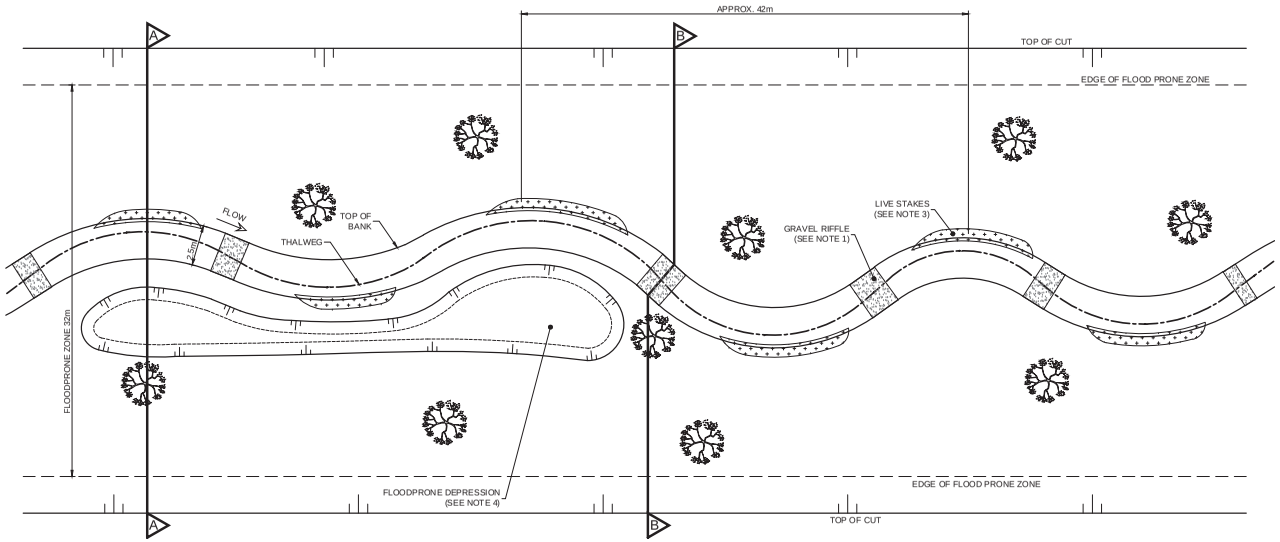


PLAN VIEW: TYPICAL BANKFULL CHANNEL

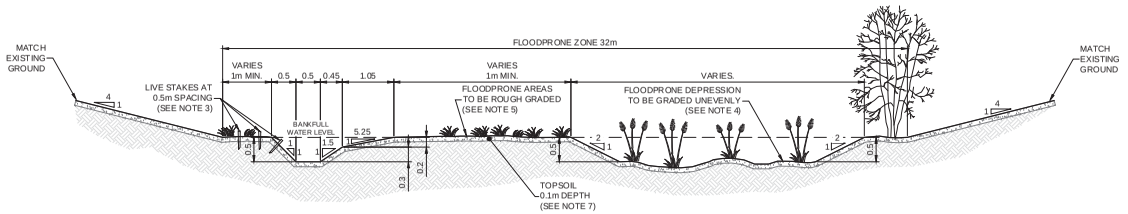
SCALE: N.T.S.

LEGEND

- TREE
- LIVE STAKES
- GRAVEL RIFFLE

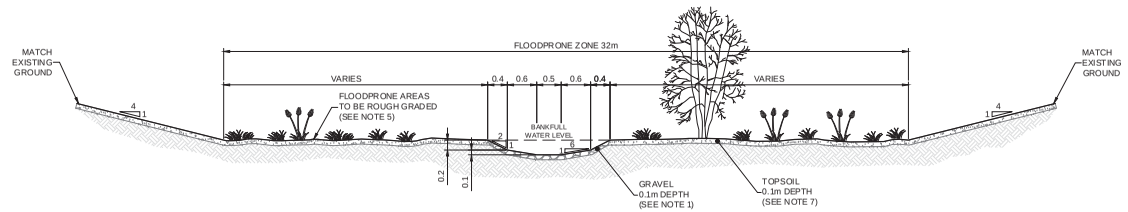
NOTES:

1. GRAVEL RIFFLE SHALL CONSIST OF 60% GRAVEL(2mm-4mm DIAMETER) MIXED WITH 40% PARENT MATERIAL/TOPSOIL AS PER NOTE 2. MIXTURE SHALL EXTEND 100mm BELOW CHANNEL INVERT. THE SPECIFIED 2mm-4mm DIAMETER GRAVEL IS CONSIDERED OPTIMAL SPAWNING SUBSTRATE FOR WHITE SUCKER.
2. PARENT MATERIAL/TOPOIL MIXTURE SHALL CONSIST OF 70% MINERAL SOIL AND 30% TOPSOIL AND MUST BE EVENLY MIXED PRIOR TO MIXING WITH ROCK FILL. TO ENSURE PROPER MIXING WITH THE ROCK FILL NO CLUMPS OF MINERAL SOIL GREATER THAN 100mm IN DIAMETER SHALL BE UTILIZED IN THE MIXTURE. TOPSOIL UTILIZED IN THE MIXTURE SHALL CONTAIN LESS THAN 20% CLAY.
3. LIVE STAKES SHALL BE DORMANT WILLOW OR RED OSIER DOGWOOD 45cm-75cm IN LENGTH AND 20mm-50mm IN DIAMETER. STAKES SHALL BE SPACED AT 0.5m ON CENTER.
4. FLOODPRONE DEPRESSION TO BE GRADED UNEVENLY TO PROMOTE MICROTOPOGRAPHY AND VARIABLE WATER DEPTHS WHEN FLOODED.
5. FLOODPRONE AREAS SHALL BE ROUGH GRADED ONLY SO AS NOT TO CREATE UNIFORM FLOODPRONE AREAS.
6. ANY COMPACTED SOIL DUE TO MACHINERY ACCESS SHALL BE LOOSENED PRIOR TO TOPSOIL AND SEED APPLICATION.
7. ALL AREAS SHALL HAVE 100mm OF TOPSOIL PLACED ON SUBGRADE TO BRING AREA TO FINAL GRADE.
8. ALL DISTURBED AREAS SHALL BE STABILIZED WITH A NURSE CROP OF OATS (*Avena sativa L.*) SEEDED AT 11 kg/ha.
9. ALL DISTURBED AREAS SHALL BE SEEDED WITH NATIVE FLOODPLAIN SEED MIX AT 15kg/ha.
10. TREES SPECIES SHALL BE SELECTED BASED ON CONSULTATION WITH TREASURY METALS' TERRESTRIAL ECOLOGIST.
11. REFINEMENTS MAY BE CONSIDERED TO THE ALIGNMENT AND PROFILE TO MINIMIZE CUT VOLUMES, ROCK EXCAVATIONS AND TO ACCOMMODATE SEPARATION FROM THE TMF.
12. SUB-EXCAVATION AND CLAY CAP INSTALLATION MAY BE REQUIRED IN AREAS WHERE ROCK EXCAVATION IS NECESSARY. THE DETAILS REGARDING SUB-EXCAVATION AND EXTENTS OF SUB-EXCAVATION REQUIRED WILL BE REFINED DURING THE DETAILED DESIGN PROCESS.
13. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.



SECTION A-A: TYPICAL POOL CROSS SECTION WITH FLOODPLAIN DEPRESSION

SCALE: N.T.S.



SECTION B-B: TYPICAL RIFFLE CROSS SECION

SCALE: N.T.S.

NATIVE FLOODPLAIN SEED MIX		
SPECIES	COMMON NAME	PERCENTAGE OF MIX
GRASSES, SEDGES, AND RUSHES (TOTAL 85%, MUST INCLUDE ALL SPECIES)		
CALAMAGROSTIS CANADENSIS	CANADA BLUE JOINT	10-20
POA PALUSTRIS	FOWL BLUE GRASS	10-20
GLYCERIA STRIATA VAR. STRICTA	FOWL MANNA GRASS	10-20
WOOL GRASS	SCIRPUS CYPERINUS	10-20
CAREX VULPINOIDEA	FOX SEDGE	6-15
CAREX BEBBII	BEBBS SEDGE	6-15
JUNCUS EFFUSUS	SOFT RUSH	6-15
TYPHA LATIFOLIA	COMMON CATTAIL	4-10
FORBES (TOTAL 15%, MUST INCLUDE ALL SPECIES)		
DOELLINGERIA UMBELLATUS	FLAT-TOPPED ASTER	2-8
IRIS VERSICOLOR	BLUEFLAG	2-8
SYMPHYOTRICHUM CORDIFOLIUM	HEART-LEAVED ASTER	2-8
EUPATORIUM MACULATUM	SPOTTED JOE PYE WEED	2-8
SAGITTARIA LATIFOLIA	BROADLEAF ARROWHEAD	1-4
EUPATORIUM PERFOLIATUM	BONESET	1-4

HOLD

DRAFT

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	DES.	APPR.
6	06	04	2018	ISSUED FOR DISCUSSION	NSH	MCR

Client Logo: TREASURY METALS

Client: TREASURY METALS

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PROJECT: GOLIATH GOLD PROJECT
FISH HABITAT OFFSETTING

TITLE: BLACKWATER CREEK TRIBUTARY 2 DIVERSION
TYPICAL PLAN VIEW AND CROSS SECTIONS

PROJECT NO.: TC160516
REVISION NO.: A
DATE: APRIL 2018
SCALE: AS SHOWN
DRAWING NO.: Figure 4.2-3