Lyndhurst Wastewater System - Outline Options Appraisal

Generic Option	Location of Risk	Planning Objective and Description of Risk	Option Reference	Description	Further Description	Unconstrained Option?	Constrained Option?	Feasible Option?	Net Benefits	Estimated Cost	Preferred Option	Best value / Least cost or Reasons for Rejection
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.SC01.1	Changes in Rural Land Drainage	Using results of option LYND.	No						Cost Effective
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.SC01.2	Surface Water Seperation	Using results of option LYND.	No						Cost Effective
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.SC01.3	SuDS	Using results of option LYND.	No						Cost Effective
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.SC01.4	Rain Water Harvesting	Collect rainwater from roofs and other paves surfaces for use on site - flusing toilets, watering gardens in time of lower rainfall etc.	No						Deliver the required outcome and Risk and uncertainty - future resilience
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)												
Control / Reduce the quantity / flow of wastewater entering sewer system												
Network Improvements (eg increase capacity, storage, conveyance)	Lime Wood Hotel/Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers PO11 - Nutrient Neutrality	LYND.PW01.1	Additional Conveyance Capacity	Installation of new connecting sewers from Lime Wood Hotel, connecting to Southern Waters sewer system.	Yes	No					Environmental - Strategic Environmental Assessment
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.PW01.2	Additional Storage Capacity	Improving technology on storm tanks.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers	LYND.PW01.3	Separate Flows	Construction of new sewers throughout the catchent to enable seperation of foul and surface water flows into seperatre sewer systems.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 - Dry Weather Flow	LYND.PW01.4	Separate Flows	Seperating surface water flows from sewers.	No						Cost Effective
Improve treatment (capacity and quality at existing works or develop new WTWs)	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.PW02.1	Centralisation of Treatment	Connection to an alternative wastewater treatment works.	No						Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.PW02.2	Optimisaton of treatment process	Optimising treatment process by transfering (see option LYND.	No						Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.PW02.3	Install P removal tertiary plant	Remove more P from final effluent, past the currently allowed 1Mg/L permitted rate.	No						Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.PW02.4	Install N removal tertiary plant	Currently no Nitrate permit, although there is an Ammonia permit.	No						Risk and uncertainty - future resilience
Wastewater Transfer	LYNDHURST WTW	PO8 (2050)- Dry Weather Flow	LYND.PW03.1	Construct New WPS & Rising Main	No other WTWs are within a 20km radius of LYNDHURST WTW with spare capacity to take DWF.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	No	Best Value
Mitigate impacts on Air Quality (e.g. Carbon neutrality, noise, odour)												Not included in the first round of DWMPs
Improve Land and Soils												Not included in the first round of DWMPs
Mitigate impacts on Water Quality	Lyndhurst WTW/Catchment Wide	PO11 - Nutrient Neutrality	LYND.RC03.1	River enhancement and mitigation	Enhance river upstream of catchment to provide attenuation of flows, limiting unconsented spills from CSOs, and providing opportunity for natural nutrient removal.	No						Deliver the required outcome
Mitigate impacts on Water Quality	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.RC03.2	Efflent re-use	Re-use of effluent from site - pumping of this effluent to potable process treatment works.	No						Cost Effective
Mitigate impacts on Water Quality	Lyndhurst WTW	PO11 - Nutrient Neutrality	LYND.RC03.3	Catchment permits	Reduce consented permit levels for nutrients and solids in the final effluent from treatment works.	No						Do customer support it and Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Catchment Wide	PO4 - Hydraulic Drivers	LYND.RC04.1	Flood Mitigation for Flooding	Flooding mitigation to consider options (but not limited to); Non-return Values, Smart Airbricks, Flood Doors.	Yes	No					Operational
Study/ investigation to gather more data	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers PO11 - Nutrient Neutrality	LYND.OT01.1	Improve Hydraulic Model	Study / Investigation: Build and verify the Lyndhurst Hydraulic Model to improve model confidence.	Yes	Yes	Yes	Minor Positive +	£325K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO4, PO5, & PO7 - Hydraulic Drivers PO11 - Nutrient Neutrality	LYND.OT01.2	Further Study/Investigation	Futher Study/Investigation - Identifying what effect transferring the flows out of the catchment, to a larger treatment works, would have on the sensitive waterways they discharge into - options LYND.	No						Cost Effective, Do customer support it and Risk and uncertainty - future resilience
Study/ investigation to gather more data	New Forest Solent and Dorset Coast Solent & Southampton Water	PO11 - Nutrient Neutrality	LYND.OT01.3	Nutrient Budget	Study / Investigation: Develop a nutrient budget and investigate the risks and sources impacting these named Habitat sites In order to take forward any unconstrained option - LYND.	Yes	Yes	Yes	Minor Positive +	£75K	Yes	Best Value
Study/ investigation to gather more data	High Spilling CSOs - Lyndhurst WTW	PO5 - High Spilling CSOs	LYND.OT01.4	Further Study/Investigation	Surface water separation to reduce spills from Lyndhurst WTW storm overflow (average cost assumed to reduce CSO spills to Band 0) Study to identify storage volumes needed to prevent the high spilling CSO discharge in the catchment should suitable areas for surface water seperation not be found/available.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value