

LINework DATA SOURCE: <https://catalogue.data.gov.bc.ca/DATASET>

RESORT MUNICIPALITY OF WHISTLER

FITZSIMMONS CREEK FLOOD MANAGEMENT DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1



ISSUED FOR TENDER, 2025-01-24

DRAWING INDEX		
SHEET No.	SHEET DESCRIPTION	REVISION
G-0-001	COVER SHEET	B
G-0-002	NOTES AND SPECIFICATIONS SHEET	B
G-0-003	SITE PLAN	B
C-1-101	PHASE 1 PLAN AND PROFILE	B
C-1-301	SECTIONS	B
C-1-302	TYPICAL SECTIONS AND DETAILS	B

NOT FOR CONSTRUCTION



FILE LOCATION: \\mainfile-van\Projects\Active\3003501\Fitzsimmons\FHC\96 CAD\Production\0100_Drawings\3003501_DRAW\FITZSIMMONS_COVER.dwg PLOT DATE: 2025-01-24 10:49:56 AM PLOTTED BY: Cass Zhao

HALF SCALE WHEN PRINTED TO 11" X 17".

LIGHT GREY TEXT APPLIES TO FUTURE WORKS, AND DOES NOT APPLY TO PHASE 1 WORKS.

1. GENERAL

- 1.1. A COPY OF THESE DRAWINGS MUST BE REVIEWED BY ALL CREW SUPERVISOR(S) AND CONTRACTOR(S), AND MUST BE PRESENT ON THE SITE WHILE WORK IS PROCEEDING.
- 1.2. MATERIALS AND METHODS ARE TO BE APPROVED BY THE NHC SITE ENGINEER 2 WEEKS PRIOR TO AND DURING CONSTRUCTION.
- 1.3. THE FOLLOWING MILESTONE ACTIVITIES ARE TO BE INSPECTED AND ACCEPTED BY NHC SITE ENGINEER PRIOR TO PROCEEDING TO SUBSEQUENT STEPS. CONTRACTOR SHOULD PROVIDE 48 HOUR NOTICE OF EXPECTED COMPLETION OF MILESTONE TO ALLOW NHC SITE ENGINEER ADEQUATE TIME TO PROVIDE TIMELY INSPECTION.
 - 1.3.1. PRE SITE WORK
 - 1.3.1.1. SHOP DRAWINGS FOR INTAKE
 - 1.3.1.1.1. PREPARATION OF INTAKE
 - 1.3.1.1.2. LAYOUT OF PLANNED SITE ACCESS AND WORK AREAS
 - 1.3.1.1.3. SITE ISOLATION AND SEDIMENT CONTROL PLAN
 - 1.3.1.1.4. LWD SOURCE
 - 1.3.1.1.5. IMPORTED ROCK SOURCE
 - 1.3.2. SITE WORK
 - 1.3.2.1. SUB-GRADE EXCAVATION FOR RIPRAP PRIOR TO PLACEMENT OF FILTER
 - 1.3.2.2. INSPECTION OF FILTER MATERIAL, THICKNESS AND GRADE PRIOR TO PLACEMENT OF RIPRAP
 - 1.3.2.3. INSPECTION OF RIPRAP PLACEMENT, THICKNESS AND GRADE PRIOR TO EXCAVATION OF DIVERSION CHANNEL
 - 1.3.2.4. EXCAVATION OF DIVERSION CHANNEL PRIOR TO RIFFLE CONSTRUCTION AND CHANNEL COMPLEXING
 - 1.3.2.5. SUB-GRADE EXCAVATION PRIOR TO PLACEMENT OF BASE MATERIALS AT INTAKE
 - 1.3.2.6. LINER INSPECTION PRIOR TO PLACEMENT OF OVERLYING MATERIALS
 - 1.3.2.7. BASE PREPARATION PRIOR TO INSTALLING INTAKE
 - 1.3.2.8. INTAKE INSTALLATION PRIOR TO BACKFILL
 - 1.3.2.9. RIPRAP PLACEMENT AT INTAKE PRIOR TO DEMOBILIZING FROM SITE
 - 1.3.2.10. PREPARATION OF DISTURBED SLOPES PRIOR TO SEEDING AND PLANTING
 - 1.3.2.11. SURVEY LAYOUT OF CHANNEL ALIGNMENT INCLUDING CENTERLINE OF CHANNEL AND TOP OF CUT SLOPES
 - 1.3.2.12. PLACEMENT OF COMPLEXING BOULDERS AND LWD CLUSTERS
 - 1.3.2.13. APPROVAL OF SITE PRIOR TO DEMOBILIZATION

1.4. WORK LIMITS

- 1.4.1. ALL WORK AREAS SHALL BE CLEARLY FLAGGED, SNOW-FENCED OR OTHERWISE MARKED, AND SIGNED, IN THE FIELD PRIOR TO CONSTRUCTION ACTIVITIES. DISTURBANCE TO VEGETATION OTHER THAN WITHIN THE WORK AREA LIMITS REQUIRES PRE-APPROVAL. THIS INCLUDES TREES AND VEGETATION AT THE INTAKE, IMMEDIATELY UPSTREAM OF THE PROJECT, AND DOWNSTREAM IN THE POTENTIAL LAYDOWN AREA.
- 1.4.2. THE CONTRACTOR SHALL TAKE ALL CONSIDERATIONS TO LIMIT AND/OR REDUCE THE FOOTPRINT OF THE WORK SITE.
- 1.4.3. MATURE TREES ARE NOT TO BE DISTURBED UNLESS WITHIN THE PROJECT FOOTPRINT OR DIRECTED BY THE RMOW REPRESENTATIVE.
- 1.4.4. THE CONTRACTOR IS RESPONSIBLE FOR SITE, SITE SAFETY, AND TRAFFIC CONTROL. ALL LOST LAKE TRAILS, VALLEY TRAILS AND DIKE TRAILS ARE TO REMAIN OPEN DURING THE CONSTRUCTION PERIOD.
- 1.4.5. ADDITIONAL RESTORATION WORKS AT CONTRACTOR'S EXPENSE MAY BE REQUIRED FOR DISTURBANCES BEYOND DESIGNATED ZONES, AS DETERMINED BY THE RMOW REPRESENTATIVE.
- 1.4.6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF DAMAGE CAUSED BY THEIR OPERATIONS TO ROADS OR OTHER FACILITIES OUTSIDE OF THOSE OUTLINED IN THE DESIGN DRAWINGS. SUCH REPAIR SHALL INCLUDE FILLING OF HOLES, REMOVAL OF DEBRIS, RE-GRADING AND CONTOURING, CLEAN-OUT OF DITCHES AND RE-SEEDING, AND ANY OTHER WORK AS DIRECTED BY THE RMOW REPRESENTATIVE REQUIRED TO LEAVE THE WORK SITE IN AN ACCEPTABLE CONDITION AT THE CONTRACTOR'S EXPENSE.
- 1.4.7. IMPROVEMENTS TO ACCESS AREAS, TRAILS AND TOTE ROADS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE RESTORED PRIOR TO DEMOBILIZATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE ALL NECESSARY REQUIREMENTS FOR ACCESS TO THE SITE.
- 1.4.8. WORK IS TO BE PERFORMED IN STRICT ACCORDANCE WITH WORKERS COMPENSATION BOARD OCCUPATIONAL HEALTH AND SAFETY REGULATIONS AND GUIDELINES AS ESTABLISHED IN THE WORKERS' COMPENSATION ACT.
- 1.4.9. WORK IS TO BE IN ACCORDANCE WITH ALL REGULATIONS, PERMITS, AND LAWS APPLICABLE TO THE SITE AND ITS CONSTRUCTION.

1.5. DIMENSIONS

- 1.5.1. ALL ELEVATIONS, DIMENSIONS, AND STATIONING SHALL BE VERIFIED BEFORE CONSTRUCTION COMMENCEMENT.
- 1.5.2. ELEVATIONS ARE IN METRES AND ORTHOMETRIC, REFERENCED TO CGVD2013.
- 1.5.3. TABULATED ESTIMATES OF MASS AND VOLUMES ARE CLEAN-LINE ESTIMATES BASED ON CIVIL 3D DRAWINGS.

2. MATERIALS

2.1. ROCK

2.1.1. TYPE 1 RIPRAP

- 2.1.1.1. SHALL BE USED FOR ARMOURING THE BED AND BANKS OF INTAKE CHANNEL AND ADJACENT BANKS OF FITZSIMMONS CREEK BETWEEN VALLEY TRAIL BRIDGE AND CN RAILWAY BRIDGE.

- 2.1.1.2. ROCK SHALL BE PREDOMINANTLY ANGULAR AND BLOCKY.
- 2.1.1.3. PLACEMENT OF ROCK SHALL BE CARRIED OUT BY EXCAVATOR END DUMPING USING CHUTES OR SIMILAR METHODS WILL NOT BE PERMITTED.
- 2.1.1.4. VOID SPACE IS TO BE MINIMIZED DURING PLACEMENT. ROCK SHOULD BE TIED IN WITH EXISTING ROCK ARMOURING AND NATIVE BOULDERS.
- 2.1.2. TYPE 2 RIPRAP
 - 2.1.2.1. SHALL BE USED FOR ARMOURING THE BANKS OF THE DIVERSION CHANNEL, INCLUDING UPSTREAM OF THE CULVERT INLETS.
 - 2.1.2.2. ROCK SHALL BE PREDOMINANTLY ANGULAR AND BLOCKY.
 - 2.1.2.3. PLACEMENT OF ROCK SHALL BE CARRIED OUT BY EXCAVATOR. END DUMPING USING CHUTES OR SIMILAR METHODS WILL NOT BE PERMITTED.
 - 2.1.2.4. VOID SPACE IS TO BE MINIMIZED DURING PLACEMENT. ROCK SHOULD BE TIED IN WITH EXISTING ROCK ARMOURING AND NATIVE BOULDERS.
- 2.1.3. TYPE 3 FILTER
 - 2.1.3.1. SHALL BE USED TO PROVIDE A GRANULAR FILTER BETWEEN THE RIPRAP ARMOUR AND THE UNDERLYING BANK MATERIALS.
 - 2.1.3.2. THIS MATERIAL IS TO BE WELL GRADED GRAVEL, SAND, AND COBBLE OR SHOT ROCK.
 - 2.1.3.3. PLACEMENT OF THIS ROCK SHALL BE INSPECTED BY THE NHC SITE ENGINEER AND IMMEDIATELY FOLLOWED BY PLACEMENT OF THE ARMOURING RIPRAP.
 - 2.1.3.4. REQUIREMENT FOR FILTER MATERIAL MAY BE VOIDED IF UNDERLYING MATERIAL IS APPROVED BY NHC SITE ENGINEER AS BEING ADEQUATELY COARSE AND WELL GRADED.
- 2.1.4. TYPE 4 RIFFLE BOULDERS
 - 2.1.4.1. SHALL BE USED TO CONSTRUCT HYDRAULIC CONTROLS WITHIN THE HABITAT CHANNEL.
 - 2.1.4.2. ROCK SHALL BE ROUNDED, SEMI-ANGULAR MAY BE ACCEPTED BY NHC SITE ENGINEER.
 - 2.1.4.3. PLACEMENT OF ROCK SHALL INCLUDE FILLING OF VOIDS WITH NATIVE SAND AND GRAVEL TO PREVENT FLOW THROUGH THE VOIDS.
- 2.1.5. TYPE 5 STRUCTURAL FILL
 - 2.1.5.1. COMPACTED STRUCTURAL FILL IS TO BE PLACED AS FOUNDATION FOR THE LOCK-BLOCKS OF THE INTAKE STRUCTURE INCLUDING FLOW CONTROL WEIR AND RETAINING WALLS.
 - 2.1.5.2. STRUCTURAL FILL IS TO BE COMPACTED WITH A PLATE TAMPER TO 95% OF STANDARD PROCTOR DENSITY.
- 2.1.6. TYPE 6 GENERAL FILL
 - 2.1.6.1. FILL SHALL USED TO BACKFILL THE RETAINING WALLS OF THE INTAKE STRUCTURE AND CONSTRUCTED RIPRAP BANKS IF REQUIRED.
 - 2.1.6.2. MATERIAL SHALL BE NATIVE SAND, GRAVEL, AND POSSIBLY SMALL COBBLE EXCAVATED FROM CHANNEL CONSTRUCTION.
 - 2.1.6.3. MATERIAL SHALL BE COMPACTED IN LIFTS.
- 2.1.7. TYPE 7 COMPLEXING BOULDERS
 - 2.1.7.1. BOULDERS SHALL BE USED TO COMPLEX THE HABITAT CHANNEL.
 - 2.1.7.2. BOULDERS SHALL BE PREDOMINANTLY ROUNDED, SEMI-ANGULAR MATERIAL MAY BE APPROVED BY NHC SITE ENGINEER FOR SOME USES.
- 2.1.8. TYPE 8 ANCHOR BOULDERS
 - 2.1.8.1. BOULDERS SHALL BE USED TO ANCHOR LWD IN THE DIVERSION CHANNEL.
 - 2.1.8.2. BOULDERS SHALL BE PREDOMINANTLY ROUNDED, SEMI-ANGULAR MATERIAL MAY BE APPROVED BY NHC SITE ENGINEER FOR SOME USES.
- 2.1.9. GENERAL NOTES ON ROCK
 - 2.1.9.1. ROCK IS TO BE ROUGHLY EQUI-DIMENSIONAL. LENGTH NOT MORE THAN 2.4 TIMES THE WIDTH OR THICKNESS AS MEASURED AT THE MIDDLE OF THE STONE. ROCK IS TO BE HARD, DURABLE, AND ABRASIVE RESISTANT STONE FREE FROM SEAMS, CRACKS, CLEAVAGE PLANES, LAMINATIONS, ORGANICS, AND DEBRIS. GRANITE, QUARTZITE PREFERRED. BASALT, LIMESTONE, AND DOLOMITE MAY BE ACCEPTABLE UPON APPROVAL BY NHC SITE ENGINEER.
 - 2.1.9.2. ROCK SOURCE IS TO BE PRE-APPROVED BY THE NHC SITE ENGINEER.
 - 2.1.9.3. SPECIFIC GRAVITY IS TO BE GREATER OR EQUAL TO 2.65.

2.2. LARGE WOODY DEBRIS

- 2.2.1. USE CONIFEROUS RED OR YELLOW CEDAR LOGS AND STUMPS WITH ROOTS ATTACHED OR AS ACCEPTED BY NHC SITE ENGINEER (I.E. DOUGLAS FIR MAY BE ACCEPTABLE IN SOME CIRCUMSTANCES), NO SITKA SPRUCE, WESTERN HEMLOCK, DECIDUOUS TREE, TIMBERS, OR DIMENSIONAL LUMBER.
- 2.2.2. ROOT WADS TO HAVE A MINIMUM STEM DIAMETER OF 0.3 METERS, MINIMUM WAD DIAMETER OF 1.2 METERS, AND MINIMUM STEM LENGTH OF 0.5 METERS.
- 2.2.3. LOGS SHALL HAVE A MINIMUM STEM DIAMETER OF 0.3 METERS, MINIMUM STEM LENGTH OF 3 METERS, AND IDEALLY HAVE ROOTS OR LARGE BRANCHES ATTACHED.
- 2.2.4. ROOTBALL SHALL BE SHAKEN OR PRESSURE WASHED TO REMOVE EXCESS DIRT. ENSURE ANY WASH DOES NOT ENTER A FISH BEARING WATER COURSE.

2.3. INTAKE

2.3.1. INTAKE WEIR

- 2.3.1.1. INTAKE WEIR CONSTRUCTED USING STANDARD FULL-SIZE LOCK-BLOCKS.
- 2.3.1.2. WEIR TO BE CONSTRUCTED ON A BASE OF COMPACTED STRUCTURAL FILL.
- 2.3.2. INTAKE RETAINING WALL
 - 2.3.2.1. INTAKE RETAINING WALLS TO BE CONSTRUCTED USING STANDARD FULL-SIZE AND HALF-SIZE LOCK-BLOCKS.
 - 2.3.2.2. RETAINING WALLS TO BE CONSTRUCTED ON A BASE OF COMPACTED STRUCTURAL FILL.
 - 2.3.2.3. LOCK-BLOCKS SHALL BE PLACED ON AND SEPARATED BY GEOGRID.
 - 2.3.2.4. RETAINING WALLS SHALL BE BACKFILLED WITH DRAIN-ROCK PRIOR TO BACKFILLING WITH GENERAL FILL.

3. CONSTRUCTION

3.1. CLEARING, GRUBBING, AND EXCAVATION

- 3.1.1. TREES REMOVED DURING CLEARING ACTIVITIES SHALL BE RETAINED AND STOCKPILED AT A DESIGNATED LOCATION FOR RE-DISTRIBUTION OF LWD TO CLEARED AREAS WITHIN THE HABITAT RIPARIAN FOLLOWING HABITAT CONSTRUCTION.
- 3.1.2. STOCKPILING AND REDISTRIBUTION OF LARGE ROCK TO BE COMPLETED AS DIRECTED BY THE NHC SITE ENGINEER.
- 3.1.3. EXCESS EXCAVATED MATERIAL IS TO BE TRANSPORTED OFF SITE. TOP SOIL TO BE STOCKPILED FOR PLANTING AND REHABILITATION.

3.2. CHANNELS AND POOLS

- 3.2.1. CHANNELS AND POOLS SHALL BE CONSTRUCTED AS SHOWN IN DRAWING.
- 3.2.2. CHANNEL AND POOLS SHALL BE LINED WITH GRAVELS AND COBBLES SALVAGED FROM EXCAVATION TO THE GREATEST EXTENT POSSIBLE. THIS MAY BE ACHIEVED BY RAKING THE CHANNEL BED WITH THE EXCAVATOR TO EXTRACT LARGER ROCKS. AREAS WITH EXCESSIVE FINES SHALL BE OVER-EXCAVATED AND CAPPED WITH COARSER ROCK.
- 3.2.3. CHANNEL SHALL BE LINED WITH GRAVEL AND COBBLE TO THE GREATEST EXTENT POSSIBLE PRIOR TO HABITAT COMPLEXING (INSTALLATION OF LWD AND PLACEMENT OF BOULDERS).

3.3. CHANNEL RIFFLES

- 3.3.1. CHANNEL RIFFLE SECTIONS MAY NEED ADDITION OF FINE GRAVEL ALONG THE UPSTREAM FACE (DURING CONSTRUCTION OR COMMISSIONING) TO SEAL VOIDS.
- 3.3.2. RIFFLES SHALL BE CONSTRUCTED BY EMBEDDING BOULDERS TO NOT EXCEED 0.3 METERS ABOVE THE GRADED CHANNEL ELEVATION.
- 3.3.3. CHANNEL RIFFLE SECTIONS MAY REQUIRE HAND ADJUSTMENT OF STONES ALONG THE CREST AND DOWNSTREAM FACE TO CONCENTRATE FLOW FOR FISH PASSAGE AND TO MAINTAIN UPSTREAM WATER DEPTH AS DETERMINED BY NHC SITE ENGINEER. ADJUSTMENT MAY INCLUDE NARROWING OR WIDENING OPENINGS OR ADJUSTING CREST STONE ELEVATION.

3.4. COMPLEXING CHANNEL AND POOLS

- 3.4.1. LWD AND BOULDERS SHALL BE USED TO CREATE HYDRAULIC COMPLEXITY AND VARIABLE HABITAT CONDITIONS.
- 3.4.2. LWD SHALL EXTEND NO MORE THAN 25% OF THE CHANNEL WIDTH INTO THE CHANNEL.
- 3.4.3. LWD SHALL BE PLACED ALONG THE MAIN DIVERSION CHANNEL SO AS TO NOT SIGNIFICANTLY REDUCE FLOW CAPACITY OR CAUSE SCOUR OF ADJACENT BANKS.
- 3.4.4. LWD SHALL BE EMBEDDED (1/3 TO 2/3) INTO THE BANKS OR SECURED IN PLACE WITH BOULDERS.
- 3.4.5. ANCHOR BOULDERS AND OTHER LWD ELEMENTS PLACED ON TOP OR DOWNSTREAM SHALL BE USED TO HELP SUPPORT LWD COMPLEXES TO LIMIT DOWNSTREAM MOVEMENT.
- 3.4.6. NORMAL HIGH WATER EVENTS WILL LIKELY RESULT IN SOME LOG SHIFTING AND SETTLING OF THE STRUCTURE AS IT ADAPTS TO THE STREAMBED AND BANK.
- 3.4.7. THE HABITAT CHANNEL WILL EVENTUALLY BE CONNECTED UPSTREAM AND USED AS A DIVERSION CHANNEL FOR GRAVEL EXTRACTION IN THE MAIN STEM OF FITZSIMMONS CREEK. ALL LWD MUST BE SECURED IN PLACE SUCH THAT IT WILL NOT FLOAT DOWNSTREAM.
- 3.4.8. 50 - 75% OF THE POOL AREAS SHOULD BE COMPLEXED WITH LWD, SECURED IN PLACE BY A COMBINATION OF EMBEDMENT AND BOULDERS. AT LEAST 25% OF THE CHANNEL LENGTH SHALL BE COMPLEXED WITH INSTREAM LWD. LOW LWD COVER PROVIDING SHADE, OR BOULDER CLUSTERS ON THE CHANNEL EDGES.
- 3.4.9. MAINTAIN CHANNEL AND POOL FLOW THROUGH CAPACITY BY LEAVING A CLEAR FLOW PATH.

3.5. INTAKE

- 3.5.1. INTAKE LOCATION SHALL BE CONFIRMED WITH NHC SITE ENGINEER.
- 3.5.2. INTAKE SHALL BE INSTALLED IN THE DRY PRIOR TO REMOVAL OF THE EXISTING DIVERSION BERM.
- 3.5.3. IT MAY BE REQUIRED TO BUILD-OUT THE FRONT OF THE EXISTING DIVERSION BERM DURING CONSTRUCTION AS DETERMINED BY NHC SITE ENGINEER.
- 3.5.4. ALL RIPRAP SHOULD BE PLACED AND INSPECTED DOWNSTREAM OF THE INTAKE PRIOR TO REMOVING THE DIVERSION BERM.

3.6. SEEDING AND PLANTING

- 3.6.1. SURFACE OF DISTURBED GROUND TO BE LEFT ROUGH AND LOOSE. (I.E. A SURFACE OF DEPRESSIONS AND MOUNDS 0.3 TO 0.6 METERS HIGH FREE OF COMPACTION TO RESIST MOVEMENT OF WATER AND FACILITATE NATURAL VEGETATION ESTABLISHMENT).
- 3.6.2. PLANTING SHALL BE DONE FOLLOWING DETAILED PLANTING PLAN DEVELOPED BY ENVIRONMENTAL CONSULTANT.

4. ENVIRONMENT

4.1. INSTREAM WORKS

- 4.1.1. ALL ACTIVITIES, INCLUDING THE STORAGE OF MATERIALS, HANDLING OF FUELS, AND EQUIPMENT OPERATION WILL BE CONDUCTED IN ACCORDANCE WITH THE GOVERNING ENVIRONMENTAL PERMITS. PHYSICAL PERMITS MUST BE ON SITE.
- 4.1.2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SET UP AND MAINTAIN DEWATERING, SITE ISOLATION AND SEDIMENT CONTROL.
- 4.1.3. EQUIPMENT MUST BE IN GOOD CONDITION WITHOUT LEAKS. SPILL KITS AND TRAINED PERSONNEL MUST BE ON SITE AND ACCESSIBLE.
- 4.1.4. ALL INSTREAM CONSTRUCTION ACTIVITIES MUST BE CONDUCTED IN ISOLATION OF FLOWING WATER, OR AS DIRECTED BY THE ENVIRONMENTAL MONITOR.

4.2. SEDIMENT AND EROSION CONTROL

- 4.2.1. IF WORK IS REQUIRED IN THE WETTED CHANNEL OF FITZSIMMONS CREEK, SEDIMENT AND EROSION CONTROL MEASURES MUST BE INSTALLED AND MUST MEET OR SURPASS THE STANDARDS OUTLINED IN THE DFO "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT". DISCHARGE OR RUNOFF WATER FROM THE SITE MAY NOT EXCEED A CHANGE FROM BACKGROUND OF MORE THAN 8 NTU AT ANY ONE TIME FOR A DURATION OF 24 HOURS IN ALL WATERS DURING CLEAR FLOWS OR IN CLEAR WATERS, OR A CHANGE FROM BACKGROUND OF MORE THAN 2 NTU AT ANY ONE TIME FOR A DURATION OF 30 DAYS IN ALL WATERS DURING CLEAR FLOWS OR IN CLEAR WATERS.
- 4.2.2. SLOPE STABILIZATION WORKS MAY BE REQUIRED AND SHOULD BE IMMEDIATELY IMPLEMENTED BY THE CONTRACTOR UPON COMPLETION OF CLEARING OF EXISTING VEGETATION FROM THE SITE. INTERIM SEDIMENT AND EROSION CONTROL MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: CONSTRUCTION OF SILT FENCES, PLACEMENT OF EROSION CONTROL FABRIC OR PLASTIC SHEETING OVER SLOPES, OR OTHER PROVEN SEDIMENT AND EROSION CONTROL TECHNIQUES.

4.3. DELETERIOUS SUBSTANCE CONTROL

- 4.3.1. CONSTRUCTION AND EXCAVATION WASTES, OVERBURDEN, SOIL, GROUT, OIL, GREASE OR ANY OTHER SUBSTANCE DELETERIOUS TO AQUATIC LIFE MUST BE LEGALLY DISPOSED OF IN A LICENSED FACILITY OR ON OWNER'S PROPERTY AS ACCEPTED BY THE RMOW REPRESENTATIVE.
- 4.3.2. ALL DELETERIOUS MATERIAL AND DEBRIS MUST BE REMOVED FROM THE SITE OR PLACED IN A STABLE AREA ABOVE THE HIGH WATER MARK OF THE STREAM, AS FAR AS POSSIBLE FROM THE CHANNEL, AND PROTECTED FROM EROSION BY MITIGATING MEASURES INCLUDING TEMPORARILY COVERING EXPOSED SOIL WITH: CLEAR POLYETHYLENE TARPS, GEOTEXTILE FABRIC, HYDRO-SEED AND/OR PLANTING VEGETATION (AS DEEMED APPROPRIATE TO THE SITE AND USE).

4.4. SPILL AND SPILL REPORTING

- 4.4.1. ALL EQUIPMENT AND MACHINERY WORKING WITHIN FIFTEEN (15) METERS OF ANY WATERCOURSE MUST BE IN GOOD WORKING CONDITION (POWER WASHED) AND FREE OF LEAKS OR EXCESS OIL AND GREASE. NO FUELS, LUBRICANTS, CONSTRUCTION WASTES OR OTHER DELETERIOUS SUBSTANCES MAY ENTER ANY WATERCOURSE AT ANY TIME.
- 4.4.2. NO EQUIPMENT REFUELING OR SERVICING OR STORAGE OF FUEL, PAINTS ETC. MAY BE UNDERTAKEN WITHIN FIFTEEN (15) METERS OF ANY DITCH, WATERCOURSE, RAVINE, OR STORM SEWER SYSTEM.
- 4.4.3. OIL DRIP TRAYS OR ABSORBENT MATERIALS (I.E. PADS) SHALL BE PLACED UNDER ANY HEAVY EQUIPMENT WORKING WITHIN THE FISHERIES SENSITIVE ZONE (ADJACENT TO THE WATERCOURSE) TO ENSURE THAT THERE IS NO POTENTIAL FOR CONTAMINATION OF THE STREAM BANKS OR WATERCOURSE RESULTING FROM LEAKS OR DRIPS OFF MACHINERY. OPERATORS ARE RESPONSIBLE TO ENSURE THAT THERE IS NO POTENTIAL FOR OIL, GREASE OR OTHER DELETERIOUS SUBSTANCES TO ENTER ANY WATERCOURSE, RAVINE OR STORM SEWER SYSTEM.
- 4.4.4. A SPILL RESPONSE KIT MUST BE READILY ACCESSIBLE ON-SITE IN THE EVENT OF RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ANY SPILL OF A DELETERIOUS SUBSTANCE THAT ENTERS INTO A DITCH, WATERCOURSE, RAVINE OR STORM SEWER SYSTEM MUST BE IMMEDIATELY REPORTED TO THE RMOW REPRESENTATIVE. AT LEAST ONE PERSON ON-SITE DURING CONSTRUCTION MUST HAVE SPECIFIC TRAINING IN SILL CONTAINMENT.
- 4.4.5. ALL ACTIVITIES, INCLUDING THE STORAGE OF MATERIALS, HANDLING OF FUELS, AND EQUIPMENT OPERATION SHALL BE CONDUCTED IN ACCORDANCE WITH THE REGULATORY AGENCIES AS APPENDED TO THE ENVIRONMENTAL MANAGEMENT PROCEDURE.

NAME	DESCRIPTION	POTENTIAL SOURCE
TYPE 1 RIPRAP	ANGULAR ROCK	SITE, ABANDONED ROAD, OR IMPORT
TYPE 2 RIPRAP	ANGULAR ROCK	SITE, ABANDONED ROAD, OR IMPORT
TYPE 3 FILTER	WELL GRADED SAND AND GRAVEL (PIT RUN)	PROCESSED FROM EXCAVATION OR IMPORT
TYPE 4 RIFFLE BOULDERS	ROUNDED TO SEMI-ANGULAR BOULDERS	SORTED FROM EXCAVATION OR FROM ABANDONED ROAD
TYPE 5 STRUCTURAL FILL	SAND AND GRAVEL	PROCESSED FROM EXCAVATION OR IMPORT
TYPE 6 GENERAL FILL	SAND AND GRAVEL	FROM EXCAVATION
TYPE 7 COMPLEXING BOULDERS	ROUNDED BOULDERS	SITE, ABANDONED ROAD, OR IMPORT
TYPE 8 ANCHOR BOULDERS	ROUNDED BOULDERS	SITE, ABANDONED ROAD, OR IMPORT

GRADATION (STONE SIZE IN MM FOR % PASSING)					
NAME	100%	85%	50%	15%	Fines
TYPE 1 RIPRAP	1250	1000	715	330	-
TYPE 2 RIPRAP	565	475	330	155	-
TYPE 3 FILTER	250	160	100	30	-
TYPE 4 RIFFLE BOULDERS	450	-	300	150	-
TYPE 5 STRUCTURAL FILL	350	-	-	-	<15%
TYPE 6 GENERAL FILL	150	-	-	-	<25%
TYPE 7 COMPLEXING BOULDERS	600	-	-	>300	-
TYPE 8 ANCHOR BOULDERS	-	-	-	>800	-

ITEM	DESCRIPTION	UNIT	APPROX. QUANTITY
1	TYPE 1 RIPRAP	CU. M	532
2	TYPE 2 RIPRAP	CU. M	345
3	TYPE 3 RIPRAP	CU. M	251
4	TYPE 4 RIFFLE BOULDERS	CU. M	41
5	TYPE 5 STRUCTURAL FILL	CU. M	122
6	TYPE 6 GENERAL FILL	CU. M	1150
7	TYPE 7 COMPLEXING BOULDERS	NO.	90
8	TYPE 8 ANCHOR BOULDERS	NO.	100
9	BULK EXCAVATION	CU. M.	2000
10	STANDARD LOCK-BLOCKS	NO.	97
11	LWD	NO.	120

WATER ELEVATION (m)	DESCRIPTION	TOTAL HABITAT (m ²)
632.8	ESTIMATED MINIMUM POSSIBLE LAKE LEVEL, LOWEST POINT OF GREEN LAKE AT GREEN RIVER	530
633.5	GREEN LAKE WATER SURFACE, MEASURED JULY 24, 2024.	795

NOTE:
HABITAT AREAS ARE CALCULATED AS WETTED AREA AND WILL VARY WITH DIFFERING WATER LEVELS. VALUES SHOWN IN THE ABOVE TABLE ARE BASED ON DESIGN CHANNEL CROSS SECTIONS. FINAL HABITAT AREAS WILL DEPEND ON THE AS-BUILT CHANNEL GEOMETRY AND SHOULD BE VERIFIED AFTER CONSTRUCTION. MODIFICATIONS MAY HAVE TO BE MADE AFTER CONSTRUCTION TO ENSURE THAT THE HABITAT REQUIREMENTS ARE MET.

NOT FOR CONSTRUCTION

FILE LOCATION: \\mainfile-van\projects\active\3003501_Fitzsimmons\DRAWING_FITZSIMMONS_NOTES.dwg PLOT DATE: 2023-01-24 10:50:00 AM PLOTTED BY: Chris Zhao

HALF SCALE WHEN PRINTED TO 11" X 17".

DRAWING REVISION SCHEDULE					
REV	DESCRIPTION	DATE	DESIGNER	DRAWN BY	APPROVED
B	ISSUED FOR TENDER	2025-01-24	AAK	CZZ	NRA
A	ISSUED FOR REVIEW	2024-12-20	AAK	CZZ	NRA

CLIENT



RESORT MUNICIPALITY OF WHISTLER
4325 BLACKCOMB WAY
WHISTLER, B.C.
V8E 0X5

PERMIT TO PRACTICE

SEAL



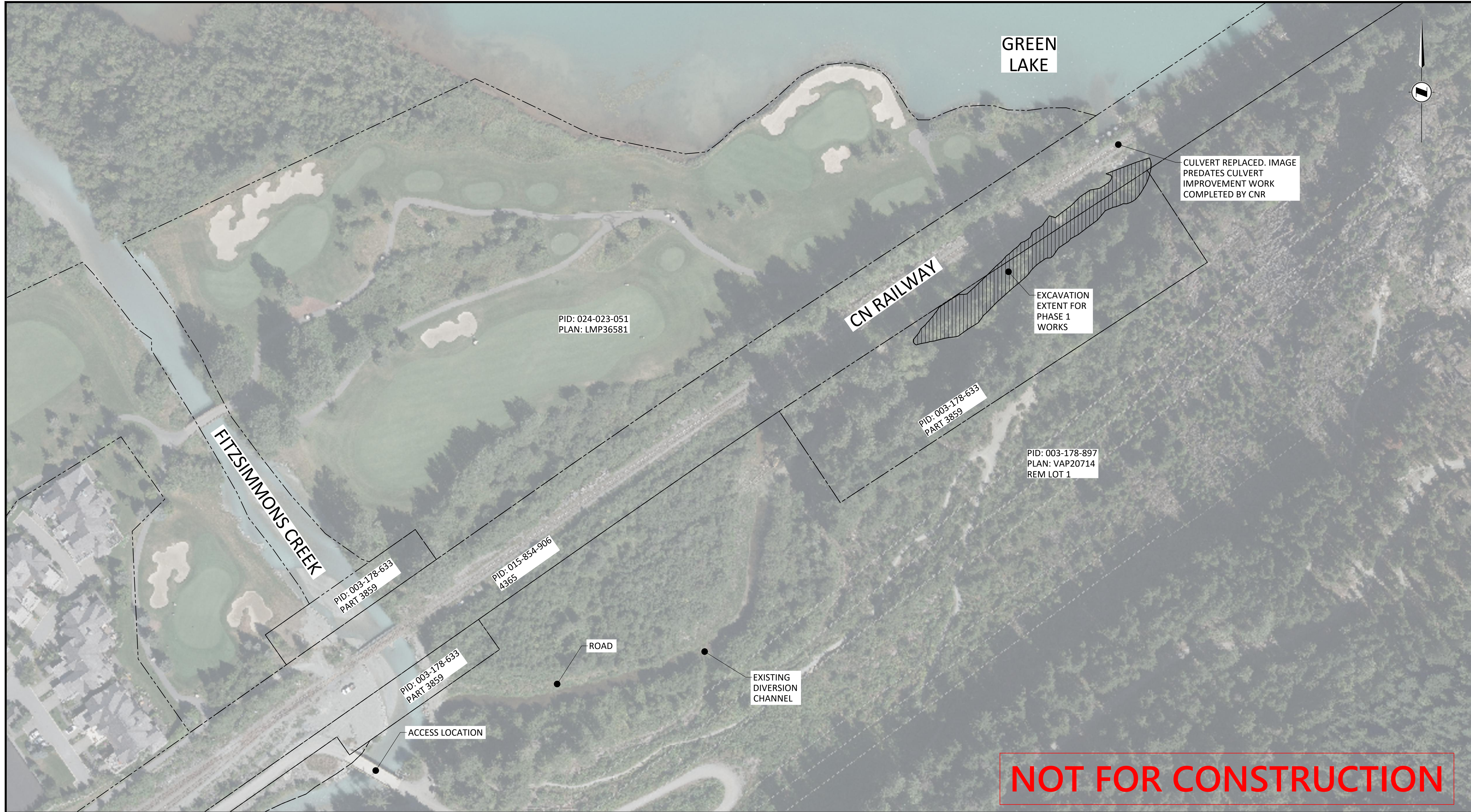
FITZSIMMONS CREEK FLOOD MANAGEMENT
DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1

NOTES AND SPECIFICATIONS SHEET

NHC PROJECT No.
3003501

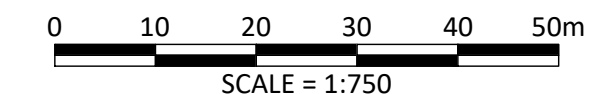
COORD SYS. AND DATUM
HORIZ: NAD83 CSRS (2002.0), UTM zone 10 N
VERT: CGVD2013 (CGG2013a)

SHEET No.
G-0-002



NOT FOR CONSTRUCTION

SITE PLAN
SCALE = 1:750



HALF SCALE WHEN PRINTED TO 11" X 17".

DRAWING REVISION SCHEDULE					
REV	DESCRIPTION	DATE	DESIGNER	DRAWN BY	APPROVED
B	ISSUED FOR TENDER	2025-01-24	AAK	CZZ	NRA
A	ISSUED FOR REVIEW	2024-12-20	AAK	CZZ	NRA

CLIENT

RESORT MUNICIPALITY OF WHISTLER
4325 BLACKCOMB WAY
WHISTLER, B.C.
V8E 0X5

PERMIT TO PRACTICE

SEAL



FITZSIMMONS CREEK FLOOD MANAGEMENT
DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1

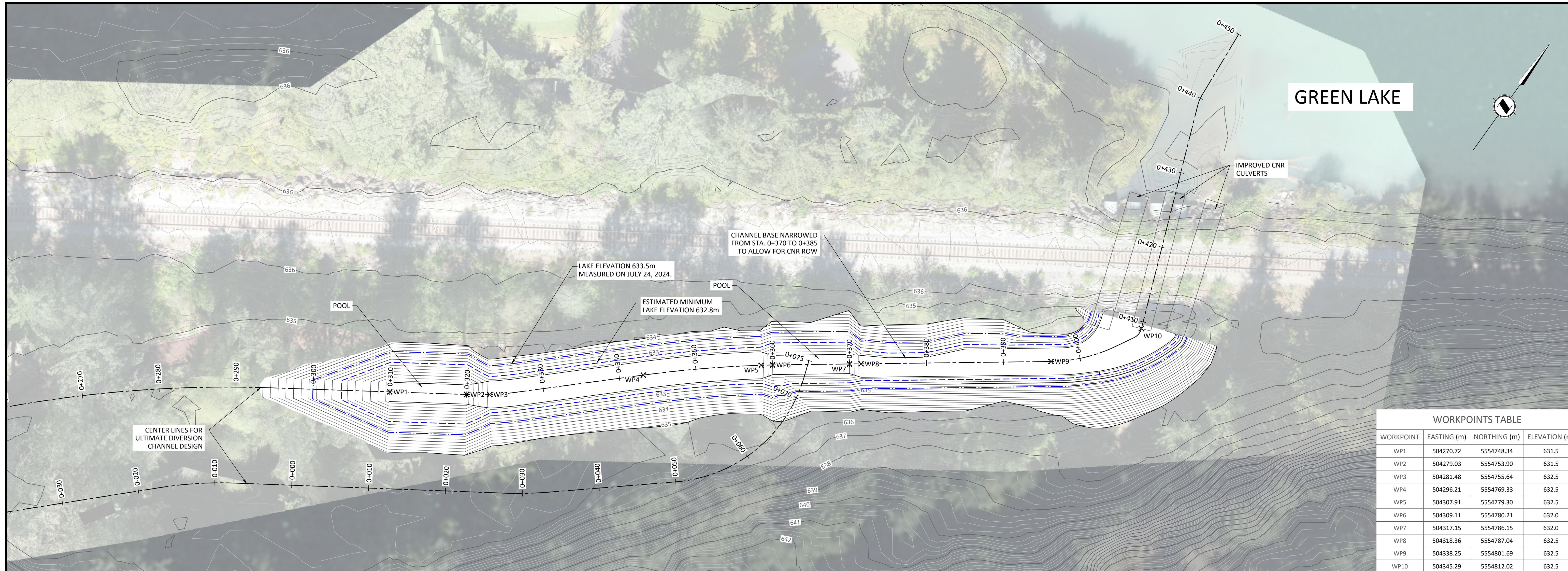
SITE PLAN

NHC PROJECT No.
3003501

COORD SYS. AND DATUM
HORIZ: NAD83 CSRS (2002.0), UTM zone 10 N
VERT: CGVD2013 (CGG2013a)

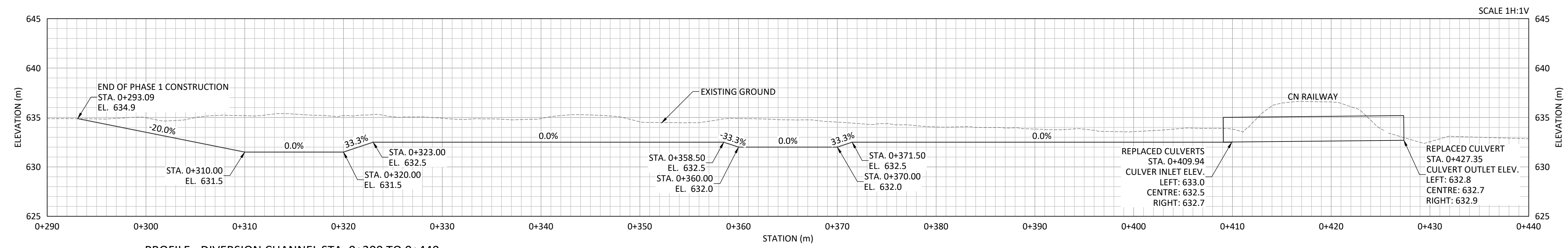
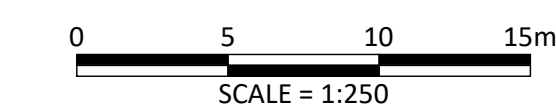
SHEET No.
G-0-003

FILE LOCATION: \\mainfile-van\projects\active\3003501\Fitzsimmons\FHC\96 CAD\Production\0100_Drawings\3003501_DRAW\FITZSIMMONS_KEYMAP.dwg PLOT DATE: 2025-01-24 10:50:03 AM PLOTTED BY: Cass Zhao



WORKPOINTS TABLE			
WORKPOINT	EASTING (m)	NORTHING (m)	ELEVATION (m)
WP1	504270.72	5554748.34	631.5
WP2	504279.03	5554753.90	631.5
WP3	504281.48	5554755.64	632.5
WP4	504296.21	5554769.33	632.5
WP5	504307.91	5554779.30	632.5
WP6	504309.11	5554780.21	632.0
WP7	504317.15	5554786.15	632.0
WP8	504318.36	5554787.04	632.5
WP9	504338.25	5554801.69	632.5
WP10	504345.29	5554812.02	632.5

PLAN VIEW - DIVERSION CHANNEL STA. 0+300 TO 0+440 (EXTENT TO BE CONSTRUCTED DURING PHASE 1)
SCALE = 1:250



PROFILE - DIVERSION CHANNEL STA. 0+300 TO 0+440
SCALE = 1:250

- NOTE:
1. RMOW TO CONFIRM EXCAVATION SLOPE DOES NOT IMPEDE CNR ROW.
 2. MODIFICATIONS TO EXCAVATION SLOPES MAY BE REQUIRED BASED ON IN-SITU MATERIALS ENCOUNTERED IN THE FIELD, AS DETERMINED BY THE NHC SITE ENGINEER.
 3. THE EXCAVATION LIMITS SHOWN DO NOT ACCOUNT FOR THE PLACEMENT OF RIPRAP DURING FUTURE PHASES OF WORK. ADDITIONAL EXCAVATION WITHIN THE PHASE 1 AREA WILL BE REQUIRED DURING FUTURE PHASES OF WORK TO ACCOMMODATE RIPRAP.

LEGEND

--- EXISTING GRADE

— DESIGN GRADE

NOT FOR CONSTRUCTION

HALF SCALE WHEN PRINTED TO 11" X 17".

DRAWING REVISION SCHEDULE					
REV	DESCRIPTION	DATE	DESIGNER	DRAWN BY	APPROVED
B	ISSUED FOR TENDER	2025-01-24	AAK	CZZ	NRA
A	ISSUED FOR REVIEW	2024-12-20	AAK	CZZ	NRA

CLIENT

RESORT MUNICIPALITY OF WHISTLER
4325 BLACKCOMB WAY
WHISTLER, B.C.
V8E 0X5

PERMIT TO PRACTICE

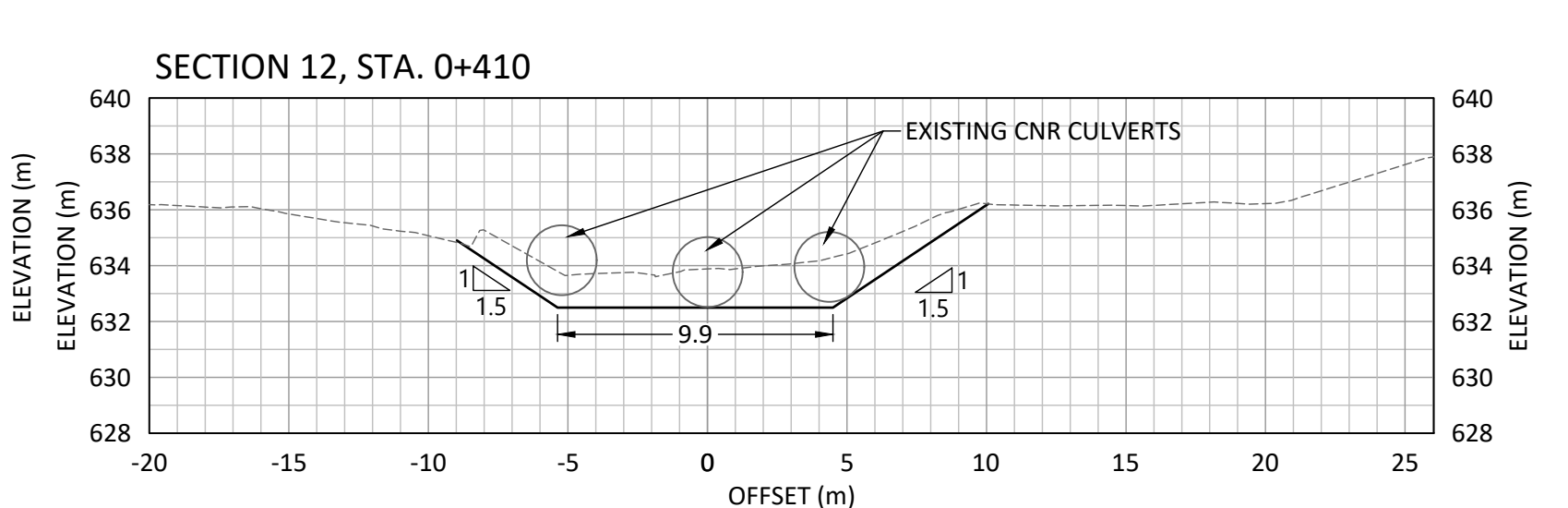
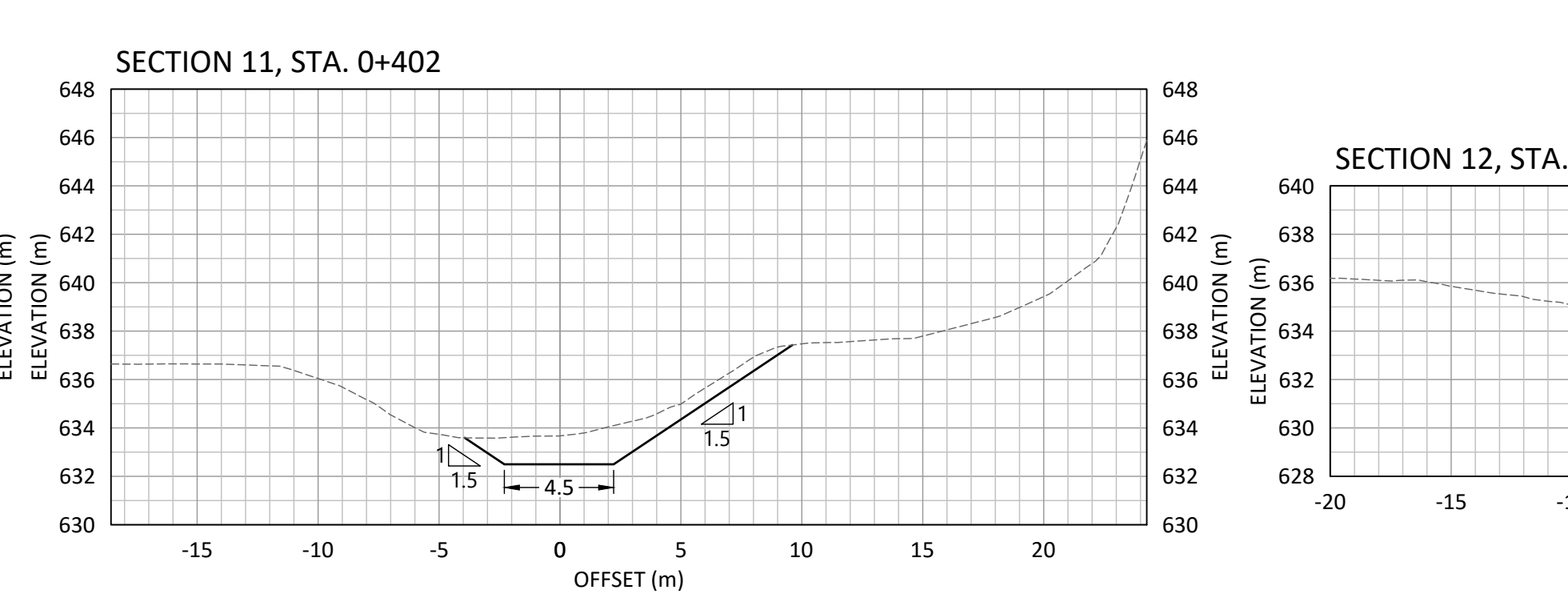
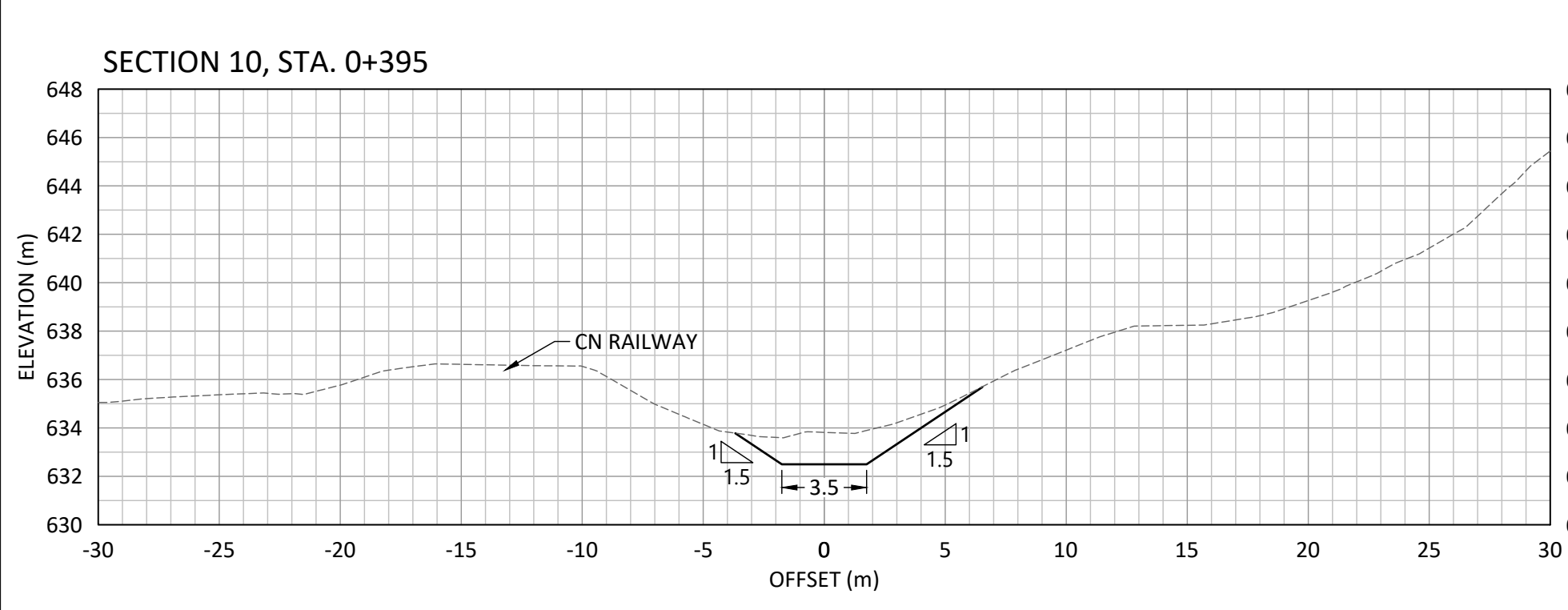
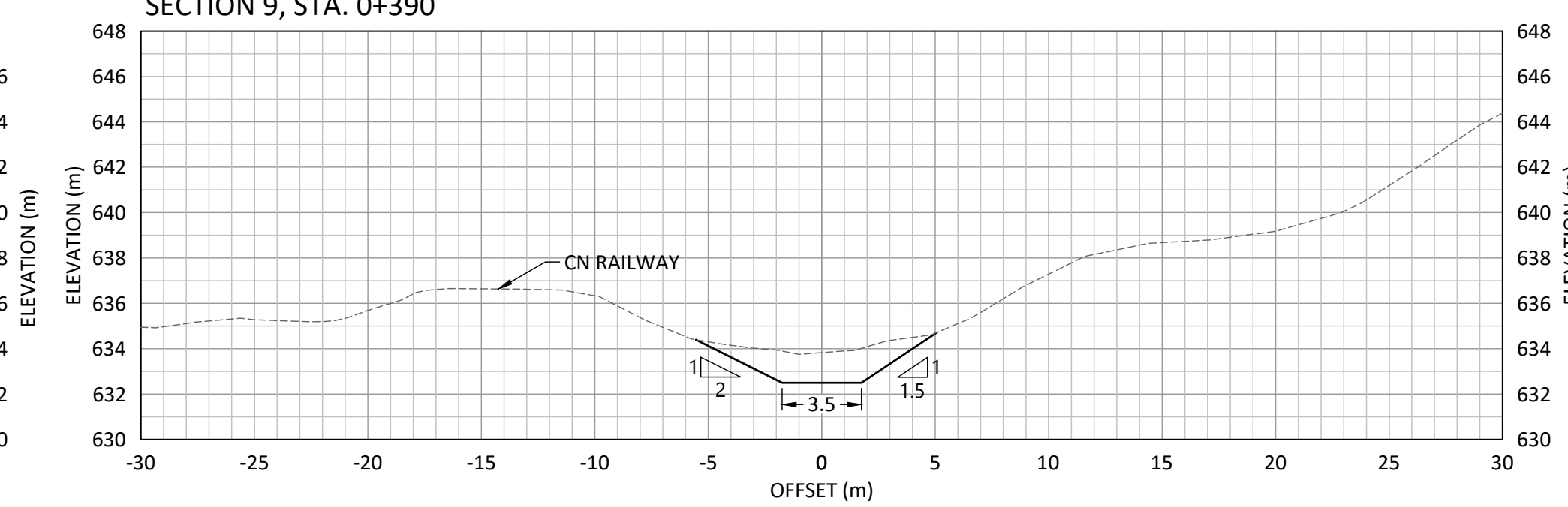
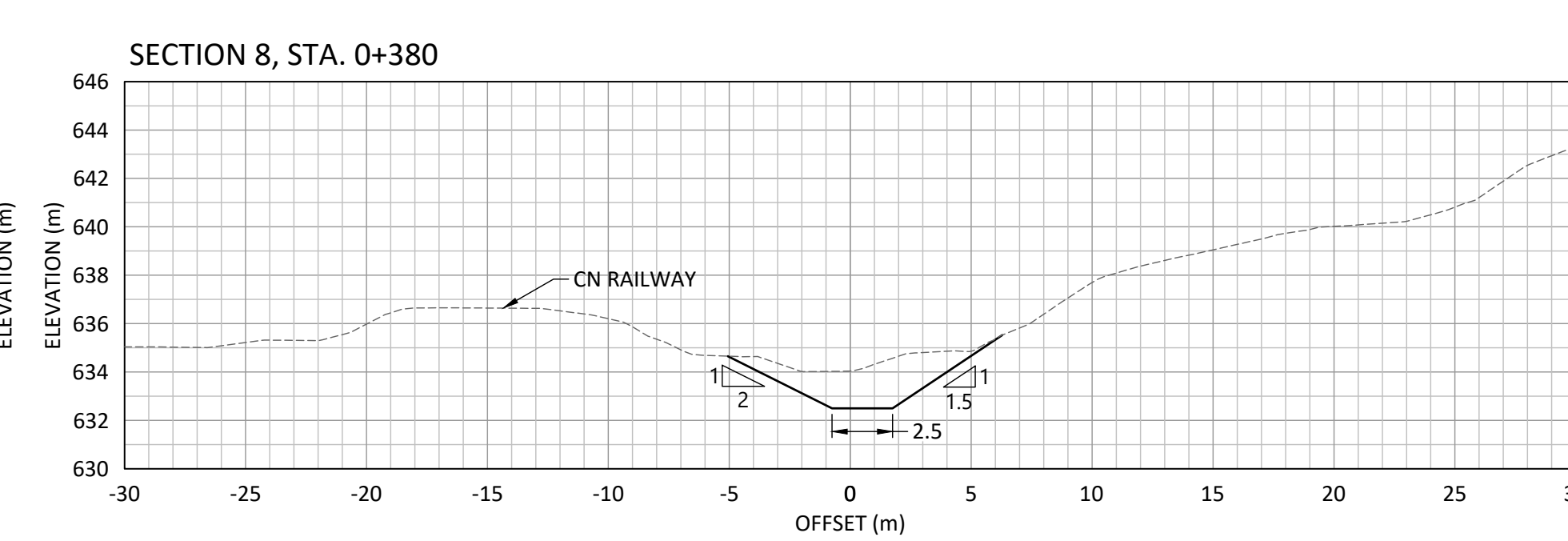
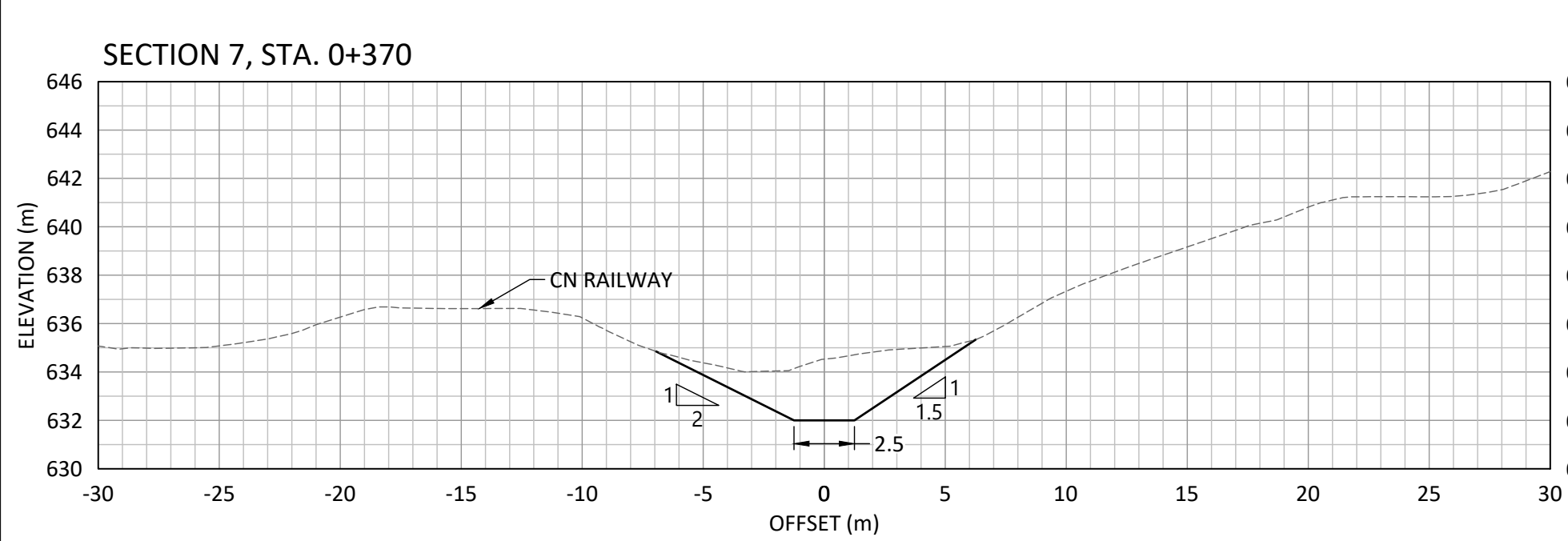
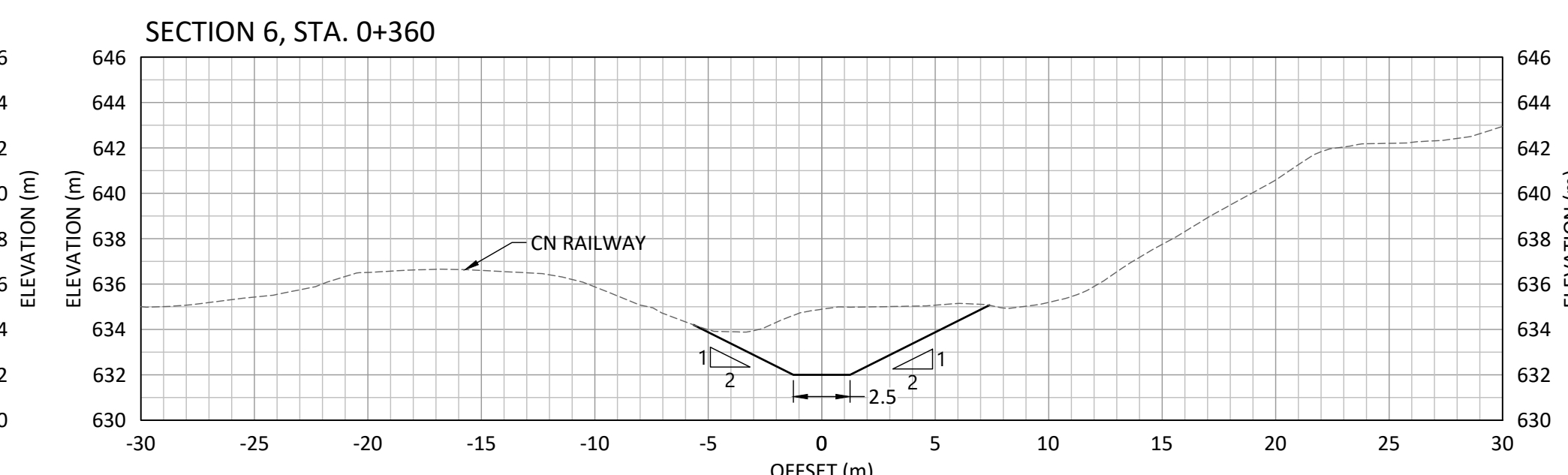
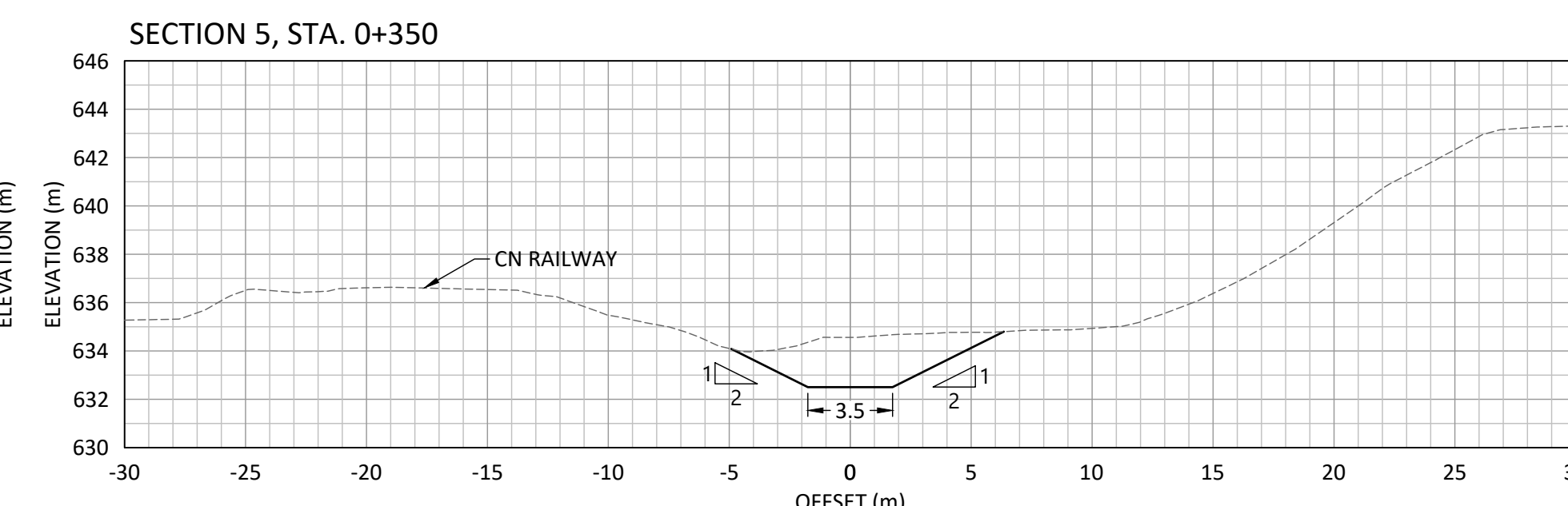
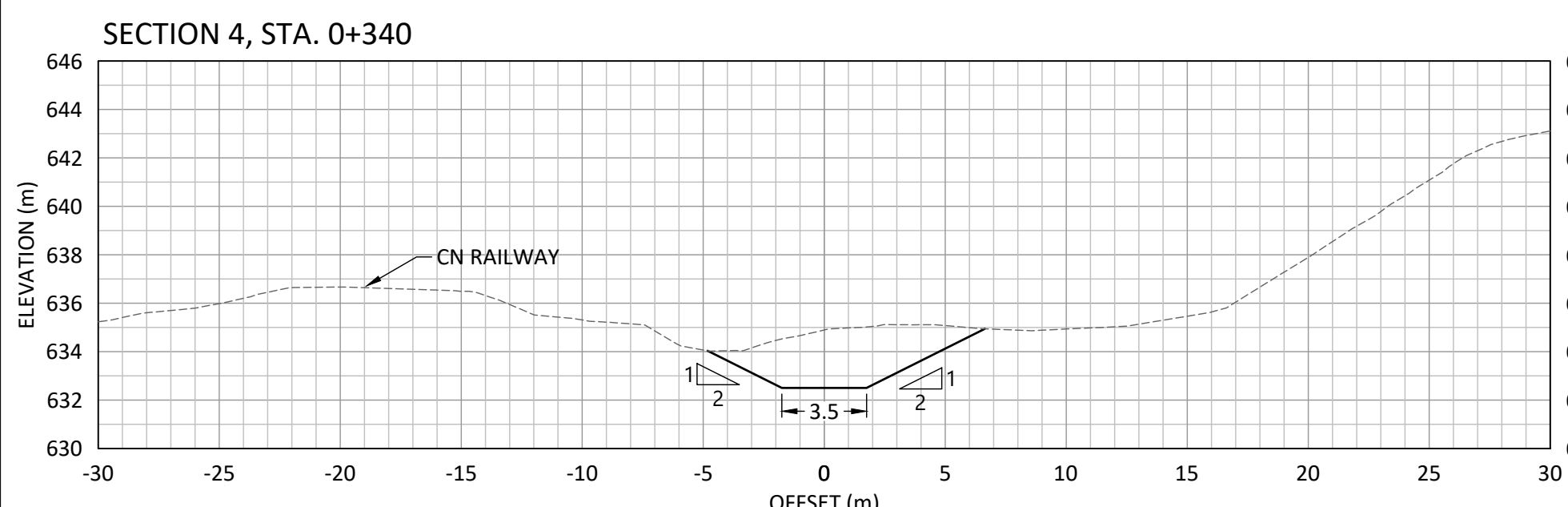
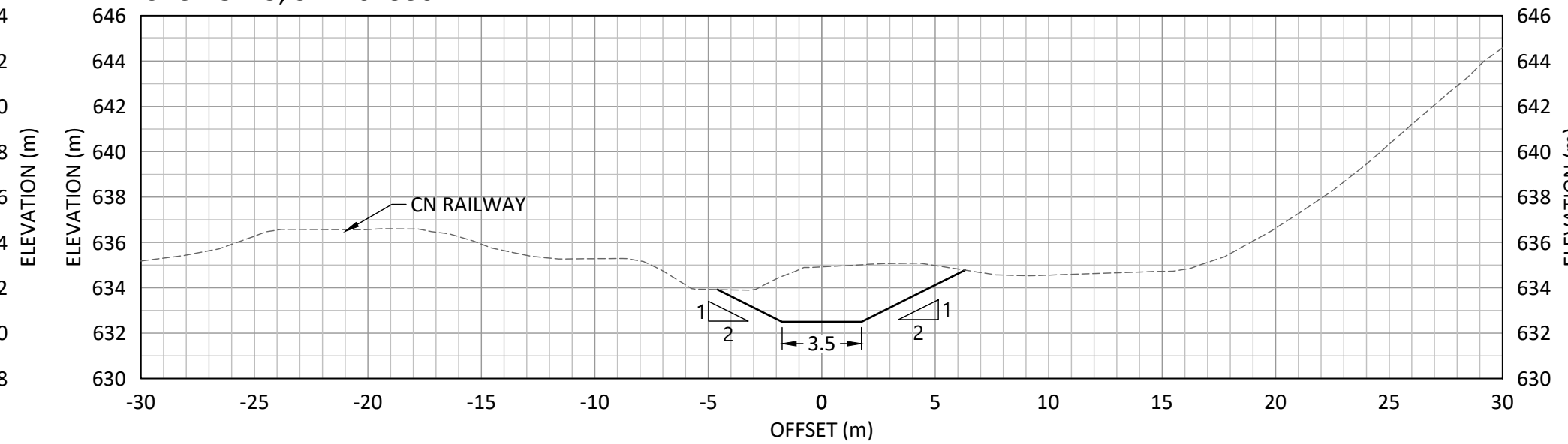
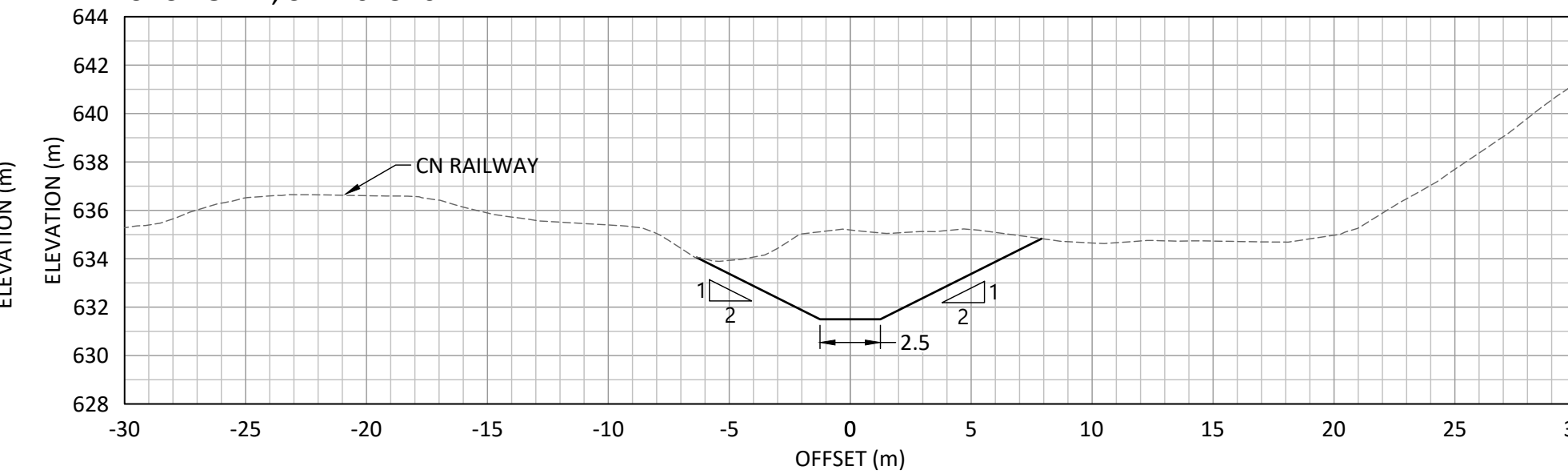
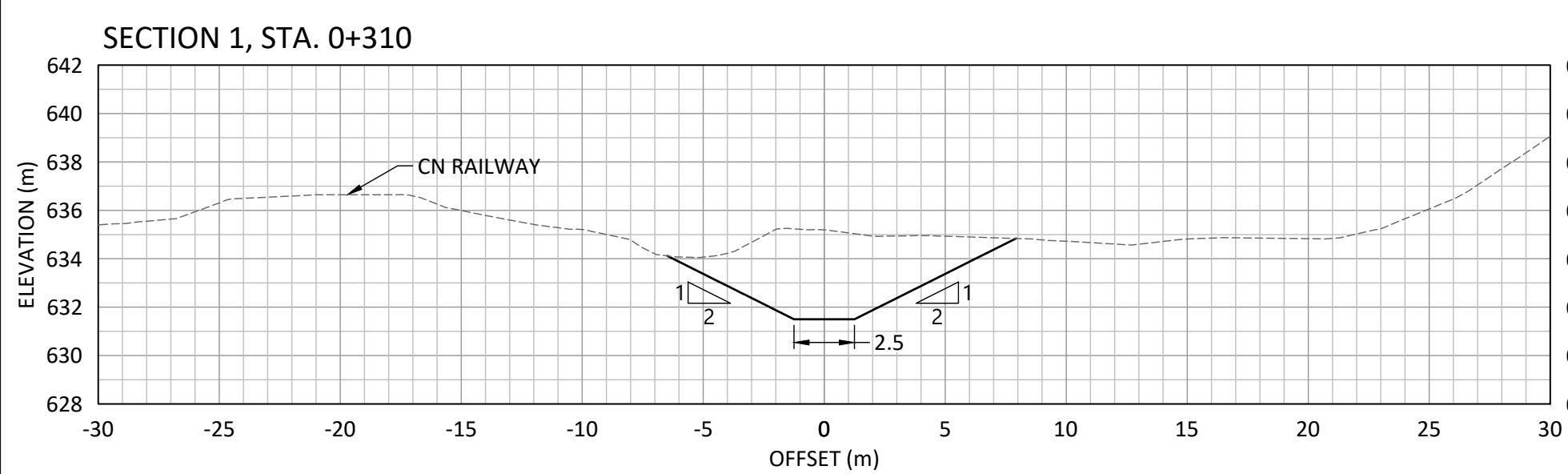
SEAL



FITZSIMMONS CREEK FLOOD MANAGEMENT DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1	NHC PROJECT No. 3003501
	COORD SYS. AND DATUM HORIZ: NAD83 CSRS (2002.0), UTM zone 10 N VERT: CGVD2013 (CGG2013a)
PHASE 1 PLAN AND PROFILE	SHEET No. C-1-101

FILE LOCATION: \\mainfile-van\Projects\Active\3003501\Fitzsimmons\FHC\96 CAD\Production\0100_Drawings\3003501_DRAW_FITZSIMMONS_DESIGN.dwg PLOT DATE: 2025-01-24 10:50:44 AM PLOTTED BY: Cas Zhao

FILE LOCATION: \\mainfile-van\Projects\Active\3003501\Fitzsimmons\FHC\96 CAD\Production\100_Drawings\3003501_DRAW_FITZSIMMONS_DESIGN.dwg PLOT DATE: 2025-01-24 10:50:46 AM PLOTTED BY: Cass Zhao



LEGEND
 - - - - - EXISTING GRADE
 ——— PHASE 1 CUT EXTENTS

NOT FOR CONSTRUCTION

HALF SCALE WHEN PRINTED TO 11" X 17".

DRAWING REVISION SCHEDULE					
REV	DESCRIPTION	DATE	DESIGNER	DRAWN BY	APPROVED
B	ISSUED FOR TENDER	2025-01-24	AAK	CZZ	NRA
A	ISSUED FOR REVIEW	2024-12-20	AAK	CZZ	NRA

CLIENT

RESORT MUNICIPALITY OF WHISTLER
 4325 BLACKCOMB WAY
 WHISTLER, B.C.
 V8E 0X5

PERMIT TO PRACTICE

SEAL



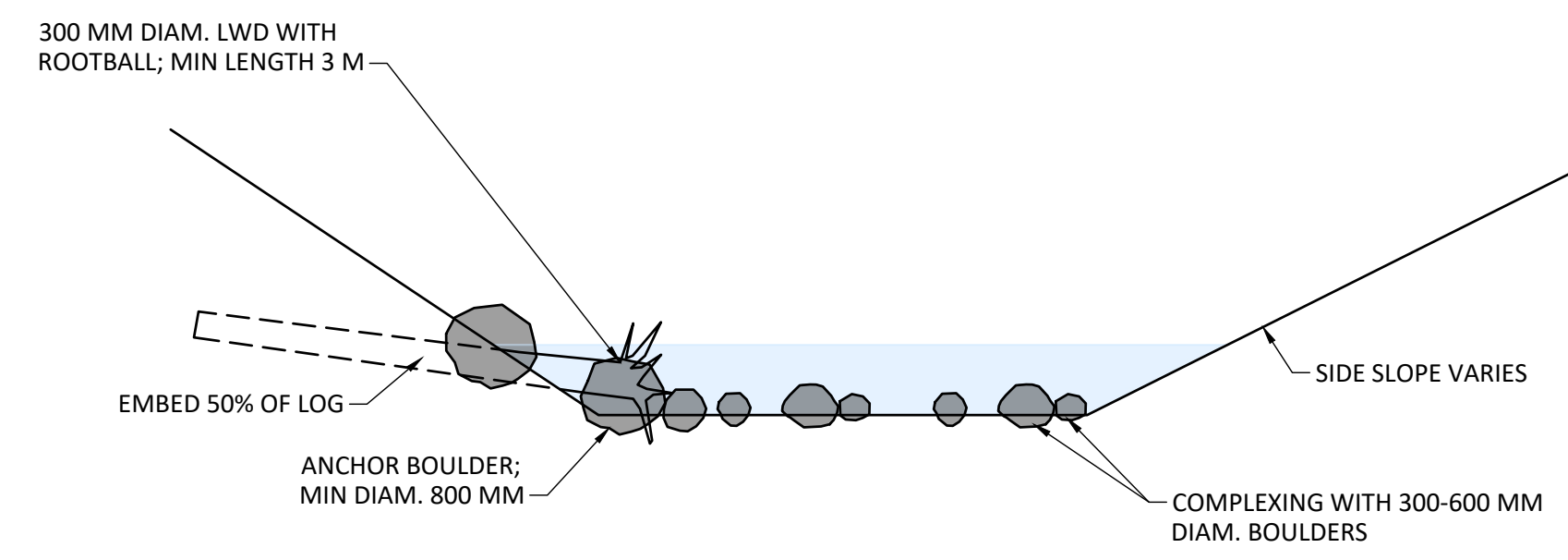
FITZSIMMONS CREEK FLOOD MANAGEMENT
 DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1

SECTIONS

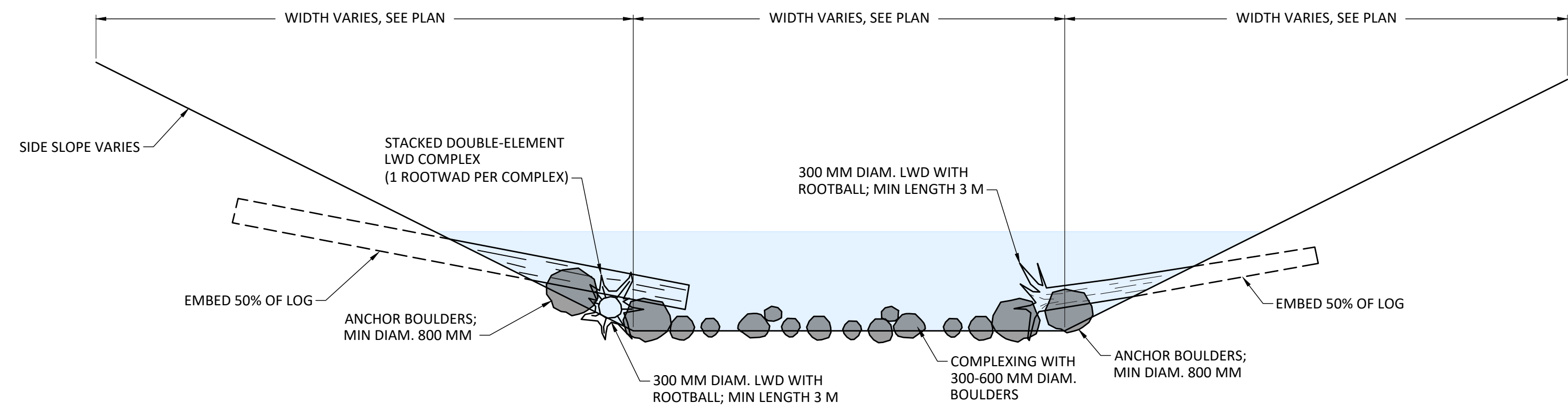
NHC PROJECT No.
 3003501

COORD SYS. AND DATUM
 HORIZ: NAD83 CSRS (2002.0), UTM zone 10 N
 VERT: CGVD2013 (CGG2013a)

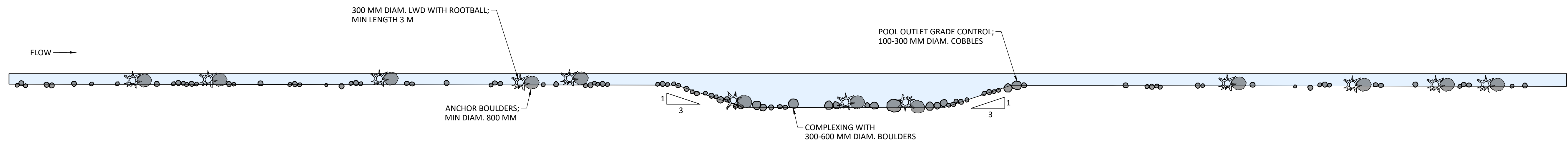
SHEET No.
C-1-301



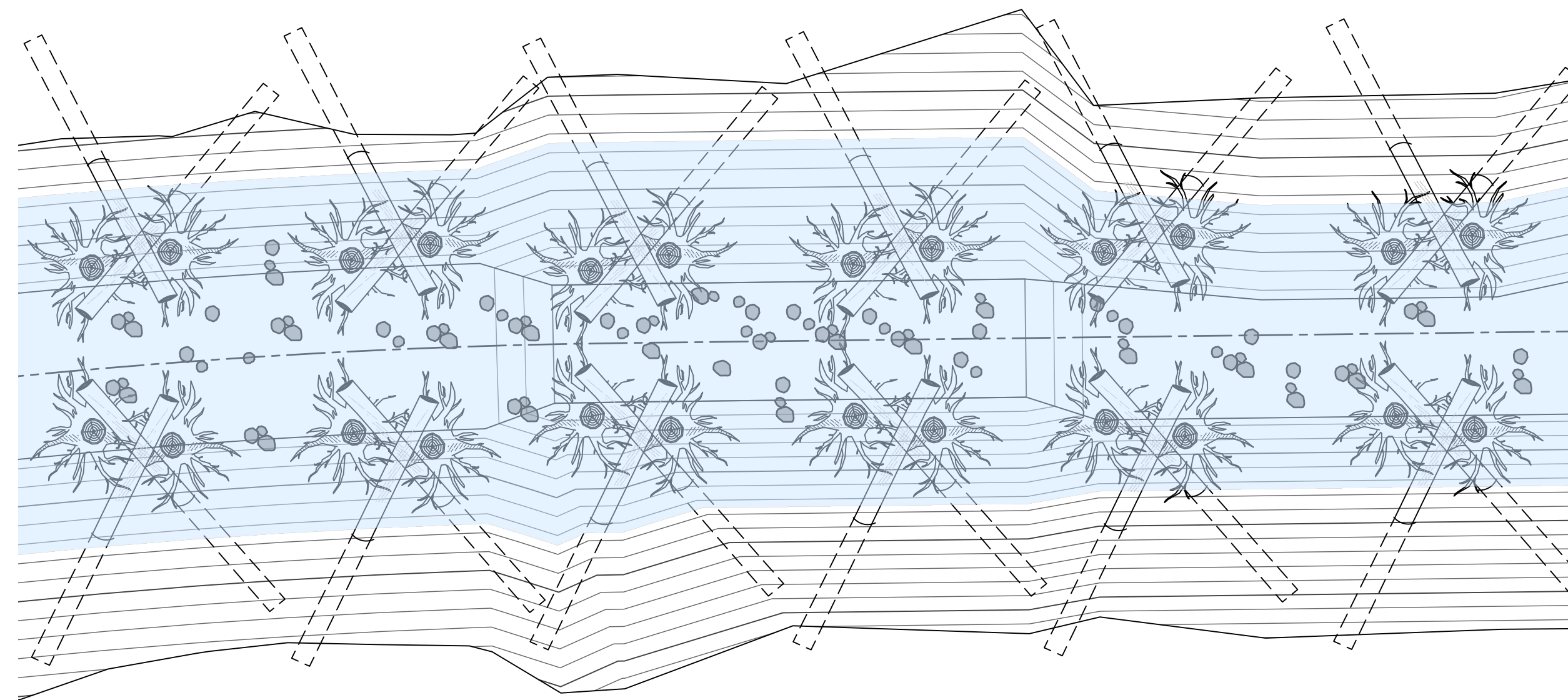
TYPICAL DETAIL 1: MAIN CHANNEL SECTION
SCALE: 1:50



TYPICAL DETAIL 2: MAIN CHANNEL POOL AND COMPLEXING PROFILE
SCALE: 1:50



TYPICAL DETAIL 3: MAIN CHANNEL PROFILE
SCALE: 1:100




TYPICAL DETAIL 4: POOL AND CHANNEL COMPLEXING PLAN
SCALE: 1:250

NOT FOR CONSTRUCTION

HALF SCALE WHEN PRINTED TO 11" X 17".

DRAWING REVISION SCHEDULE					
REV	DESCRIPTION	DATE	DESIGNER	DRAWN BY	APPROVED
B	ISSUED FOR TENDER	2025-01-24	AAK	CZZ	NRA
A	ISSUED FOR REVIEW	2024-12-20	AAK	CZZ	NRA

CLIENT



RESORT MUNICIPALITY OF WHISTLER
4325 BLACKCOMB WAY
WHISTLER, B.C.
V8E 0X5

PERMIT TO PRACTICE

SEAL



FITZSIMMONS CREEK FLOOD MANAGEMENT
DIVERSION HABITAT COMPENSATION CHANNEL, PHASE 1

TYPICAL SECTIONS AND DETAILS

NHC PROJECT No.
3003501

COORD SYS. AND DATUM
HORIZ: NAD83 CSRS (2002.0), UTM zone 10 N
VERT: CGVD2013 (CGG2013a)

SHEET No.
C-1-302

FILE LOCATION: \\mainfile-vanproj\projects\active\3003501_fitzsimmons\fitz3003501_drawing\3003501_DRAW_FITZSIMMONS_DET.dwg PLOT DATE: 2025-01-24 10:50:50 AM PLOTTED BY: Cass Zhao