



Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)

Document No.: _____

Revision: 00

Project Name: _____ Project No.: _____
Start Date: _____ Owner: _____
Site Name: _____ CP Company: _____
Site Location (GPS): _____ CP Contact & Number: _____

Table with 4 columns: Role, Print Name, Signature, Date (MM/DD/YY), Phone Number. Rows include CP/Prime Contractor, Engineering Consultant, and City of Calgary.

Instructions for use of this document:

- 1. This document is to be reviewed and fully understood prior to project commencing. A Kick-off meeting with City of Calgary CP Department should be planned for any questions and clarifications involving this document.
2. Complete only applicable tasks / sections in this ITP. Any irrelevant sections can be marked up as "Not Applicable".
3. One ITP to be used per project. If there are multiple test posts, anode beds, or AC mitigation, additional Quality Assurance / Quality Control (QAQC) Sheets shall be used for each additional structure. Only when all installations for the project are complete and QAQC sheets are filled and signed shall the ITP be signed off as job completed.
4. This ITP must be present at construction site or readily available for CP Inspector to review, if requested.
5. The General Contractor and/or CP Contractor must notify City of Calgary Cathodic Protection Inspector a minimum of 24 hours before backfilling CP Installations for inspection.
6. Once the City Representative visually inspects each item up to the Hold Point (H), and all the requirements are met – they can sign off and release the Hold for backfill.
7. This ITP must be used in conjunction with the City of Calgary QAQC Documents specific for CP Installations. All completed and signed QAQC documents must be attached to this ITP and provided in the project turnover package once project has been completed.
8. A scanned copy of the signed off and completed QAQC and ITP documents must be e-mailed to CathodicProtection@calgary.ca once project has been completed.
9. If signing off for partial completions / periodic inspections, a description of the section completed must accompany initials and date (chainage, length etc.). Attach an additional sheet for tracking partial completion / periodic inspections. Only once all sections / installations within the project are completed shall the ITP be signed off.
10. If sections do not apply to project, enter N/A or "-" in boxes.
11. This is a controlled document. Any changes or revisions to this ITP must be reviewed and approved by the City of Calgary CP Department.
12. City of Calgary CP Department has the right to request all QAQC documents and As-builts to be provided before signing off on the ITP document as job completed.
13. ITP must be reviewed and signed off by all parties involved once project has been completed. Incomplete ITP's and QAQC's submitted to the City of Calgary will NOT be accepted.



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off								
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector		
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)
1.0	Test Leads – Installation & Recoating of Thermitic Welds												
1.1	Test Leads thermitic welded to structure as per QAQC Document "Test Lead Installation" Section	- IFC drawings - "Test Station Installation" QAQC Document	- As per IFC drawings - QAQC Document Filled	V, I							I		
1.2	Welds recoated with approved coating product according to manufacturer's specifications as per QAQC Document "Coating Installation" Section	- CoC Waterworks Construction Specification - Recoating MQAP	- Installed as per MQAP - QAQC Document Filled	V, I									
1.3	Confirm test lead continuity by measuring resistance between the end of each test lead	- CoC Waterworks Construction Specification - "Test Station Installation" QAQC Document	< 1 Ohm between leads	M, W							W		
1.4	QAQC document reviewed and confirmed all items completed prior to backfilling commencing	- "Test Station Installation" QAQC Document - IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I									
1.5	Hold point release by City CP Inspector prior to ANY BACKFILLING OF WELDS AND CABLES	- Project Requirement	Items 1.1 to 1.4 have been verified and signed off by City of Calgary CP Inspector prior to backfill	H							H		

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
2.0	Couplings and/or Harness Installations													
2.1	Couplings and/or harnesses installed as per IFC drawings and CoC Waterworks Construction Specifications	- IFC drawings - "Coupling / Harness Installation" QAQC Document - CoC Waterworks Construction Specification	- As per IFC drawings - QAQC Document Filled	V, I										
2.2	Isolating coupling's isolation boot installed as per IFC drawings and CoC Waterworks Construction Specifications	- IFC drawings - CoC Waterworks Construction Specification	- Boot must face towards existing pipe and protrude a min. 24mm past coupling edge	V, I								I		
2.3	Continuity bonds thermite welded to structure as per QAQC Document "Test Lead Installation" Section	- IFC drawings - "Test Station Installation" QAQC Document	- As per IFC drawings - QAQC Document Filled	V, I								I		
2.4	Isolating coupling confirmed isolated from existing pipe	- IFC drawings - CoC Waterworks Construction Specification	- Coupling isolated from existing pipe - QAQC Document Filled - Boot must face towards existing pipe and protrude a min. 24mm past coupling edge	M, V, I								M, I		
2.5	Non-Isolating coupling confirmed continuous to pipes	- IFC drawings - CoC Waterworks Construction Specification	- Coupling continuous to pipes - QAQC Document Filled	M, V, I								M, I		
2.6	Hold point release by City CP Inspector prior to ANY WRAPPING OF THE COUPLING/HARNESS	- Project Requirement	Items 2.1 to 2.5 have been verified and signed off by City of Calgary CP Inspector prior to wrapping of couplings/harness	H								H		

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
3.0	Anode Installation													
3.1	Anodes installed as per QAQC Document "Anode Installation" Section and CoC Waterworks Construction Specification with correct weight requirement	- IFC drawing - "Anode Installation" QAQC Document	- As per IFC drawings - QAQC Document Filled	V, I										
3.1a	For encasement protection (if applicable), total anode weight & type meets CoC Waterworks Construction Specification requirements	- CoC 453.1017.006 Sheet 15	- As per IFC drawings - CoC Waterworks Specifications	V, I										
3.2	Final GPS location of anodes recorded (if required)	- IFC drawings	- Ensure GPS location of anodes recorded - Record GPS coordinates of anodes on as-builts	M, I										
3.3	All anodes covered 300mm with native backfill material or moisture retaining soil (THIS IS NOT BACKFILLING STAGE)	- CoC 504.07.01 - IFC drawings	- Minimum 300mm screened soil cover over each anode	V, I							V			
3.4	All anodes thoroughly soaked and activated with water prior to backfill	- CoC 504.07.01 - IFC drawings	- Soak with minimum 10L of water per anode - Bagged anodes must be soaked in bucket of water for 15 minutes	V, I										
3.5	QAQC document reviewed and confirmed all items completed prior to backfilling commencing	- "Test Station Installation" QAQC Document - IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I										
3.6	Hold point release by City CP Inspector prior to ANY BACKFILLING OF ANODES	- Project Requirement	Items 3.1 to 3.5 have been verified and signed off by City of Calgary CP Inspector prior to backfill	H							H			

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
4.0	AC & DC Coupons, Permanent Reference Electrode Installation													
4.1	AC coupon installed as per IFC drawings and CoC Waterworks Construction Specification requirements with correct spacing from other anodes, coupons, electrodes	- IFC drawing - CoC Waterworks Construction Specifications	- As per IFC drawings - QAQC Document Filled - As per CoC Waterworks Construction Specifications	V, I										
4.2	DC coupon installed as per IFC drawings and CoC Waterworks Construction Specification requirements with correct spacing from other anodes, coupons, electrodes	- IFC drawing - CoC Waterworks Construction Specifications	- As per IFC drawings - QAQC Document Filled - As per CoC Waterworks Construction Specifications	V, I										
4.3	Reference Electrode installed as per IFC drawings and CoC Waterworks Construction Specification requirements with correct spacing from other anodes, coupons, electrodes as per manufacturer's specifications OR IFC drawings	- IFC drawing - CoC Waterworks Construction Specifications	- As per IFC drawings - QAQC Document Filled - As per CoC Waterworks Construction Specifications	V, I										
4.4	Final GPS location of coupons and electrodes recorded	- IFC drawings	- Ensure GPS location of coupons and electrodes recorded - Record GPS coordinates of coupons and electrodes on as-builts	M, I										
4.5	All coupons and reference electrodes covered with minimum 150mm native backfill material or moisture retaining soil (THIS IS NOT BACKFILLING STAGE)	- CoC 504.07.01 - IFC drawings	- Minimum 150mm soil cover over all coupons and electrodes	V, I							V			
4.6	All coupons and electrodes thoroughly soaked and activated with potable water prior to backfill	- CoC 504.07.01 - IFC drawings	- Soak with minimum 10L of water per coupon or electrode	V, I										
4.7	QAQC document reviewed and confirmed all items completed prior to backfilling commencing	- "Test Station Installation" QAQC Document - IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I										
4.8	Hold point release by City CP Inspector prior to ANY BACKFILLING OF COUPONS OR ELECTRODES	- Project Requirement	Items 4.1 to 4.7 have been verified and signed off by City of Calgary CP Inspector prior to backfill	H							H			

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
5.0	Test Post Installation and Backfill													
5.1	A minimum of 2m extra cable for each lead coiled inside test post OR at base of test post if unable, for post repositioning, if required	- IFC drawings - "Test Station Installation" QAQC Document	- As per IFC drawings - QAQC Document Filled	V, I										
5.2	Hold point release by City CP Inspector OR City Inspector prior to ANY BACKFILLING OF CABLES AND TEST POSTS	- Project Requirement	- Item 5.1 has been verified and signed off by City CP Inspector/Inspector prior to backfill	H							H			
5.3	Confirm test post height is as per IFC from final grade and straight vertically. 4"x4"x10" treated wood post to be used in areas with loose or unstable soil for added rigidity	- IFC drawings	- As per IFC drawings - 800mm above grade, 600mm below grade	M, I, V							V			
5.4	Terminals in test post terminated correct according to IFC using ring terminal connectors, and all cables are labelled correctly with weather resistant labels	- IFC drawings	- As per IFC drawings (Test Post Details)	V, I							V			
5.5	QAQC document reviewed and confirmed all items completed	- "Test Station Installation" QAQC Document - IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I										

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
6.0	Concrete Pipe – Continuity Bonding													
6.1	Lifting lugs drilled and tapped, continuity bond cables secured to lifting lugs with bolt	- IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I										
6.2	Continuity bond cables recoated with Denso profile mastic and tape or approved equivalent	- IFC drawings - Recoating MQAP	- Installed as per MQAP - QAQC Document Filled	V, I										
6.3	Confirm electrical continuity for section completed by measuring resistance from one end to the other	- CoC Waterworks Construction Specification - IFC drawings	< 1 Ohm between leads	M, W								W		
6.4	Hold point release by City CP Inspector prior to ANY BACKFILLING OF CONTINUITY BOND CABLES	- Project Requirement	- Item 6.1 to 6.3 has been verified and signed off by City of Calgary Inspector prior to backfill	H										
	Use below for Partial Inspections / Partial Installation: <u>Start Chainage:</u> <u>End Chainage:</u> <u>Total Length (m):</u> <u>Resistance Measured (Ω):</u>											H		
6.5	Confirm electrical continuity of entire length of concrete pipe once backfill is completed	- CoC Waterworks Construction Specification - IFC drawings	< 1 Ohm between leads	M, W								W		
6.6	QAQC document reviewed and confirmed all items completed	- "Continuity Bonding Installation" QAQC Document - IFC drawings	- As per IFC drawings - QAQC Document Filled	V, I										

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



**Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)**

Document No.: _____

Revision: 00

Item No.	Installation / Inspection / Test Stage	Specification Reference	Acceptance Criteria	Verification Action *	Inspection Sign-off									
					CP Sub-Contractor / Prime Contractor			Engineering Consultant			City CP Inspector			
					Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	Action*	Initial	Date (MM/DD/YY)	
7.0	General – Post Backfilling and Housekeeping													
7.1	Perform static CP potential survey on all test stations after backfilling has been complete and record measurements	- Project Requirement	- Static potential measurements recorded on corresponding QAQC documents	M, I										
7.2	Provide As-built drawing showing anode quantity, type, weight and placement, reference electrode/coupon placement, test station placement and cable routing	- Project Requirement	- As-built drawing with markups for any changes from IFC drawings	M, I										
7.3	Final location of test stations recorded (GPS coordinates)	- IFC Drawings	- Record GPS measurements and include on as-built drawing	M, I										
7.4	QAQC document reviewed, signed off as completed once project is closed. Provide copy of As Built drawings, ITP, and QAQC document in a turnover package to the City of Calgary Cathodic Protection Department	- Project Requirement - IFC Drawings	- As built drawings - ITP signed off - QAQC documents signed off	V, I										

Verification Legend: H (Hold), V (Visual Check), M (Measurement), I (Inspection), W (Witness)



Cathodic Protection & AC/DC Interference Mitigation
Installation, Inspection & Test Plan (ITP)

Document No.: _____

Revision: 00

ADDITIONAL COMMENTS OR MEASUREMENTS:

A large, empty rectangular box with a thin black border, intended for handwritten or typed notes, comments, or measurements related to the project.