Southern Water Services Final Draft Water Resource Management Plan 24

Annex 17: Strategic Environmental Assessment Environmental Report

Appendix J: Demand Management and Leakage Options Assessment

May 2025
Version 5

Assessment Cover Information	
Option Name	Policy Regulation
Water company	Southern Water
Option Description	This is a programme of changes to regulation and policy with regard to new building standards and appliances to reduce water consumption. Contains three sub options: New building standards to 100l/p/d (from 2030) New building standards to 85l/p/day (from 2035) New water efficiency labelling on products (from 2030)
WRZ	ALL

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is not expected to impact biodiversity due to only involving water demand reduction strategies through regulation and policy change. However, in operation, there is potential that indirectly the potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is not expected to impact soils due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not expected to impact flood risk due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	The option is not expected to impact water quality due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+/?	0	The operation of this option would result in a minor reduction in the demand for water, although the exact amount is unknown, and does not require abstraction to achieve yield.	N/A	0	0	+/?	0

Air	Reduce and minimise air emissions	0	0	0	0	The option is not expected to impact air quality due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+/?	0	The option is not expected to negatively impact climatic factors due to no embodied carbon associated with construction of the option. This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This has been assessed as having a minor positive effect, though the exact amount of savings are unknown.	N/A	0	0	+/?	0
	Reduce vulnerability to climate change risks and hazards	0	0	+?	0	Minor positive effects as demand reduction would help to ensure a continual supply of clean drinking water and increase resilience of supply, thereby reducing vulnerability to climate change.	N/A	0	0	+/?	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is not expected to impact landscape due to only involving water consumption reduction strategies (water efficiency education).	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is not expected to impact the historic environment due to only involving water consumption reduction strategies (water efficiency education).	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	There would be no capex or opex associated with this option, however a minor positive effect has been identified as demand reduction would help ensure a continual supply of clean drinking water and increase resilience of supply to Southern Water customers, supporting economic growth which could result in a positive effect on the local economy and social wellbeing.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is not expected to impact tourism and recreation due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The option is not expected to impact waste and resource use due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is not expected to impact built assets and infrastructure due to only involving water consumption reduction strategies through regulation and policy change.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Home Visits
Water company	Southern Water
Option Description	Water use audit and inspection - household
WRZ	All

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is not expected to impact biodiversity due to only involving water demand reduction strategies. However, in operation, there is potential for the reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is not expected to impact soils due to only involving demand reduction strategies.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not expected to impact soils due to only involving demand reduction strategies.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	The option is not expected to impact water quality due to only involving demand reduction strategies.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The operation of this option would result in a minor reduction in the demand for water (2.6 Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	Minor negative impacts for air emissions due to use of vehicles to conduct visits.	Consider use of electric vehicles to complete visits.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+	0	Embodied carbon associated with this option is anticipated to be negligible due to the scale of the option. This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This has been assessed as having a minor positive effect, though the exact amount of savings are unknown.	N/A	0	0	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Minor positive effects as demand reduction would help to ensure a continual supply of clean drinking water and increase resilience of supply, thereby reducing vulnerability to climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is not expected to negatively impact landscape due to only involving demand reduction strategies.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is not expected to negatively impact the historic environment due to only involving demand reduction strategies.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Visits, if all concentrated in one area, may contribute to localised congestion during peak times, however, given number of vehicles and associated movements, the likelihood and scale of effect is assessed as very low. No effects are expected on the economy as there will be no spend associated with the option during construction or operation.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is not expected to negatively impact tourism and recreation due to only involving demand reduction strategies.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The option is not expected to negatively impact resource use and waste production due to the small scale of investment.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is not expected to negatively impact built assets and infrastructure due to only involving demand reduction strategies.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Water Audits (Non-households)
Water company	Southern Water
Option Description	Water use audit and inspection - Non-household
WRZ	All

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is not expected to impact biodiversity due to only involving water demand reduction strategies. However, in operation, there is potential for the reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is not expected to impact soils due to only involving demand reduction strategies.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not expected to impact flood risk due to only involving demand reduction strategies.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	The option is not expected to impact water quality due to only involving demand reduction strategies.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	The operation of this option would result in a moderate reduction in the demand for water (5.3 Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	-	0	0	The option would require vehicle movements. If movements took place in a specific area, or were concentrated into a specific period, the resultant vehicle emissions (assuming either a petrol/diesel engine) may have a minor negative effect on local air quality, due to the scale of the option and associated reduction in demand.	Consider use of electric vehicles to complete visits.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--/?	++	0	Embodied carbon associated with materials used to manufacture water saving products will be produced during construction, leading to moderate negative effects on emissions This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This has been assessed as having a moderate positive effect, though the exact amount of savings are unknown.	N/A	0	--/?	++	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Minor positive effects as demand reduction would help to ensure a continual supply of clean drinking water and increase resilience of supply, thereby reducing vulnerability to climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is not expected to impact landscape due to only involving demand reduction strategies.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is not expected to impact the historic environment due to only involving demand reduction strategies.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	++	0	Visits, if all concentrated in one area, may contribute to localised congestion during peak times, however, given number of vehicles and associated movements, the likelihood and scale of effect is assessed as very low. The operation of this option would result in a positive effect on human health as the increase in design capacity would help ensure a continual supply of clean drinking water, generating a positive effect on health as well as supporting economic/population growth which could result in a positive effect on the local economy and social-wellbeing. Due to the scale of the option, it is expected to have a moderate positive effect.	N/A	0	0	++	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is not expected to impact tourism and recreation due to only involving demand reduction strategies.	N/A	0	0	0	0

Material Assets	Minimise resource use and waste production	0	0	0	--	Production of materials for water saving products is expected to generate waste, due to the scale of the option this is assessed as a moderate negative effect during operation.	N/A	0	0	0	--
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is not expected to negatively impact built assets and infrastructure due to only involving demand reduction strategies.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Enabler Activities Awareness campaigns
Water company	Southern Water
Option Description	Targeted water conservation information (advice on appliance water usage)
WRZ	ALL

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is not expected to impact biodiversity due to only involving water demand reduction strategies. However, in operation, there is potential for the reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is not expected to impact soils due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not expected to impact flood risk due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	The option is not expected to impact water quality due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The operation of this option would result in a minor reduction in the demand for water (2.3 Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	-	Minor negative impacts for air emissions are anticipated due to use of vehicles to conduct door drops.	Consider use of electric vehicles to complete drops.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+	0	The option is not expected to negatively impact climatic factors due to no embodied carbon associated with construction of the option. This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This has been assessed as having a minor positive effect, though the exact amount of savings are unknown.	N/A	0	0	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Minor positive effects as demand reduction would help to ensure a continual supply of clean drinking water and increase resilience of supply, thereby reducing vulnerability to climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is not expected to impact landscape due to only involving consumption reduction strategies (water efficiency communications).	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is not expected to impact the historic environment due to only involving consumption reduction strategies (water efficiency education).	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Door drops, if all concentrated in one area, may contribute to localised congestion during peak times, however, given number of vehicles and associated movements, the likelihood and scale of effect is assessed as very low. The operation of this option would result in a positive effect on human health as the increase in design capacity would help ensure a continual supply of clean drinking water, generating a positive effect on health as well as supporting economic/population growth which could result in a positive effect on the local economy and social-wellbeing. Due to the scale of the option, it is expected to have a minor positive effect,	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is not expected to impact tourism and recreation due to only involving consumption reduction strategies (water efficiency education).	N/A	0	0	0	0

Material Assets	Minimise resource use and waste production	0	0	0	-	There may be a minor amount of waste associated with production of campaign materials, although this is not expected to be significant.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is not expected to impact built assets and infrastructure due to only involving consumption reduction strategies (water efficiency education).	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Enabler Activities (Non households) Awareness campaigns
Water company	Southern Water
Option Description	Targeted water conservation information (advice on appliance water usage)
WRZ	ALL

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is not expected to impact biodiversity due to only involving water demand reduction strategies. However, in operation, there is potential for the reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is not expected to impact soils due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not expected to impact flood risk due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	The option is not expected to impact water quality due to only involving demand reduction strategies (water efficiency communications).	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The operation of this option would result in a minor reduction in the demand for water and does not require abstraction to achieve yield.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	-	Minor negative impacts for air emissions due to potential use of vehicles to conduct door drops.	Consider use of electric vehicles to complete drops.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+	0	The option is not expected to negatively impact climatic factors as embodied carbon associated with campaign materials would likely be negligible. The option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production, although the exact amount is uncertain.	N/A	0	0	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Minor positive effects are assessed as demand reduction would help to ensure a continual supply of clean drinking water. This would increase resilience of supply, thereby reducing vulnerability to climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is not expected to impact landscape due to only involving consumption reduction strategies (water efficiency communications).	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is not expected to impact the historic environment due to only involving consumption reduction strategies (water efficiency education).	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-/?	There is potential for negative effects, if all vehicle movements are concentrated in one area, may contribute to localised congestion during peak times, however the exact number of vehicle movements is unknown. The operation of this option would result in a positive effect on human health as the increase in design capacity would help ensure a continual supply of clean drinking water, generating a positive effect on health as well as supporting economic/population growth which could result in a positive effect on the local economy and social-wellbeing. Due to the scale of the option, it is expected to have a minor positive effect.	N/A	0	0	+	-/?
	Maintain and enhance tourism and recreation	0	0	0	0	The option is not expected to impact tourism and recreation due to only involving demand reduction strategies (water efficiency education).	N/A	0	0	0	0

Material Assets	Minimise resource use and waste production	0	0	0	0	There may be a minor amount of waste associated with production of campaign materials, although this is not expected to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is not expected to impact built assets and infrastructure due to only involving demand reduction strategies (water efficiency education).	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Tariffs
Water company	Southern Water
Option Description	Changes to existing measured tariffs - Volumetric charges
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option would result in a reduction in the demand for water (7.5Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. No impacts on air quality are anticipated as a result of the option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	++	0	No construction effects have been identified as there would be no construction phase associated with this option. The option is not expected to involve an increase in energy consumption or associated greenhouse gas emissions. Beneficial impacts include reducing demand for water and the associated energy consumption, due to the scale of the option this has been assessed as a moderate positive effect.	N/A	0	0	++	0
	Reduce vulnerability to climate change risks and hazards	0	0	++	0	No construction effects have been identified as there would be no construction phase associated with this option. The increased capacity of 7.5Ml/d would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact landscapes/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact heritage assets or archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	++	0	No construction effects have been identified as there would be no construction phase associated with this option. The option will provide water savings of 7.5 Ml/d, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	0	0	++	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No construction effects have been identified as there would be no construction phase The operation of this option is not anticipated to impact on waste and resource use.	N/A	0	0	0	0

	Avoid negative effects on built assets and infrastructure	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. Operation of the option is not expected to have any effect on built assets and infrastructure.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	NHH Tariffs
Water company	Southern Water
Option Description	Changes to existing measured tariffs - Volumetric charges
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option would result in a reduction in the demand for water, (2.1 Ml/d), and does not require abstraction to achieve yield.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. No impacts on air quality are anticipated as a result of the option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. The option is not expected to involve an increase in energy consumption or associated greenhouse gas emissions. However, it would reduce demand for water and therefore reduce associated energy consumption.	N/A	0	0	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact landscapes/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact heritage assets or archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No construction effects have been identified as there would be no construction phase The operation of this option is not anticipated to impact on waste and resource use.	N/A	0	0	0	0

	Avoid negative effects on built assets and infrastructure	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. Operation of the option is not expected to have any effect on built assets and infrastructure.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Water Efficiency Partnership Fund
Water company	Southern Water
Option Description	Sponsoring Water efficiency enabling activities by others
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water will result in reduced requirement for abstraction from Southern Water's sources, helping to deliver reliable and resilient water supplies (0.2 Ml/d).	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. No impacts on air quality are anticipated as a result of supplying funding for water efficiency products and services.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. It is assumed that operation of the option would not involve an increase in energy consumption or associated greenhouse gas emissions. Beneficial impacts include reducing demand for water and the associated energy consumption, this has been assessed as having a minor positive effect.	N/A	0	0	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operational effects have been identified from this option on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No construction or operational effects have been identified from this option on the historic environment	Installation and location of water efficiency products to be carried out sensitively with respect to the features of heritage assets and their setting	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	No construction effects have been identified as there would be no construction phase associated with this option. The option will provide water savings of 0.2 Ml/d, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	0	0	+	0

	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. The operation of this option is not anticipated to impact on waste and resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No construction effects have been identified as there would be no construction phase associated with this option. Operation of the option is not expected to have any effect on built assets and infrastructure.	Installation of water efficiency products should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	0	0	0

Assessment Cover Information	
Option Name	Smart Metering
Water company	Southern Water
Option Description	Enhanced metering - Household
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water (12.6 Ml/d) will result in reduced requirement for abstraction from Southern Water's sources, helping to deliver reliable and resilient water supplies.	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	--	0	0	The option may require additional vehicle movements for installation of smart meters, which is considered to be a minor negative effect on air quality. No impacts on air quality are anticipated as a result of smart meter operation.	Where possible use low emissions vehicles for the distribution and installation of smart meters.	0	--	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	+++	0	The construction of the option would include embodied carbon from material production, transport and installation of smart meters. This option is assumed to have a significant negative effect on overall greenhouse gas emission levels, due to the scale of the option. It is assumed that operation of smart meters would not involve an increase in energy consumption or associated greenhouse gas emissions. Beneficial impacts include reducing demand for water and the associated energy consumption. Due to the significance of the yield, this has been assessed as a significant positive effect.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	---	+++	0
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity of 12.6 Ml/d would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No effects have been identified from the construction or operation of smart meters on heritage assets or archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	+++	0	+++	0	No construction effects have been identified from this option for human health, however, the option will result in a significant capital spend that could result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings of 12.6 Ml/d, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a significant positive effect on the local economy and social wellbeing.	N/A	+++	0	+++	0

	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	---	0	0	The option will require new equipment with only limited opportunities for the re-use or recycling of waste materials. Production and installation of smart meters may result in waste associated with manufacturing waste, packaging, materials required for installation and disposal of any faulty/damaged meters. This is considered to be a significant adverse effect for this option during construction, due to the scale of the option. The operation of this option is not anticipated to impact on waste and resource use.	Smart meter equipment could be sourced from manufactures utilising more sustainable materials.	0	---	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Construction and operation of smart meters are not expected to have any effect on built assets and infrastructure.	Installation of smart meters should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	0	0	0

Assessment Cover Information	
Option Name	Smart Metering USPL
Water company	Southern Water
Option Description	Customer supply pipe leakage reduction
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water (2.8 Ml/d) will result in reduced requirement for abstraction from Southern Water's sources, helping to deliver reliable and resilient water supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-/?	0	0	The construction of the option would require vehicle movements during the construction phase. If all of these movements took place in a specific area, or were concentrated into a specific period, the resultant vehicle emissions (assuming either a petrol/diesel engine) may have a minor negative effect on local air quality, though the exact number of vehicle movements and magnitude of effect is uncertain. No impacts on air quality are anticipated as a result of smart meter operation.	Where possible use low emissions vehicles.	0	-/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	The construction of the option would include embodied carbon from material production, transport and installation of smart meters. This option is assumed to have a minor negative effect on overall greenhouse gas emission levels. It is assumed that operation of smart meters would not involve an increase in energy consumption or associated greenhouse gas emissions. This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This could lead to a minor positive effect.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during construction phase.	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There may be minor adverse impacts associated with the replacement of customer pipes to reduce leakage on the features of some heritage assets, although these are likely to be temporary and minor in scale. No effects have been identified from the operation of smart meters on heritage assets or archaeology.	Installation and location of smart meters to be carried out sensitively to minimise disruption to the features of heritage assets.	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	No construction effects have been identified from this option for human health. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The option will require new equipment with only limited opportunities for the re-use or recycling of waste materials. Production and installation of smart meters may result in waste associated with manufacturing waste, packaging, materials required for installation and disposal of any faulty/damaged meters, although this is not expected to be of significant scale to negatively impact the objective.. The operation of this option is not anticipated to impact on waste and resource use.	Smart meter equipment could be sourced from manufactures utilising more sustainable materials.	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Construction and operation of smart meters are not expected to have any effect on built assets and infrastructure.	N/A	0	0	0	0

Assessment Cover Information	
Option Name	Smart Metering Unmeasured Households
Water company	Southern Water
Option Description	Compulsory metering - Household
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water (0.0 Ml/d) will not result in reduced requirement for abstraction from Southern Water's sources, and therefore no effects are anticipated during operation.	N/A	0	0	0	0

Air	Reduce and minimise air emissions	0	0	0	0	The option may require additional vehicle movements for installation of smart meters, though this is not expected to be of sufficient scale to impact this objective. No impacts on air quality are anticipated as a result of smart meter operation.	Where possible use low emissions vehicles for the distribution and installation of smart meters.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	The construction of the option would include embodied carbon from material production, transport and installation of smart meters. This is not expected to be of sufficient scale to impact this objective. It is assumed that operation of smart meters would not involve an increase in energy consumption or associated greenhouse gas emissions. Beneficial impacts include reducing demand for water and the associated energy consumption, though due to the yield, this is not expected to impact this objective.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No construction or operational effects have been identified from this option for climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No effects have been identified from the construction or operation of smart meters on heritage assets or archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No construction effects have been identified from this option for human health. The option will not provide water savings, and therefore will not result in any positive or negative effects on the local economy and social wellbeing.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0

Material Assets	Minimise resource use and waste production	0	0	0	0	The option will require new equipment with only limited opportunities for the re-use or recycling of waste materials. Production and installation of smart meters may result in waste associated with manufacturing waste, packaging, materials required for installation and disposal of any faulty/damaged meters, although this is not expected to be of significant scale to negatively impact the objective.. The operation of this option is not anticipated to impact on waste and resource use.	Smart meter equipment could be sourced from manufactures utilising more sustainable materials.	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Construction and operation of smart meters are not expected to have any effect on built assets and infrastructure.	Installation of smart meters should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	0	0	0

	Assessment Cover Information
Option Name	NHH Smart Metering
Water company	Southern Water
Option Description	Enhanced metering – Non-household
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water (3.7 Ml/d) will result in reduced requirement for abstraction from Southern Water's sources, helping to deliver reliable and resilient water supplies, this has been assessed as having a minor positive effect.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-/?	0	0	The option may require additional vehicle movements for installation of smart meters, and although the exact number of movements is uncertain, this is considered to be a minor negative effect on air quality. No impacts on air quality are anticipated as a result of smart meter operation.	Where possible use low emissions vehicles for the distribution and installation of smart meters.	0	-/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	+	0	The construction of the option would include embodied carbon from material production, transport and installation of smart meters. This option is assumed to have a moderate negative effect on overall greenhouse gas emission levels, due to the scale of the option. It is assumed that operation of smart meters would not involve an increase in energy consumption or associated greenhouse gas emissions. This option is anticipated to reduce operational carbon emissions through reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production. This could lead to a minor positive effect, though the exact amount is unknown.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	--	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No effects have been identified from the construction or operation of smart meters on heritage assets or archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	++	0	+	0	No construction effects have been identified from this option for human health, however, the option would result in a modest capital spend that would result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy, due to the scale of the investment this has been assessed as having a moderate positive effect. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is	N/A	++	0	+	0

						considered to result in a minor positive effect on the local economy and social wellbeing.					
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	The option will require new equipment with only limited opportunities for the re-use or recycling of waste materials. Production and installation of smart meters may result in waste associated with manufacturing waste, packaging, materials required for installation and disposal of any faulty/damaged meters. This is considered to be a moderate adverse effect for this option during construction. The operation of this option is not anticipated to impact on waste and resource use.	Smart meter equipment could be sourced from manufacturers utilising more sustainable materials.	0	--	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Construction and operation of smart meters are not expected to have any effect on built assets and infrastructure.	N/A	0	0	0	0

	Assessment Cover Information
Option Name	Advanced Find & Fix
Water company	Southern Water
Option Description	Leakage reduction - Active Leakage Control
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-/?	0	0	The impacts on biodiversity are uncertain, as no specific construction locations are known.	N/A	0	-/?	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	The operation of this option would result in a moderate reduction in the demand for water (5.5 Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-/?	0	0	The option may require additional vehicle movements for identifying and fixing leaks, which is considered to be a minor negative effect on air quality, though the exact number of movements is unknown.	Where possible use low emissions vehicles for travel to and from identified leakage sites	0	-/?	0	0

						No impacts on air quality are anticipated as a result of smart meter operation.					
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	++	0	The construction of the option would include embodied carbon from material production and transport of equipment and materials. This option is assumed to have a moderate negative effect on overall greenhouse gas emission levels. It is assumed that operation of the option would not involve an increase in energy consumption or associated greenhouse gas emissions. The option is anticipated to reduce operational carbon emissions through reduced demand for energy to abstract, treat, and put water into supply, this has been assessed as a moderate positive impact.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	--	++	0
	Reduce vulnerability to climate change risks and hazards	0	0	++	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change.	N/A	0	0	++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-/?	0	0	Leakage repair works could have an impact on landscape and or townscape character if conducted in sensitive areas.	Construction works to be carried out sensitively to minimise disruption to landscape.	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-/?	0	0	There may be minor adverse impacts associated with leakage repair works on the features of some heritage assets, although these are likely to be temporary, minor in scale and involve excavation of previously disturbed ground. No effects have been identified from the operation of smart meters on heritage assets or archaeology.	Repair works to be carried out sensitively to minimise disruption to the features of heritage assets.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	++	-/?	++	0	Construction activity and the transportation of equipment/material could contribute to congestion, depending on location and concentration of the vehicle movements during the construction phase. However, the option would result in a moderate capital spend that could result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is	N/A	++	-/?	++	0

						considered to result in a moderate positive effect on the local economy and social wellbeing.					
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	The option will require materials with only limited opportunities for the re-use or recycling of waste. Reparation of leaks may result in waste associated with manufacturing waste, packaging, materials required for repairs and disposal of old materials. Due to the scale of the option, this is considered to be a moderate adverse effect for this option during construction. The operation of this option is not anticipated to impact on waste and resource use.	Materials could be sourced from manufacturers utilising more sustainable materials.	0	--	0	0
	Avoid negative effects on built assets and infrastructure	0	-/?	0	0	The option may result in minor disruption to built assets during repair and replacement of pipes, although the effects are likely to be short term, and sites/assets may have been previously disturbed from original works. Operation of the option is not expected to have any effect on built assets and infrastructure.	N/A	0	-/?	0	0

Assessment Cover Information	
Option Name	Advanced Pressure Management
Water company	Southern Water
Option Description	Leakage reduction – Pressure reduction programmes
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified from this option for water supplies. Reduction in demand for water (2.2 Ml/d) will result in reduced requirement for abstraction from Southern Water's sources, helping to deliver reliable and resilient water supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-/?	0	0	The construction of the option would require vehicle movements during the construction phase. If vehicle movements were concentrated into a specific area or period, the resultant vehicle emissions (assuming either a petrol/diesel engine) may have a minor negative effect on local air quality. No impacts on air quality are anticipated during operation of the option.	Where possible use low emissions vehicles.	0	-/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	+	0	The construction of the option would include embodied carbon from material production of new pressure management devices and sections of replacement pipework where necessary. In addition, the option would require vehicle movements for the distribution and installation of devices over the construction phase, which will also produce carbon emissions. Due to the scale of the option, this has been assessed as having a moderate negative effect on carbon emissions. This option is anticipated to reduce operational carbon emissions through reduced leakage and thus reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production, due to the reduction in demand for water this has been assessed as a minor positive effect.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	--	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change. This has been assessed as having a minor positive effect.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No construction or operation effects have been identified from this option for the historic environment.	Installation and location of smart meters to be carried out sensitively to minimise disruption to the features of heritage assets.	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	++	0	+	0	No construction effects have been identified from this option for human health, however, the option would result in a moderate capital spend that could result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	++	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The construction and operation of this option is not anticipated to impact on waste and resource use.	Smart meter equipment could be sourced from manufactures utilising more sustainable materials.	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The construction and operation of this option is not anticipated to impact on built assets.	Installation of smart meters should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	0	0	0

Assessment Cover Information	
Option Name	Comms Pipe Replacement
Water company	Southern Water
Option Description	Comm pipe leakage reduction
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-/?	0	0	During construction, the impact on biodiversity is uncertain, as no specific construction locations are known, although it is assumed that the majority of the location of mains replacement will be in urban settings. Activities associated with the option could lead to temporary disturbance of ground where pipeline is located, which may be cause some localised disturbance/air quality/dust effects. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	-/?	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0

	Deliver reliable and resilient water supplies	0	0		0	The operation of this option would result in a minor reduction in the demand for water (1.8 Ml/d), though the exact amount is unknown, and does not require abstraction to achieve yield.	N/A	0	0		0
Air	Reduce and minimise air emissions	0	-/?	0	0	The option would require additional vehicle movements, though the exact amount is unknown, for replacement of pipes, which is considered to be a minor negative effect on air quality. No impacts on air quality are anticipated as a result of operation of the option.	Where possible use low emissions vehicles	0	-/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--		0	The construction of the option would include embodied carbon from material production, transport and installation of smart meters. Due to its scale, this option would have a moderate negative effect on overall greenhouse gas emission levels. It is assumed that operation of smart meters would not involve an increase in energy consumption or associated greenhouse gas emissions. This option is anticipated to reduce operational carbon emissions through reduced leakage and thus reduced demand, i.e. reduced greenhouse gas emissions associated with reduced electricity production, though the exact amount of reduction is unknown due to the reduction in demand for water this has been assessed as a minor positive effect.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	--		0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change. This has been assessed as a minor positive effect.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-/?	0	0	The impacts on landscape and townscape are uncertain, as no specific construction locations are known although it is assumed that the majority of the location of mains replacement will be in urban settings with limited and short term effects on landscape and townscape.	N/A	0	-/?	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-/?	0	0	The impacts on cultural heritage are uncertain, as no specific construction locations are known although it is assumed that the majority of the location of pipe repair and replacement will be in urban settings. Activities associated with the option could lead to temporary disturbance of ground where pipeline is located (albeit that this is already disturbed ground).	N/A	0	-/?	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	++	0	+	0	No negative construction effects have been identified from this option for human health, however, the option would result in a moderate capital spend that would result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	++	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	+/?	--	0	0	The construction of this option would require new pipes to replace the old. No information on circular economy of former pipes. No reference to recyclable materials in new piping. Due to the scale of the option, this is anticipated to be a moderate negative effect. There is the possibility that waste building materials from construction such as steel and plastic could potentially be re-used or recycled. However, the significance of this is currently unknown.	Pipe replacement equipment could be sourced from manufactures utilising more sustainable materials.	+/?	--	0	0
	Avoid negative effects on built assets and infrastructure	0	-/?	0	0	The option may result in minor disruption to built assets during repair and replacement of pipes, although the effects are likely to be short term, and sites/assets may have been previously disturbed from original works. Operation of the option is not expected to have any effect on built assets and infrastructure.	Installation of smart meters should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	-/?	0	0

	Assessment Cover Information
Option Name	Digitalisation/Smart Networks
Water company	Southern Water
Option Description	Leakage reduction - Active Leakage Control
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No construction effects have been identified from this option on biodiversity. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	No construction effects have been identified from this option for water supplies. The operation of this option would result in a minor reduction in the demand for water (2.0 Ml/d) and does not require abstraction to achieve yield.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-/?	0	0	The option may require additional vehicle movements to install dynamic kit into the network, which is considered to be a minor negative effect on air quality, though the exact number of movements are unknown. No impacts on air quality are anticipated during operation.	Where possible use low emissions vehicles	0	-/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	+	0	The construction of the option would include embodied carbon from material production, transport and installation of new devices. This option is assumed to have a significant negative effect on overall greenhouse gas emission levels, due to its scale. This option is anticipated to reduce operational carbon emissions through reduced demand for energy to abstract, treat, and put water into supply. Due to the magnitude of the yield this has been assessed as having a minor positive effect	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	---	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	No construction effects have been identified from this option for climate change risks and hazards. The increased capacity would help to increase resilience of supply, thereby increasing resilience and adaptability to the effects of climate change. This has been assessed as having a minor positive effect	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No construction or operation effects have been identified from this option for landscape/townscapes.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No construction or operation effects have been identified from this option for historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	+++	-/?	+	0	Large numbers of vehicle movements could cause disruption to regional logistics/economy anticipated, potentially causing minor negative impacts during construction. The option could result in a significant capital spend spread over the construction period which could result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a minor positive effect on the local economy and social wellbeing.	N/A	+++	-/?	+	0

	Maintain and enhance tourism and recreation	0	0	0	0	No construction or operation effects have been identified from this option for tourism and leisure.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	The option will require new equipment with only limited opportunities for the re-use or recycling of waste materials. Production and installation of new devices would result in waste associated with manufacturing waste, packaging, materials required for installation and disposal of any old materials. This is considered to be a significant adverse effect for this option during construction, due to the scale of the option. The operation of this option is not anticipated to impact on waste and resource use.	New devices and materials could be sourced from manufactures utilising more sustainable materials.	0	--	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The construction and operation of this option is not anticipated to impact on built assets.	N/A	0	0	0	0

	Assessment Cover Information
Option Name	Mains Replacement (Net of NRR)
Water company	Southern Water
Option Description	Distribution Main Replacement
WRZ	All resource zones

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-/?	0	0	The impact on biodiversity is uncertain, as no specific construction locations are known, although it is assumed that the majority of the location of mains replacement will be in urban settings. Activities associated with the option could lead to temporary disturbance of ground where pipeline is located, which may be cause some localised disturbance/air quality/dust effects. The option is considered to have no impact on biodiversity, flora and fauna in operation, although there is potential for reduced consumer demand for water to result in reduced requirement for abstraction from Southern Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species.	N/A	0	-/?	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No construction or operation effects have been identified from this option on soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No construction effects have been identified from this option for flood risk. Operation of the option is not expected to cause or exacerbate flooding elsewhere.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No construction or operation effects have been identified from this option for water quality.	N/A	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	The operation of this option would result in a significant reduction in the demand for water (14.0 Ml/d), and does not require abstraction to achieve yield.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	--/?	0	0	The option would require additional vehicle movements, though the exact amount is unknown, for replacement of mains, which is considered to be a moderate negative effect on air quality. No impacts on air quality are anticipated as a result of operation of the option.	Where possible use low emissions vehicles	0	--/?	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	+++	0	The construction of the option would include embodied carbon from material production, transport and installation of replacement pipes. Due to the scale of the option, this is assumed to have a significant negative effect on overall greenhouse gas emission levels. This option is anticipated to reduce operational carbon emissions through reduced demand for energy to abstract, treat, and put water into supply. Due to the significance of the yield, this is anticipated to have a significant positive effect on this objective.	Where possible seek to source products that use low/zero carbon for manufacture and avoid the use of diesel-powered generators for equipment during installation.	0	---	+++	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No construction or operational effects have been identified from this option for climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-/?	0	0	The impacts on landscape and townscapes are uncertain, as no specific construction locations are known although it is assumed that the majority of the location of mains replacement will be in urban settings with limited and short term effects on landscape/townscape.	N/A	0	-/?	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-/?	0	0	The impacts on cultural heritage are uncertain, as no specific construction locations are known although it is assumed that the majority of the location of mains replacement will be in urban settings. Activities associated with the option could lead to temporary disturbance of ground where pipeline is located, albeit that any excavation will be of existing disturbed ground.	N/A	0	-/?	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	+++	0	+++	0	No construction effects have been identified from this option for human health, however, the option would result in a significant capital spend that would result in a positive effect on the local economy associated with supply chain benefits and spend by workers and contractors in the local economy. The option will provide water savings, contributing towards improving security of	N/A	+++	0	+++	0

						supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a significant positive effect on the local economy and social wellbeing.					
	Maintain and enhance tourism and recreation	0	0	+++	0	The option will provide water savings of 14.0 Ml/d, contributing towards improving security of supply of water in the Southern Water supply region, supporting economic growth. This is considered to result in a significant positive effect on the local economy and social wellbeing.	N/A	0	0	+++	0
Material Assets	Minimise resource use and waste production	+/?	---	0	0	The construction of this option would require new pipes to replace the old. No information on circular economy of former pipes. No reference to recyclable materials in new piping. Due to the scale of the option, this is assessed as having a significant negative effect. There is the possibility that waste building materials from construction such as steel and plastic could potentially be re-used or recycled. However, the significance of this is currently unknown.	Pipe replacement equipment could be sourced from manufactures utilising more sustainable materials.	+/?	---	0	0
	Avoid negative effects on built assets and infrastructure	0	-/?	0	0	The option may result in minor disruption to built assets during repair and replacement of pipes, although the effects are likely to be short term, and sites/assets may have been previously disturbed from original works. Operation of the option is not expected to have any effect on built assets and infrastructure.	Installation of smart meters should seek to minimise any disruption to existing built assets, scheduling works during periods of no or low demand for water supplies.	0	-/?	0	0