Design Risk Assessment for Water Infrastructure Standard Details

Connections and Developer Services

Construction Requirements for Self-Lay Developments
July 2020 (Revision v4.02)

Document IW-CDS-5020-02

UISCE ÉIREANN : IRISH WATER

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Background

Technical Documentation has been developed by Irish Water's Connection and Developer Services which outlines the requirements for water services infrastructure within developments.

Standard details have been developed to outline Irish water's requirements to developers in the provision of water infrastructure that is to be installed in developments, and that would be connected to Irish Water's networks and subsequently vested in Irish Water.

The aim is to provide details to Developers for water infrastructure, which will outline design and construction requirements to ensure consistency in the provision of materials, equipment and workmanship, etc. The standard details will also provide the basis for developers' detailed design proposals for water infrastructure, leading to the provision of infrastructure that is suitable for connection to Irish Water's networks and easy operation and maintenance of the new infrastructure.

The Standard Details are based on best practice within the water industry. They take account of the experience of Local Authorities in the provision of these services to new developments. They have been successfully used by Irish Water's own internal functions for a variety of projects and they are in line with water utility industry norms.

There are 57 No Standard Details dealing with water infrastructure covering all aspects of such infrastructure. The standard details for water infrastructure are contained in Document Number IW-CDS-5020-01.

Design Risk Assessments (DRA) have been prepared to outline the residual health and safety responsibilities of developers and their designers/contractors in the provision of infrastructure in accordance with the standard details and these are included in Document No IW-CDS-5020-02. The residual risks outlined herein shall be taken into account in the detailed design of water infrastructure.

Design Risk Assessment for Water Standard Details

The Standard Details show the acceptable typical details and outline the minimum standards that are required by Irish Water for the provision of water pipes and related infrastructure which are to be connected to the Irish Water Network. The Standard Details shall be used in conjunction with the Design Risk Assessment that has been developed which identifies the risks that designers shall take into account in the detailed design of the water pipes and related infrastructure to be connected to the Irish Water Network. The pipes and related infrastructure to be put in place within developments shall comply fully with these Standard Details. Ultimate responsibility (including, but not limited to, any losses, costs, demands, damages, actions, expenses, negligence and claims) for the detailed design, construction and provision of such pipes and related infrastructure shall rest entirely with the Developer, his/her Designer(s), Contractor(s) or other connected party. Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties in relation to the pipes and related infrastructure to be provided in accordance with these Standard Details.

This Design Risk Assessment shall apply to the following Drawings:

Detail No.	Detail Title	Rev.
STD-W-01	Water service connection responsibility	1
STD-W-02	Typical layout for watermains within developments	2
STD-W-03	Customer connection and boundary box (25mm OD pipe)	4
STD-W-04	General pipe connections (Sheet 1 of 7)	4
STD-W-05	General pipe connections (Sheet 2 of 7)	3
STD-W-06	General pipe connections (Sheet 3 of 7)	3
STD-W-07	General pipe connections (Sheet 4 of 7)	2
STD-W-08	General pipe connections (Sheet 5 of 7)	2
STD-W-09	General pipe connections (Sheet 6 of 7)	2
STD-W-10	General pipe connections (Sheet 7 of 7)	2
STD-W-11	Typical service layout indicating separation distances	2
STD-W-12	Restrictions on Water Infrastructure works adjacent to existing trees	2
STD-W-12A	Restrictions on new trees / shrubs planting adjacent to Water mains	0
STD-W-13	Trench Backfill / bedding & reduced cover protection slab detail	2
STD-W-14	Sluice valve for ductile iron (D.I.) pipe (<350mm dia.) (Sheet 1 of 2)	4
STD-W-15	Sluice valve for polyethylene (P.E.) pipe (<350mm dia.) (Sheet 2 of 2)	3
STD-W-16	On-line hydrant for ductile iron (D.I.) pipe (Sheet 1 of 4)	3
STD-W-17	Off-line hydrant for ductile iron (D.I.) pipe (Sheet 2 of 4)	4
STD-W-18	On-line hydrant for polyethylene (P.E.) pipe (Sheet 3 of 4)	3
STD-W-19	Off-line hydrant for polyethylene (P.E.) pipe (Sheet 4 of 4)	4
STD-W-20	On-line air valve for ductile iron (D.I.) pipe (Sheet 1 of 4)	3
STD-W-21	Off-line air valve for ductile iron (D.I.) pipe (Sheet 2 of 4)	4
STD-W-22	On-line air valve for polyethylene (P.E.) pipe (Sheet 3 of 4)	3
STD-W-23	Off-line air valve for polyethylene (P.E.) pipe (Sheet 4 of 4)	4
STD-W-24	Pressure reducing / sustaining valve chamber in-situ R.C. option	3
STD-W-25	Booster pump station arrangement	2
STD-W-26	Electromagnetic meter chamber (dn80 - dn250mm Dia.)	4
STD-W-26A	Chamber for flanged mech. meter without strainer (dn40 - dn250mm Dia.)	1
STD-W-26B	Chamber for flanged mech. meter (dn100 - dn250mm Dia.) with separate strainer chamber	0
STD-W-26C	Threaded rotary piston flow meter chamber (dn30 - dn40mm Dia.) In-situ Concrete Option	0
STD-W-26D	Threaded rotary piston flow meter chamber (dn30 - dn40mm Dia.) Precast Concrete Option	0
STD-W-26E	Threaded rotary piston flow meter chamber (dn30 - dn40mm Dia.) Blockwork Option	0
STD-W-26F	By-pass flow meter chamber (25-32mm O.D. Dia) For developments with <20m3/day water use	0
STD-W-26G	Flow meter chamber (25-32mm O.D. Dia.)	0
STD-W-27	Marker posts / plates	3
STD-W-28	Water main thrust and support blocks	1
STD-W-29	Duct chamber	3
STD-W-30	Scour chamber and head wall arrangements	4
STD-W-30A	Washout hydrant	3
STD-W-30B	Scour chamber to storm sewer arrangements	0
STD-W-31	Typical ditch / stream crossing for watermain ductile iron option	2
STD-W-31A	Typical ditch / stream crossing for watermain polyethylene option	0
STD-W-32	Typical bridge crossing for watermain (Sheet 1 of 2)	1
STD-W-33	Typical bridge crossing for watermain (Sheet 2 of 2)	2
STD-W-33A	Typical culvert and services crossing details for water main	0
STD-W-34	Security gate and fencing palisade option (preferred)	0
STD-W-34A	Security gate and fencing wire mesh option	3
STD-W-35	Pipe repair to existing mains	2
STD-W-36	Flow meter kiosk	3
STD-W-36A	PRV / PSV control kiosk	0
STD-W-37	Lamp bollard and lamp standard	2
STD-W-38	Watermain loop detail ductile iron option	0
STD-W-39	Watermain loop detail polyethylene option	0
STD-W-40	Section showing water services separation details in high density developments 2.5m wide footpaths with 6.0m wide carriageway	0
STD-W-41	Layout plan showing below ground services separation details in high density developments 2.5m wide footpaths with 6.0m wide	0
STD-W-42	Section showing water services separation details in high density developments 1.8m wide footpaths, 2.5m wide parallel parking bays with 6.0m wide	0
STD-W-43	Layout plan showing below ground services separation details in high density developments 1.8m wide footpaths, 2.5m wide parallel parking bays with 6.0m wide	0

Revision History

Revision	Reason for Revision	Approved By	Issue Date
v1.01	Minor amendments	T. O'Connor	17/07/2015
v2.01	Format Amended	T. O'Connor	06/04/2016
v3.01	General Amendments	T. O'Connor	11/08/2016
v4.01	General Amendments	T. O'Connor	01/12/2017
v4.02	General Amendments	T. O'Connor	17/07/2020

Design Risk Assessment
Water Standard Details
Revision: v4.02

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout of Watermains within Developments	**STD-W-02**	The construction of watermains within developments	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout of Watermains within Developments (continued)	**STD-W-02 (continued)**	The construction of watermains within developments (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Moving Traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plans to be developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		
			Inadequate layout of water infrastructure	Construction Personnel / IW Operations / General Public	Three way valve arrangement to be provided at all junctions. Valves to be positioned in such manner to allow the network to be managed to ensure that no more than 40 properties lose water from a burst on the system at any one time.	Minor	
					No domestic property shall be more than 46m from a hydrant. Hydrant details and locations shall be subject to the agreement of the relevant local authority fire department.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout of Watermains within Developments (continued)	**STD-W-02 (continued)**	The construction of watermains within developments (continued)	Fire flows being unavailable	General Public	The Developer is to liaise with the fire services authority in order to ensure fire flows are available throughout the development. Hydrant details and locations shall be subject to the agreement of the relevant local authority fire department. Should it not be possible to provide fire flows throughout the new development, on-site fire storage may be required.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
Developer Connection and Boundary Box	**STD-W-03**	The construction and operation of a typical Developer connection and boundary box.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 750mm + Pipe DIA. + 200mm = 950mm + Pipe DIA.). Depth of trenches may be greater than 950mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 750mm + Pipe DIA. + 200mm = 950mm + Pipe DIA.). Depth of trenches may be greater than 950mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	Irish Water Connection and Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connection and Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level. Particular Health and Safety attention to be applied to working with asbestoc cement materials.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 750mm + Pipe DIA. + 200mm = 950mm + Pipe DIA.). Depth of trenches may be greater than 950mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Developer Connection and Boundary Box (continued)	**STD-W-03 (continued)**	The construction and operation of a typical Developer connection and boundary box. (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 750mm + Pipe DIA. + 200mm = 950mm + Pipe DIA.). Depth of trenches may be greater than 950mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Minor	
			Defective pipework	Construction Personnel / IW Operations / General Public	Service pipe to be installed with sufficient slack at the connection points from the saddle and to / from the meter box.	Minor	
					Anti-corrosion tape to be provided around all buried flanges.		
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Developer Connection and Boundary Box (continued)	**STD-W-03 (continued)**	The construction and operation of a typical Developer connection and boundary box (continued)	Confined spaces.	Construction Personnel / IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.	Significant	
			Damage to service pipes	Construction Personnel / IW Operations / General Public	Backfill and bedding materials to be as per STD-W-13.	Minor	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for outlining a method of backfilling, compacting and reinstating trenches.		
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
General Pipe Connection (Sheets 1 to 7), Pipe Repair to Existing Mains	**STD-W-04, STD-W-05, STD-W-06, STD-W-07, STD-W-08, STD-W-09, STD-W-10, STD-W-35**	General pipe connections and repairs to existing mains.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
General Pipe Connection (Sheets 1 to 7), Pipe Repair to Existing Mains (continued)	**STD-W-04, STD-W-05, STD-W-06, STD-W-07, STD-W-08, STD-W-09, STD-W-10, STD-W-35 (continued)**	General pipe connections and repairs to existing mains. (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical. The implementation of minimum trench widths as set out in STD-W-13. Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.	Significant	Irish Water operations and procedures to be adhered to for confined space entry. Particular Health and Safety attention to be applied to working with asbestoc cement materials.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.	Significant	
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical. Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
General Pipe Connection (Sheets 1 to 7), Pipe Repair to Existing Mains (continued)	**STD-W-04, STD-W-05, STD-W-06, STD-W-07, STD-W-08, STD-W-09, STD-W-10, STD-W-35 (continued)**	General pipe connections and repairs to existing mains. (continued)	Assembly or dismantling of heavy prefabricated components	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective pipework	Construction Personnel / IW Operations / General Public	Anti-corrosion tape to be provided around all buried flanges. Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves. The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.	Minor	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Minor	
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Confined spaces.	Construction Personnel / IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.	Significant	
			Working adjacent to pressurised fluid systems	Construction Personnel / IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for working adjacent to pressurised fluid systems.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Service Layout Indicating Separation Distances AND High Density Connection Details	**STD-W-11, STD-W-40, STD-W-41, STD-W-42, STD-W-43(continued)**	Construction, operation and maintenance of services in new developments (continued)	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	The implementation of minimum separation distances from which proposed watermains can be installed adjacent to existing services.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum separation distances from which proposed services can be installed adjacent to existing watermains.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					The requesting of the Developer to give notification to Irish Water should excavation works be within a specified distance of an existing watermain.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Collapse of existing structures	Construction Personnel / IW Operations / General Public	The implementation of minimum distances watermains shall be installed with respect of existing and proposed buildings	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Restriction on Tree / Shrub planting adjacent to Watermains	**STD-W-12, STD-W-12A**	Design, construction, operation and maintenance of watermains	Damage to watermains due to tree roots.	Construction Personnel / IW Operations / General Public	New trees to be located a distances away from watermain service pipes as set out in STD-W-12. The design of landscaping shall be undertaken in conjunction with the design of watermains so that the impact of tree root on pipework can be considered. A watermain shall not be located closer to the tree/shrub/bush than indicated except where special protection measures are provided. Where there is a risk of tree/shrub/bush root intrusion, the pipework shall be made resistant to root ingress (e.g. by the use of appropriate barriers, high performance joints or by the use of polyethylene pipe with welded joints). A tree shall not be place directly over a watermain where excavation of the pipe would require the removal of the tree. Only shallow rooting shrubs shall be planted close to watermains.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP. Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate. Irish Water Connections & Developer Services Team will undertake site inspections during the installation. Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure. The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
Trench Backfill and Bedding and reduced cover protection slab detail	**STD-W-13**	Trench reinstatement including excavation, pipelaying and placing of bedding and backfill material	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Trench Backfill and Bedding and reduced cover protection slab detail(continued)	**STD-W-13 (continued)**	Trench reinstatement including excavation, pipelaying and placing of bedding and backfill material (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Trench Backfill and Bedding and reduced cover protection slab detail (continued)	**STD-W-13 (continued)**	Trench reinstatement including excavation, pipelaying and placing of bedding and backfill material (continued)	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Settlement of the reinstated trenches	Construction Personnel / IW Operations / General Public	Trench to be reinstated using materials and workmanship as specified in STD-W-13.	Minor	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for outlining a method of backfilling, compacting and reinstating trenches.		
Sluice Valve for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (<350mm dia.)	**STD-W-14, STD-W-15 (and STD-W-30A if a sluice valve is provided for the Washout Hydrant), STD-W-38, STD-W-39**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (<350mm dia.) (continued)	**STD-W-14, STD-W-15 (and STD-W-30A if a sluice valve is provided for the Washout Hydrant) STD-W-38, STD-W-39 (continued),**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operational procedures and protocols to include for direction of valve closure.
					The implementation of minimum trench widths as set out in STD-W-13.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works. Particular Health and Safety attention to be applied to working with asbestoc cement materials.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (<350mm dia.) (continued)	**STD-W-14, STD-W-15 (and STD-W-30A if a sluice valve is provided for the Washout Hydrant) STD-W-38, STD-W-39 (continued),**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Collapse of valve chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from pre-cast concrete units with a wall thickness of 100mm. Alternatively chambers may be constructed from 20N/mm2 concrete blockwork in accordance with IS EN 771-3. Proprietary pre-fabricated chamber units may be used subject to Irish Water agreement.	Minor	
					Chambers shall have a C30/37 concrete roof slab with a 150mm thickness.		
					Precast chamber units, blockwork or proprietary pre fabricated chamber units shall sit on a 100mm thick C25/30 concrete base. The concrete base shall be located a minimum of 150mm above the external crown of the pipework and shall not come into contact with the valve.		
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester resin mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		
					Chambers shall be surrounded by a minimum of 150mm compacted clause 804 material.		
			Collapse of chamber covers	Construction Personnel / IW Operations / General Public	Surface boxes to be in accordance with IS 261 and/or BS 5834	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Identification of infrastructure	Construction Personnel / IW Operations / General Public	Surface boxes to be marked with 75mm high lettering "SV". Marker post to be installed as per STD-W-27.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (<350mm dia.) (continued)	**STD-W-14, STD-W-15 (and STD-W-30A if a sluice valve is provided for the Washout Hydrant) STD-W-38, STD-W-39 (continued),**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Defective valves / pipework	Construction Personnel / IW Operations / General Public	All sluice valves on watermains specified to be anti-clockwise closing.	Minor	
					Anti-corrosion tape to be provided around all buried flanges.		
					Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves.		
					Details of a concrete support block provided in the Standard Detail.		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		
			Access to chambers	Construction Personnel / IW Operations	Surface box with 445x280mm clear ope with spindle centered directly underneath the ope.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Hydrant for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe	**STD-W-16, STD-W-17, STD-W-18, STD-W-19 and STD-W-30A, STD-W-38, STD-W-39**	The construction and operation of hydrants and chambers on Ductile Iron and Polyethylene watermains <350mm diameter.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Burial under earthfalls (continued)	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operational procedures and protocols to include for direction of valve closure.
					The implementation of minimum trench widths as set out in STD-W-13.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Hydrant for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-16, STD-W-17, STD-W-18, STD-W-19 and STD-W-30A, STD-W-38, STD-W-39 (continued)**	The construction and operation of hydrants and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		Particular Health and Safety attention to be applied to working with asbestoc cement materials.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Hydrant for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-16, STD-W-17, STD-W-18, STD-W-19 and STD-W-30A, STD-W-38, STD-W-39 (continued)**	The construction and operation of hydrants and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Collapse of valve chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from pre-cast concrete units with a wall thickness of 100mm. Alternatively chambers may be constructed from 20N/mm2 concrete blockwork in accordance with IS EN 771-3. Proprietary pre-fabricated chamber units may be used subject to Irish Water agreement.	Minor	
					Chambers shall have a C30/37 concrete roof slab with a 150mm thickness.		
					Precast chamber units, blockwork or proprietary pre fabricated chamber units shall sit on a 100mm thick C25/30 concrete base. The concrete base shall be located a minimum of 150mm above the external crown of the pipework and shall not come into contact with the valve.		
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester resin mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		
					Chambers shall be surrounded by a minimum of 150mm compacted clause 804 material.		
			Collapse of chamber covers	Construction Personnel / IW Operations / General Public	Surface boxes to be in accordance with IS 261 and/or BS 5834	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Identification of infrastructure	Construction Personnel / IW	Surface boxes to be marked with 75mm high lettering "H" and "WO". Marker post to be installed as per STD-W-27.	Minor	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	All hydrants on watermains specified to be "Guide to Head" type with screw down connection outlet and clockwise closing.	Minor	
					Anti-corrosion tape to be provided around all buried flanges.		
					Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves.		
					The maximum depth to the outlet shall be 350mm from the finished road surface.		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Hydrant for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-16, STD-W-17, STD-W-18, STD-W-19 and STD-W-30A, STD-W-38, STD-W-39 (continued)**	The construction and operation of hydrants and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Access to chambers	Construction Personnel / IW Operations	Surface box with 445x280mm clear ope with spindle centered directly underneath the ope.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
On-line & Off-line Air Valves for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe	**STD-W-20, STD-W-21, STD-W-22, STD-W-23**	The design, construction and operation of air valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Air Valves for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-20, STD-W-21, STD-W-22, STD-W-23 (continued)**	The design, construction and operation of air valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Engulfment in swampland. (continued)	Construction Personnel	The implementation of minimum trench widths as set out in STD-W-13.		Particular Health and Safety attention to be applied to working with asbestoc cement materials.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Collapse of valve chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from pre-cast concrete units with a wall thickness of 100mm. Alternatively chambers may be constructed from 20N/mm2 concrete blockwork in accordance with IS EN 771-3. Proprietary pre-fabricated chamber units may be used subject to Irish Water agreement.	Minor	Designer to take account of health and safety in selection, designing, installing chamber covers and frames to address manual handling, access egress, rescue, etc.
					Precast chamber units, blockwork or proprietary pre fabricated chamber units shall sit on a 100mm thick C25/30 concrete base. The concrete base shall be located a minimum of 150mm above the external crown of the pipework and shall not come into contact with the valve.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Air Valves for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-20, STD-W-21, STD-W-22, STD-W-23 (continued)**	The design, construction and operation of air valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Collapse of valve chambers due to inadequate design and materials (continued)	Construction Personnel / IW Operations / General Public	1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester resin mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.	Minor	
					Chambers shall be surrounded by a minimum of 150mm compacted clause 804 material.		
			Collapse of chamber covers	Construction Personnel / IW Operations / General Public	Air valve chambers shall be covered with an approved ventilated heavy duty metal cover in accordance with IS EN 124.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Identification of infrastructure	Construction Personnel / IW Operations / General Public	Surface boxes to be marked with 75mm high lettering "AV". Marker post to be installed as per STD-W-27.	Minor	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Service connections shall not be located within 2m of an air valve location.	Minor	
					The location of the air valve shall be subject to particular agreement with Irish Water to ensure the risk of contamination through the valve is eliminated.		
					Air valves to be sized depending on the diameter of the watermain. Guideline air valve vs. main diameter sizes are provided.		
					Anti-corrosion tape to be provided around all buried flanges.		
					Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves.		
					The maximum depth to the outlet shall be 250mm from the finished road surface.		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
On-line & Off-line Air Valves for Ductile Iron (D.I) & Polyethylene (P.E.) Pipe (continued)	**STD-W-20, STD-W-21, STD-W-22, STD-W-23 (continued)**	The design, construction and operation of air valves and chambers on Ductile Iron and Polyethylene watermains <350mm diameter (continued)	Access to chambers	Construction Personnel / IW Operations	Surface box with 600x600mm clear ope.	Minor	
					Air valve chambers shall be covered with an approved ventilated heavy duty metal cover in accordance with IS EN 124.		
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
Pressure Reducing / Sustaining Valve Chamber and Meter Chamber	**STD-W-24, STD-W-26, STD-W-26A, STD-W-26B, STD-W-26C, STD-W-26D, STD-W-26E, STD-W-26F, STD-W-26G**	The construction and operation of PRV/PSV, Meters and associated chambers on Ductile Iron and Polyethylene watermains <350mm diameter.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 900mm + Pipe DIA. + 300mm + 500mm +75mm = 1775mm + Pipe DIA.). Depth of trenches may be greater than 1775mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 900mm + Pipe DIA. + 300mm + 500mm +75mm = 1775mm + Pipe DIA.). Depth of trenches may be greater than 1775mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Pressure Reducing / Sustaining Valve Chamber and Meter Chamber (continued)	**STD-W-24, STD-W-26, STD-W-26A, STD-W-26B, STD-W-26C, STD-W-26D, STD-W-26E, STD-W-26F, STD-W-26G (continued)**	The construction and operation of PRV/PSV, Meters and associated chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 900mm + Pipe DIA. + 300mm + 500mm +75mm = 1775mm + Pipe DIA.). Depth of trenches may be greater than 1775mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-W-13.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	Designer to take account of health and safety in selection, designing, installing chamber covers and frames to address manual handling, access egress, rescue, etc.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning.	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 900mm + Pipe DIA. + 300mm + 500mm +75mm = 1775mm + Pipe DIA.). Depth of trenches may be greater than 1775mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Chamber to be constructed with a sump.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Pressure Reducing / Sustaining Valve Chamber and Meter Chamber (continued)	**STD-W-24, STD-W-26, STD-W-26A-G, (continued)**	The construction and operation of PRV/PSV, Meters and associated chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse. Particular Health and Safety attention to be applied to working with asbestoc cement materials.
			Access to and egress from chambers	Construction Personnel / IW Operations / General Public	Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment and arranged to ensure rescue procedures are not impeded.	Significant	
					Access covers shall be a minimum of 900mm (meter chamber) and		
					Cover slabs to be constructed cast-in recessed lifting eyes in order to allow for cover slab removal to facilitate maintenance works within the chamber.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.		
			Confined spaces.	Construction Personnel / IW Operations	All chamber entry to be carried out using tri-pod and winch, no ladders to be installed in chambers that require man entry.	Significant	
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry. Step irons to be provided to allow safe self egress from the chambers.		
					Access covers shall be a minimum of 900mm (meter chamber) and 2000x900mm (PRV / PSV chamber) in order to provide standing room within the chamber.		
					Cover slabs to be constructed cast-in recessed lifting eyes in order to allow for cover slab removal to facilitate maintenance works within the chamber.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.		
			Collapse of chambers due to inadequate design and materials.	General Public	Chambers to be constructed from C30/37 in-situ concrete. Alternatively pre-cast chambers may be used subject to the agreement of Irish Water.	Minor	
					Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.		
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester resin mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Pressure Reducing / Sustaining Valve Chamber and Meter Chamber (continued)	**STD-W-24, STD-W-26, STD-W-26A, STD-W-26B, STD-W-26C, STD-W-26D, STD-W-26E, STD-W-26F, STD-W-26G (continued)**	The construction and operation of PRV/PSV, Meters and associated chambers on Ductile Iron and Polyethylene watermains <350mm diameter. (continued)	Collapse of access covers	General Public	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124. Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.	Minor	
			Identification of infrastructure	Construction Personnel / IW Operations / General Public	Surface boxes to be marked with 75mm high lettering "PRV / PSV". Marker post to be installed as per STD-W-27.	Minor	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Strainer to be provided directly upstream of the PRV and also upstream of meter if required. Anti-corrosion tape to be provided around all buried flanges. Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves. The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.	Minor	
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed. Where possible the PRV and meter chambers shall be located on a bypass arrangement located off the road.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Booster Pump Station Arrangement	**STD-W-25**	The construction and maintenance of a typical Booster Pump Station	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Electrocution due to contact with high voltage power lines.	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
			Electrocution due to water coming into contact with electrical	Construction Personnel / IW Operations / General Public	Provision for the installation of both wet and telemetry kiosks as per STD-W-36	Minor	Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					All electrical installation to have an IP rating of IP 55		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Boosted supply failure	General Public	Provide for a duty standby pump arrangement	Minor	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Details of the proposed booster station arrangement shall be provided to Irish Water at Connection Application Stage and at the Detailed Design Stage		
					Booster Station kiosk shall be constructed from hot dipped thermostetting UV and weather resistant plastic powder coated galvanised mild steel plate (min. 3mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. Stainless Steel may be used as an alternative Kiosk material. Particularly in sevsre environments, subject to agreement with Irish WaterThe kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel).		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Marker Post / Plates	**STD-W-27**	The construction of marker posts and plates.	Electrocution due to contact with high voltage power lines.	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Mis-information	Construction Personnel / IW Operations / General Public	Marker plates shall inform of valve type, location and diameter of the watermain (Note: pipe diameter on hydrant plate to refer to the watermain not the branch).	Minor	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					Marker plates to be manufactured in accordance with BS 3251		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Moving Traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Where possible marker plates are to be fixed to adjacent walls.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Watermain Thrust and Support Blocks	**STD-W-28**	Failure of pipes due to inadequate support at bends, etc..	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		Particular Health and Safety attention to be applied to working with asbestoc cement materials.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Watermain Thrust and Support Blocks (continued)	**STD-W-28 (continued)**	Failure of pipes due to inadequate support at bends, etc.. (continued)	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Inadequate thrust and support blocks	Construction Personnel / IW Operations /	Thrust blocks shall bear on undisturbed soils. If for any reason this cannot be achieved then the Developer shall notify Irish Water immediately with a proposed solution.	Significant	
					Thrust blocks are designed for an average bearing pressure of 100KN/m (Typical for soft clay) for other conditions actual dimensions may be altered on instructions from Irish Water.		
					Concrete in thrust blocks to be of grade C25/30 in accordance with IS EN 206.		
					Compressible filler for concrete protection to be in accordance with BS EN 622-1 and BS EN 622-4. The thickness of compressible filler for watermains ≤ 450mm shall be 18mm.		
					Bituminous material shall not be put in contact with plastic pipes. Polyethylene pipes shall be wrapped in plastic sheeting in accordance with BS 6076 before being cast in concrete.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Watermain Thrust and Support Blocks (continued)	**STD-W-28 (continued)**	Failure of pipes due to inadequate support at bends, etc.. (continued)			For test pressures ≥ 18 bar thrust block design is to be submitted to Irish Water for agreement.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		
Duct Chamber	**STD-W-29**	The construction and operation of duct chambers	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-29.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber (continued)	**STD-W-29 (continued)**	The construction and operation of duct chambers (continued)			The implementation of minimum trench widths as set out in STD-W-19.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works. Designer to take account of health and safety in selection, designing, installing manhole covers and frames to address manual handling, access egress, rescue, etc.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber (continued)	**STD-W-29 (continued)**	The construction and operation of duct chambers (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing duct chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse.
					Chamber to be constructed with a 75mm PVC drain to the nearest surface water outlet fitted with a non-return valve.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective ducting	Construction Personnel / IW Operations	Cables to be installed with approved marker tape 200mm above the crown of the ducts.	Minor	
					Cable ducts to be in accordance with BS 4460 and BS EN 1401. Electrical ducting to be in accordance with ESB specification.		
					Long radius bends may be used for changes in direction of up to 45°. Duct chambers shall be provided for all changes in direction of greater than 45°.		
					Duct chambers shall be provided at a maximum of 50m intervals.		
					Cable ducting to be installed with draw chords / ropes.		
					Cable duct / chamber interfaces shall be sealed in order to prevent the ingress of ground water.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber (continued)	**STD-W-29 (continued)**		Access to and egress from chambers	IW Operations / Construction Personnel	Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment and arranged to ensure rescue procedures are not impeded.	Significant	
					Ensure that the opening is adequately sized to provide sufficient standing room in the chamber. Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.		
		The construction and operation of duct chambers (continued)	Confined spaces.	IW Operations / Construction Personnel	Ensure that the opening is adequately sized to provide sufficient standing room in the chamber. All chamber entry to be carried out using safe access plan with suitable access equipment, tri-pod and winch, no ladders or step irons to be installed in chambers that require man entry.		
					Entry procedure to duct chambers to be assessed depending on depth. Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase and operation phase.		
			Collapse of chambers due to inadequate design and materials.	General Public	Chambers to be constructed from C30/37 in-situ concrete. Alternatively pre-cast chambers may be used subject to the agreement of Irish Water.	Minor	
					Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.		
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		
			Collapse of access covers	General Public	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Chamber and Headwall Arrangements, Scour Chamber to Storm Sewer Arrangements	**STD-W-30, STD-W-30B**	The construction and operation of scour and outfall structures	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 900mm + Pipe DIA. + 150mm + 500mm +75mm = 1625mm + Pipe DIA.). Depth of trenches may be greater than 1625mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Hand railing may be required at the outfall structure subject to Developers Design Risk Assessment.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 150mm + 500mm +75mm = 1625mm + Pipe DIA.). Depth of trenches may be greater than 1625mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					The implementation of minimum trench widths as set out in STD-W-13.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 150mm + 500mm +75mm = 1625mm + Pipe DIA.). Depth of trenches may be greater than 1625mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-W-13.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Chamber and Headwall Arrangements, Scour Chamber to Storm Sewer Arrangements(continued)	**STD-W-30, STD-W-30B (continued)**	The construction and operation of scour and outfall structures (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Designer to take account of health and safety in selection, designing, installing manhole covers and frames to address manual handling, access egress, rescue, etc.
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 150mm + 500mm +75mm = 1625mm + Pipe DIA.). Depth of trenches may be greater than 1625mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Chamber to be constructed with sump.		
					Hand railing may be required at the outfall structure subject to Developers Design Risk Assessment.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Identification of infrastructure	Construction Personnel / IW Operations / General Public	Surface boxes to be marked with 75mm high lettering "ScV". Marker post to be installed as per STD-W-27. (Note: Refer to drawing STD-W-14 for the Designers Risk Assessment regarding the valve chamber construction).	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Chamber and Headwall Arrangements, Scour Chamber to Storm Sewer Arrangements (continued)	**STD-W-30, STD-W-30B (continued)**	The construction and operation of scour and outfall structures (continued)	Access to and egress from chambers	IW Operations / Construction Personnel	Man entry may be required to carry out maintenance of the chamber and pipework. Access for maintenance purposes to the scour chamber shall be via a 675x675mm square or 675mm diameter clear ope. Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.	Significant	The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing the scour chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse. Particular Health and Safety attention to be applied to working with asbestoc cement materials.
			Confined spaces.	Construction Personnel / IW Operations	Man entry access shall not be required to the scour chamber. The spindle for the scour valve shall be extended to the surface and a separate ope shall be located above the spindle to allow the scour valve be operated without entering the chamber. The scour chamber is to be emptied by vacuum tanker. All chamber entry to be carried out using tri-pod and winch, step irons installed in chambers that require man entry to allow easy self egress. Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry. Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.	Significant	
			Collapse of chambers and outfall structure due to inadequate design and materials.	General Public	Scour chambers and headwalls shall be constructed from prefabricated concrete components. Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review. Chambers and headwall to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement. 1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester resin mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Chamber and Headwall Arrangements, Scour Chamber to Storm Sewer Arrangements(continued)	**STD-W-30, STD-W-30B (continued)**	The construction and operation of scour and outfall structures (continued)	Collapse of access covers	General Public	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	The outfall pipe is to be fitted with a non return valve.	Minor	
					Anti-corrosion tape to be provided around all buried flanges.		
					Dismantling joints to be used in order to provide sufficient tolerance to facilitate the replacement of defective valves.		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
			Moving traffic	IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The final design shall be subject to the agreement of Irish Water and the relevant Regulatory Authorities	Significant	
					Intermediate chamber shown to allow for de-chlorination of the scoured water.		
					The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for a Water Main, (D.I.) Typical Ditch / Stream Crossing for a Water Main, (P.E.)	**STD-W-31, STD-W-31A**	The construction and operation of a ditch / stream crossing for watermains.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-W-13.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for a Water Main, (D.I.) Typical Ditch / Stream Crossing for a Water Main, (P.E.) (continued)	**STD-W-31, STD-W-31A (continued)**	The construction and operation of a ditch / stream crossing for watermains (continued)	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricatedcomponents.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Air valves to be installed at each side of the crossing. (Note: Refer to drawing STD-W-16, 17, 18 & 19 for the Designers Risk Assessment regarding the air valve chamber construction).	Minor	
					A scour valve, chamber and head wall to be installed. (Note: Refer to drawing STD-W-30 for the Designers Risk Assessment regarding the scour valve chamber and head wall construction).		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
					Pipework at the crossing point shall be polyethylene joined using butt fusion welding, shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					The developer shall seek advice from Irish Water as to whether a duplicate main is to be provided through the river/ditch crossing. If necessary the Developer shall submit a design to Irish Water for agreement.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for a Water Main, (D.I.) Typical Ditch / Stream Crossing for a Water Main, (P.E.) (continued)	**W-31, STD-W-31A (contin**	The construction and operation of a ditch / stream crossing for watermains (continued)	Pollution to the environment	Construction Personnel / IW Operations / General Public	The reinstatement and the backfill requirements of the ditch / stream bed and bank shall be subject to Irish Water agreement.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.	Significant	
Typical Bridge Crossing for a Watermain	**STD-W-32**	The construction and operation of a bridge crossing for watermains.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge Crossing for a Watermain (continued)	**STD-W-32 (continued)**	The construction and operation of a bridge crossing for watermains. (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge Crossing for a Watermain (continued)	**STD-W-32 (continued)**	The construction and operation of a bridge crossing for watermains. (continued)	Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	A single air valve to be installed at the highest point of the crossing. The air valve is to be located in a kiosk off the footpath so as not to impede pedestrians.	Minor	
					Pipework to the air valve shall be via a 32mm O.D. polyethylene pipe. The pipe shall be connected to the main via a 35mm saddle. (Note: Refer to drawing STD-W-03 for the Designers Risk Assessment regarding the connection).		
					The kiosk shall be constructed from hot dipped galvanised mild steel plate (min. 4mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. The kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel).		
					Exposed pipework within the kiosk to be insulated with pipe lagging.		
					A scour valve, chamber and head wall to be installed. (Note: Refer to drawing STD-W-30 for the Designers Risk Assessment regarding the scour valve chamber and head wall construction).		
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
					Pipework at the crossing point shall be polyethylene joined using butt fusion welding, shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					Pipework at the crossing point shall be ductile iron and shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					The Developer shall seek advice from Irish Water as to whether a duplicate main is to be provided through the bridge crossing. If necessary the Developer shall submit a design to Irish Water for agreement.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge Crossing for a Watermain, Typical Culvert and Services Crossing for a Watermain	**STD-W-33, STD-W-33A**	The construction and operation of a bridge crossing for watermains.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA. Pipes are to be installed to minimum cover where	Significant	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-W-13.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-W-13.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge Crossing for a Watermain, Typical Culvert and Services Crossing for a Watermain (continued)	**STD-W-33, STD-W-33A (continued)**	The construction and operation of a bridge crossing for watermains (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 900mm + Pipe DIA. + 200mm = 1100mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1100mm + Pipe DIA. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Air valves to be installed at each side of the crossing. (Note: Refer to drawing STD-W-16, 17, 18 & 19 for the Designers Risk Assessment regarding the air valve chamber construction).	Minor	
			Defective valves / pipework (continued)	Construction Personnel / IW Operations / General Public	A scour valve, chamber and head wall to be installed. (Note: Refer to drawing STD-W-30 for the Designers Risk Assessment regarding the scour valve chamber and head wall construction).	Minor	
					The Standard Detail refers the Developer to STD-W-28 which, details thrust block arrangements to be implemented.		
					Pipework at the crossing point shall be polyethylene joined using butt fusion welding, shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					The Developer shall seek advice from Irish Water as to whether a duplicate main is to be provided through the bridge crossing. If necessary the Developer shall submit a design to Irish Water for agreement.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Security Gate and Fence	**STD-W-34, STD-W-34A**	The construction of the security gate and fencing	Falling from height.	Construction Personnel / IW Operations	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Minor	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements.	Significant	
			Level of security provided by the installed security gate and fencing	Construction Personnel / IW Operations / General Public	Concrete sill to be provided underneath the security gate in order provide for security against burrowing underneath the fence.	Minor	
					Fence / Gate design and details to be provided to Irish Water for Review / vetting prior to manufacture.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Flow Meter Kiosk & PRV / PSV Control Kiosk	**STD-W-36, STD-W-36A**	The construction and maintenance of telemetry and wet kiosks	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	All electrical and wet installations to be housed in separate kiosks.	Significant	Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Electrocution due to water coming into contact with electrical equipment	Construction Personnel / IW Operations / General Public	Provision for the installation of both wet and telemetry kiosks as per STD-W-36	Minor	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					All electrical installations to be in accordance with ESB specifications.		
					All electrical installation to have an IP rating of IP 55		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Degradation of the kiosk	Construction Personnel / IW Operations / General Public	Kiosk to be position on a 150mm high concrete plinth in order to mitigate the risk of water ingress into the kiosks	Minor	
					The bottom flange of the kiosk shall be seated on a neoprene gasket and sealed with mastic and bolted to the concrete plinth through a bottom flange with galvanised mild steel or stainless steel anchor bolts.		
					The kiosk shall be constructed from hot dipped thermostetting UV and weather resistant plastic powder coated galvanised mild steel plate (min. 3mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. Stainless Steel may be used as an alternative Kiosk material. Particularly in sevsre environments, subject to agreement with Irish WaterThe kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel).		
					The rear wall of the kiosk shall be reinforced with stainless steel sections to which an 18mm thick marine plywood board is fixed.		
					The kiosk roof shall be removable to allow for backboard removal.		
					All ducting entering the kiosk shall be sealed using a water tight cap. Cable duct / kiosk interfaces shall be sealed in order to prevent the ingress of ground water.		
			Impeding pedestrian routes	General Public	Kiosks shall be located off the footpath so as not to impede pedestrians.	Minor	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Lamp Bollard and Lamp Standard	**STD-W-37**	The construction and maintenance of a Lamp Bollard and Lamp Standard	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	All electrical installations to be in accordance with ESB specifications.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Inadequate lighting	Construction Personnel / IW Operations / General Public	Lamp bollard to be an approved Irish Water Lamp bollard	Minor	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Lamp standard to be an approved Irish Water lamp standard		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Residual Risk Rating:	
Significant	A significant risk to the health and safety of personnel/surrounding environment still exists after the design process which is required to be considered by the detailed designer at detailed design stage and the contractor during the construction stage
Minor	A minor risk to the health and safety of personnel/surrounding environment still exists after the design process which is required to be considered by the detailed designer at detailed design stage and the contractor during the construction stage
Eliminated	Hazard has been eliminated during the design process