Table B2: Generic Impacts Assessment and Mitigation

White – Primary Impact	Purple – Primary & Secondary Impact	Cyan – Secondary Impact

ISSUE		POTENTIAL IMPACTS		ESIA Ref.	Assessment Table	Impact Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
A0	General Issues	General								1.13	The construction contractor will have a documented and operational ESMS aligned with the requirements of ISO 14001 Environmental Management Systems prior to mobilisation			
										39.04	Management of change procedures will include environmental and social assessment before any changes that may have detrimental effects on environmental or social receptors are adopted			
A1	Use of raw materials and natural resources (excluding energy and water)	Geology & geomorphology	Depletion of natural resources e.g. aggregates, steel, oil and timber	10.2	3-10/11	10-1	B	3	Low	1.01	Aggregates will only be sourced from licensed sources as approved by MENRP	B	3	Low
		Geology & geomorphology	Operation of new or un-licensed borrow pits	10.2	3-10/11	10-1	B	4	Medium	1.03	The Project will give preference to using existing borrow pits where reasonably practical	B	2	Low
										1.05	Environmental audits will be undertaken at any proposed third-party borrow pits and/or spoil disposal pits before they are used. Periodic audits will be undertaken while they are in use by the Project and will include checks that no illegal extraction is occurring			
										1.07	All excavated materials will be screened and reused (e.g. for padding, backfilling, etc.) to the extent deemed feasible by Company to minimise the need for new aggregates			
										1.09	All temporary borrow pits will be reinstated (unless instructed otherwise by regulatory authorities)			
A2	Soil compaction	Soil	Loss of drainage capacity with increased surface water run-off		3-2/3	10-2	C	3	Medium	2.01	Load-bearing materials, such as bog mats, will be used to support heavy loads in areas of soft ground (including wetland areas) unless deemed impractical by the Company	C	1	Low
		Ecology	Impaired re-establishment of vegetation after construction		3-10/11	10-13	B	4	Medium	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	B	2	Low
		Livelihoods	Reduced crop growth leading to reduced crops and income		3-20/22	10-29	D	3	Medium	2.03	Driving along the ROW will not be permitted in excessively wet conditions unless otherwise approved by the Company	D	1	Low
		Ecology	Localised habitat changes		3-10/11	10-13	B	3	Low	2.04	Temporary drainage will be provided where necessary (as determined by the Company) to prevent ponding or waterlogging of the working area	B	2	Low
										2.05	Backfill will be adequately (but not excessively) compacted to prevent future settlement			
										2.07	After backfilling, the subsoil beneath the running track will be ripped prior to reinstatement of agricultural land			
										3.09	Local people will be actively discouraged from using the new and redundant ROW as an access road (through use of signage, public education, leaflets etc.)			
										3.15	Upon completion of subsoil and topsoil reinstatement, the contractor and Company personnel will inspect reinstated areas jointly to assess compliance with the standards set out in the Reinstatement Plan and Project Reinstatement Specification; remedial measures will be implemented, if necessary			
										4.08	The topsoil and subsoil stack surface will be compacted sufficiently with the aim of preventing erosion, without leading to the development of anaerobic conditions			
										3.37	Where new sections of temporary road are required, drainage ditches will be included where necessary to reduce erosion/flooding of the road or adjacent land by rain or snow melt			
										4.02	Excavated subsoil and topsoil will be segregated and stored in free-draining stacks outside the running track to avoid mixing or compaction by construction plant/vehicles			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										4.04	Topsoil stacks will be regularly inspected for compaction and erosion and if topsoil is stored for more than six months, the stacks will also be regularly monitored for anaerobic conditions; corrective measures will be implemented (including manual aeration) if any anaerobic conditions, compaction or erosion is identified			
A3	Soil erosion following removal of vegetation and/or disturbance of ground	Surface waters	Increased surface water run-off causing pollution of surface waters and loss of soil		3-6/7	10-7	C	4	Medium	2.05	Backfill will be adequately (but not excessively) compacted to prevent future settlement	C	2	Low
		Surface waters	Siltation of watercourses		3-6/7	10-7	C	4	Medium	3.05	Temporary dewatering or trench stabilisation will be undertaken where required to minimise slumping of trench walls	C	1	Low
		Soil	Loss of topsoil necessitating importation for reinstatement & associated risk of introducing unwanted species	10-2	3-2/3	10-2	C	5	High	3.07	Trench breakers will be installed where downhill flow within the backfilled trench may lead to erosion	C	2	Low (C3 Medium on ridges and steep slopes)
		Community Safety	Risk of pipe exposure		3-20/24	10-28	C	3	Medium	3.08	Soil loss will be monitored and corrective actions taken if it exceeds erosion class 3	C	1	Low
										3.09	Local people will be actively discouraged from using the new and redundant ROW as an access road (through use of signage, public education, leaflets etc.)			
										3.15	Upon completion of subsoil and topsoil reinstatement, the contractor and Company personnel will inspect reinstated areas jointly to assess compliance with the standards set out in the Reinstatement Plan and Project Reinstatement Specification; remedial measures will be implemented, if necessary			
										3.03	Erosion control measures will be implemented to achieve erosion Class 3 or better			
										3.23	At watercourses, bank and bed material will be stored separately, away from the active channels and will not be placed where flow or drainage will be obstructed			
										3.24	At locations where water discharge causes scour or soil erosion, eroded areas will be reinstated			
										3.26	Surface water drainage from construction areas including access roads and temporary storage sites will be designed to minimise soil erosion in accordance with sustainable urban drainage systems (SUDS) principles			
										3.30	When discharge velocities have the potential to create erosion, energy dissipaters will be used to establish sheet flow. Trenches will be dewatered in such a manner that no heavily silt-laden water flows into any wetland or water body			
										3.35	Erosion protection measures will be installed on ridges and side slopes as required by the Project Reinstatement Specification			
										4.07	Where the Project considers that ground is sufficiently steep (generally greater than 25%), topsoil stockpiles will be protected with silt fence to help reduce washout and loss of topsoil during heavy rains			
										4.08	The topsoil and subsoil stack surface will be compacted sufficiently with the aim of preventing erosion, without leading to the development of anaerobic conditions			
										4.09	Reinstatement will be undertaken as early as practicable and in accordance with the Project Reinstatement Specification			
										4.12	The construction contractor(s) will produce method statements incorporating plans for erosion control, sediment control and reinstatement before work begins at river crossings			
										4.15	A soil survey of temporary works areas will be undertaken prior to construction to measure the depth of the topsoil layer and will be used to determine the depth of topsoil stripping			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										10.12	Sediment control fencing, drainage channels and trench barriers will be installed where appropriate			
										10.14	Watercourse banks disturbed by Project crossings will be assessed individually in accordance with the Reinstatement Plan and will be restored to near original condition. Any deviations (e.g. because hard reinforcement is required for erosion control) shall be subject to Company approval			
										10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring			
										11.05	Watercourse crossing methods will be developed with the aim of minimising the mobilisation of sediments			
										17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area			
										D5.086	To facilitate natural re-vegetation of the ROW, the separately stockpiled topsoil and vegetation debris will be spread over the surface of the ROW following completion of grading, as appropriate			
A4	Loss of soil structure, fertility and seed bank	Soil	Development of anaerobic conditions in stored soil		3-2/3	10-2	C	4	Medium	3.11	Once the topsoil has been replaced it will be stone picked to remove any large stones that are not in keeping with the surrounding soil texture; surplus stone will be disposed of in accordance with the Waste Management Plan	C	1	Low
		Ecology	Poor recolonisation after development		3-10/11	10-13	C	3	Medium	4.02	Excavated subsoil and topsoil will be segregated and stored in free-draining stacks outside the running track to avoid mixing or compaction by construction plant/vehicles	C	2	Low
		Livelihoods	Reduced agricultural productivity following reinstatement		3-20/22	10-29	D	4	High	4.04	Topsoil stacks will be regularly inspected for compaction and erosion and if topsoil is stored for more than six months, the stacks will also be regularly monitored for anaerobic conditions; corrective measures will be implemented (including manual aeration) if any anaerobic conditions, compaction or erosion is identified	D	2	Medium
										1.12	Trench spoil will be spread evenly beneath the topsoil and not left on the surface			
										4.08	The topsoil and subsoil stack surface will be compacted sufficiently with the aim of preventing erosion, without leading to the development of anaerobic conditions			
										4.09	Reinstatement will be undertaken as early as practicable and in accordance with the Project Reinstatement Specification			
A5	Ground settlement following installation of new sections or corrosion of redundant sections	Livelihoods	Disruption to mechanical cultivation		3-20/22	10-29	C	3	Medium	OP01	Sections of pipe that have been removed from service and left in-situ will be regularly monitored for indications of subsidence during operations	C	2	Low
		Soils	Secondary impacts on animal safety		3-10/11	10-2	B	2	Low	2.05	Backfill will be adequately (but not excessively) compacted to prevent future settlement	B	1	Low
		Community Safety	Increased community exposure to safety risk		3-20/24	10-27	C	2	Low			C	1	Low
A6	Disturbance of known/unknown contaminated land	Groundwater	Mobilisation of contaminants with associated risk of polluting groundwater		3-8/9	10-11	C	3	Medium	6.01	The baseline contamination survey of temporary works areas will be repeated before construction begins and identified areas of surface contamination within the Project footprint will be cleared before construction begins	C	1	Low
		Soils	Mobilisation of contaminants		3-2/3	10-2	C	3	Medium	6.18	Any contaminated material storage areas will be provided with containment measures (for example bunds, ditches, impermeable base membranes, covers) to help minimise run-off and airborne losses	C	1	Low
		Surface water	Mobilisation of contaminants with associated risk of polluting surface waters		3-6/7	10-7	B	2	Low	6.22	The Company will carry out a due diligence exercise to identify and manage the risk of anthrax	B	1	Low
										6.27	The storage of hazardous materials in areas of known groundwater vulnerability will be carefully controlled under pollution prevention procedures			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										7.05	Contaminated soil will be segregated from uncontaminated materials and stored at least 50m away from any surface water or seasonal surface water bed			
A7	Production & disposal of solid & liquid waste; release of hazardous materials	Groundwater	Potential for groundwater contamination if disposal uncontrolled		3-8/9	10-11	C	3	Medium	3.17	The rate of discharge of water will be controlled to reduce the risk of soil erosion	C	1	Low
		Surface water	Potential for surface water contamination if disposal uncontrolled		3-6/7	10-7	C	3	Medium	4.14	In the case of an unplanned event, any damage will be reinstated and compensated where appropriate	C	1	Low
		Soil	Potential for soil contamination if disposal uncontrolled		3-2/3	10-2	C	2	Low	6.21	All mobile plant (excluding vehicles) will be integrally bunded or will be equipped with a bund or drip tray that will be regularly inspected and emptied to prevent rainwater accumulating	C	1	Low
		Air	Decreasing air quality (if incinerated)		3-12/13	10-17	B	1	Low	6.24	Disposal of drilling mud will be subject to an environmental risk assessment	B	1	Low
		Air	Contribution to global warming (from decomposition & incineration)		3-12/13	10-17	B	1	Low	7.01	Controlled or uncontrolled burning of waste will not be allowed (with the exception of Company approved incinerators)	B	1	Low
		Ecology	Mortality of flora and fauna		3-10/11	10-13	B	3	Low	7.02	Non-hazardous waste will be disposed of at a Company and Government-approved landfill site	B	1	Low
		Community health	Increase in vermin (and risk of vector – borne diseases		3-20/24	10-27	D	2	Medium	7.03	A secure hazardous waste accumulation area that meets Project requirements will be used for temporary storage at Project sites prior to transfer to an approved final hazardous storage or disposal facility	D	1	Low
										7.04	Waste management practices will be subject to regular monitoring and auditing in accordance with the Waste Management Plan			
										7.08	Waste will be segregated to facilitate recycling and re-use			
										7.10	Diesel storage tanks will be located in suitably sized bunded areas that are designed to be impervious to water and fuel. The bund volume will be designed to no less than 110% of the largest tank volume. Loading and off-loading connections will be located over secondary containment			
										6.03	The Pollution Prevention Plan will identify requirements and procedures for the storage of hazardous materials and contaminated soil, which will include the establishment of designated impermeable hazardous materials storage areas located at least 50m from any surface watercourse or seasonal water channel; minimisation of storage volumes; and the segregation of potentially reactive materials			
										7.12	Regular inspections and maintenance will be carried out of secondary containment areas to confirm that they are functioning effectively			
										7.13	Relevant training will be provided to those with responsibilities for monitoring of effluent discharges and emissions, such as effluent sample taking and chain of custody			
										7.14	Information will be incorporated into the Site induction process and will outline the role of personnel in the management of waste and emissions from site and spill response procedures			
										7.15	Site induction training will be supplemented by regular ‘toolbox’ talks with relevant personnel if inspections or audits highlight failings in waste management			
										7.16	The contractor will prepare a plan to respond to a release of drilling mud if this occurs during a non-open-cut crossing, including clean up and remediation of the release on land and liaison with downstream users in the event of a release to water			
										10.08	A risk assessment will be undertaken before any chemicals are added to hydrotest water and prior to the discharge of hydrotest water			
										10.10	Water (including hydrotest water) will be tested prior to discharge and treated if necessary to meet the Project Environmental Standards			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										14.03	In areas of wetland and areas where the groundwater supplies wells for irrigation or potable use, the storage and use of hazardous materials will be carefully controlled			
										14.04	Waste water will be reduced by efficient use of raw water and the implementation of water management schemes that require water to be reused, whenever practicable, prior to treatment and disposal			
										14.09	The applicable discharge permits will be obtained for any new planned liquid discharges, prior to the discharge commencing			
A8	Visual intrusion into landscape particularly where the pipeline is installed on ridge or steep slope and there is permanent modification of topography	Landscape	Modification of views		3-4/5	10-4	C	3	Medium	9.01	Re-contouring should be sympathetic and in keeping with the surrounding landscape, and as approved by the Company, where this is not precluded by risk to integrity of the pipeline or erosion considerations	C	1	Low
										17.05	Temporary works areas will be reinstated to near original condition (as compared to pre-construction survey reports or adjacent areas)			
										17.07	The Project will seek to achieve an increasing trend in vegetation re-growth and species diversity (specifically species composition) in reinstated areas with reference to nearby areas undisturbed by Project activities, as recorded by the percent similarity and commonality indices			
										17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area			
										3.35	Erosion protection measures will be installed on ridges and side slopes as required by the Project Reinstatement Specification			
										9.04	No side-casting of excess spoil outside the working area will be permitted			
										8.04	Lights will be shrouded or directed with the aim of reducing off-site light spill at construction sites			
										4.09	Reinstatement will be undertaken as early as practicable and in accordance with the Project Reinstatement Specification			
										3.14	A monitoring plan will be developed to determine the success of re-vegetation and biorestoration activities, including the appropriateness of species composition			
										3.19	Field boundaries will be reinstated to pre-existing condition on completion of construction			
										D5.093	Before construction personnel and equipment are demobilised, temporary buildings and equipment, tools and any excess material brought on site or generated during the construction and commissioning programme will be removed			
A9	Disposal of surplus subsoil	Ecology	Smothering of native flora and fauna		3-10/11	10-13	B	2	Low	D5.066	Any surplus subsoil from trench excavations will normally be spread within the working width and within zones that exhibit similar subsoil types. The spreading work will be carried out in a manner that avoids the mixing of soil types to the greatest extent possible	B	1	Low
		Landscape	Changed topography and landscape		3-4/5	10-4	C	3	Medium	9.02	All potential subsoil disposal sites and disposal plans will be subject to an environmental and social review to confirm their suitability prior to their adoption	C	1	Low
										9.04	No side-casting of excess spoil outside the working area will be permitted			
										1.07	All excavated materials will be screened and reused (e.g. for padding, backfilling, etc.) to the extent deemed feasible by Company to minimise the need for new aggregates			
										1.11	Excavated surplus subsoil will be stored on the ROW or in agreed temporary storage areas; if disposal is necessary, it will be transported to an approved disposal site			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										1.12	Trench spoil will be spread evenly beneath the topsoil and not left on the surface			
A10	Disposal of trench-water and hydrotest water	Surface water	Sediment contamination of surface waters		3-6/7	10-7	C	4	Medium	3.05	Temporary dewatering or trench stabilisation will be undertaken where required to minimise slumping of trench walls	C	2	Low
		Soils	Erosion of receiving area		3-2/3	10-2	C	4	Medium	3.17	The rate of discharge of water will be controlled to reduce the risk of soil erosion	C	2	Low
		Ecology	Smothering of invertebrates by sediment and mortality of fish		3-10/11	10-13	B	3	Low	3.21	Measures to minimise scour and reduce sediment load will be implemented at locations of discharges to watercourses or to land	B	1	Low
										10.02	The direct discharge of trench water to watercourses will be avoided where practical, with exceptions requiring discharge through a filtering medium			
										10.08	A risk assessment will be undertaken before any chemicals are added to hydrotest water and prior to the discharge of hydrotest water			
										10.09	Hydrotest water will be re-used between sections, where practical, to minimise the volume required			
										10.10	Water (including hydrotest water) will be tested prior to discharge and treated if necessary to meet the Project Environmental Standards			
										10.06	Before hydrotesting, the Contractor will prepare, and submit for Company approval, a hydrotest plan			
										10.19	Protection measures will be put in place to prevent any water used for dust suppression from causing silt problems for nearby wetlands or watercourses			
										10.11	The hydrotest water will be treated using diffusers to entrain oxygen (if necessary), and filtration will be used to minimise suspended solids, prior to discharge. Flow rate will be controlled to reduce the risk of soil erosion and disturbance to river bed sediment			
										10.22	Washing of Project plant and vehicles in watercourses will be prohibited			
										10.15	Sediment reduction measures will be implemented including, but not limited to, the use of break tanks or sediment mats to filter pumped water prior to discharge			
										10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring			
A11	Impeded flow of river or stream	Livelihoods	Reduced flow may restrict use by local population		3-6/7	10-7	D	3	Medium	11.04	Any temporary dams in watercourses to be removed as soon as pipe installation and reinstatement at that crossing is complete	D	2	Medium
		Ecology	Reduced flow may affect survival of aquatic organisms		3-10/11	10-13	B	4	Medium	11.03	If temporary damming is required, a pre-construction engineering, social and environmental review will be undertaken including planning the work to minimise the duration of the flow interruption and determining the need to pump around to maintain flows	B	1	Low
		Ecology	Sediment release into watercourse causing smothering of invertebrates and mortality of fish		3-6/7	10-13	C	3	Medium	11.01	Construction design of river and stream crossings will take account of the use requirements of downstream communities and will seek to ensure minimal interruption to flow by using measures such as pumping, channel diversions and fluming	C	2	Low
										10.15	Sediment reduction measures will be implemented including, but not limited to, the use of break tanks or sediment mats to filter pumped water prior to discharge			
										10.09	Hydrotest water will be re-used between sections, where practical, to minimise the volume required			
										11.05	Watercourse crossing methods will be developed with the aim of minimising the mobilisation of sediments			
										10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring			
										10.18b	Generally, the construction traffic will cross watercourses via a flume/culvert (piped bridge), which will be sized so as not to restrict the flow in the watercourse and allow fish and other aquatic organisms to pass through			

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										3.07	Trench breakers will be installed where downhill flow within the backfilled trench may lead to erosion			
A12	Use of water from river or channel	Surface water users	Reduced flow may restrict use by local population		3-6/7	10-7	D	3	Medium	10.09	Hydrotest water will be re-used between sections, where practical, to minimise the volume required	D	1	Low
		Ecology	Reduced flow may affect survival of aquatic organisms		3-10/11	10-13	C	3	Medium	15.03	River flow will be assessed before and during abstraction. Abstraction rates will be based on the results of an evaluation of downstream water usage extraction will not exceed 10% of the water flow at any time	C	1	Low
										15.02	All new and existing water abstractions for use by the Project will be subject to an environmental and social assessment to assess potential impacts; decisions on the acceptability of the source and appropriate abstraction rates will be based on the results of the review, in accordance with the abstraction permit			
										D5.079	Before extracting water the Project will consider the presence of any IUCN/Georgian Red List fish species particularly during fish spawning season (which normally occurs within the period May to June) and the mitigations such as 10mm fish screens will be determined by a site assessment and approval by the Company			
										11.03	If temporary damming is required, a pre-construction engineering, social and environmental review will be undertaken including planning the work to minimise the duration of the flow interruption and determining the need to pump around to maintain flows			
										11.01	Construction design of river and stream crossings will take account of the use requirements of downstream communities and will seek to ensure minimal interruption to flow by using measures such as pumping, channel diversions and fluming			
A13	Flooding caused by impeded river or ground surface flows	Surface water	Sediment release		3-6/7	10-7	D	3	Medium	13.01	The Construction Contractor will monitor weather forecasts and avoid creating temporary dams in watercourses if flooding is likely	D	2	Low
		Livelihoods	Reduced crop growth leading to reduced crops and income		3-20/22	10-29	C	3	Medium	11.04	Any temporary dams in watercourses to be removed as soon as pipe installation and reinstatement at that crossing is complete	C	1	Low
		Livelihoods	Inundation of land or property		3-20/22	10-29	C	3	Medium	13.02	Gaps will be left in soil stacks at strategic locations to allow water through	C	1	Low
										16.01	The land drainage system will be reinstated to achieve pre-existing functionality			
										13.03	Any flood defence banks breached by the pipeline will be replaced during reinstatement			
A14	Production and disposal of black and grey water	Groundwater	Groundwater contamination by accidental or uncontrolled discharge		3-8/9	10-11	C	3	Medium	10.10	Water (including hydrotest water) will be tested prior to discharge and treated if necessary to meet the Project Environmental Standards	C	1	Low
		Surface Water	Surface water contamination by accidental or uncontrolled discharge		3-6/7	10-8	D	3	Medium			D	1	Low
		Soils	Soil contamination by accidental or uncontrolled discharge		3-2/3	10-2	C	1	Low			C	1	Low
A15	Abstraction of groundwater (if required)	Groundwater	Reduced availability of groundwater and surface water sources such a springs for local users		3-8/9	10-11	C	2	Low	15.01	Groundwater will not be used for pipeline hydrotesting unless an alternative source is not practicable	C	1	Low
		Social	Reduced availability of groundwater for local users		3-20/22/24	10-34	C	2	Low	15.02	All new and existing water abstractions for use by the Project will be subject to an environmental and social assessment to assess potential impacts; decisions on the acceptability of the source and appropriate abstraction rates will be based on the results of the review, in accordance with the abstraction permit	C	1	Low
										15.05	Water features such as abstractions (boreholes, wells, springs) or environmental features (wetlands, springs, streams or surface water features in continuity with groundwater) will be identified within the likely radius of influence of the abstraction point			

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										15.04	The abstraction borehole, when completed, will be test pumped and a sustainable yield will be determined together with aquifer characteristics such as hydraulic conductivity and radius of influence			
A16	Altered drainage pattern	Groundwater	Trench can act as conduit for groundwater, draining higher areas and flooding lower areas		3-2/3	10-11	C	2	Low	3.07	Trench breakers will be installed where downhill flow within the backfilled trench may lead to erosion	C	1	Low
A17	Loss of natural habitat / vegetation	Ecology	Reduced biodiversity		3-10/11	10-13	B	3	Low	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	B	1	Low
		Ecology	Modified habitat structure		3-10/11	10-13	B	3	Low	3.03	Erosion control measures will be implemented to achieve erosion Class 3 or better	B	1	Low
		Ecology	Loss of breeding & foraging areas		3-10/11	10-13	B	3	Low	3.09	Local people will be actively discouraged from using the new and redundant ROW as an access road (through use of signage, public education, leaflets etc.)	B	1	Low
		Ecology	Habitat severance - impeded animal movements due to changed nature of ground surface and presence of structures		3-10/11	10-13	B	3	Low	3.14	A monitoring plan will be developed to determine the success of re-vegetation and biorestoration activities, including the appropriateness of species composition	B	1	Low
		Soils	Erosion leading to loss of natural habitat / vegetation		3-2/3	10-2	C	2	Low	3.15	Upon completion of subsoil and topsoil reinstatement, the contractor and Company personnel will inspect reinstated areas jointly to assess compliance with the standards set out in the Reinstatement Plan and Project Reinstatement Specification; remedial measures will be implemented, if necessary	C	1	Low
										3.17	The rate of discharge of water will be controlled to reduce the risk of soil erosion			
										3.28	Temporary erosion control measures will be developed and implemented after initial land disturbance and if construction activity on the working areas is suspended over the winter before reinstatement has been completed			
										4.09	Reinstatement will be undertaken as early as practicable and in accordance with the Project Reinstatement Specification			
										9.04	No side-casting of excess spoil outside the working area will be permitted			
										17.07	The Project will seek to achieve an increasing trend in vegetation re-growth and species diversity (specifically species composition) in reinstated areas with reference to nearby areas undisturbed by Project activities, as recorded by the percent similarity and commonality indices			
										17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area			
										17.05	Temporary works areas will be reinstated to near original condition (as compared to pre-construction survey reports or adjacent areas)			
										17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
										17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
										17.20	The running track along redundant re-routed sections of pipeline will be reinstated in accordance with the Project Reinstatement Specification following removal from service, except where access is required e.g. by patrols or local users. Biorestoration measures will be defined for each of these sections in site-specific ecological management plans			

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
										17.51	Where Demeter's pear (*Pyrus demetrii* - GRL) cannot be avoided new stock will be raised from locally collected seed and planted at a ratio of 10:1 in nearby suitable habitat, outside the WREP SR Project impact zone. Replanting should be undertaken in late October/early November (i.e. before winter frosts) using saplings that are at least 25cm tall and 2-years old			
										18.01	No invasive species, or species that are likely to out-compete the indigenous flora, will be used in seed mixes for erosion control or biorestoration			
										19.05	No hunting, fishing or unauthorised gathering of products (including plants and cultural heritage artefacts) by the workforce will be permitted within the Project footprint			
										17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
										17.21	Where the ROW is through woodland with high biodiversity value, the working width will be reduced (subject to constructability constraints) with the aim of minimising impacts on these areas			
										OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
										30.23	The ROW and any additional temporary workspaces will be surveyed and set out (i.e. marked out and, where necessary, fenced off). The contractor will be required to keep within the designated footprint			
A18	Introduction of competitive species or diseases	Ecology	Damage to ecosystems		3-10/11	10-13	B	3	Low	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	B	1	Low
		Livelihoods	Increased incidence of crop diseases		3-20/22	10-31	D	4	High	28.11	Environmental and social issues will be included in workforce and visitor induction training	D	2	Medium
		Ecology	Poor recolonisation of local flora following reinstatement		3-10/11	10-13	B	3	Low	18.01	No invasive species, or species that are likely to out-compete the indigenous flora, will be used in seed mixes for erosion control or biorestoration	B	1	Low
		Ecology	Modified habitat due to non-native species establishment		3-10/11	10-13	B	4	Medium	18.05	The Contractor shall inspect and wash, all plant and equipment prior to shipping to the country of use with the aim of ensuring, as far as practicable, it is free from soil and plant material	B	2	Low
A19	Disturbance or harm to wildlife	Ecology	Reduced breeding potential and population		3-10/11	10-13	B	2	Low	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	B	2	Low
		Ecology	Changed behaviour		3-10/11	10-13	B	2	Low	19.05	No hunting, fishing or unauthorised gathering of products (including plants and cultural heritage artefacts) by the workforce will be permitted within the Project footprint	B	2	Low
		Ecology	Increased predation		3-10/11	10-13	B	2	Low	19.03	If *Testudo graeca* (spur-thighed tortoise) is found within the work site, individuals will be moved a safe distance (50m+) from the works by the Project ecologist. Any eggs or hatchlings will be placed in a box of sand and transferred by the Project ecologist to suitable nearby habitat where a nest will be created	B	2	Low
		Ecology	Injury or death if animals fall into open trench or crawl into long pipe strings		3-10/11	10-13	B	2	Low	21.01	The length of open excavations will be restricted to 3km of continuous trench in any one section	B	2	Low
										19.06	Wildlife sensitivity to disturbance will be included in workforce training			
										17.22	The sale of bulbs from the ROW will be strictly prohibited			
										19.11a	The ROW and any other working areas will be checked prior to vegetation clearance and topsoil stripping to search for any IUCN Red List or Georgian Red List (GRL) animals			
										19.11b	If any IUCN Red List or GRL species are found on the ROW or other working area outside of the breeding or hibernating season, they will be moved a safe distance away from the ROW and released into suitable habitat in accordance with the methods in the Site Specific Ecological Management Plans			

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										19.11c	If any IUCN Red List or GRL species are found hibernating on the ROW or other working area during the hibernating season (October to March inclusive) they will be carefully moved to a new hibernating site a safe distance from the ROW in accordance with the methods in the Site Specific Ecological Management Plans			
										19.11d	If any IUCN Red List or GRL species are found nesting on the ROW or other working area they will be left undisturbed until a Company assessment has been carried out taking into account whether the species can be moved or whether it should remain in place until breeding has been completed and the young have moved away from the nest			
										19.11e	The Company will produce a detailed Method Statement for the safe methods of moving any IUCN Red List or GRL species or other animals that cannot move easily away from the ROW, and suitable exclusion zones where required			
										19.08	Construction contractors will be required to manage the storage and disposal of food and organic wastes to avoid attracting vermin			
										19.10	Site Specific Ecological Management Plans will be developed for priority areas. The Contractor will incorporate the requirements of these plans into site-specific method statements, which shall be agreed with the Company prior to construction			
										19.15	A pre-construction night bat emergence surveys will be carried out in June–July or late August–early September at locations where potential bat shelters were identified to determine bat species composition and abundance. If protected species of bats are found to be roosting in any structures or trees that will be removed, a mitigation strategy will be designed with the aim of reducing bat disturbance			
										21.04	The trench will be checked regularly for wildlife (particularly in sensitive locations e.g. where tortoises are found)			
										25.11	During commissioning and testing, noise emissions from equipment will be minimised through use of acoustic insulation as deemed appropriate by the Project			
										19.04	Welded pipe sections will be capped to prevent entry			
A20	Impeded movement of wild animals, domestic herds and people due to open trench or spoil storage mounds	Ecology	Disruption of animals movements affecting their ability to forage		3-10/11	10-13	B	2	Low	20.01	Following consultation with local communities gaps will be left in soil stacks and pipe strings at strategic locations to allow passage of people, wildlife and livestock where the Project considers it safe to do so	B	2	Low
		Livelihoods	Disruption of movement of herds		3-20/21	10-29	B	2	Low	13.02	Gaps will be left in soil stacks at strategic locations to allow water through	B	1	Low
		Livelihoods	Inconvenience to people trying to cross the working areas		3-20/21/22	10-31	D	2	Medium	21.01	The length of open excavations will be restricted to 3km of continuous trench in any one section	D	1	Low
										30.06	Bridges will be provided across open trenches and welded pipes at locations where there is a demonstrable need for people to cross, if it is reasonable for them to do so and can be accommodated safely, taking into account works being undertaken in that area at the time			
										33.19	Land users and local communities will be consulted to determine their requirements for access across the ROW			
										33.03	The Community liaison teams will maintain regular liaison with local communities before, during and after construction to ensure that disturbance of local communities (including local events e.g. weddings and funerals) by Project activities is minimised			
										20.03	Warning barriers and/or signs will be erected where the pipeline crosses locations identified with local communities as being heavily used by people, including herders			
										32.17	The Project will seek to identify whether any herders use the construction areas and aim to consult with them on potential restrictions during construction			
A21	Open excavations (including open trench)	Community Health	Risk to public safety, particularly if excavations become flooded		3-20/24	10-27	D	4	High	3.34	If water accumulates in the open trench (either from rainfall or because of a high water table), it will be pumped out before the pipe is lowered into the trench	D	3	Medium
		Ecology	Injury from falling into excavations		3-10/11	10-13	B	2	Low	19.04	Welded pipe sections will be capped to prevent entry	B	2	Low

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		Livelihoods	Claims for compensation for animals		3-20/22	10-31	C	2	Low	20.03	Warning barriers and/or signs will be erected where the pipeline crosses locations identified with local communities as being heavily used by people, including herders	C	2	Low
										20.01	Following consultation with local communities gaps will be left in soil stacks and pipe strings at strategic locations to allow passage of people, wildlife and livestock where the Project considers it safe to do so			
										21.01	The length of open excavations will be restricted to 3km of continuous trench in any one section			
										21.02	Each section of open pipeline trench will have sloped ends or other mechanisms to aid egress from the trench			
										30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
										30.06	Bridges will be provided across open trenches and welded pipes at locations where there is a demonstrable need for people to cross, if it is reasonable for them to do so and can be accommodated safely, taking into account works being undertaken in that area at the time			
										30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
										30.09	Water will be removed from flooded excavations where a risk assessment concludes the flooding presents a safety risk; protective barriers and warning signs will be erected in areas of flooded excavations			
										30.22	The contractor will be expected to use the designated access roads. The selection of any further access roads to Project working areas will aim to avoid sensitive receptors and will be subject to Company approval			
										33.01	The Contractor will be required to develop and implement a Grievance Procedure to allow individuals to express grievances about Project-related activities and employees. A grievance register will be used to document all third party grievances, corrective actions and outcomes			
										33.19	Land users and local communities will be consulted to determine their requirements for access across the ROW			
A22	Use of energy	Air Quality	Emission of contaminants		3-12/13	10-17	B	1	Low	22.02	The workforce training will include advice on minimising energy consumption	B	1	Low
		Air Quality	Emission of greenhouse gases		3-12/13	10-17	B	1	Low	23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions	B	1	Low
A23	Release of gases and vapours to atmosphere from vehicle exhausts, welding, cleaning, de-oiling and testing of pipeline; and fugitive emissions from fuel storage and refuelling	Community Health	Degradation of local air quality causing risk to community health		3-20/24	10-27	C	1	Low	23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions	C	1	Low
		Community Health	Risk of nitrogen asphyxiation if released accidentally during cleaning and de-oiling of pipeline		3-20/24	10-27	D	3	Medium	23.08	Cleaning and testing procedures will include safeguards which will aim to prevent the accidental release of nitrogen and discourage public access to areas in close proximity to sections filled with nitrogen	D	1	Low
		Air Quality	Increase in greenhouse gases		3-12/13	10-17	B	1	Low	23.03	Preferentially, the Project will use fuel that has low sulphur content of 0.1%, where practical and available within Georgia	B	1	Low
		Air Quality	Emissions of air pollutants		3-12/13	10-17	B	2	Low	22.02	The workforce training will include advice on minimising energy consumption	B	2	Low

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										6.05	A refuelling procedure will be developed by the Contractor, which will include a restriction on refuelling within 50m of any watercourse. Any deviation will be subject to approval by the Company			
A24	Dust generation, particularly from vehicle movements and storage of excavated materials	Community Health	Respiratory problems disturbance e.g. dust on washing and windows		3-20/24	10-31	C	3	Medium	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	C	2	Low
		Air Quality	Air quality (dust)		3-12/13	10-17	C	4	Medium	24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan	C	2	Low
		Ecology	Respiratory problems for animals (excluding bees)		3-10/11	10-13	B	2	Low	23.06	Vehicles carrying fine materials will be sheeted to help prevent dust blow and spillages	B	2	Low
		Livelihoods	Less honey production and livelihood loss		3-20/22	10-31	C	3	Medium	24.01	Contractor will be required to have an adequate supply of bowsers and to regularly damp down the ROW, access roads and village roads used by construction traffic during dry conditions; treated waste water should be used where possible	C	2	Low
		Livelihoods	Reduced photosynthesis and therefore productivity of crops		3-20/22	10-29	C	2	Low	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	C	2	Low
										4.09	Reinstatement will be undertaken as early as practicable and in accordance with the Project Reinstatement Specification			
										24.05	The Project will prepare an inventory of bee hives within 300 m of pipeline construction areas and access routes before the start of construction. An independent bee expert will be employed to determine any impacts on bees and/or honey production and develop appropriate mitigation measures			
										24.06	The Project will develop and implement a policy for the compensation of beekeepers adversely affected by Project impacts			
										33.23	Properties that may potentially be affected by the Project will be consulted before and during construction			
A25	Noise emissions from vehicle movements and construction operations	Community Health	Construction activities causing disturbance, lack of sleep for shiftworkers, and loss of concentration for school children		3-14/15	10-22 & 10-27	C	2	Low	23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions	C	1	Low
		Ecology	Disturbance affecting breeding and/or behaviour		3-10/11	10-13	B	2	Low	25.11	During commissioning and testing, noise emissions from equipment will be minimised through use of acoustic insulation as deemed appropriate by the Project	B	2	Low
										25.01	Construction work will generally be undertaken in daylight hours (excluding specified operations). Where people live in close proximity to the works, or there is a high potential for disturbance, a location-specific risk assessment will be undertaken for activities undertaken between 7pm and 7am			
										19.07	All drivers will undergo safety, and environmental and social awareness training to reduce the potential for accidents and disturbance; driving performance will be assessed and monitored with additional training provided if necessary			
										25.04	During construction the local community will be informed of when and where noisy activities will occur prior to the activity taking place			
										25.05	Noise will be monitored periodically against the Project Environmental Standards (Appendix F) at sensitive locations			
										25.03	Project induction training will include instructions about minimising noise disturbance			

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										33.01	The Contractor will be required to develop and implement a Grievance Procedure to allow individuals to express grievances about Project-related activities and employees. A grievance register will be used to document all third party grievances, corrective actions and outcomes			
										25.17	Planned releases of nitrogen and air during de-oiling will be addressed in method statements and include: a) prior notification to residents who are potential receptors b) provision of acoustic screens and/or silencers as deemed necessary by Company			
										25.16	Correct tyre pressures will be monitored and maintained			
										25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
										25.08	The Project will avoid vehicle reversing where practical, and will preferentially use white noise type reversing alarms			
										25.11	During commissioning and testing, noise emissions from equipment will be minimised through use of acoustic insulation as deemed appropriate by the Project			
A26	Vibration from vehicle movements and construction operations	Buildings	Damage to buildings (particularly those close to access roads already in state of disrepair) leading to claims for compensation		3-16/17	10-22	D	2	Medium	23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions	D	1	Low
		Ecology	Disturbance affecting breeding and/or behaviour		3-10/11	10-13	B	2	Low	25.16	Correct tyre pressures will be monitored and maintained	B	2	Low
										24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
										25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
										33.01	The Contractor will be required to develop and implement a Grievance Procedure to allow individuals to express grievances about Project-related activities and employees. A grievance register will be used to document all third party grievances, corrective actions and outcomes			
										37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
										25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
										25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
A27	Disturbance of loss of cultural heritage remains	Cultural heritage	Discovery of unknown archaeology during construction		3-18/19	10-25	C	4	Medium	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	C	2	Low

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		Cultural heritage	Loss/disturbance of known archaeology		3-18/20	10-25	C	4	Medium	27.06	If cultural heritage artefacts or structures are found, archaeological advice will be sought from relevant approved Georgian heritage institutions and the Ministry of Culture and Monument Protection, and the Chance Finds Procedure followed	A	1	Low
										27.07	If cultural heritage sites or artefacts are identified during construction, the archaeologists conducting the watching brief will advise on procedures to be followed by the Contractor (in line with the Chance Finds Procedure) and will be empowered to temporarily stop construction and manage the recording of finds			
										27.08	The Company shall consider making minor adjustments to the route of the pipeline where to do so would avoid damage to a cultural heritage feature that is discovered during construction operations			
										27.09	If the pipeline route cannot easily be adjusted to avoid damaging the cultural heritage feature discovered during construction, construction activities will be suspended at the site until the excavation and recording required by the authorities has been carried out			
										27.10	Known cultural heritage sites within 50m of the pipe centreline or other construction activity will be demarcated throughout construction			
										27.11	Issues relating to cultural heritage awareness (such as ownership of finds, notification of finds and protection of cultural heritage sites) will be included in induction training			
										27.01	A Cultural Heritage Management Plan will be implemented that includes the five-phase strategy for the progressive assessment and mitigation of the effects of construction			
										27.13	Any ripping or other ground disturbance activities required during reinstatement will be planned to avoid archaeological evidence that has been preserved in-situ			
										27.17	Areas of potential cultural heritage impact will be examined and any necessary excavations conducted prior to construction			
										39.01	If there is a need for additional land take outside that described in the ESIA the relevant authorities will be consulted and environmental and social assessments will be undertaken if required to obtain the relevant permits and consents			
A28	Employment	Economy	Increase in jobs available and incomes, leading to enhanced circulation of money in local economy resulting in overall economic growth, albeit small-scale		3-20/22	10-31			Beneficial	28.01	BP's policy on local recruitment will be publicised e.g. via media announcements at regional and national levels			Beneficial
		Employment	Improved standard of living for HHs with members who increased incomes due to employment of local people		3-20/22	10-31			Beneficial	28.02	Unskilled labour will be preferentially recruited from the Project affected communities			Beneficial
		Employment	Unmet employment expectations and/or resentment between local people who are employed by the project and those whose applications were unsuccessful		3-20/22	10-31	C	5	High	28.03	Applications for employment will only be considered if submitted via the official application procedure	C	4	Medium
		Employment	Resentment between local people who are employed by the project and those whose applications were unsuccessful		3-20/22	10-31	C	5	High	28.04	Targets for local recruitment from PACs will be agreed with the Contractor	C	4	Medium
		Skills	Enhanced skills among local workforce		3-20/22	10-31			Beneficial	28.05	The Project will seek to manage employment expectations by explaining the number and type of opportunities in advance to local communities via the Community Liaison Officers			Beneficial
		Livelihoods	Security patrols damaging crops and livelihood loss		3-20/22	10-31	C	3	Medium	28.06	Recruitment procedures will be transparent, public and non-discriminatory and open with respect to ethnicity, religion, sexuality, disability, gender etc.	C	2	Low
		Infrastructure	In-migration leading to infrastructure capacity exceedance		3-20/22	10-31	C	2	Low	28.07	Clear job descriptions will be provided in advance of recruitment and will explain the skills required for each post	C	1	Low

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		Livelihoods	Agricultural lands not cultivated for a period of 2-3 years as self employed subsistence farmers work for WREP and then farmers find it difficult to take up farming again after end of contract			10-31	C	2	Low	28.08	Community Liaison Officers will monitor that PACs are given priority in recruitment and that recruitment is non-discriminatory in terms of gender and ethnicity	C	2	Low
										28.09	When appropriate, on-the-job training will be provided to enable local employees to gain new and/or improved skills while working on the Project			
										28.10	The workforce training programme will include refresher and induction training with the aim of ensuring that all recruits have the necessary understanding and knowledge levels for each job, in particular with regard to HSE issues			
										28.12	Particular emphasis will be paid to health and safety and community relations, with additional technical toolbox talks given on specific issues			
										28.17	Job vacancies will be advertised in the PAC through appropriate and accessible media (consistent with employment targets)			
										28.22	The Contractor will explain the temporary nature of jobs during the recruitment process and explain to workers the need to manage their income wisely while employed			
										28.20	The Contractor will advise workers about risks of neglecting their land during the recruitment process			
										30.12	During construction (and operations), due diligence will be applied to the selection of security providers, rules of engagement will be devised, and training provided to all personnel. Performance will be monitored and audited periodically			
										30.22	The contractor will be expected to use the designated access roads. The selection of any further access roads to Project working areas will aim to avoid sensitive receptors and will be subject to Company approval			
										30.23	The ROW and any additional temporary workspaces will be surveyed and set out (i.e. marked out and, where necessary, fenced off). The contractor will be required to keep within the designated footprint			
A29	Provision of goods and services	Livelihoods	Increase in jobs available and incomes , leading to enhanced circulation of money in local economy resulting in overall economic growth, albeit small-scale		3-20/22	10-31			Beneficial	29.03	The Procurement and Supply Plan will seek to maximise the purchase of goods and services from within Georgia provided that local suppliers are able to meet Project standards			Beneficial
		Economy	Resentment from business owners whose offer of goods and services is refused		3-20/22	10-31	C	3	Medium			C	2	Low
		Economy	Increase in sales for local businesses		3-20/22	10-31			Beneficial					Beneficial
A30	Community Safety	Community safety	Risk of accident to local people and livestock particularly from open trench		3-20/24	10-28	D	4	High	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	D	4	High
		Community safety	Risk of accident to local people and livestock particularly from traffic		3-25/26	10-28	D	4	High	19.04	Welded pipe sections will be capped to prevent entry	D	4	High
		Community safety	Risk of conflict between community members and security personnel leading to injury or death		3-20/24	10-27	D	3	Medium	24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan	D	2	Medium
		Community safety	Risk of death as a result of delays in reaching a medical facility		3-20/24	10-28	D	4	High	30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public	D	2	Medium
										30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			

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										30.10	The Project will implement the Voluntary Principles on Security and Human Rights			
										30.12	During construction (and operations), due diligence will be applied to the selection of security providers, rules of engagement will be devised, and training provided to all personnel. Performance will be monitored and audited periodically			
										37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
										37.06	At locations where schools are very close to a road used by WREP-SR traffic, the construction contractor will plan works to minimise the delivery of heavy loads at times when children are likely to be walking to and from school			
										37.09	All contractors and subcontractors will adhere to BP driving rules			
										OP140	Local residents will be advised of activities that could threaten the integrity of the pipeline, such as the extraction of aggregate			
A31	Community health	Zoonotic and infectious diseases	Risk of zoonotic and infectious diseases to Project and community		3-20/24	10-27	D	2	Medium	6.22	The Company will carry out a due diligence exercise to identify and manage the risk of anthrax	D	1	Low
		Community health	Health risk as a result of delays in reaching a medical facility		3-20/24	10-27	D	3	Medium	6.25	If any animal burial pits are identified during construction, works will cease in this location until the affected area has been subject to sampling by qualified personnel to determine if there is a risk of anthrax	D	2	Medium
										31.02	Risk assessments will be carried out to identify sensitive receptors such as hospitals and clinics along Project access routes. The Project will ensure that access to and from these facilities is not restricted by Project activities or that an alternative access is in place and has been agreed with the hospital or clinic staff			
A32	Loss or severance of agricultural land during construction	Livelihoods	Reduced availability of family food and/or income from selling produce during construction		3-20/22	10-29	C	3	Medium	2.02	Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency)	C	1	Low
		Livelihoods	Inconvenience to land users		3-20/22	10-29	D	1	Low	3.03	Erosion control measures will be implemented to achieve erosion Class 3 or better	D	1	Low
		Livelihoods	Income from payment for permanent easement		3-20/22	10-29	C	1	Low	3.09	Local people will be actively discouraged from using the new and redundant ROW as an access road (through use of signage, public education, leaflets etc.)	C	1	Low
		Livelihoods	Reduction in existing incomes and quality of life		3-20/22	10-29	D	4	High	17.14	A pre-construction survey will be undertaken to record the condition of access roads, laydown areas, rail offloading area and any special features along the pipeline ROW to inform the reinstatement work	D	1	Low
		Livelihoods	Reduction in future crops and therefore incomes and quality of life		3-20/22	10-29	D	4	High	20.01	Following consultation with local communities gaps will be left in soil stacks and pipe strings at strategic locations to allow passage of people, wildlife and livestock where the Project considers it safe to do so	D	1	Low
		Livelihoods	Loss of/reduced access to land		3-20/22	10-29	D	4	High	21.01	The length of open excavations will be restricted to 3km of continuous trench in any one section	D	1	Low
		Livelihoods	Disruption of future planned investment and income generation		3-20/22	10-29	D	4	High	23.14	The Company will compensate for crop loss across the ROW and other construction areas during the construction period in a specific area. Compensation will be in line with local market rates	D	1	Low
		Livelihoods	Reduced access to natural resources and livelihood loss		3-20/22	10-31	D	4	High	30.06	Bridges will be provided across open trenches and welded pipes at locations where there is a demonstrable need for people to cross, if it is reasonable for them to do so and can be accommodated safely, taking into account works being undertaken in that area at the time	D	2	Low
		Livelihoods	Permanent acquisition of private agricultural or grazing land in the pipeline land purchase corridor			10-29	C	3	Medium	32.01	The Project will consult with local government authorities, landowners and land users, including graziers, before restricting access to land	B	2	Low

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		Livelihoods	Temporary occupation of private land during construction			10-29	B	2	Low	32.03	Parking of Project-related vehicles will be restricted to designated areas	B	1	Low
										32.04	The Project will provide a substitute for watering holes used by livestock that cannot be used due to Project-related actions. The substitute will be of a type, and in a location, to be agreed with representatives of the livestock owners and herders			
										32.05	The Company Land Acquisition Team, environmental representative and the construction contractor will carry out an exit inspection of all land used during construction with the land owner and/or previous land user			
										34.01	Any field boundaries that are removed will be replaced with temporary fencing to meet reasonable landowner/user requirements			
										32.07	The Project will inform land owners/users about any restrictions that apply to land over/close to the new pipeline			
										32.12	Compensation will be paid for temporary and permanent use of land in accordance with agreed rates for the Project			
										32.13	In general, there will be no transfer of land ownership to the Company at any stage during construction or operations			
										33.01	The Contractor will be required to develop and implement a Grievance Procedure to allow individuals to express grievances about Project-related activities and employees. A grievance register will be used to document all third party grievances, corrective actions and outcomes			
										33.20	The Project will aim to consult with the leaders of Project-affected communities located near forests about the extent of community use of forest products. Where access to forests is important to these communities Company will aim to keep access routes open if practicable			
										39.01	If there is a need for additional land take outside that described in the ESIA the relevant authorities will be consulted and environmental and social assessments will be undertaken if required to obtain the relevant permits and consents			
A33	Community relations	Employment	Frustration and resentment if local workers perceive that foreign workers are receiving better pay or conditions for exactly the same job.		3-20/22	10-31	C	5	High	33.03	The Community liaison teams will maintain regular liaison with local communities before, during and after construction to ensure that disturbance of local communities (including local events e.g. weddings and funerals) by Project activities is minimised	C	4	Medium
										31.10	Worker education and awareness programmes will be conducted and will include the health risks associated with smoking, alcohol and substance abuse			
										33.04	An employee Code of Conduct will be prepared and issued to all recruits; the code will prohibit the workforce from participating in illegal activities, including use of illegal drugs, bribery and corruption or requesting or receiving gifts from communities			
										33.09	Workforce training will include awareness of local issues and sensitivities			
										30.15	Random drug and alcohol testing of the workforce will be conducted, recorded and audited regularly			
										33.04	An employee Code of Conduct will be prepared and issued to all recruits; the code will prohibit the workforce from participating in illegal activities, including use of illegal drugs, bribery and corruption or requesting or receiving gifts from communities			
										33.01	The Contractor will be required to develop and implement a Grievance Procedure to allow individuals to express grievances about Project-related activities and employees. A grievance register will be used to document all third party grievances, corrective actions and outcomes			

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										33.15	The Project will review measures to mitigate community health and safety impacts regularly, and consult PAC leaders every six months, informing them on the status of implementation and results, and discussing any changes needed to the 'Pollution Prevention Plan' or the 'Community Health, Safety and Security Plan'			
										28.15	As part of the recruitment programme community liaison teams will seek to manage any misconceptions about perceived differences in pay or conditions			
										28.14	All workers will have contracts describing conditions of work and will have the contents explained to them			
A34	Loss of field boundaries	Livelihoods	Loss of containment for farmed animals		3-20/22	10-29	C	3	Medium	32.01	The Project will consult with local government authorities, landowners and land users, including graziers, before restricting access to land	C	1	Low
										34.01	Any field boundaries that are removed will be replaced with temporary fencing to meet reasonable landowner/user requirements			
										3.19	Field boundaries will be reinstated to pre-existing condition on completion of construction			
A35	Damage to third party infrastructure (pipelines, cables etc)	Infrastructure	Temporary loss of supply to other consumers		3-20/23	10-33	D	3	Medium	35.01	The Infrastructure and Services Management Plan shall include measures to protect the integrity of third-party services that are acceptable to the service operator and procedures that facilitate the prompt repair of any either in consultation with, or by, the service operator	D	2	Medium
										35.03	Any planned diversion of services or road/track closures will be communicated to local authorities and affected communities at least 72 hours in advance of the works			
										35.05	Surveys of irrigation and drainage systems will be undertaken before construction to determine their location and condition			
										35.09	Pre-entry agreements including reinstatement requirements will be agreed prior to work affecting third party assets			
A36	Disruption of irrigation/drainage infrastructure	Livelihoods	Reduced crop growth if irrigation/drainage channels disrupted leading to reduced crops and income		3-20/22	10-29	C	3	Medium	35.05	Surveys of irrigation and drainage systems will be undertaken before construction to determine their location and condition	D	1	Low
										35.07	Affected landowners and occupiers will be consulted to determine their views on the requirement for temporary measures if irrigation systems are to be disrupted			
										35.06	The Contractor will aim to maintain the integrity and viability of functional irrigation and drainage systems throughout construction, for example, by using measures such as pumping, channel diversions and fluming. Any deviations shall be subject to approval by the Company			
										36.03	If any impacts to third party land or crops are caused by Project activity, for example due to interruption of irrigation or drainage, the Project's procedure for land and crop damage will be applied			
										35.08	Any disrupted irrigation or drainage system will be reinstated on completion of construction to a standard at least equal to their original condition			
A37	Use of local road network by construction traffic	Social Infrastructure	Wear / degradation of road surface		3-20/23	10-33	E	4	High	19.07	All drivers will undergo safety, and environmental and social awareness training to reduce the potential for accidents and disturbance; driving performance will be assessed and monitored with additional training provided if necessary	E	2	Medium
		Traffic	Traffic congestion and delays, particularly during movement of long or heavy loads		3-25/26	10-33	D	3	Medium	24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan	D	2	Medium
		Community Health	Risk of accidents causing injury or death		3-20/24	10-27	D	4	High	30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets	D	4	High

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		Ecology	Risk of injury or death		3-10/11	10-13	B	2	Low	30.17	Warning posts and bunting will be erected to mark overhead cables and temporary crossing points	B	2	Low
		Infrastructure	Road widening and upgrades resulting in more efficient transport links for local people		3-25/26	10-33			Beneficial	30.18	Construction traffic warning signs will be positioned at road crossings and other appropriate locations as determined by the Project, for example along access routes before they are used by construction traffic			Beneficial
										30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
										37.02	A bypass/alternative routes will be provided at locations where road closure is unavoidable			
										37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
										37.11	The Project will aim to provide buses to transport workers to the construction sites			
										37.14	Where it is necessary to maintain traffic flow, the crossing will be made in two stages, and only one half of the road width will be used at a time. Steel plates will be laid to maintain one lane of through traffic			
										35.03	Any planned diversion of services or road/track closures will be communicated to local authorities and affected communities at least 72 hours in advance of the works			
										37.06	At locations where schools are very close to a road used by WREP-SR traffic, the construction contractor will plan works to minimise the delivery of heavy loads at times when children are likely to be walking to and from school			
										37.07	Following construction, the Contractor will repair roads to at least their pre-construction condition. For roads that have been upgraded, the Contractor will submit a close out report for Company approval			
										37.09	All contractors and subcontractors will adhere to BP driving rules			
										37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
										33.24	Access to properties will be maintained throughout construction			
A38	Road closure / access restrictions	Traffic	Disruption of traffic flows causing inconvenience to local users		3-25/26	10-33	D	3	Medium	37.02	A bypass/alternative routes will be provided at locations where road closure is unavoidable	D	1	Low
										37.03	Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and provide directions			
										35.03	Any planned diversion of services or road/track closures will be communicated to local authorities and affected communities at least 72 hours in advance of the works			
A39	Accidental spillage of hazardous materials (eg fuels, lubrication fluids, oils, paints, diesel, concrete etc).	Soil	Soil contamination		3-2/3	10-2	C	5	High	6.03	The Pollution Prevention Plan will identify requirements and procedures for the storage of hazardous materials and contaminated soil, which will include the establishment of designated impermeable hazardous materials storage areas located at least 50m from any surface watercourse or seasonal water channel; minimisation of storage volumes; and the segregation of potentially reactive materials	C	1	Low
		Groundwater	Groundwater contamination		3-8/9	10-11	C	5	High	6.05	A refuelling procedure will be developed by the Contractor, which will include a restriction on refuelling within 50m of any watercourse. Any deviation will be subject to approval by the Company	C	1	Low
		Surface water	Surface water contamination		3-6/7	10-7	D	5	High	6.06	The Pollution Prevention Plan will detail requirements for record keeping and onsite maintenance of material safety data sheets (MSDS)	D	1	Low
		Ecology	Stress/mortality of flora and fauna		3-10/11	10-13	B	3	Low	6.09	Relevant personnel will be trained in safe use and handling of hazardous materials as well as in use of spill kits and disposal practices	B	2	Low

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							Sensitivity	Magnitude	Significance	Ref	Commitments Relating to the Issue	Sensitivity	Magnitude	Significance
		Community health	Risk of illnesses through accidental ingestion of materials or via skin contact		3-20/24	10-27	D	2	Medium	6.12	Spill response equipment (absorbents etc.) will be available in hazardous materials storage areas, and a trained rapid response team mobilised in the event of spillage of hazardous materials	D	1	Low
										6.13	The need for remedial work in any specific area will be determined on the basis of the observed contaminants, sampling and analysis to determine their concentrations and the risks that they may pose to local receptors (social and environmental) in accordance with Project Environmental Standards (Appendix F); a site specific remedial action plan will be developed if an environmental risk from contamination is identified			
										6.16	The preferred options for the treatment of contaminated soil will be based on the risks posed by the material. In keeping with the aim of minimising the transportation of hazardous materials and minimising waste generation, preference will be given to in situ and low technology remedial approaches			
										6.20	Vehicles delivering fuel or hazardous liquids will carry appropriate spill kits to allow an initial response to any spill to be deployed			
										6.27	The storage of hazardous materials in areas of known groundwater vulnerability will be carefully controlled under pollution prevention procedures			
										10.18a	Only essential construction vehicles (as approved by the Company) will be allowed to enter rivers or streams and only with prior examination of the vehicles for fuel/lubricant leaks			
										23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
										31.04	The Project will apply a risk assessment approach to contaminated land management to evaluate the potential impact of soil, surface water or groundwater contamination on local receptors			
A41	Changes to proposed work areas or methods		Potential impacts that have not been assessed in this ESIA							39.04	Management of change procedures will include environmental and social assessment before any changes that may have detrimental effects on environmental or social receptors are adopted			
			Inadequate mitigation of potential impacts							39.01	If there is a need for additional land take outside that described in the ESIA the relevant authorities will be consulted and environmental and social assessments will be undertaken if required to obtain the relevant permits and consents			
A42	Spill of crude oil during de-oiling	Soil	Soil contamination		3-2/3	12-7	C	5	High	6.09	Relevant personnel will be trained in safe use and handling of hazardous materials as well as in use of spill kits and disposal practices	C	3	Medium
		Groundwater	Groundwater contamination		3-8/9	12-7	D	5	High	6.12	Spill response equipment (absorbents etc.) will be available in hazardous materials storage areas, and a trained rapid response team mobilised in the event of spillage of hazardous materials	D	3	Medium
		Surface water	Surface water contamination		3-6/7	12-7	D	5	High	42.01	The results of the risk assessment will be used to inform a Project-specific oil spill response procedure for OSR resource deployment priorities	D	3	Medium
		Ecology	Habitat and species loss		3-10/11	12-7	B	4	Medium			B	3	Low
		Ecology	Impaired breeding		3-10/11	12-7	B	4	Medium			B	3	Low
		Community health	Risk of illnesses through accidental ingestion of materials or via skin contact		3-20/24	12-7	D	2	Medium			D	1	Low