

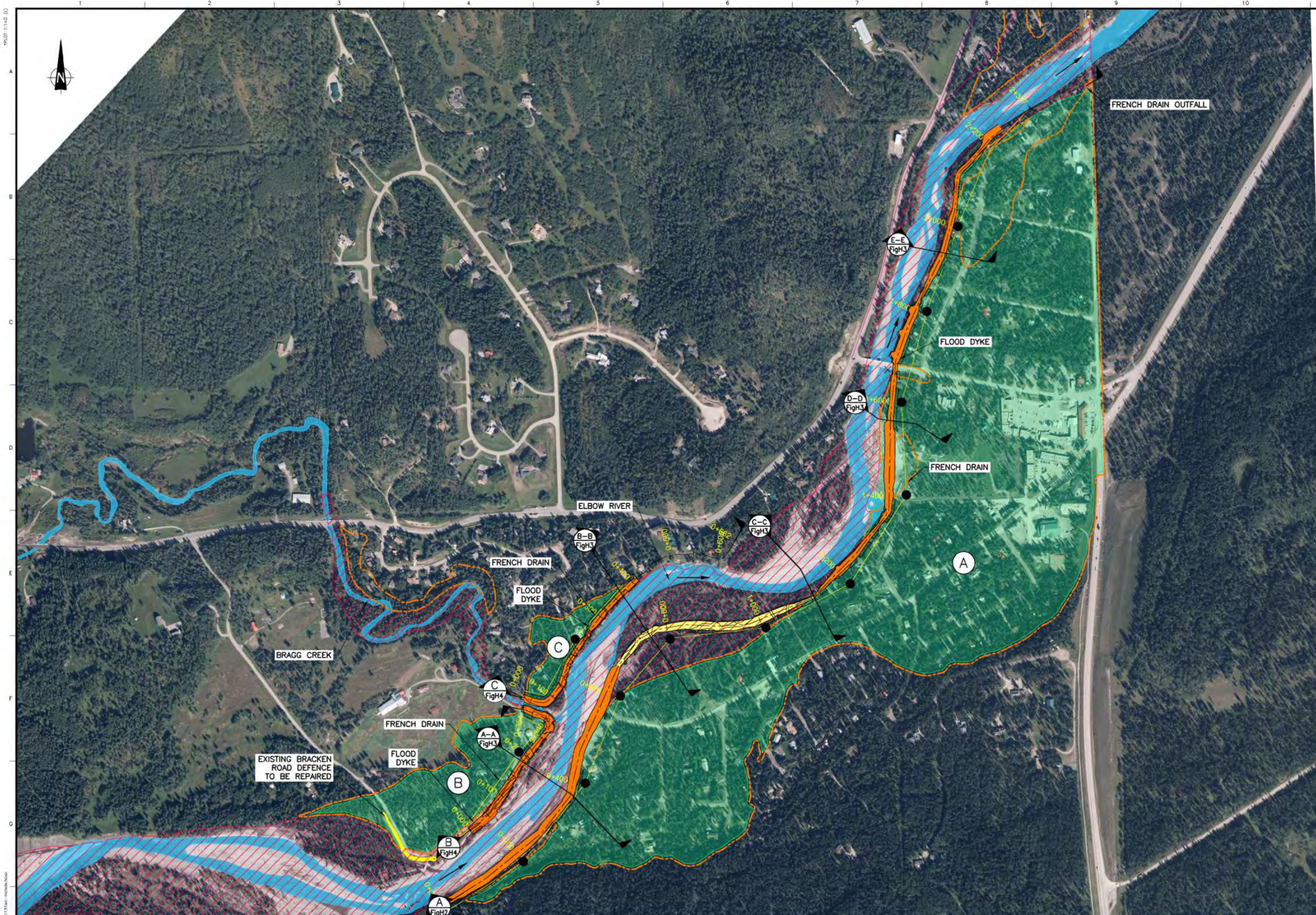


Appendix H

Conceptual Design of Flood Defences at Bragg Creek

**Conceptual Cost Estimate
Bragg Creek Flood Defence Dykes & French Drain**

Item No.	Item Description	Unit	Quantity	Unit Price	Extension
	ALLOWANCES				
1	Larger Riprap sizing	Allow.	Allowance		\$200,000
	TEMPORARY FACILITIES				
2	Mobilization and Demobilization	L.S.	1	Lump Sum	\$50,000
3	Existing and Temporary Roads	L.S.	1	Lump Sum	\$10,000
	SITE PREPARATION				
4	Clearing & Grubbing	ha	3	\$2,000.00	\$6,251
5	Topsoil & Subsoil Stripping	m ³	11315	\$5.00	\$56,577
6	Care of Water	L.S.	1	Lump Sum	\$75,000
	EXCAVATION				
7	Common Excavation	m ³	13820	\$6.50	\$89,831
	FILL PLACEMENT				
8	Low Permeable Fill	m ³	56263	\$10.00	\$562,628
9	Common Fill	m ³	9577	\$6.00	\$57,461
	GRANULAR AND RIPRAP MATERIALS				
10	Granular Drain Rock	tonnes	5456	\$35.00	\$190,966
11	Riprap Zone 6B	tonnes	14770	\$130.00	\$1,920,103
12	Riprap Zone 6A	tonnes	202	\$110.00	\$22,176
13	Gravel Armour	tonnes	9231	\$40.00	\$369,251
14	Non-Woven Geotextile	m ²	15385	\$3.00	\$46,156
	SITE CONSTRUCTION				
15	600 Dia. Perforated HDPE Pipe	m	2947	\$120.00	\$353,606
16	CSP Well Supply and Installation	L.S.	12	\$15,000.00	\$180,000
	LANDSCAPING				
17	Topsoil & Subsoil Placement	m ²	15390	\$1.50	\$23,084
18	Turf Reinforcement Mat	m ²	30779	\$6.00	\$184,674
19	Hydroseeding	m ²	30779	\$3.50	\$107,727
	SUBTOTAL				\$4,505,490
	CONTINGENCIES @ 25%				\$1,126,373
	ENGINEERING @ 12%				\$540,659
	ESTIMATED TOTAL COST				\$6,173,000



- LEGEND:**
- CSP WELL
 - FLOOD FRINGE
 - FLOW DIRECTION
 - ▨ FLOODWAY
 - ▨ FLOOD DYKE / RIPRAP PROTECTION
 - ▨ DYKE / TRM PROTECTION
 - WATER BODY
 - FLOOD RISK ZONES (SEE SECTION 3.4.1)

- NOTES:**
1. LIDAR DATA PROVIDED BY THE M.D. OF ROCKYVIEW COUNTY.
 2. AIR PHOTO PROVIDED BY ALBERTA ENVIRONMENT AND SUSTAINABLE RESOURCE DEVELOPMENT, DECEMBER 2013.

SCALE
1:4000
0 20 40 60 80m

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REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
13	05	14		ISSUED FOR FINAL REPORT	H.M.	G.B.
14	03	14		ISSUED FOR CLIENT REVIEW	H.M.	G.B.

amec

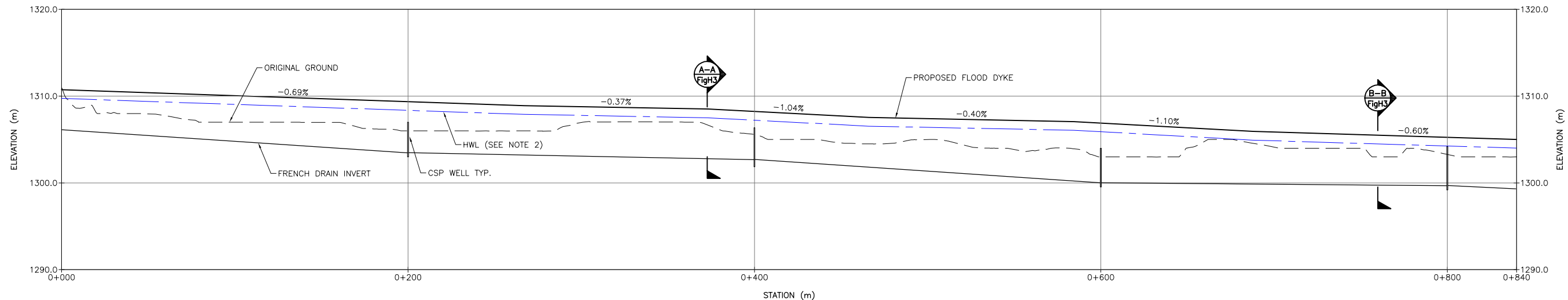
Client: **SOUTHERN ALBERTA FLOOD RECOVERY TASK FORCE**

Designed By: H.M.
 Drawn By: M.H.
 Checked By: G.B.
 Approved By: G.G.
 Scale: AS SHOWN

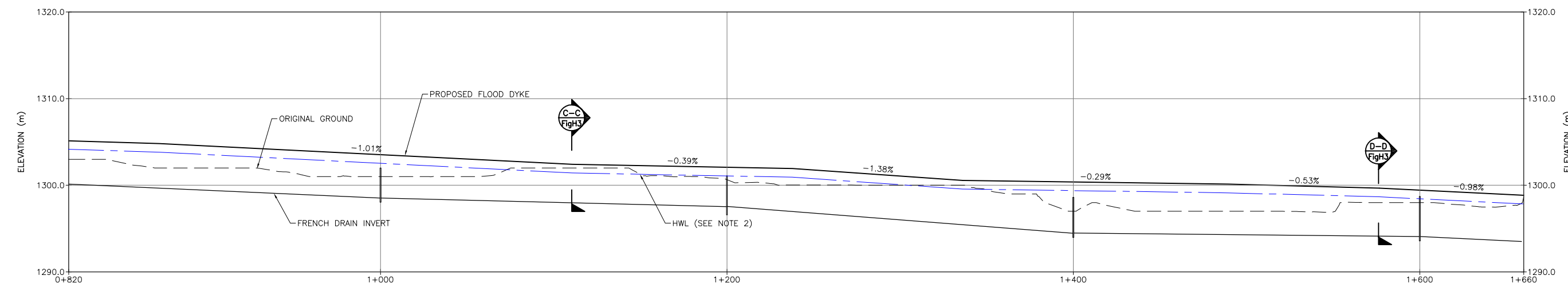
Project: **FLOOD MITIGATION FEASIBILITY STUDY FOR BOW, ELBOW AND OLDMAN RIVER BASINS**

Title: **BRAGG CREEK FLOOD DEFENCES CONCEPTUAL PLAN**

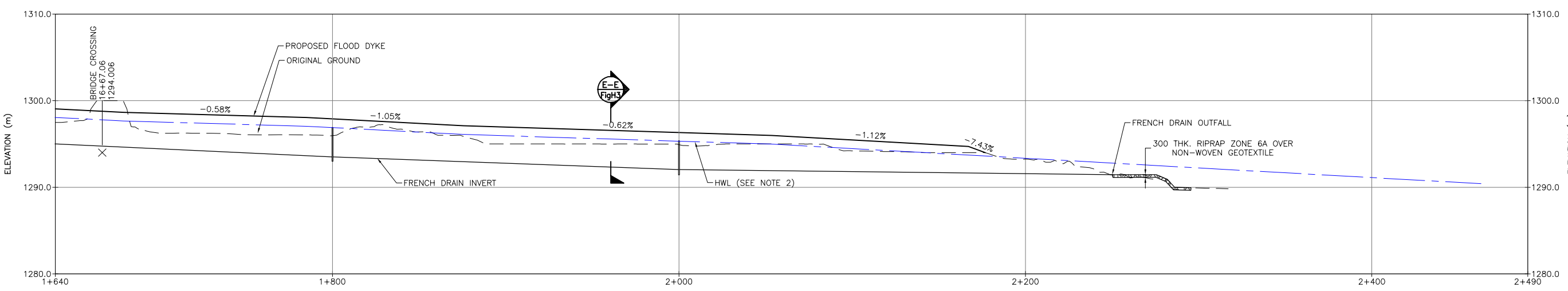
Project No.: CW2174
 CADD File: 2174-S02.dwg
 Date: MARCH 2014
 Drawing No.: FIGURE H1
 Sheet No.: 1 of 1



A PROFILE - BRAGG CREEK RIGHT SIDE DYKE STA.0+000 - 0+840
 SCALE HOR. 1:1250
 VER. 1:250

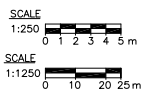


A PROFILE - BRAGG CREEK RIGHT SIDE DYKE STA.0+820 - 1+660
 SCALE HOR. 1:1250
 VER. 1:250



A PROFILE - BRAGG CREEK RIGHT SIDE DYKE STA.1+640 - 2+490
 SCALE HOR. 1:1250
 VER. 1:250

- NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.
 2. HIGH WATER LEVEL (HWL) IS BASED ON 1% EXCEEDANCE (100-YEAR) FLOOD EVENT.



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REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG. APPR.

Client: **amc**
SOUTHERN ALBERTA FLOOD RECOVERY TASK FORCE

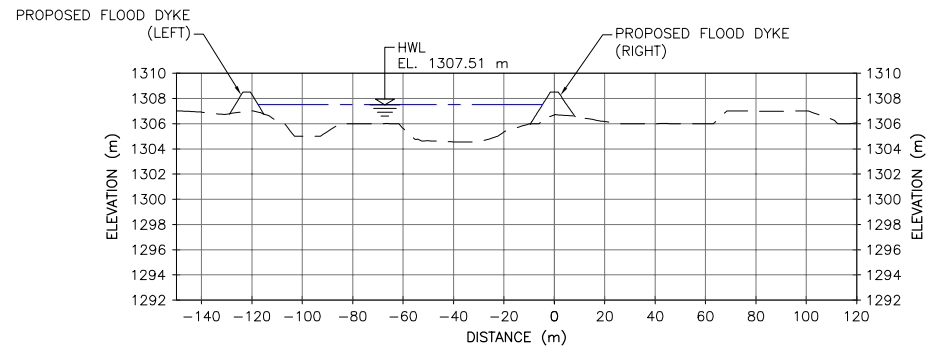
Designed By: H.M.
 Drawn By: M.H.
 Checked By: G.B.
 Approved By: G.G.
 Scale: AS SHOWN

Project: **FLOOD MITIGATION FEASIBILITY STUDY FOR BOW, ELBOW AND OLDMAN RIVER BASINS**
 Title: **BRAGG CREEK FLOOD DEFENCES RIGHT SIDE PROFILE**

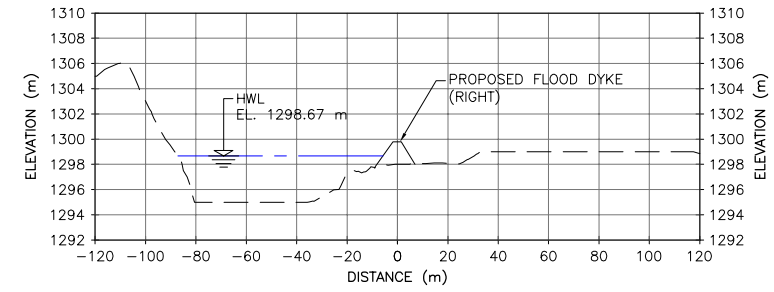
Project No.: CW2174
 CADD File: 2174-S03.dwg
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 Drawing No.: FIGURE H2
 Sheet No.: 1 of 1

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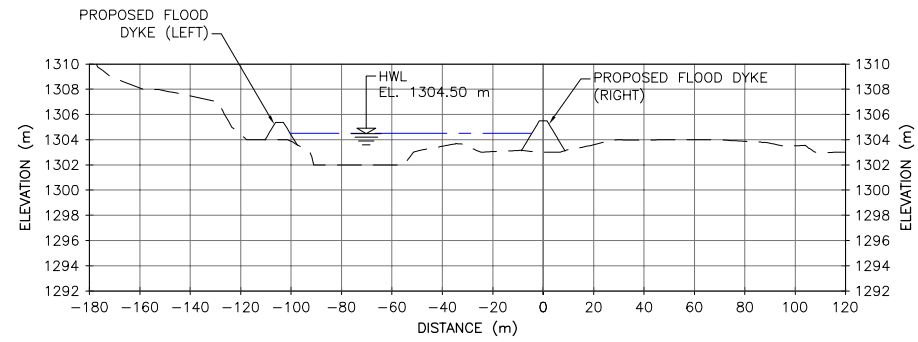
- NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.
 2. HIGH WATER LEVEL (HWL) IS BASED ON 1% EXCEEDANCE (100-YEAR) FLOOD EVENT.
 3. ALL SECTIONS LOOKING DOWNSTREAM.



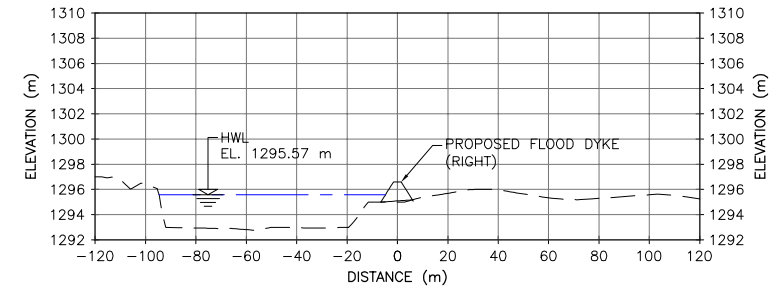
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 FigH1 SCALE HOR. 1:1500
 VER. 1:300



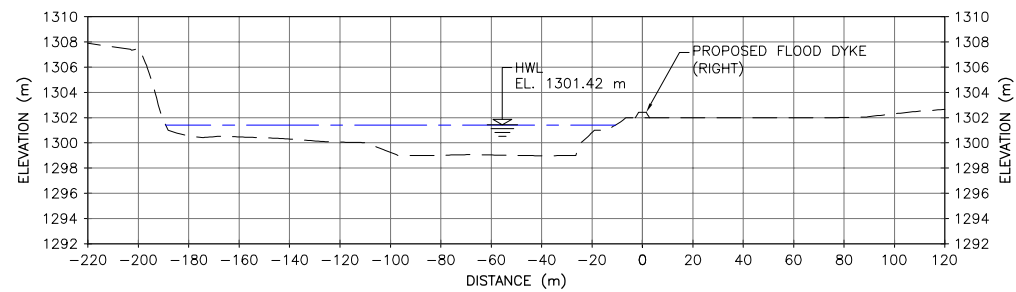
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 FigH1 SCALE HOR. 1:1500
 VER. 1:300



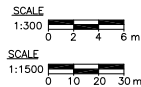
B-B SECTION - BRAGG CREEK RIGHT SIDE DYKE
 FigH1 SCALE HOR. 1:1500
 VER. 1:300



E-E SECTION - BRAGG CREEK RIGHT SIDE DYKE
 FigH1 SCALE HOR. 1:1500
 VER. 1:300



C-C SECTION - BRAGG CREEK RIGHT SIDE DYKE
 FigH1 SCALE HOR. 1:1500
 VER. 1:300



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14	03	14	ISSUED FOR CLIENT REVIEW	H.M.	G.B.
REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG. APPR.

Client: **amc**
SOUTHERN ALBERTA FLOOD RECOVERY TASK FORCE

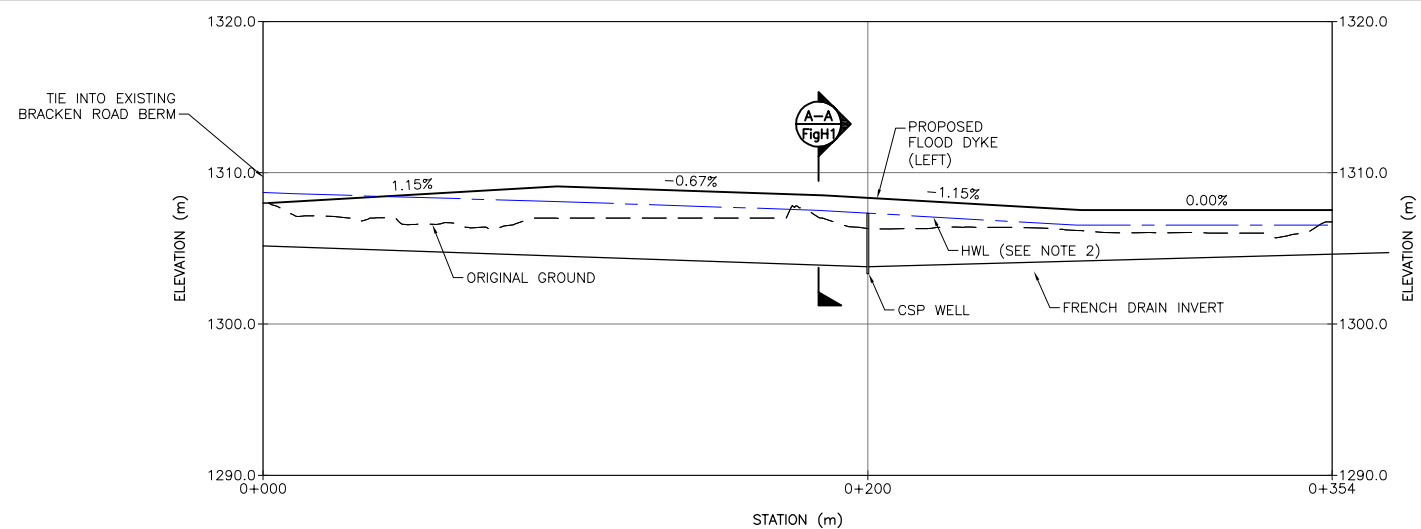
Designed By: H.M.
 Drawn By: M.H.
 Checked By: G.B.
 Approved By: G.G.
 Scale: AS SHOWN

Project: **FLOOD MITIGATION FEASIBILITY STUDY FOR BOW, ELBOW AND OLDMAN RIVER BASINS**

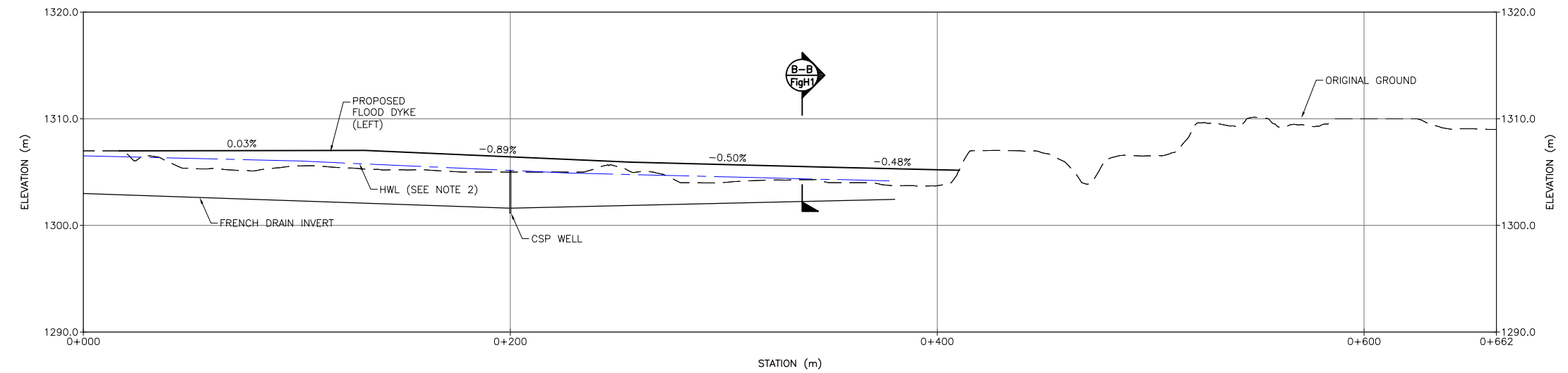
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Project No.: CW2174
 CADD File: 2174-S03.dwg
 Date: MARCH 2014
 Drawing No.: FIGURE H3
 Sheet No.: 1 of 1

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 SCALE 1:250
 SCALE 1:1250
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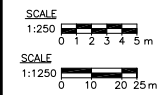


B PROFILE - BRAGG CREEK LEFT SIDE DYKE BRACKEN ROAD
 SCALE HOR. 1:1250
 VER. 1:250



C PROFILE - BRAGG CREEK LEFT SIDE DYKE
 SCALE HOR. 1:1250
 VER. 1:250

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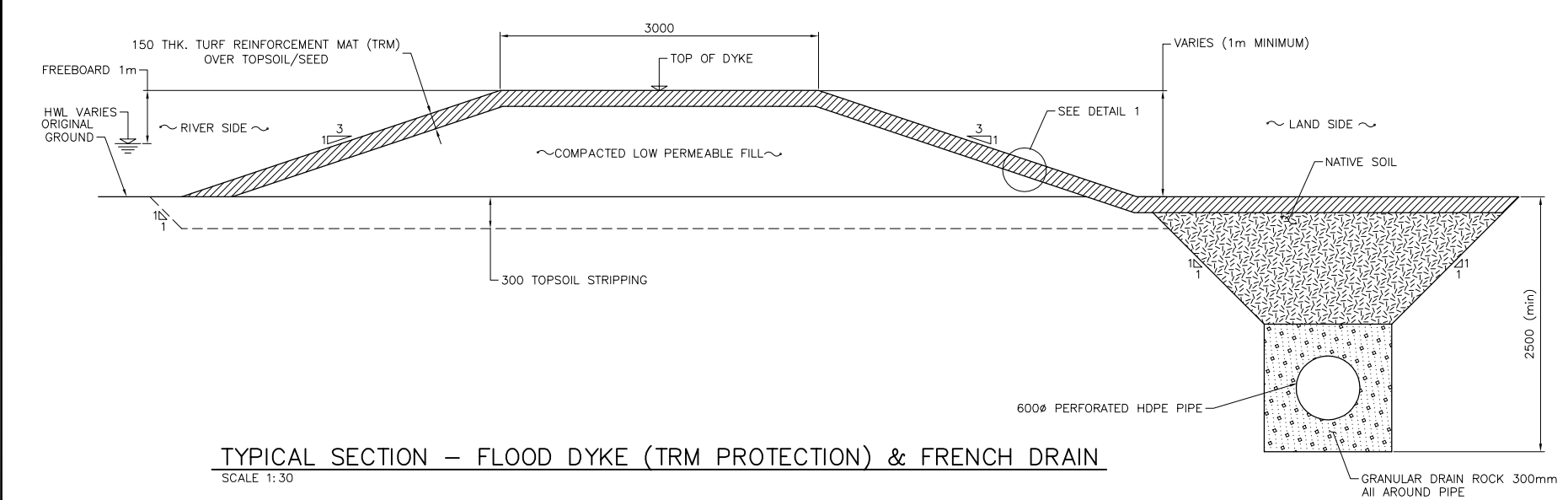
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14	03	14	ISSUED FOR CLIENT REVIEW	H.M.	G.B.
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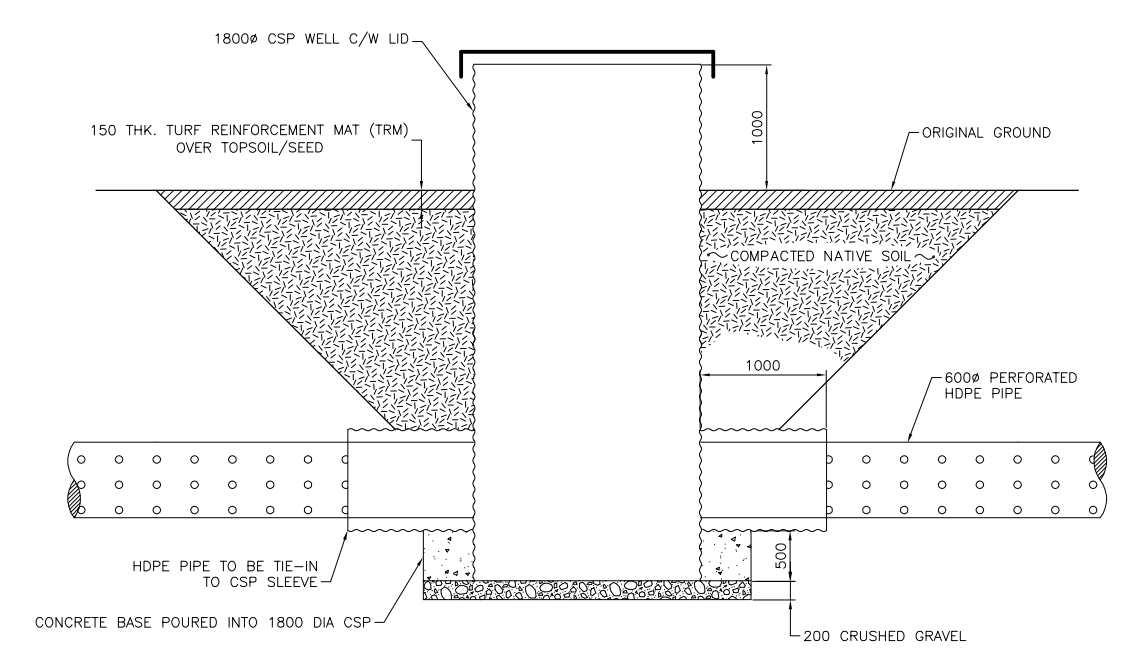
Client: SOUTHERN ALBERTA FLOOD RECOVERY TASK FORCE

Designed By:	H.M.	Project: FLOOD MITIGATION FEASIBILITY STUDY FOR BOW, ELBOW AND OLDMAN RIVER BASINS	Project No.: CW2174
Drawn By:	M.H.		
Checked By:	G.B.	Title: BRAGG CREEK FLOOD DEFENCES LEFT SIDE PROFILES	Date: MARCH 2014
Approved By:	G.G.		
Scale:	AS SHOWN		Drawing No.: FIGURE H4
			Sheet No.: 1 of 1

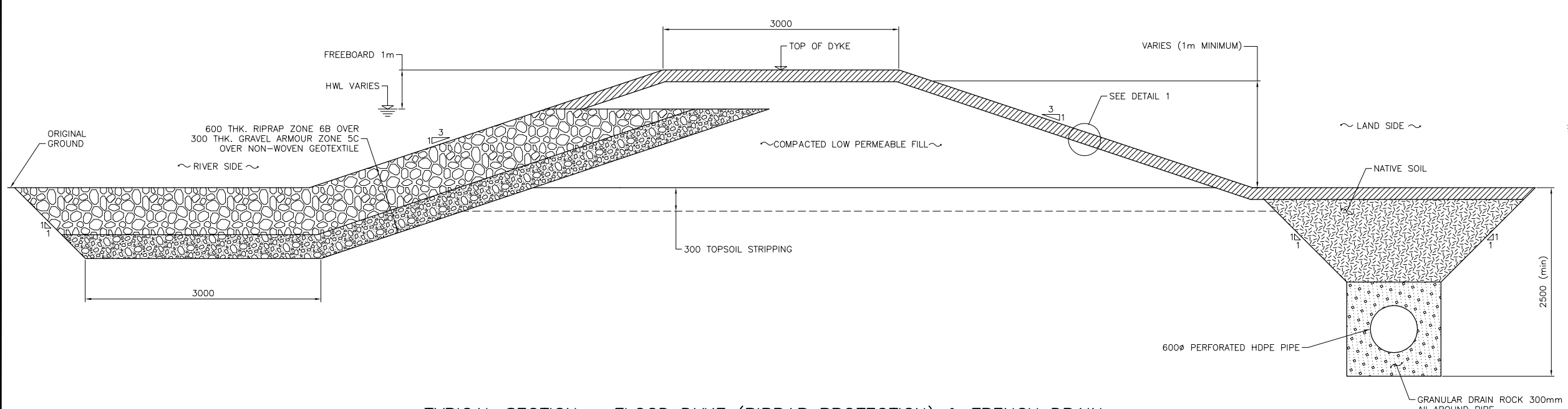
- NOTES:
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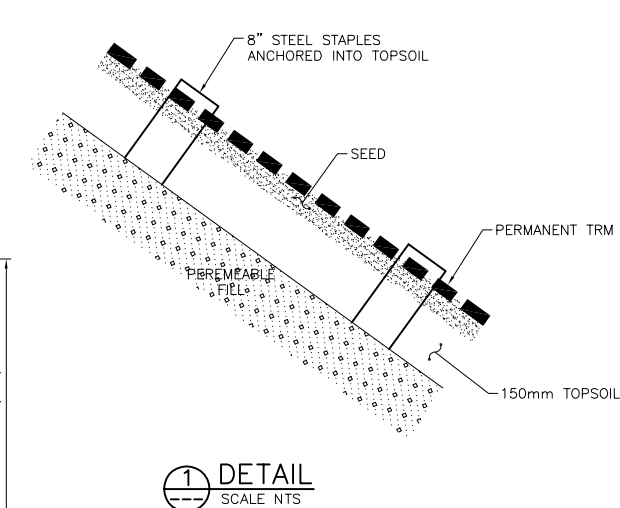
TYPICAL SECTION - FLOOD DYKE (TRM PROTECTION) & FRENCH DRAIN
SCALE 1:30



TYPICAL SECTION - CSP WELL
SCALE 1:30



TYPICAL SECTION - FLOOD DYKE (RIPRAP PROTECTION) & FRENCH DRAIN
SCALE 1:30



1 DETAIL
SCALE NTS

SCALE
1:30
0 200 400 600 mm

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Client: **SOUTHERN ALBERTA FLOOD RECOVERY TASK FORCE**

Designed By: H.M.
 Drawn By: M.H.
 Checked By: G.B.
 Approved By: G.G.
 Scale: AS SHOWN

Project: **FLOOD MITIGATION FEASIBILITY STUDY FOR BOW, ELBOW AND OLDMAN RIVER BASINS**

Title: **BRAGG CREEK FLOOD DEFENCES TYPICALS**

Project No.: CW2174
 CADD File: 2174-J00.dwg
 Date: MARCH 2014
 Drawing No.: FIGURE H5
 Sheet No.: 1 of 1

PLOT 1:1=0 (L)
 A
 B
 C
 D
 E
 F
 G
 H
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