 2040 | 20 | 0.503 | 679,028 | 20,018 | 0          | 699,046    | 351,317    | 361,621 | 2,642 | 0         | 364,263   | 183,066   | 63,178  | 2,625 | 0 | 65,802  | 33,070 |        |
| 21 | 2041 | 21 | 0.486 | 679,028 | 20,018 | 0          | 699,046    | 339,436    | 361,621 | 2,642 | 0         | 364,263   | 176,875   | 63,178  | 2,625 | 0 | 65,802  | 31,952 |        |
| 22 | 2042 | 22 | 0.469 | 679,028 | 20,018 | 0          | 699,046    | 327,958    | 361,621 | 2,642 | 0         | 364,263   | 170,894   | 63,178  | 2,625 | 0 | 65,802  | 30,871 |        |
| 23 | 2043 | 23 | 0.453 | 679,028 | 20,018 | 0          | 699,046    | 316,868    | 361,621 | 2,642 | 0         | 364,263   | 165,115   | 63,178  | 2,625 | 0 | 65,802  | 29,827 |        |
| 24 | 2044 | 24 | 0.438 | 679,028 | 20,018 | 0          | 699,046    | 306,152    | 361,621 | 2,642 | 0         | 364,263   | 159,532   | 63,178  | 2,625 | 0 | 65,802  | 28,819 |        |
| 25 | 2045 | 25 | 0.423 | 679,028 | 20,018 | 0          | 699,046    | 295,799    | 361,621 | 2,642 | 0         | 364,263   | 154,137   | 63,178  | 2,625 | 0 | 65,802  | 27,844 |        |
| 26 | 2046 | 26 | 0.409 | 679,028 | 20,018 | 0          | 699,046    | 285,796    | 361,621 | 2,642 | 0         | 364,263   | 148,924   | 63,178  | 2,625 | 0 | 65,802  | 26,902 |        |
| 27 | 2047 | 27 | 0.395 | 679,028 | 20,018 | 0          | 699,046    | 276,132    | 361,621 | 2,642 | 0         | 364,263   | 143,888   | 63,178  | 2,625 | 0 | 65,802  | 25,993 |        |
| 28 | 2048 | 28 | 0.382 | 679,028 | 20,018 | 0          | 699,046    | 266,794    | 361,621 | 2,642 | 0         | 364,263   | 139,023   | 63,178  | 2,625 | 0 | 65,802  | 25,114 |        |
| 29 | 2049 | 29 | 0.369 | 679,028 | 20,018 | 0          | 699,046    | 257,772    | 361,621 | 2,642 | 0         | 364,263   | 134,321   | 63,178  | 2,625 | 0 | 65,802  | 24,264 |        |
| 30 | 2050 | 30 | 0.356 | 679,028 | 20,018 | 0          | 699,046    | 249,055    | 361,621 | 2,642 | 0         | 364,263   | 129,779   | 63,178  | 2,625 | 0 | 65,802  | 23,444 |        |
| 31 | 2051 | 31 | 0.346 | 679,028 | 20,018 | 0          | 699,046    | 241,801    | 361,621 | 2,642 | 0         | 364,263   | 125,999   | 63,178  | 2,625 | 0 | 65,802  | 22,761 |        |
| 32 | 2052 | 32 | 0.336 | 679,028 | 20,018 | 0          | 699,046    | 234,758    | 361,621 | 2,642 | 0         | 364,263   | 122,329   | 63,178  | 2,625 | 0 | 65,802  | 22,098 |        |
| 33 | 2053 | 33 | 0.326 | 679,028 | 20,018 | 0          | 699,046    | 227,921    | 361,621 | 2,642 | 0         | 364,263   | 118,766   | 63,178  | 2,625 | 0 | 65,802  | 21,454 |        |
| 34 | 2054 | 34 | 0.317 | 679,028 | 20,018 | 0          | 699,046    | 221,282    | 361,621 | 2,642 | 0         | 364,263   | 115,307   | 63,178  | 2,625 | 0 | 65,802  | 20,830 |        |
| 35 | 2055 | 35 | 0.307 | 635,958 | 16,816 | 8,858,050  | 9,510,824  | 2,922,951  | 519,082 | 5,040 | 100,439   | 624,561   | 191,946   | 111,966 | 4,812 | 0 | 116,778 | 35,889 |        |
| 36 | 2056 | 36 | 0.298 | 635,958 | 16,816 | 3          | 652,777    | 194,774    | 519,082 | 5,040 | 0         | 524,122   | 156,386   | 111,966 | 4,812 | 0 | 116,778 | 34,844 |        |
| 37 | 2057 | 37 | 0.290 | 635,958 | 16,816 | 0          | 652,774    | 189,100    | 519,082 | 5,040 | 0         | 524,122   | 151,831   | 111,966 | 4,812 | 0 | 116,778 | 33,829 |        |
| 38 | 2058 | 38 | 0.281 | 635,958 | 16,816 | 0          | 652,774    | 183,592    | 519,082 | 5,040 | 0         | 524,122   | 147,409   | 111,966 | 4,812 | 0 | 116,778 | 32,844 |        |
| 39 | 2059 | 39 | 0.273 | 635,958 | 16,816 | 0          | 652,774    | 178,245    | 519,082 | 5,040 | 0         | 524,122   | 143,116   | 111,966 | 4,812 | 0 | 116,778 | 31,887 |        |
| 40 | 2060 | 40 | 0.265 | 635,958 | 16,816 | 0          | 652,774    | 173,053    | 519,082 | 5,040 | 0         | 524,122   | 138,947   | 111,966 | 4,812 | 0 | 116,778 | 30,958 |        |
| 41 | 2061 | 41 | 0.257 | 635,958 | 16,816 | 0          | 652,774    | 168,013    | 519,082 | 5,040 | 0         | 524,122   | 134,900   | 111,966 | 4,812 | 0 | 116,778 | 30,057 |        |
| 42 | 2062 | 42 | 0.250 | 635,958 | 16,816 | 0          | 652,774    | 163,119    | 519,082 | 5,040 | 0         | 524,122   | 130,971   | 111,966 | 4,812 | 0 | 116,778 | 29,181 |        |
| 43 | 2063 | 43 | 0.243 | 635,958 | 16,816 | 0          | 652,774    | 158,368    | 519,082 | 5,040 | 0         | 524,122   | 127,156   | 111,966 | 4,812 | 0 | 116,778 | 28,331 |        |
| 44 | 2064 | 44 | 0.236 | 635,958 | 16,816 | 0          | 652,774    | 153,756    | 519,082 | 5,040 | 0         | 524,122   | 123,453   | 111,966 | 4,812 | 0 | 116,778 | 27,506 |        |
| 45 | 2065 | 45 | 0.229 | 635,958 | 16,816 | 0          | 652,774    | 149,277    | 519,082 | 5,040 | 0         | 524,122   | 119,857   | 111,966 | 4,812 | 0 | 116,778 | 26,705 |        |
| 46 | 2066 | 46 | 0.222 | 635,958 | 16,816 | 0          | 652,774    | 144,929    | 519,082 | 5,040 | 0         | 524,122   | 116,366   | 111,966 | 4,812 | 0 | 116,778 | 25,927 |        |
| 47 | 2067 | 47 | 0.216 | 635,958 | 16,816 | 0          | 652,774    | 140,708    | 519,082 | 5,040 | 0         | 524,122   | 112,977   | 111,966 | 4,812 | 0 | 116,778 | 25,172 |        |
| 48 | 2068 | 48 | 0.209 | 635,958 | 16,816 | 0          | 652,774    | 136,610    | 519,082 | 5,040 | 0         | 524,122   | 109,686   | 111,966 | 4,812 | 0 | 116,778 | 24,439 |        |
| 49 | 2069 | 49 | 0.203 | 635,958 | 16,816 | 0          | 652,774    | 132,631    | 519,082 | 5,040 | 0         | 524,122   | 106,491   | 111,966 | 4,812 | 0 | 116,778 | 23,727 |        |
| 50 | 2070 | 50 | 0.197 | 635,958 | 16,816 | 0          | 652,774    | 128,768    | 519,082 | 5,040 | 0         | 524,122   | 103,390   | 111,966 | 4,812 | 0 | 116,778 | 23,036 |        |
| 51 | 2071 | 51 | 0.192 | 635,958 | 16,816 | 0          | 652,774    | 125,017    | 519,082 | 5,040 | 0         | 524,122   | 100,378   | 111,966 | 4,812 | 0 | 116,778 | 22,365 |        |
| 52 | 2072 | 52 | 0.186 | 635,958 | 16,816 | 0          | 652,774    | 121,376    | 519,082 | 5,040 | 0         | 524,122   | 97,455    | 111,966 | 4,812 | 0 | 116,778 | 21,714 |        |
| 53 | 2073 | 53 | 0.181 | 635,958 | 16,816 | 0          | 652,774    | 117,841    | 519,082 | 5,040 | 0         | 524,122   | 94,616    | 111,966 | 4,812 | 0 | 116,778 | 21,081 |        |
| 54 | 2074 | 54 | 0.175 | 635,958 | 16,816 | 0          | 652,774    | 114,409    | 519,082 | 5,040 | 0         | 524,122   | 91,860    | 111,966 | 4,812 | 0 | 116,778 | 20,467 |        |
| 55 | 2075 | 55 | 0.170 | 635,958 | 16,816 | 0          | 652,774    | 111,076    | 519,082 | 5,040 | 0         | 524,122   | 89,185    | 111,966 | 4,812 | 0 | 116,778 | 19,871 |        |
| 56 | 2076 | 56 | 0.165 | 635,958 | 16,816 | 0          | 652,774    | 107,841    | 519,082 | 5,040 | 0         | 524,122   | 86,587    | 111,966 | 4,812 | 0 | 116,778 | 19,292 |        |
| 57 | 2077 | 57 | 0.160 | 635,958 | 16,816 | 0          | 652,774    | 104,700    | 519     |       |           |           |           |         |       |   |         |        |        |



|    |      |    |       |         |        |   |         |        |         |       |   |         |        |         |       |   |         |        |      |         |        |
|----|------|----|-------|---------|--------|---|---------|--------|---------|-------|---|---------|--------|---------|-------|---|---------|--------|------|---------|--------|
| 65 | 2085 | 65 | 0.127 | 635,958 | 16,816 | 0 | 652,774 | 82,651 | 519,082 | 5,040 | 0 | 524,122 | 66,362 | 111,966 | 4,812 | 0 | 116,778 | 14,786 | 2085 | 141,418 | 17,906 |
| 66 | 2086 | 66 | 0.123 | 635,958 | 16,816 | 0 | 652,774 | 80,244 | 519,082 | 5,040 | 0 | 524,122 | 64,429 | 111,966 | 4,812 | 0 | 116,778 | 14,355 | 2086 | 141,418 | 17,384 |
| 67 | 2087 | 67 | 0.119 | 635,958 | 16,816 | 0 | 652,774 | 77,907 | 519,082 | 5,040 | 0 | 524,122 | 62,552 | 111,966 | 4,812 | 0 | 116,778 | 13,937 | 2087 | 141,418 | 16,878 |
| 68 | 2088 | 68 | 0.116 | 635,958 | 16,816 | 0 | 652,774 | 75,638 | 519,082 | 5,040 | 0 | 524,122 | 60,731 | 111,966 | 4,812 | 0 | 116,778 | 13,531 | 2088 | 141,418 | 16,386 |
| 69 | 2089 | 69 | 0.112 | 635,958 | 16,816 | 0 | 652,774 | 73,435 | 519,082 | 5,040 | 0 | 524,122 | 58,962 | 111,966 | 4,812 | 0 | 116,778 | 13,137 | 2089 | 141,418 | 15,909 |
| 70 | 2090 | 70 | 0.109 | 635,958 | 16,816 | 0 | 652,774 | 71,296 | 519,082 | 5,040 | 0 | 524,122 | 57,244 | 111,966 | 4,812 | 0 | 116,778 | 12,754 | 2090 | 141,418 | 15,446 |
| 71 | 2091 | 71 | 0.106 | 635,958 | 16,816 | 0 | 652,774 | 69,219 | 519,082 | 5,040 | 0 | 524,122 | 55,577 | 111,966 | 4,812 | 0 | 116,778 | 12,383 | 2091 | 141,418 | 14,996 |
| 72 | 2092 | 72 | 0.103 | 635,958 | 16,816 | 0 | 652,774 | 67,203 | 519,082 | 5,040 | 0 | 524,122 | 53,958 | 111,966 | 4,812 | 0 | 116,778 | 12,022 | 2092 | 141,418 | 14,559 |
| 73 | 2093 | 73 | 0.100 | 635,958 | 16,816 | 0 | 652,774 | 65,246 | 519,082 | 5,040 | 0 | 524,122 | 52,387 | 111,966 | 4,812 | 0 | 116,778 | 11,672 | 2093 | 141,418 | 14,135 |
| 74 | 2094 | 74 | 0.097 | 635,958 | 16,816 | 0 | 652,774 | 63,345 | 519,082 | 5,040 | 0 | 524,122 | 50,861 | 111,966 | 4,812 | 0 | 116,778 | 11,332 | 2094 | 141,418 | 13,723 |
| 75 | 2095 | 75 | 0.095 | 635,958 | 16,816 | 0 | 652,774 | 61,800 | 519,082 | 5,040 | 0 | 524,122 | 49,620 | 111,966 | 4,812 | 0 | 116,778 | 11,056 | 2095 | 141,418 | 13,388 |
| 76 | 2096 | 76 | 0.092 | 635,958 | 16,816 | 0 | 652,774 | 60,293 | 519,082 | 5,040 | 0 | 524,122 | 48,410 | 111,966 | 4,812 | 0 | 116,778 | 10,786 | 2096 | 141,418 | 13,062 |
| 77 | 2097 | 77 | 0.090 | 635,958 | 16,816 | 0 | 652,774 | 58,822 | 519,082 | 5,040 | 0 | 524,122 | 47,229 | 111,966 | 4,812 | 0 | 116,778 | 10,523 | 2097 | 141,418 | 12,743 |
| 78 | 2098 | 78 | 0.088 | 635,958 | 16,816 | 0 | 652,774 | 57,388 | 519,082 | 5,040 | 0 | 524,122 | 46,077 | 111,966 | 4,812 | 0 | 116,778 | 10,266 | 2098 | 141,418 | 12,433 |
| 79 | 2099 | 79 | 0.086 | 635,958 | 16,816 | 0 | 652,774 | 55,988 | 519,082 | 5,040 | 0 | 524,122 | 44,954 | 111,966 | 4,812 | 0 | 116,778 | 10,016 | 2099 | 141,418 | 12,129 |
| 80 | 2100 | 80 | 0.084 | 635,958 | 16,816 | 0 | 652,774 | 54,622 | 519,082 | 5,040 | 0 | 524,122 | 43,857 | 111,966 | 4,812 | 0 | 116,778 | 9,772  | 2100 | 141,418 | 11,833 |
| 81 | 2101 | 81 | 0.082 | 635,958 | 16,816 | 0 | 652,774 | 53,290 | 519,082 | 5,040 | 0 | 524,122 | 42,788 | 111,966 | 4,812 | 0 | 116,778 | 9,533  | 2101 | 141,418 | 11,545 |
| 82 | 2102 | 82 | 0.080 | 635,958 | 16,816 | 0 | 652,774 | 51,990 | 519,082 | 5,040 | 0 | 524,122 | 41,744 | 111,966 | 4,812 | 0 | 116,778 | 9,301  | 2102 | 141,418 | 11,263 |
| 83 | 2103 | 83 | 0.078 | 635,958 | 16,816 | 0 | 652,774 | 50,722 | 519,082 | 5,040 | 0 | 524,122 | 40,726 | 111,966 | 4,812 | 0 | 116,778 | 9,074  | 2103 | 141,418 | 10,989 |
| 84 | 2104 | 84 | 0.076 | 635,958 | 16,816 | 0 | 652,774 | 49,485 | 519,082 | 5,040 | 0 | 524,122 | 39,732 | 111,966 | 4,812 | 0 | 116,778 | 8,853  | 2104 | 141,418 | 10,721 |
| 85 | 2105 | 85 | 0.074 | 635,958 | 16,816 | 0 | 652,774 | 48,278 | 519,082 | 5,040 | 0 | 524,122 | 38,763 | 111,966 | 4,812 | 0 | 116,778 | 8,637  | 2105 | 141,418 | 10,459 |
| 86 | 2106 | 86 | 0.072 | 635,958 | 16,816 | 0 | 652,774 | 47,101 | 519,082 | 5,040 | 0 | 524,122 | 37,818 | 111,966 | 4,812 | 0 | 116,778 | 8,426  | 2106 | 141,418 | 10,204 |
| 87 | 2107 | 87 | 0.070 | 635,958 | 16,816 | 0 | 652,774 | 45,952 | 519,082 | 5,040 | 0 | 524,122 | 36,896 | 111,966 | 4,812 | 0 | 116,778 | 8,221  | 2107 | 141,418 | 9,955  |
| 88 | 2108 | 88 | 0.069 | 635,958 | 16,816 | 0 | 652,774 | 44,831 | 519,082 | 5,040 | 0 | 524,122 | 35,996 | 111,966 | 4,812 | 0 | 116,778 | 8,020  | 2108 | 141,418 | 9,712  |
| 89 | 2109 | 89 | 0.067 | 635,958 | 16,816 | 0 | 652,774 | 43,738 | 519,082 | 5,040 | 0 | 524,122 | 35,118 | 111,966 | 4,812 | 0 | 116,778 | 7,824  | 2109 | 141,418 | 9,475  |
| 90 | 2110 | 90 | 0.065 | 635,958 | 16,816 | 0 | 652,774 | 42,671 | 519,082 | 5,040 | 0 | 524,122 | 34,261 | 111,966 | 4,812 | 0 | 116,778 | 7,634  | 2110 | 141,418 | 9,244  |
| 91 | 2111 | 91 | 0.064 | 635,958 | 16,816 | 0 | 652,774 | 41,630 | 519,082 | 5,040 | 0 | 524,122 | 33,426 | 111,966 | 4,812 | 0 | 116,778 | 7,447  | 2111 | 141,418 | 9,019  |
| 92 | 2112 | 92 | 0.062 | 635,958 | 16,816 | 0 | 652,774 | 40,615 | 519,082 | 5,040 | 0 | 524,122 | 32,610 | 111,966 | 4,812 | 0 | 116,778 | 7,266  | 2112 | 141,418 | 8,799  |
| 93 | 2113 | 93 | 0.061 | 635,958 | 16,816 | 0 | 652,774 | 39,624 | 519,082 | 5,040 | 0 | 524,122 | 31,815 | 111,966 | 4,812 | 0 | 116,778 | 7,089  | 2113 | 141,418 | 8,584  |
| 94 | 2114 | 94 | 0.059 | 635,958 | 16,816 | 0 | 652,774 | 38,658 | 519,082 | 5,040 | 0 | 524,122 | 31,039 | 111,966 | 4,812 | 0 | 116,778 | 6,916  | 2114 | 141,418 | 8,375  |
| 95 | 2115 | 95 | 0.058 | 635,958 | 16,816 | 0 | 652,774 | 37,715 | 519,082 | 5,040 | 0 | 524,122 | 30,282 | 111,966 | 4,812 | 0 | 116,778 | 6,747  | 2115 | 141,418 | 8,171  |
| 96 | 2116 | 96 | 0.056 | 635,958 | 16,816 | 0 | 652,774 | 36,795 | 519,082 | 5,040 | 0 | 524,122 | 29,543 | 111,966 | 4,812 | 0 | 116,778 | 6,582  | 2116 | 141,418 | 7,971  |
| 97 | 2117 | 97 | 0.055 | 635,958 | 16,816 | 0 | 652,774 | 35,898 | 519,082 | 5,040 | 0 | 524,122 | 28,823 | 111,966 | 4,812 | 0 | 116,778 | 6,422  | 2117 | 141,418 | 7,777  |
| 98 | 2118 | 98 | 0.054 | 635,958 | 16,816 | 0 | 652,774 | 35,022 | 519,082 | 5,040 | 0 | 524,122 | 28,120 | 111,966 | 4,812 | 0 | 116,778 | 6,265  | 2118 | 141,418 | 7,587  |
| 99 | 2119 | 99 | 0.052 | 635,958 | 16,816 | 0 | 652,774 | 34,168 | 519,082 | 5,040 | 0 | 524,122 | 27,434 | 111,966 | 4,812 | 0 | 116,778 | 6,112  | 2119 | 141,418 | 7,402  |

20% CC

Present Value Costs for all options

Client/Authority  
Perth & Kinross Council

Project name  
Comrie and Dalginross Flood Prevention Scheme

Project reference  
1020714

Base date for estimates (year 0)  
Jan-2020

Scaling factor (e.g. £m, £k, £)  
£

Discount rate  
3.5% 3.0% 2.5%

29.821

| Results £             |                        |   |
|-----------------------|------------------------|---|
| Option N (Do Nothing) | Do Minimum maintenance | Option P5 - Walls & Embankments with River Earn Storage (200yr SoP) |
| 0                     | 547,160                | 49,415,723  |

Prepared (date)  
Aug-16

Printed  
Jan-2017

Prepared by  
A Williamson

Checked by  
S Gilliland

Checked date  
Aug-16

| Year | Discount Factor | Option N (Do Nothing) |        |       | TOTALS: |    | Option M (Do Minimum) - Base Case |           |        | TOTALS:   |         | Flood Defences (200yr SoP) - Option P5 |           |            | TOTALS:    |            |
|------|-----------------|-----------------------|--------|-------|---------|----|-----------------------------------|-----------|--------|-----------|---------|--|-----------|------------|------------|------------|
|      |                 | Capital               | Maint. | Other | Cash    | PV | Capital                           | Maint.    | Other  | Cash      | PV      | Capital                                | Maint.    | Other      | Cash       | PV         |
|      |                 | 0                     | 0      | 0     | 0       | 0  | 0                                 | 1,834,800 | 0      | 1,834,800 | 547,160 | 77,896,353                             | 9,533,388 | 0          | 87,429,741 | 49,415,723 |
| 0    | 2020            | 1.000                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 18,348  | 38,948,176                             | 0         | 0          | 38,948,176 | 38,948,176 |
| 1    | 2021            | 0.966                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 17,728  | 0                                      | 97,279    | 97,279     | 93,990     |            |
| 2    | 2022            | 0.934                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 17,128  | 0                                      | 97,279    | 97,279     | 90,811     |            |
| 3    | 2023            | 0.902                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 16,549  | 0                                      | 97,279    | 97,279     | 87,741     |            |
| 4    | 2024            | 0.871                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 15,989  | 0                                      | 97,279    | 97,279     | 84,773     |            |
| 5    | 2025            | 0.842                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 15,449  | 0                                      | 97,279    | 97,279     | 81,907     |            |
| 6    | 2026            | 0.814                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 14,926  | 0                                      | 97,279    | 97,279     | 79,137     |            |
| 7    | 2027            | 0.786                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 14,421  | 0                                      | 97,279    | 97,279     | 76,461     |            |
| 8    | 2028            | 0.759                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 13,934  | 0                                      | 97,279    | 97,279     | 73,875     |            |
| 9    | 2029            | 0.734                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 13,462  | 0                                      | 97,279    | 97,279     | 71,377     |            |
| 10   | 2030            | 0.709                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 13,007  | 0                                      | 97,279    | 97,279     | 68,963     |            |
| 11   | 2031            | 0.685                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 12,567  | 0                                      | 97,279    | 97,279     | 66,631     |            |
| 12   | 2032            | 0.662                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 12,142  | 0                                      | 97,279    | 97,279     | 64,378     |            |
| 13   | 2033            | 0.639                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 11,732  | 0                                      | 97,279    | 97,279     | 62,201     |            |
| 14   | 2034            | 0.618                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 11,335  | 0                                      | 97,279    | 97,279     | 60,097     |            |
| 15   | 2035            | 0.597                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 10,952  | 0                                      | 97,279    | 97,279     | 58,065     |            |
| 16   | 2036            | 0.577                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 10,581  | 0                                      | 97,279    | 97,279     | 56,102     |            |
| 17   | 2037            | 0.557                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 10,224  | 0                                      | 97,279    | 97,279     | 54,204     |            |
| 18   | 2038            | 0.538                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 9,878   | 0                                      | 97,279    | 97,279     | 52,371     |            |
| 19   | 2039            | 0.520                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 9,544   | 0                                      | 97,279    | 97,279     | 50,600     |            |
| 20   | 2040            | 0.503                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 9,221   | 0                                      | 97,279    | 97,279     | 48,889     |            |
| 21   | 2041            | 0.486                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 8,909   | 0                                      | 97,279    | 97,279     | 47,236     |            |
| 22   | 2042            | 0.469                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 8,608   | 0                                      | 97,279    | 97,279     | 45,639     |            |
| 23   | 2043            | 0.453                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 8,317   | 0                                      | 97,279    | 97,279     | 44,095     |            |
| 24   | 2044            | 0.438                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 8,036   | 0                                      | 97,279    | 97,279     | 42,604     |            |
| 25   | 2045            | 0.423                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 7,764   | 0                                      | 97,279    | 97,279     | 41,164     |            |
| 26   | 2046            | 0.409                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 7,501   | 0                                      | 97,279    | 97,279     | 39,772     |            |
| 27   | 2047            | 0.395                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 7,248   | 0                                      | 97,279    | 97,279     | 38,427     |            |
| 28   | 2048            | 0.382                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 7,003   | 0                                      | 97,279    | 97,279     | 37,127     |            |
| 29   | 2049            | 0.369                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 6,766   | 0                                      | 97,279    | 97,279     | 35,872     |            |
| 30   | 2050            | 0.356                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 6,537   | 0                                      | 97,279    | 97,279     | 34,659     |            |
| 31   | 2051            | 0.346                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 6,347   | 0                                      | 97,279    | 97,279     | 33,649     |            |
| 32   | 2052            | 0.336                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 6,162   | 0                                      | 97,279    | 97,279     | 32,669     |            |
| 33   | 2053            | 0.326                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,982   | 0                                      | 97,279    | 97,279     | 31,718     |            |
| 34   | 2054            | 0.317                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,808   | 0                                      | 97,279    | 97,279     | 30,794     |            |
| 35   | 2055            | 0.307                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,639   | 0                                      | 97,279    | 97,279     | 29,897     |            |
| 36   | 2056            | 0.298                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,475   | 0                                      | 97,279    | 97,279     | 29,026     |            |
| 37   | 2057            | 0.290                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,315   | 0                                      | 97,279    | 97,279     | 28,181     |            |
| 38   | 2058            | 0.281                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,160   | 0                                      | 97,279    | 97,279     | 27,360     |            |
| 39   | 2059            | 0.273                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 5,010   | 0                                      | 97,279    | 97,279     | 26,563     |            |
| 40   | 2060            | 0.265                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,864   | 0                                      | 97,279    | 97,279     | 25,789     |            |
| 41   | 2061            | 0.257                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,722   | 0                                      | 97,279    | 97,279     | 25,038     |            |
| 42   | 2062            | 0.250                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,585   | 0                                      | 97,279    | 97,279     | 24,309     |            |
| 43   | 2063            | 0.243                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,451   | 0                                      | 97,279    | 97,279     | 23,601     |            |
| 44   | 2064            | 0.236                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,322   | 0                                      | 97,279    | 97,279     | 22,913     |            |
| 45   | 2065            | 0.229                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,196   | 0                                      | 97,279    | 97,279     | 22,246     |            |
| 46   | 2066            | 0.222                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 4,074   | 0                                      | 97,279    | 97,279     | 21,598     |            |
| 47   | 2067            | 0.216                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,955   | 0                                      | 97,279    | 97,279     | 20,969     |            |
| 48   | 2068            | 0.209                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,840   | 0                                      | 97,279    | 97,279     | 20,358     |            |
| 49   | 2069            | 0.203                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,728   | 0                                      | 97,279    | 97,279     | 19,765     |            |
| 50   | 2070            | 0.197                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,619   | 38,948,176                             | 0         | 38,948,176 | 7,683,023  |            |
| 51   | 2071            | 0.192                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,514   | 0                                      | 97,279    | 97,279     | 18,631     |            |
| 52   | 2072            | 0.186                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,412   | 0                                      | 97,279    | 97,279     | 18,088     |            |
| 53   | 2073            | 0.181                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,312   | 0                                      | 97,279    | 97,279     | 17,561     |            |
| 54   | 2074            | 0.175                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,216   | 0                                      | 97,279    | 97,279     | 17,050     |            |
| 55   | 2075            | 0.170                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,122   | 0                                      | 97,279    | 97,279     | 16,553     |            |
| 56   | 2076            | 0.165                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 3,031   | 0                                      | 97,279    | 97,279     | 16,071     |            |
| 57   | 2077            | 0.160                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,943   | 0                                      | 97,279    | 97,279     | 15,603     |            |
| 58   | 2078            | 0.156                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,857   | 0                                      | 97,279    | 97,279     | 15,148     |            |
| 59   | 2079            | 0.151                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,774   | 0                                      | 97,279    | 97,279     | 14,707     |            |
| 60   | 2080            | 0.147                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,693   | 0                                      | 97,279    | 97,279     | 14,279     |            |
| 61   | 2081            | 0.143                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,615   | 0                                      | 97,279    | 97,279     | 13,863     |            |
| 62   | 2082            | 0.138                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,539   | 0                                      | 97,279    | 97,279     | 13,459     |            |
| 63   | 2083            | 0.134                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,465   | 0                                      | 97,279    | 97,279     | 13,067     |            |
| 64   | 2084            | 0.130                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,393   | 0                                      | 97,279    | 97,279     | 12,687     |            |
| 65   | 2085            | 0.127                 | 0      | 0     | 0       | 0  | 18,348                            | 0         | 18,348 | 18,348    | 2,323   | 0                                      | 97,279    | 97,279     | 12,317     |            |



|    |      |    |       |   |   |   |   |        |        |       |        |        |        |
|----|------|----|-------|---|---|---|---|--------|--------|-------|--------|--------|--------|
| 66 | 2086 | 66 | 0.123 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,255 | 97,279 | 97,279 | 11,958 |
| 67 | 2087 | 67 | 0.119 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,190 | 97,279 | 97,279 | 11,610 |
| 68 | 2088 | 68 | 0.116 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,126 | 97,279 | 97,279 | 11,272 |
| 69 | 2089 | 69 | 0.112 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,064 | 97,279 | 97,279 | 10,944 |
| 70 | 2090 | 70 | 0.109 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 2,004 | 97,279 | 97,279 | 10,625 |
| 71 | 2091 | 71 | 0.106 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,946 | 97,279 | 97,279 | 10,315 |
| 72 | 2092 | 72 | 0.103 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,889 | 97,279 | 97,279 | 10,015 |
| 73 | 2093 | 73 | 0.100 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,834 | 97,279 | 97,279 | 9,723  |
| 74 | 2094 | 74 | 0.097 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,780 | 97,279 | 97,279 | 9,440  |
| 75 | 2095 | 75 | 0.095 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,737 | 97,279 | 97,279 | 9,210  |
| 76 | 2096 | 76 | 0.092 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,695 | 97,279 | 97,279 | 8,985  |
| 77 | 2097 | 77 | 0.090 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,653 | 97,279 | 97,279 | 8,766  |
| 78 | 2098 | 78 | 0.088 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,613 | 97,279 | 97,279 | 8,552  |
| 79 | 2099 | 79 | 0.086 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,574 | 97,279 | 97,279 | 8,344  |
| 80 | 2100 | 80 | 0.084 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,535 | 97,279 | 97,279 | 8,140  |
| 81 | 2101 | 81 | 0.082 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,498 | 97,279 | 97,279 | 7,942  |
| 82 | 2102 | 82 | 0.080 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,461 | 97,279 | 97,279 | 7,748  |
| 83 | 2103 | 83 | 0.078 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,426 | 97,279 | 97,279 | 7,559  |
| 84 | 2104 | 84 | 0.076 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,391 | 97,279 | 97,279 | 7,375  |
| 85 | 2105 | 85 | 0.074 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,357 | 97,279 | 97,279 | 7,195  |
| 86 | 2106 | 86 | 0.072 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,324 | 97,279 | 97,279 | 7,019  |
| 87 | 2107 | 87 | 0.070 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,292 | 97,279 | 97,279 | 6,848  |
| 88 | 2108 | 88 | 0.069 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,260 | 97,279 | 97,279 | 6,681  |
| 89 | 2109 | 89 | 0.067 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,229 | 97,279 | 97,279 | 6,518  |
| 90 | 2110 | 90 | 0.065 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,199 | 97,279 | 97,279 | 6,359  |
| 91 | 2111 | 91 | 0.064 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,170 | 97,279 | 97,279 | 6,204  |
| 92 | 2112 | 92 | 0.062 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,142 | 97,279 | 97,279 | 6,053  |
| 93 | 2113 | 93 | 0.061 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,114 | 97,279 | 97,279 | 5,905  |
| 94 | 2114 | 94 | 0.059 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,087 | 97,279 | 97,279 | 5,761  |
| 95 | 2115 | 95 | 0.058 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,060 | 97,279 | 97,279 | 5,620  |
| 96 | 2116 | 96 | 0.056 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,034 | 97,279 | 97,279 | 5,483  |
| 97 | 2117 | 97 | 0.055 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 1,009 | 97,279 | 97,279 | 5,350  |
| 98 | 2118 | 98 | 0.054 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 984   | 97,279 | 97,279 | 5,219  |
| 99 | 2119 | 99 | 0.052 | 0 | 0 | 0 | 0 | 18,348 | 18,348 | 960   | 97,279 | 97,279 | 5,092  |