



[illegible]

The Hamlet of Cambridge Bay, NU is upgrading, in stages, the Existing Freshwater Creek Crossing located on the road to the local Cemetery some 2.5 km to the NW of town. Presently, there is a 30 m long Bailey Bridge on the crossing. The east end of this bridge rests directly on a high river bank. The west end is supported on a gravel-rock fill Causeway projecting into the river and blocking nearly one third of the Natural River Channel. This Causeway is subject to progressive yearly erosion, and associated siltation of the river, with need for significant repairs every several years. The last major washout was in 2010 when the bridge was closed for traffic for a few weeks. In the last few years the Hamlet has gradually installed a 45 m long New Bridge alongside the existing one. The abutments of the New Bridge are located beyond the High Water Mark of the Natural River Bed. The remaining Work on the Bridge Upgrading includes:

- Removal of the existing Bailey Bridge;
- Excavation-Removal from the Causeway, and the adjacent upstream Buffer Berm some 1,600 cubic meters mixture of gravel and rock. This Work is considered Alteration of the Riverbed.

During Work, temporary siltation of the watercourse downstream from the crossing will take place. The Plan is to carry out the work this fall, at low water, within a time window established by the NIRB, DFO, NWB and other appropriate Regulators. The Long Term Impact of the proposed Alteration is highly positive. The erosion of the Riverbanks and Riverbed will be practically eliminated and 600 sq m fish habitat will be recovered. \*\* In addition to the scope as described above the following additional works form part of the project:

- All material excavated and removed from the river will be incorporated in the road approaches to the new bridge. Equipment and labour hours for this work are included in the original application.
- Timber deck and galvanised rail will be installed on the new bridge. The work will be completed in parallel with the road upgrading. Equipment and labour hours are included in the original application.

▷ΔΛΠΣ<sup>c</sup>: Not Available

$\Delta \mathcal{M}^b \cap \mathcal{D}^c$ : Not Available

Inuinnaqtun: Ikaluktutiak, Nunavummi, Nuna Immap Attanni, Kuraan'ngmi igaqvik Hannahiman'nahuat iniqtiqluruKugaaq Miqhanun NaonaitqutHamletkut Ikaluktutiammi, Ikaaqqin'nmiq Hanahimang'nahuat kuran'ngmi, utqaup illuhikviq hanaianni.Tadja kuraap ikan'ngnia takitjuta 30m. Ikaaqqik Kivaatani king'ngitqijauyuq uaatamin. Ikaaqqik uataami illijauhijamjuk kan'nganut ujaqait. Ujarait niruqhipkaqtijuq kugaaq ingilrapjuta, Kuraap immam haquriqammi nuna illuviup illarija kuranmun'ngaqpakpuk ihuqtitivaqpuqlu. Taimailirang'ngammi kuraaq imma, hanajauqatainaktuk nuna. 2010mi kuraap imma king'ngqhiraluarammi, ikaaqqik ummiqhimavaktuk, Hamletkut nuttavjangmik ikaqvingmik illiriramiik, takitjutaa 45m. Hanianiituk Ikaqvingmi.Kivataani, Uataamilu kingitqijauyuq. Hanajauhijamang'nahuq imma:•Unguvaqtinnahuaktut tamna Baileyamik ikarvik attiqhimayuq•Unguvaqtihiiman'nahut ujangangmik, hirangminglu kurangmin, ukumaitjuta 1600 kiqqaritjuttaKuraap Nuna imma hanahiman'nahuaramiuq ihuqtitiniangmiuq. Immaiqtilliriangmirummi kuraak havaqhimangnuhaqtat hamlet-kut havaaktit. Hapkuat NIRB, DFO, NWB allaitlu katimariyait taima havaquramiik ikaarvingmik.Hivullihapqut nagutqhiniq taimma. Nuna kuraap attanim illuviuplu nuna kattaralangilimain'niarunnaquk. Imma 600 kiqqaritjuta, ikaluitlu inqilrajuta hanaiyauhimanahuq.

## Personnel

Personnel on site: 6

Days on site: 10

Total Person days: 60

Operations Phase: from 2019-09-08 to 2019-09-23

## ለፍጥነት ማስፈጸም ያለው

ስም	የፍጥነት ማስፈጸም ያለው	የፍጥነት ማስፈጸም ያለው	የፍጥነት ማስፈጸም ያለው	የፍጥነት ማስፈጸም ያለው	የፍጥነት ማስፈጸም ያለው
Location of existing and new bridge also location of river bed restoration	Dredging	Municipal	th work consists in removal of causeway and buffer berm built long time ago in association with the old bridge	no site of such values are known in the work area	work site located 2.5 km to the north of Cambridge Bay

የፍጥነት ማስፈጸም ያለው ማስፈጸም ያለው ማስፈጸም ያለው ማስፈጸም ያለው

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የፍጥነት ማስፈጸም ያለው	Jim Mceachern	Municipal Government	2019-08-12

## ሬፈሳሾች ለገዢዎች ለጥያቄዎች

ሬፈሳሾች ለጥያቄዎች ለጥያቄዎች ለጥያቄዎች

Kitikmeot

## ሬፈሳሾች ለገዢዎች ለጥያቄዎች

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## Project transportation types

Transportation Type	ሬፈሳሾች ለጥያቄዎች ለጥያቄዎች ለጥያቄዎች	Length of Use
Air	Contractor's crew will travel to and from Cambridge Bay on scheduled flight	
Land	Crew will travel to and from site with pickup truck using existing access road	

## Project accomodation types

ሬፈሳሾች ለጥያቄዎች ለጥያቄዎች ለጥያቄዎች

ሬፈሳሾች ለጥያቄዎች ለጥያቄዎች ለጥያቄዎች

◀▷↳◀<sup>96</sup>▷<sup>96</sup>

Λ<sup>9</sup>δ<sup>c</sup> Δ<sup>9</sup>β<sup>c</sup>Γ<sup>9</sup>Δ<sup>9</sup>σ<sup>c</sup>Δ<sup>9</sup>γ<sup>c</sup> Δ<sup>c</sup>ε<sup>c</sup>Γ<sup>c</sup>Δ<sup>c</sup>Π<sup>c</sup>Δ<sup>c</sup>Δ<sup>c</sup>, Γ<sup>c</sup>Δ<sup>c</sup>Π<sup>c</sup>, β<sup>c</sup>ε<sup>c</sup>Δ<sup>c</sup>β<sup>c</sup>, σ<sup>c</sup>ε<sup>c</sup>Δ<sup>c</sup> Δ<sup>c</sup>β<sup>c</sup>Γ<sup>c</sup>Δ<sup>c</sup>

ᐃᓕᑦᑲᑦ ᐱᓪᑭᑦ ᐃᑯᑲᑦᑲᑦ ᐃᓕᑦᑲᑦ ᓖᑲᑦᑲᑦ ᐃᓕᑦᑲᑦ	ᓖᑲᑦᑲᑦᑲᑦ	ᐃᓕᑦᑲᑦ - > ᓖᑲᑦᑲᑦ	ᓖᑲᑦᑲᑦ ᐃᑯᑲᑦᑲᑦ
Large Excavator	1	5m x 5m	To be used for excavation of imported material from the riverbed.Equipment will be deployed on shore. Only bucket will be in contact with water
Large wheeled Loader	1	5m x 5 m	Used for removal of the excavated material and place it on the adjacent road approach
Dump Trucks	2	3m x 8m	To haul out excavated material

[illegible][illegible]

$\Delta L^{\epsilon_b} \quad \triangleleft \triangleright^{\epsilon_b} C \triangleright \triangleleft \dot{L}^{\epsilon_b} \triangleright^{\epsilon_b}$

၂၄ ငါး ၁၁၅၂၄၅၂၄၅၂၄၅၂	၅၆၅၆ ၁၁၅၂၄၅၂၄၅၂၄၅၂၄၅၂	၁၁၅၂ ၁၁၅၂၄၅၂၄၅၂၄၅၂၄၅၂
0	N/A	N/A

$\triangleleft^b C d^c$ 
$$\Delta^b C d_{\sigma} \sim \Delta^a \sigma^a$$

ለፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ	ፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ	ፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ	ፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ	ፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ
Dredging	ፍጥነት ማረጋገጫ ለፍጥነት ማረጋገጫ	Estimated less than 10 cu m	During dredging some silt will be washed out and deposited into the Bay	No additional treatment considered

4<sup>a</sup> 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1

The continuous erosion and repairs of the existing causeway, as well as the need for fording the will be eliminated. Some 800 sq. m. fish habitat will be recovered.

# **Additional Information**

## **SECTION A1: Project Info**

The Work consists in restoration of riverbed to its original condition. No alternative site was considered

## **SECTION A2: Allweather Road**

No presence of deleterious material is anticipated.

## **SECTION A3: Winter Road**

## **SECTION B1: Project Info**

## **SECTION B2: Exploration Activity**

## **SECTION B3: Geosciences**

## **SECTION B4: Drilling**

## **SECTION B5: Stripping**

## **SECTION B6: Underground Activity**

## **SECTION B7: Waste Rock**

## **SECTION B8: Stockpiles**

## **SECTION B9: Mine Development**

## **SECTION B10: Geology**

## **SECTION B11: Mine**

## **SECTION B12: Mill**

## **SECTION C1: Pits**

## **SECTION D1: Facility**

## **SECTION D2: Facility Construction**

## **SECTION D3: Facility Operation**

## **SECTION D4: Vessel Use**

## **SECTION E1: Offshore Survey**

N/A



The continuous erosion and repairs of the existing causeway, as well as the need for fording the will be eliminated. Some 800 sq. m. fish habitat will be recovered.

## Impacts

$\omega \rightarrow \omega \Delta^{\zeta_b} C D \sigma^{-\zeta_r} C \quad \Delta \rho \cap \Gamma D C \dot{\sigma}^C D^C \quad \Delta^b D^{\zeta_b} C D \rho L \downarrow^C$

[illegible]
$$(P = \langle b \rangle \dot{\cup} P \cap \langle a \rangle^c, N = \langle b \rangle \cap \langle c \rangle \langle a \rangle^c \setminus \langle c \rangle \langle a \rangle^c \cap \langle c \rangle \langle a \rangle^c, M = \langle b \rangle \cap \langle c \rangle \langle a \rangle^c \setminus \langle c \rangle \langle a \rangle^c, U = \langle c \rangle \langle a \rangle^c \cap \langle c \rangle \langle a \rangle^c)$$

1 polyline Location of existing and new bridge also location of river bed restoration