

**ALBERTA TRANSPORTATION  
GEOHAZARD ASSESSMENT PROGRAM  
PEACE REGION – SWAN HILLS  
2018 INSPECTION**

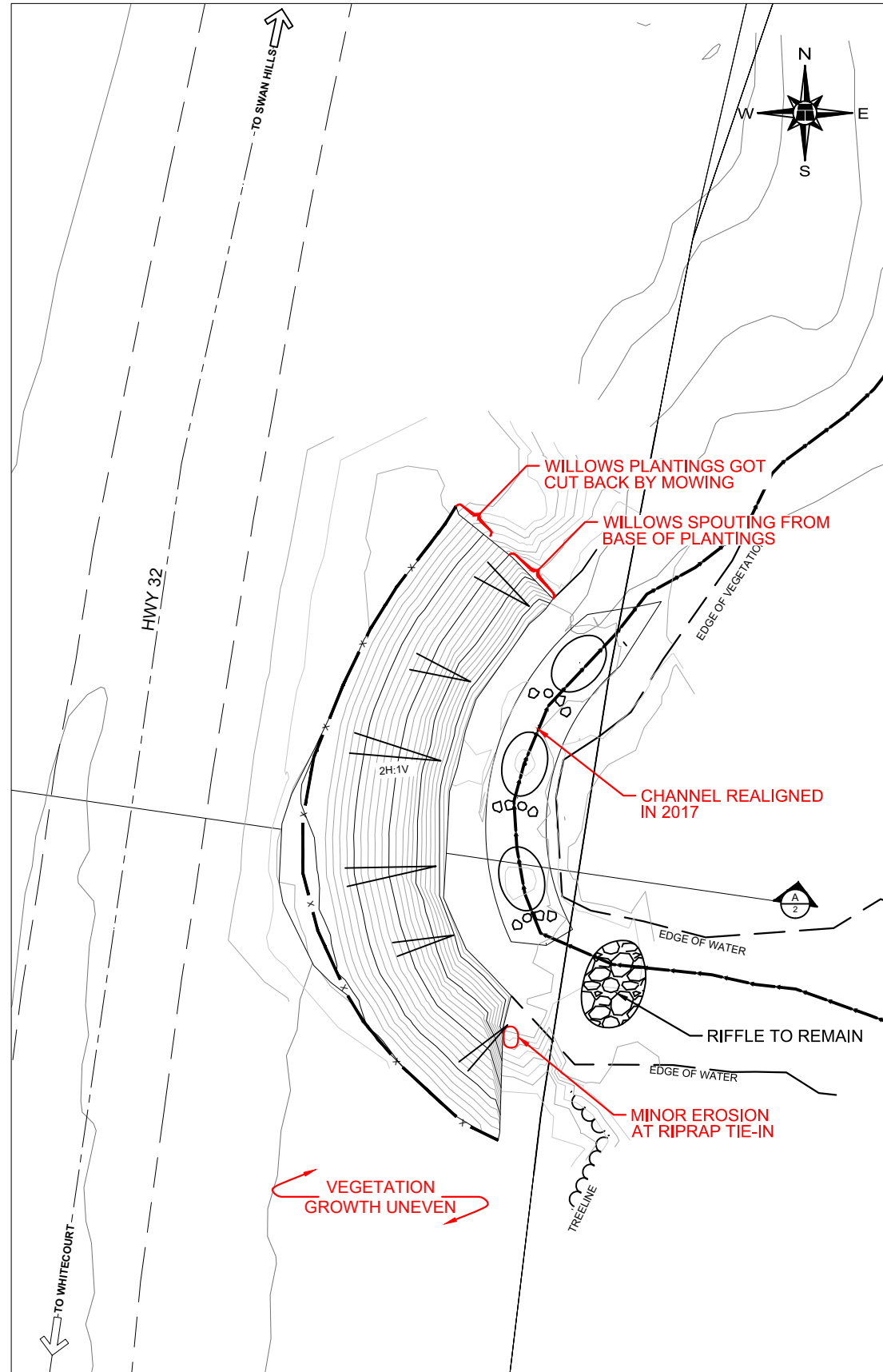


Site Number	Location	Name	Hwy	km
SH027 SH027A	South of Swan Hills	Judy Creek Erosion	32:12	48.2 – 48.5 48.1
Legal Description		UTM Co-ordinates		
NW15-64-10-W5M		11U E 601,654	N	6,044,517

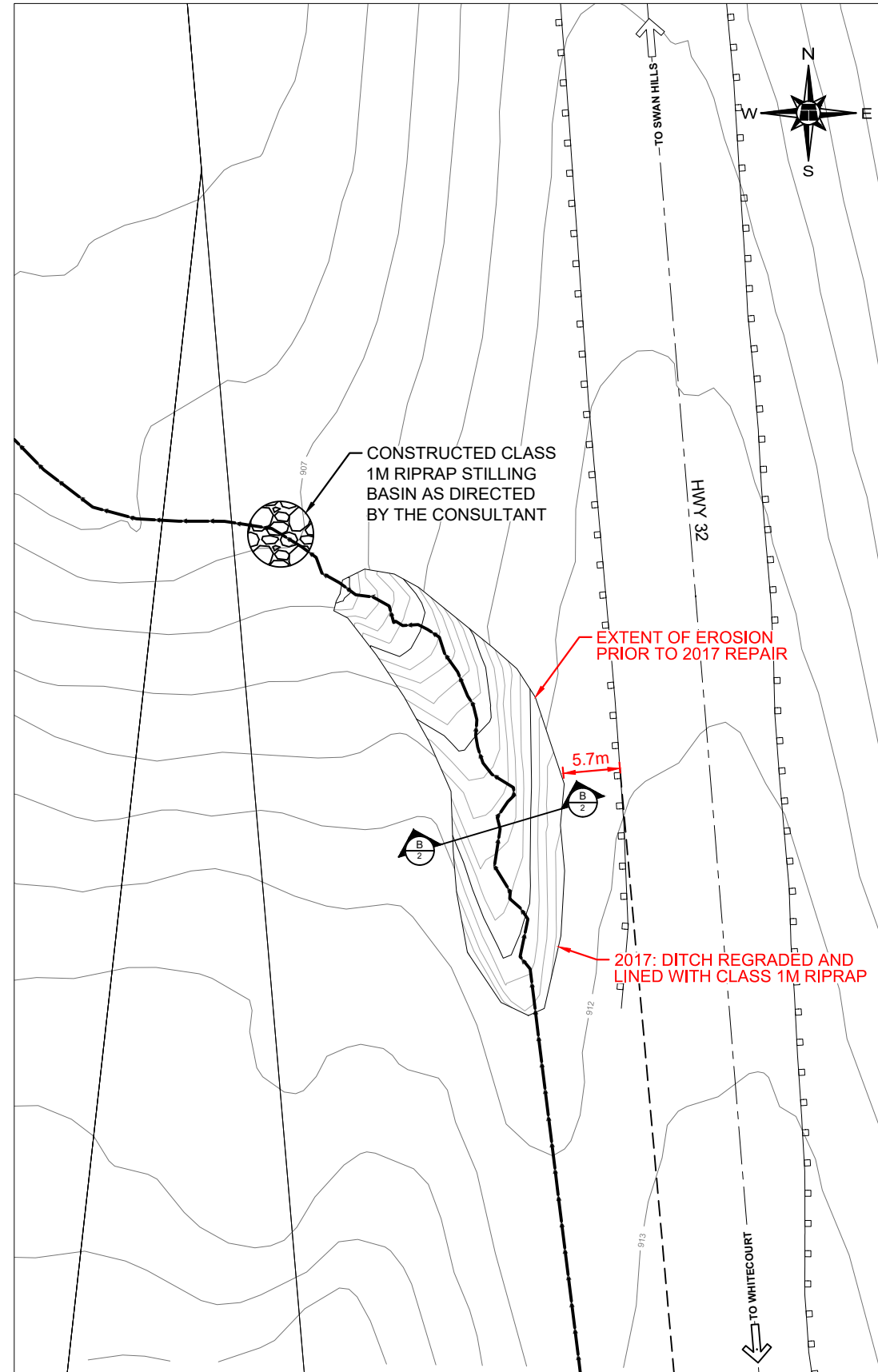
	Date	PF	CF	Total
<b>Previous Inspection:</b>	24-Jun-2015	SH027: 12 SH027A: 11	3 3	36 33
<b>Current Inspection:</b>	18-Jun-2018	SH027: 3 SH027A: 3	3 3	9 9
<b>Road AADT:</b>	1840		<b>Year:</b>	2017
<b>Inspected By:</b>	Roger Skirrow, TRANS Ed Szmata, TRANS Gordon Wolters, TRANS		Barry Meays, Thurber Ken Froese, Thurber	
<b>Report Attachments:</b>	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items			

<b>Primary Site Issue:</b>	An outside bend of Judy Creek (flow toward the north) was eroding the slope with the slumping encroaching on the highway embankment.  SH027A: Erosion gully was in the west ditch of highway with the potential to extend and undermine the highway.	
<b>Dimensions:</b>	25 m length adjacent to the highway. SH027A: 40 m of highway adjacent to erosion gully.	
<b>Date of Remediation:</b>	2017: Creek channel was realigned further away from the highway and the bank reconstructed and protected with riprap. SH027A gully was infilled with gravel and covered with riprap.	
<b>Maintenance:</b>	None	
<b>Observations (SH027):</b>	<b>Description</b>	<b>Worsened?</b>
<input type="checkbox"/> Pavement Distress		<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	Retrogression of eroding creek banks had been encroaching on the highway.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Erosion	Creek had been eroding left bank adjacent to the highway.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Seepage	Seepage had been observed in the scarp near the top of the bank.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Bridge/Culvert Distress	Some minor slumping at the inlet of the 3.9 m dia. culvert at the south end of the site noted in 2015.	<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>
<b>Observations (SH027A):</b>	<b>Description</b>	<b>Worsened?</b>
<input type="checkbox"/> Pavement Distress		<input type="checkbox"/>
<input type="checkbox"/> Slope Movement		<input type="checkbox"/>
<input checked="" type="checkbox"/> Erosion	Gully in west ditch was widening and deepening to about 2.5m and 5.7m from hwy in 2016.	<input type="checkbox"/>

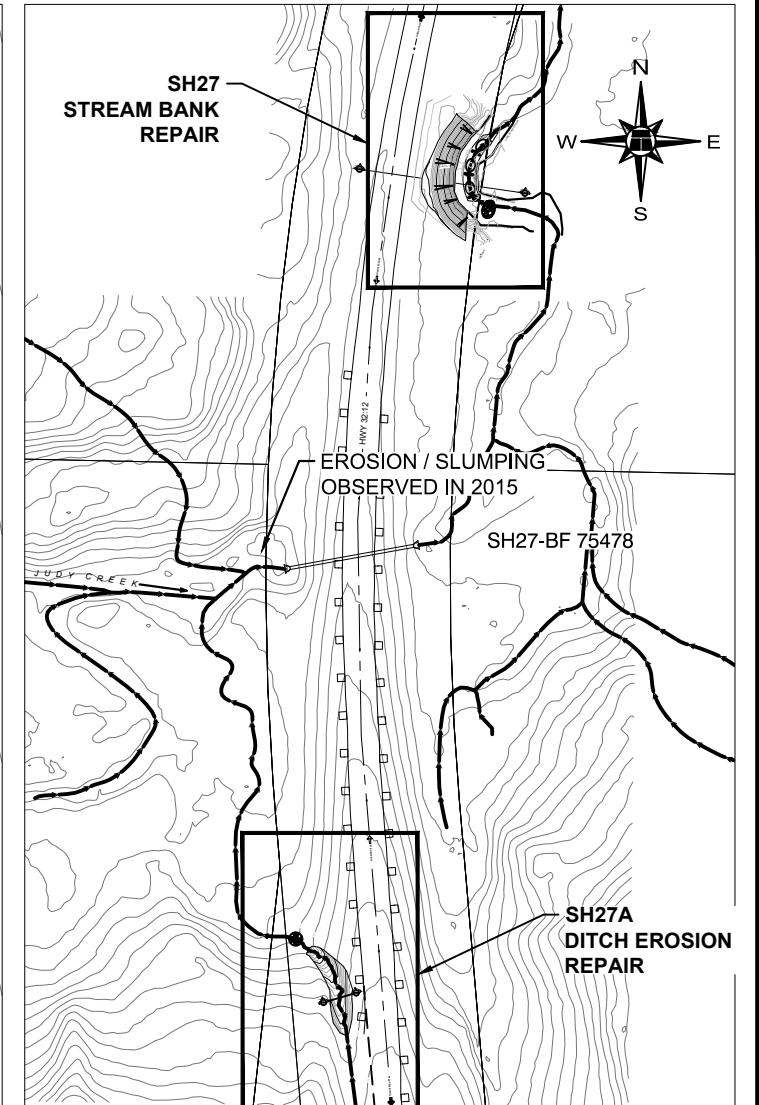
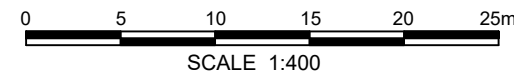
<input type="checkbox"/> Seepage		<input type="checkbox"/>
<input type="checkbox"/> Bridge/Culvert Distress		<input type="checkbox"/>
<input checked="" type="checkbox"/> Other	Ongoing erosion had exposed a fibre optic cable.	<input type="checkbox"/>
<b>Instrumentation:</b>		
None		
<b>Assessment:</b>		
<p>At SH027, the creek channel was shifted up to 6 m to the east over a 25 m-long constructed channel bed consisting of 50 mm to 100 mm aggregate with three boulder clusters (at the start, mid, and end-points). The eroded bank was reconstructed with granular fill, protected with Class 1 riprap, and willow plants installed on the slope and at the crest. The remaining disturbed areas were seeded.</p> <p>At the time of the 2018 inspection, the site appeared to be performing well with the creek staying within the new channel. There was good vegetation growth in the seeded areas adjacent to the channel repair although it was sparser in the construction laydown area to the south; the willows had started sprouting up from the base of the plantings. Some aggradation of material was noted on the far bank (inside bend). Minor bank erosion was noted at the south tie-in of the riprap into the existing creek bank.</p> <p>Site SH027A was remediated in 2017 by removing the loose material within the gully, placing a perforated subdrain pipe surrounded by Des4-Class 25 gravel, backfilling with native material salvaged from SH027, and covering with Class 1M riprap. At the end of the gully, a stilling basin was constructed to reduce flow velocities from the over-steepened gully section. In 2018, the channel appeared to be performing well. A slight shift of the ditch downstream of the stilling basin was noted; however, it is not anticipated to affect the highway in the long-term.</p>		
<b>Recommendations:</b>		
It is recommended that the annual GeoHazard inspection should continue as scheduled for one more year after which time the site can be removed from the program if no issues are identified.		



**SH27 - STREAM BANK REPAIR**  
SCALE 1:400



**SH27A - DITCH EROSION REPAIR**  
SCALE 1:400



**KEY PLAN**  
SCALE 1:2500

- NOTES**  
1. JUNE 2018 OBSERVATIONS SHOWN IN RED.

BASE PLAN PROVIDED BY AMEC FOSTER WHEELER



PEACE REGION (SWAN HILLS)

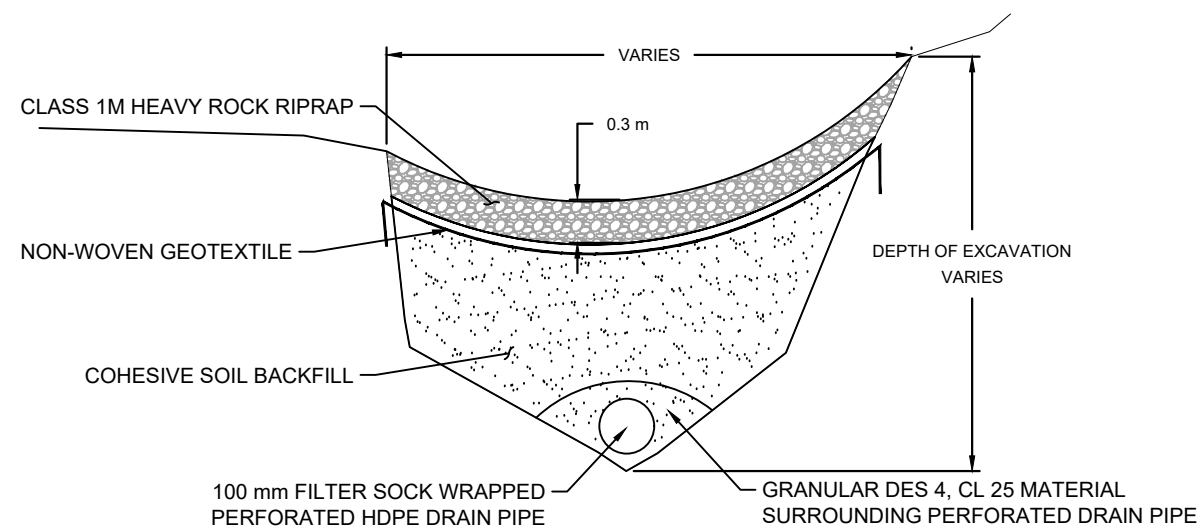
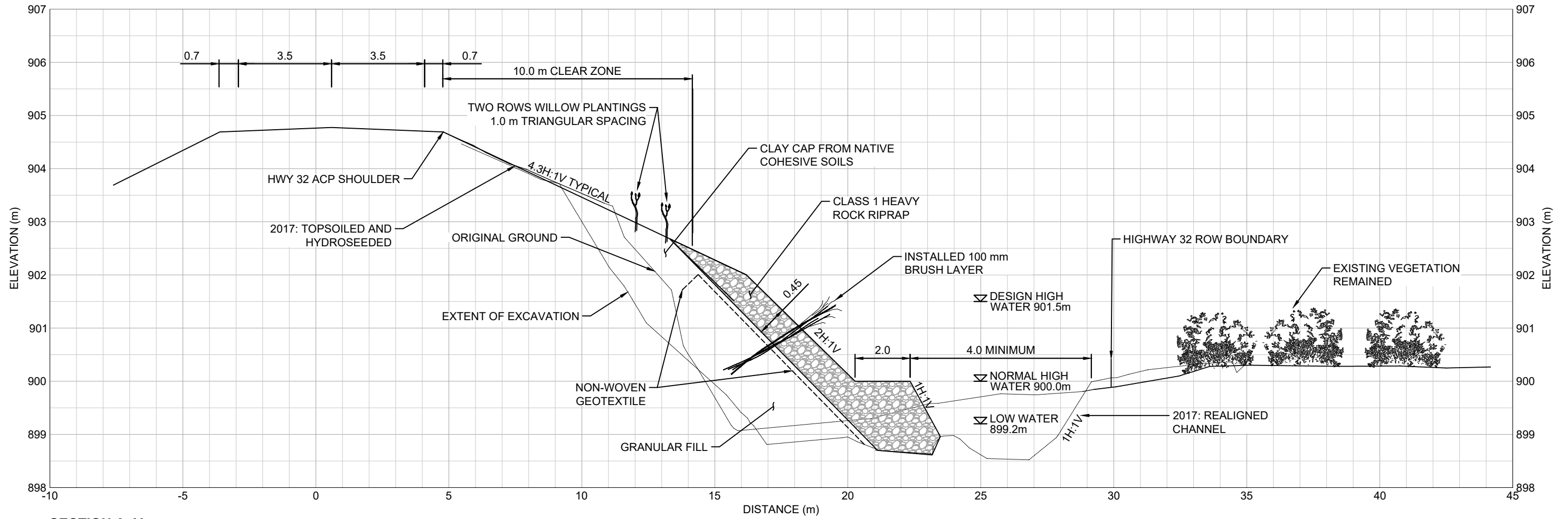
SH027: HWY 32:12 JUDY CREEK  
2018 SITE INSPECTION PLAN

DWG No. 13355-SH027-1-1

DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	DWP
SCALE	1:400
DATE	DECEMBER 2018
FILE No.	13355



H:\13000\13355 Geohazard Assessment - Swan Hills (CON0017604)\Drafting\2018\KEF\13355 SH027-1.dwg - 2 - Dec. 18, 2018



BASE PLAN PROVIDED BY AMEC FOSTER WHEELER



PEACE REGION (SWAN HILLS)

SH027: HWY 32:12 JUDY CREEK  
CROSS-SECTIONS

DWG No. 13355-SH027-1-2

DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	DWP
SCALE	AS SHOWN
LAST UPDATED	DECEMBER 2018
FILE No.	13355





Photo 1 – Looking north at realigned channel.



Photo 2 – Looking north at rebuilt left creek bank. Note willow growth from base of plantings in the brush layering at midslope.



Photo 3 – Looking at minor erosion at south tie-in of riprap protection.



Photo 4 – Looking south at sparser growth in construction laydown area south of realigned channel area.



Photo 5 – Looking south at regraded and lined SH027A gully area.



Photo 6 – Looking north at regraded and lined SH027A gully area.



UAV Composite Image of Rebuilt Area