



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada

800 Burrard Street, Room 219

800, rue Burrard, pièce 219

Vancouver

British Columbia

V6Z 0B9

Bid Fax: (604) 775-9381

INVITATION TO TENDER

APPEL D'OFFRES

**Tender To: Public Works and Government Services
Canada**

We hereby offer to sell to Her Majesty the Queen in right of
Canada, in accordance with the terms and conditions set
out herein, referred to herein or attached hereto, the goods,
services, and construction listed herein and on any attached
sheets at the price(s) set out therefor.

Soumission aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la
Reine du chef du Canada, aux conditions énoncées ou
incluses par référence dans la présente et aux annexes
ci-jointes, les biens, services et construction énumérés
ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Public Works and Government Services Canada -
Pacific Region

800 Burrard Street, Room 219

800, rue Burrard, pièce 219

Vancouver

British C

V6Z 0B9

Title - Sujet Rénovation de la paroi drainante en	
Solicitation No. - N° de l'invitation EZ897-171173/A	Date 2016-08-11
Client Reference No. - N° de référence du client	GETS Ref. No. - N° de réf. de SEAG PW-\$PWY-022-7844
File No. - N° de dossier PWY-6-39120 (022)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-08-29	
Time Zone Fuseau horaire Pacific Daylight Saving Time PDT	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Arthur (PWY), Carolyn	Buyer Id - Id de l'acheteur pwy022
Telephone No. - N° de téléphone (604) 364-2752 ()	FAX No. - N° de FAX (604) 775-6633
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: PWGSC - PEC Site - West Vancouver, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation
EZ899-171173/A
Client Ref. No. - N° de réf. du client

Amd. No. - N° de la modif.
File No. - N° du dossier
PWY-6-39120 (022)

Buyer ID - Id de l'acheteur
pwy022
CCC No./N° CCC - FMS No./N° VME

AVIS AUX SOUMISSIONNAIRES: Veuillez utiliser l'étiquette d'adresse ci-dessous et bien l'affixer à l'extérieur de l'enveloppe ou du paquet renfermant votre offre. Dans le cas de modifications à des offres soumises par télécopieur (Fax: (604) 775-9381), servez-vous de la feuille comme page couverture. Assurez-vous de toujours inscrire lisiblement le nom de votre compagnie, l'adresse de retour, le numéro de l'offre et la date limite sur l'extérieur de votre offre.

Marchés immobiliers
Travaux publics et Services gouvernementaux Canada
800, rue Burrard, bureau 219
Vancouver (C.-B.) V6Z 0B9

Offre n°: EZ897-171173/A

Date et heure limites de réception des soumissions: 29 août 2016, 1400 h HADP

Sujet: Assainissement du site du Centre environnemental du Pacifique
Rénovation de la paroi drainante en 2016

CA

INVITATION À SOUMISSIONNER

AVIS IMPORTANT AUX SOUMISSIONNAIRES

APPUYER LE RECOURS AUX APPRENTIS

Dans son Plan d'action économique de 2013, le gouvernement du Canada propose de soutenir l'embauche d'apprentis dans le cadre des projets de construction et d'entretien du gouvernement fédéral. Vous référer à IP09

DISPOSITIONS RELATIVES À L'INTÉGRITÉ - SOUMISSION

Des changements ont été apportés aux Dispositions relative à l'intégrité - soumission en date du 2016-04-04. Voir IG01, Disposition relatives à l'intégrité-soumission de R2710T des Instructions Générales pour plus d'informations.

LISTE DES SOUS-TRAITANTS

Conformément aux clauses IG07 des instructions générales R2710T, vous devriez dresser, au moyen de l'Annexe C, la liste des sous-traitants chargés des travaux dont la valeur équivaut à au moins 20 % du prix soumissionné et soumettre le tout à la date de clôture de la demande de soumissions.

MISE À JOUR SUR L'UTILISATION DE L'AMIANTE DE TPSGC

En date du 1^{er} avril 2016, tous les contrats de Travaux publics et services gouvernementaux Canada (TPSGC) qui portent sur des projets de nouvelle construction et des rénovations importantes interdiront l'utilisation des matériaux de construction contenant de l'amiante. Pour de plus amples informations veuillez consulter ce lien <http://www.tpsgc-pwgsc.gc.ca/comm/vedette-features/2016-04-19-00-fra.html>

AJOUT D'UNE CLAUSE ÉVALUATION DU RENDEMENT - CONTRAT

Prendre connaissance à la condition supplémentaire CS02 de l'ajout d'un paragraphe à la clause R2810D.

AJOUT DE TERMINOLOGIE

Prendre connaissance à la condition supplémentaire CS03 de l'ajout de terminologie à la clause R2810D.

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- IP06 Fonds insuffisants
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- IP08 Documents de construction
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- IP10 Sites Web

R2710T INSTRUCTIONS GÉNÉRALES - SERVICES DE CONSTRUCTION - EXIGENCES RELATIVES À LA GARANTIE DE SOUMISSION (IG) (2016-04-04)

Les articles suivants de la clause R2710T sont reproduits sur le site Web <https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/R>

- IG01 Dispositions relatives à l'intégrité - soumission
- IG02 La soumission
- IG03 Identité ou capacité civile du soumissionnaire
- IG04 Taxes applicables
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APPENDICE 1- FORMULAIRE DE PRIX COMBINÉS

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APPENDICE 3 - ATTESTATION VOLONTAIRE À L'APPUI DU RECOURS AUX APPRENTIS

Solicitation No. - N° de l'invitation
EZ897-171173/A
Client Ref. No. - N° de réf. du client

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PWY-6-39120 (022)

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pwy022
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APPENDICE 4 – POUVOIRS DU REPRÉSENTANT DU MINISTÈRE

ANNEXE A – ATTESTATION D'ASSURANCE

ANNEXE B- RAPPORT VOLONTAIRE D'APPRENTIS EMPLOYÉS PENDANT LES CONTRATS

ANNEXE C - LISTE DES SOUS-TRAITANTS

INSTRUCTIONS PARTICULIÈRES AUX SOUMISSIONNAIRES (IP)

IP01 DOCUMENTS DE SOUMISSION

1. Les documents suivants constituent les documents de soumission:
 - a. Appel d'offres - Page 1;
 - b. Instructions particulières aux soumissionnaires
Instructions générales – services de construction – exigences relatives à la garantie de soumission R2710T (2016-04-04)
 - c. Clauses et conditions identifiées aux "Documents du contrat";
 - d. Dessins et devis;
 - e. Formulaire de soumission et d'acceptation et tout appendice s'y rattachant; et
 - f. Toute modification émise avant la clôture de l'invitation.

La présentation d'une soumission constitue une affirmation que le soumissionnaire a lu ces documents et accepte les modalités qui y sont énoncées.

2. Les Instructions générales - Services de construction - Exigences relatives à la garantie de soumission R2710T sont incorporées par renvoi et reproduites dans le Guide des clauses et conditions uniformisées d'achat (CCUA) publié par Travaux publics et Services gouvernementaux Canada (TPSGC). Le guide des CCUA est disponible sur le site Web de TPSGC: <https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/R>

IP02 DEMANDES DE RENSEIGNEMENTS PENDANT L'APPEL D'OFFRES

1. Toute demande de renseignements sur l'appel d'offres doit être présentée par écrit à l'agent d'approvisionnement dont le nom figure à l'Appel d'offres - Page 1, et ce le plus tôt possible pendant la durée de l'invitation. À l'exception de l'approbation de matériaux de remplacement, comme cela est décrit à l'IG15 de la R2710T toutes les autres demandes de renseignements devraient être reçues au moins cinq (5) jours civils avant la date de clôture de l'invitation afin de laisser suffisamment de temps pour y répondre. Pour ce qui est des demandes de renseignements reçues après cette date, il est possible qu'on ne puisse y répondre.
2. Pour assurer la cohérence et la qualité de l'information fournie aux soumissionnaires, l'agent d'approvisionnement examinera le contenu de la demande de renseignements et décidera s'il convient ou non de publier une modification.
3. Toutes les demandes de renseignements et autres communications envoyées avant la clôture de l'appel d'offres doivent être adressées UNIQUEMENT à l'agent d'approvisionnement dont le nom figure à l'Appel d'offres - Page 1. Le défaut de se conformer à cette exigence pourrait avoir pour conséquence que la soumission soit déclarée non recevable.

IP03 VISITE OPTIONNELLE DES LIEUX

Contractors are strongly recommended to visit the site prior to submitting a tender for this work and to make inquiries or investigations necessary to become thoroughly acquainted with the site as well as the nature and extent of the work. A site visit is scheduled on Thursday, August 18, 2016 @ 10:00 am local time. Interested bidders are to meet at the Site Vehicle Gate of the Pacific Environment Centre Site in West Vancouver (as shown on Figure #3 in Specifications).

Bidders must wear personal protective equipment (hard hat, high visibility vest, and work boots) to the site visit.

IP04 RÉVISION DES SOUMISSIONS

Une soumission peut être révisée par lettre ou par télécopie conformément à l'IG10 de la R2710T Le numéro du télécopieur pour la réception de révisions est le (604) 775-9381.

IP05 RÉSULTATS DE L'APPEL D'OFFRES

1. Un dépouillement public des soumissions aura lieu au bureau désigné sur la page frontispice «Appel d'offres» pour la réception des soumissions, peu de temps après l'heure indiquée pour la clôture des soumissions.
2. Après la date de clôture pour la réception des soumissions, on peut demander les résultats de l'appel d'offres en communiquant au numéro de téléphone (604)775-9384.

IP06 FONDS INSUFFISANTS

Si la soumission conforme la plus basse dépasse le montant des fonds alloués par le Canada pour les travaux, le Canada pourra

- a. annuler l'appel d'offres; ou
- b. obtenir des fonds supplémentaires et attribuer le contrat au soumissionnaire ayant présenté la soumission conforme la plus basse; et/ou
- c. négocier une réduction maximale de 15% du prix offert et/ou de la portée des travaux avec le soumissionnaire ayant présenté la soumission conforme la plus basse. Si le Canada n'arrive pas à une entente satisfaisante, il exercera l'option a) ou b).

IP07 PÉRIODE DE VALIDITÉ DES SOUMISSIONS

1. Le Canada se réserve le droit de demander une prorogation de la période de validité des soumissions tel que précisé à la SA04 du Formulaire de soumission et d'acceptation. Dès réception d'un avis écrit du Canada, les soumissionnaires auront le choix d'accepter ou de refuser la prorogation proposée.
2. Si la prorogation mentionnée à l'alinéa 1. de l'IP07 est acceptée par écrit par tous les soumissionnaires qui ont présenté une soumission, le Canada poursuivra alors sans tarder l'évaluation des soumissions et les processus d'approbation.
3. Si la prorogation mentionnée à l'alinéa 1. de l'IP07 n'est pas acceptée par écrit par tous les soumissionnaires qui ont présenté une soumission, le Canada pourra alors, à sa seule discrétion,
 - a) poursuivre l'évaluation des soumissions de ceux qui auront accepté la prorogation proposée et obtenir les approbations nécessaires; ou
 - b) annuler l'appel d'offres.
4. Les conditions exprimées dans les présentes ne limitent d'aucune façon les droits du Canada définis dans la loi ou en vertu de l'IG11 de R2710T.

IP08 DOCUMENTS DE CONSTRUCTION

À l'attribution du contrat, une copie papier des dessins signés et scellés, du devis et des modifications sera fournie à l'entrepreneur retenu. Des copies supplémentaires, jusqu'à concurrence des deux (2), seront fournies sans frais à la demande de l'entrepreneur. Il incombera à l'entrepreneur d'obtenir les autres exemplaires dont il peut avoir besoin et, le cas échéant, d'en assurer les coûts.

IP09 INITIATIVE DE TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA POUR L'EMBAUCHE D'APPRENTIS

1. Pour les encourager à participer à la formation d'apprentis, on demande aux employeurs qui soumissionnent pour des contrats de construction ou d'entretien de Travaux publics et Services gouvernementaux Canada (TPSGC) de signer une attestation volontaire, attestation signalant leur engagement à embaucher et former des apprentis.

2. Le Canada doit composer avec des pénuries de main-d'œuvre dans divers secteurs et dans diverses régions, en particulier dans des métiers spécialisés. Faciliter l'acquisition de compétences et la formation chez les Canadiens est une responsabilité partagée. Dans le Plan d'action économique (PAE) de 2013, le gouvernement du Canada a pris l'engagement de faciliter l'utilisation d'apprentis dans le cadre des contrats fédéraux de construction et d'entretien. Les soumissionnaires ont un rôle important à jouer au titre du soutien des apprentis, à savoir les embaucher et les former. On les encourage à attester qu'ils proposent des possibilités d'emploi à des apprentis dans le cadre de leurs relations d'affaires avec le gouvernement du Canada.
3. Par l'entremise du Plan d'action économique de 2013 et de son appui aux programmes de formation, le gouvernement du Canada encourage les Canadiens à faire l'apprentissage de métiers spécialisés et à y faire carrière. En outre, le gouvernement offre un crédit d'impôt aux employeurs afin de les encourager à embaucher des apprentis. Vous trouverez de l'information à propos de ces mesures fiscales administrées par l'Agence du revenu du Canada dans son site Web à : www.cra-arc.gc.ca. Les employeurs sont aussi invités à se renseigner à propos de l'information et des mesures de soutien additionnelles dont ils pourraient tirer profit auprès de leur autorité provinciale ou territoriale en matière d'apprentissage.
4. Les attestations signées (APPENDICE 3) aideront à mieux comprendre comment les entrepreneurs utilisent des apprentis dans le cadre de contrats fédéraux de construction et d'entretien et pourraient éclairer l'élaboration, dans l'avenir, de nouvelles politiques et de nouveaux programmes.
5. L'entrepreneur atteste ce qui suit :

En vue de contribuer à la satisfaction de la demande en travailleurs qualifiés, l'entrepreneur convient de déployer et d'exiger de ses sous-traitants qu'ils déploient des efforts commerciaux raisonnables pour embaucher et former des apprentis inscrits, de s'efforcer d'utiliser pleinement les ratios compagnon/apprenti * autorisés et de respecter toutes les exigences liées à l'embauche prescrites dans les lois provinciales et territoriales.

L'entrepreneur consent, par la présente, à ce que cette information soit recueillie et conservée par TPSGC et Emploi et Développement social Canada en vue d'appuyer la compilation de données sur l'embauche et la formation d'apprentis dans le cadre de contrats fédéraux de construction et d'entretien.

Pour appuyer cette initiative, une attestation volontaire signalant que le fournisseur s'engage à embaucher et former des apprentis est disponible à l'APPENDICE 3

Si vous acceptez, veuillez compléter et apposer votre signature à l'APPENDICE 3

** Le ratio compagnon/apprenti, c'est le nombre de compagnons qualifiés/agrèés qu'un employeur doit employer dans une profession ou un métier désigné afin d'être admissible à inscrire un apprenti conformément à la législation, aux règlements, aux directives d'orientation ou aux arrêtés provinciaux/territoriaux émis par les autorités ou les organismes responsables.*

IP11 SITES WEB

La connexion à certains des sites Web se trouvant aux documents d'appel d'offres est établie à partir d'hyperliens. La liste suivante énumère les adresses de ces sites Web.

Appendice L du Conseil du Trésor, Compagnies de cautionnement reconnues
<http://www.tbs-sct.gc.ca/pol/doc-fra.aspx?id=14494§ion=text#appL>

Achats et ventes <https://achatsetventes.gc.ca/>

Sanctions économiques canadiennes <http://www.international.gc.ca/sanctions/index.aspx?lang=fra>

Rapport d'évaluation du rendement de l'entrepreneur (Formulaire PWGSC-TPSGC 2913)
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913.pdf>

Cautionnement de soumission (formulaire PWGSC-TPSGC 504)
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/504.pdf>

Cautionnement d'exécution (formulaire PWGSC-TPSGC 505)
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/505.pdf>

Cautionnement pour le paiement de la main-d'œuvre et des matériaux (formulaire PWGSC-TPSGC 506)
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf>

Guide des clauses et conditions uniformisées d'achats (CCUA) <https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/R>

Services de sécurité industrielle <http://ssi-iss.tpsgc-pwgsc.gc.ca/index-fra.html>

TPSGC, Code de conduite pour l'approvisionnement <http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-fra.html>

TPSGC, Formulaire relatifs à l'administration des contrats de construction et de services d'experts-conseils
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-fra.html>

Formulaire de déclaration
<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-fra.html>

CONDITIONS SUPPLÉMENTAIRES (CS)

CS01 CONDITIONS D'ASSURANCE

- 1) Polices d'assurance
 - a) L'entrepreneur souscrit et maintient, à ses propres frais, les polices d'assurance conformément aux exigences de l'Attestation d'assurance. L'assurance doit être souscrite auprès d'un assureur autorisé à faire affaire au Canada.
 - b) Le respect des exigences en matière d'assurance ne dégage pas l'entrepreneur de sa responsabilité en vertu du contrat, ni ne la diminue. L'entrepreneur est responsable de décider si une assurance supplémentaire est nécessaire pour remplir ses obligations en vertu du contrat et pour se conformer aux lois applicables. Toute assurance supplémentaire souscrite est à la charge de l'entrepreneur ainsi que pour son bénéfice et sa protection.
- 2) Période d'assurance
 - a) Les polices exigées à l'Attestation d'assurance doivent prendre effet le jour de l'attribution du contrat et demeurer en vigueur pendant toute la durée du contrat.
 - b) Il incombe à l'entrepreneur de fournir et de maintenir la couverture pour produits/travaux complétés de sa police d'assurance responsabilité civile des entreprises et ce pour un délai minimum de (6) six ans suivant la date du Certificat d'achèvement substantiel.
- 3) Preuve d'assurance
 - a) Avant le début des travaux, et au plus tard trente (30) jours après l'acceptation de sa soumission, l'entrepreneur doit remettre au Canada une Attestation d'assurance sur le formulaire fournis.
 - b) À la demande du Canada, l'entrepreneur doit fournir les originaux ou les copies certifiées de tous les contrats d'assurance auxquels l'entrepreneur a souscrit conformément à l'Attestation d'assurance.
- 4) Indemnités d'assurance

En cas de sinistre, l'entrepreneur doit faire sans délai toutes choses et exécuter tous documents requis pour le paiement de l'indemnité d'assurance.
- 5) Franchise

L'entrepreneur doit assumer le paiement de toutes sommes d'argent en règlement d'un sinistre, jusqu'à concurrence de la franchise.

CS02 ÉVALUATION DU RENDEMENT-CONTRAT

La Condition générale CG1.22 est ajouté à la clause R2810D

CG1.22 Évaluation du rendement– contrat

1. Les entrepreneurs doivent prendre note que le rendement de l'entrepreneur pendant et après la prestation des services sera évalué par le Canada. L'évaluation sera basée sur les critères suivants:
 - a. qualité des travaux exécutés.
 - b. délais d'exécution
 - c. gestion de projet
 - d. gestion du contrat
 - e. santé et sécurité
2. Un facteur de pondération de 20 points est attribué à chacun des cinq critères comme suit:
 - a. inacceptable: 0 à 5 points
 - b. non satisfaisant: 6 à 10 points
 - c. satisfaisant: 11 à 16 points

d. supérieur: 17 à 20 points

3. Les conséquences découlant de l'évaluation du rendement sont les suivantes :

- a. Pour une cote globale de 85 p. 100 ou plus, une lettre de félicitation est envoyée à l'entrepreneur.
- b. Pour une cote globale entre 51 p. 100 et 84 p. 100, une lettre type « rencontre les attentes », est envoyée à l'entrepreneur.
- c. Pour une cote globale entre 30 p. 100 et 50 p. 100, une lettre d'avertissement est envoyée à l'entrepreneur indiquant que si, au cours des deux (2) prochaines années, sa cote de rendement est de 50 p. 100 ou moins sur une autre évaluation, la firme pourrait être suspendue de toute nouvelle invitation à soumissionner de TPSGC pour des services de construction, des services d'architecture et de génie ou des services d'entretien des installations, de projets immobiliers, pour une période d'un an.
- d. Pour une cote globale de moins de 30 p. 100, une lettre de suspension est envoyée à l'entrepreneur indiquant que la firme est suspendue de toute nouvelle invitation à soumissionner de TPSGC pour des services de construction, des services d'architecture et de génie ou des services d'entretien des installations, de projets immobiliers, pour une période d'un an.
- e. Lorsque la moyenne générale est entre 30% et 50% et inclus une cote de 5 points ou moins pour un des critères, une lettre de suspension est envoyée à l'entrepreneur indiquant que la firme est suspendue de toute nouvelle invitation à soumissionner de TPSGC pour des services de construction, des services d'architecture et de génie ou des services d'entretien des installations, de projets immobiliers, pour une période d'un an.

Le formulaire PWGSC-TPSGC 2913, Select - Formulaire du rapport d'évaluation du rendement de l'entrepreneur (FRERE), est utilisé pour évaluer le rendement.

CS03 INTERPRÉTATION

La Condition générale CG1.1.2 de la clause R2810D est modifié pour inclure les nouvelles terminologies suivantes

- « Services d'architecture et de génie » :
services pour fournir une gamme de rapports d'enquêtes et de recommandations, la planification, la conception, la préparation ou la supervision de travaux de construction, de réparation, de rénovation ou de restauration et inclut les services de gestion de contrats, de projets immobiliers.
- « Services de construction » :
la construction, la réparation, la rénovation ou la restauration d'un ouvrage à l'exception d'un navire et qui comprend; la fourniture et l'érection d'une structure préfabriquée; le dragage; la démolition; les services environnementaux liés à un bien immobilier; ou, la location d'outillage destiné directement ou indirectement à l'exécution des services de construction mentionnés ci-dessus.
- « Services d'entretien d'installations » :
services liés aux activités normalement associées à l'entretien d'une installation et le maintien des espaces, des structures et des infrastructures en bon état de fonctionnement, d'une manière routinière, prévue ou anticipée pour éviter la défaillance et / ou la dégradation, incluant des services d'inspections, d'essais, d'entretien, de classification quant à l'état de fonctionnement, de réparations, de reconstruction et de remise en état, ainsi que la fourniture de services d'entretien ménager, d'enlèvement des déchets, de déneigement, d'entretien des pelouses, de remplacement des revêtements de sol, d'appareils d'éclairage ou de plomberie, de peinture, et autres petits travaux.

DOCUMENTS DU CONTRAT (DC)

1. Les documents suivants constituent le contrat:
 - a. Page « Contrat » une fois signée par le Canada;
 - b. Formulaire de soumission et d'acceptation et tout Appendice s'y rattachant rempli(s) en bonne et due forme;
 - c. Dessins et devis;
 - d. Conditions générales et clauses:

CG1	Dispositions générales – Services de construction	R2810D	(2016-04-04);
CG2	Administration du contrat	R2820D	(2016-01-28);
CG3	Exécution et contrôle des travaux	R2830D	(2015-02-25);
CG4	Mesures de protection	R2840D	(2008-05-12);
CG5	Modalités de paiement	R2850D	(2016-01-28);
CG6	Retards et modifications des travaux	R2860D	(2016-01-28);
CG7	Défaut, suspension ou résiliation du contrat	R2870D	(2008-05-12);
CG8	Règlement des différends	R2880D	(2016-01-28);
CG9	Garantie contractuelle	R2890D	(2014-06-26);
CG10	Assurances	R2900D	(2008-05-12);
Coûts admissibles pour les modifications de contrat sous CG6.4.1		R2950D	(2015-02-25);
Conditions supplémentaires			
 - e. Toute modification émise ou toute révision de soumission recevable, reçue avant l'heure et la date déterminée pour la clôture de l'invitation;
 - f. Toute modification incorporée d'un commun accord entre le Canada et l'entrepreneur avant l'acceptation de la soumission; et
 - g. Toute modification aux documents du contrat qui est apportée conformément aux conditions générales.
2. Les documents identifiés par titre, numéro et date ci-dessus sont intégrés par renvoi et sont reproduits dans le Guide des clauses et conditions uniformisées d'achat (CCUA) publié par Travaux publics et Services gouvernementaux Canada (TPSGC). Le guide des CCUA est disponible sur le site Web de TPSGC: <https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/R>
3. La langue des documents du contrat est celle du Formulaire de soumission et d'acceptation présenté.

FORMULAIRE DE SOUMISSION ET D'ACCEPTATION (SA)

SA01 IDENTIFICATION DU PROJET

Assainissement du site du Centre environnemental du Pacifique - Rénovation de la paroi drainante en 2016
Site du Centre environnemental du Pacifique, West Vancouver (Colombie-Britannique)

SA02 NOM COMMERCIAL ET ADRESSE DU SOUMISSIONNAIRE

Nom: _____

Adresse: _____

Téléphone: _____ Télécopieur: _____ NEA _____

Adresse courriel : _____

Le Numéro d'organisation du Programme de sécurité industrielle _____
(si requis)

SA03 OFFRE

Le soumissionnaire offre au Canada d'exécuter les travaux du projet mentionné ci-dessus, conformément aux documents de soumission pour le **MONTANT TOTAL DE LA SOUMISSION INDIQUÉ DANS L'APPENDICE 1.**

SA04 PÉRIODE DE VALIDITÉ DES SOUMISSIONS

La soumission ne peut être retirée pour une période de trente (30) jours suivant la date de clôture de l'invitation.

SA05 ACCEPTATION ET CONTRAT

À l'acceptation de l'offre de l'entrepreneur par le Canada, un contrat exécutoire est formé entre le Canada et l'entrepreneur. Les documents constituant le contrat sont ceux mentionnés aux Documents du contrat.

SA06 DURÉE DES TRAVAUX

Les travaux doivent commencer immédiatement après la diffusion de l'avis officiel d'acceptation de la soumission par l'autorité contractante et ils doivent se terminer au plus tard le 31 janvier 2017.

SA07 GARANTIE DE SOUMISSION

Le soumissionnaire joint à sa soumission une garantie de soumission conformément à l'IG08 - Exigences relatives à la garantie de soumission de la R2710T -Instructions générales - Services de construction - Exigences relatives à la garantie de soumission.

SA08 SIGNATURE

Nom et titre de la personne autorisée à signer au nom du soumissionnaire (Tapés ou lettres moulées)

Signature

Date

APPENDICE 1 - FORMULAIRE DE PRIX COMBINÉS (2 page)

- 1) Les prix unitaires seront retenus pour établir le montant total des prix calculés. Toute erreur arithmétique à cet appendice sera corrigée par le Canada.
- 2) Le Canada peut rejeter la soumission si quelconque des prix soumis ne tient pas fidèlement compte du coût de l'exécution de la partie des travaux à laquelle ce prix s'applique.

TABLEAU DES PRIX UNITAIRES

Le tableau des prix unitaires désigne la partie des travaux qui est assujettie à un arrangement à prix unitaires.

- a) Les travaux faisant partie de chaque article sont tels que décrits aux sections du devis en référence.
- b) Le prix unitaire ne doit pas inclure de montants pour des travaux qui ne sont pas inclus aux articles de prix unitaires.

	Catégorie de main-d'œuvre, d'installation ou de matériau	Unité de mesure	Quantité estimative	Prix unitaire, taxes applicables en sus	Montant calculé (quantité estimative × prix unitaire), taxes applicables en sus
1	Documents de prémobilisation	Paie ment forfaitaire	1		
2	Mobilisation	Paie ment forfaitaire	1		
3	Préparation du site	Paie ment forfaitaire	1		
4	Fourniture d'installations de chantier	Paie ment forfaitaire	1		
5	Exploitation des installations du site	Semaine	17		
6	Période d'attente	Jour	5		
7	Fourniture du médium de traitement	Paie ment forfaitaire	1		
8	Excavation de la paroi B et installation du médium de traitement	Paie ment forfaitaire	1		
9	Prolongement de la paroi B à la limite est du terrain	Paie ment forfaitaire	1		
10	Excavation, gestion et entreposage sur le site – Paroi B et prolongement de la paroi B	m ³	3 100		
11	Démobilisation	Paie ment forfaitaire	1		
12	Documents/éléments à remettre à l'achèvement des travaux	Paie ment forfaitaire	1		
TRAVAUX DE BASE (A) : MONTANT CALCULÉ TOTAL Excluant les taxes applicable(s)					

TRAVAUX FACULTATIFS (B)

Le soumissionnaire doit fournir le prix indiqué dans le tableau TRAVAUX FACULTATIFS (B) ci-dessous.

Les travaux suivants seront considérés comme des produits supplémentaires facultatifs dans le cadre de ce dossier d'appel d'offres. Toute soumission qui ne comprend pas les lignes suivantes sera jugée non conforme et sera rejetée.

L'entrepreneur accorde au Canada l'option irrévocable d'acquérir les biens et/ou les services qui sont décrits ci-dessous comme travaux facultatifs et tels que décrits dans le devis et les dessins, selon les mêmes conditions et aux prix et/ou aux taux établis dans le contrat. Le Canada pourra, à sa seule et entière discrétion, exercer n'importe quelle option. Les options ne peuvent être exercées que par l'autorité contractante et seront confirmées par une modification au contrat pour des raisons administratives seulement.

L'autorité contractante peut exercer l'option au cours de la période allant de l'adjudication du contrat à l'entrepreneur la mobilisation en envoyant un avis écrit à l'entrepreneur.

TRAVAUX FACULTATIFS (B)					
	Catégorie de main-d'œuvre, d'installation ou de matériau	Unité de mesure	Quantité estimative	Prix unitaire, taxes applicables en sus	Montant calculé (quantité estimative × prix unitaire), taxes applicables en sus
13	Fourniture du médium de traitement aux fins du prolongement de la paroi B et prolongement de cette dernière à -12,5 m par rapport à l'horizontale de référence de North Vancouver	Paie ment forfaitaire	1		
14	Excavation de la paroi B et installation du médium de traitement – Prolongement de -10,5 à -12,5 m par rapport à l'horizontale de référence de North Vancouver	Paie ment forfaitaire	1		
15	Prolongement de la paroi B à la limite est du terrain – Prolongement de -10,5 à -12,5 m par rapport à l'horizontale de référence de North Vancouver	Paie ment forfaitaire	1		
16	Excavation, gestion et entreposage sur le site – Prolongement de -10,5 à -12,5 m par rapport à l'horizontale de référence de North Vancouver – Paroi B et prolongement de la paroi B	m ³	500		
TRAVAUX FACULTATIFS (B) : MONTANT CALCULÉ TOTAL Excluant les taxes applicable(s)					

MONTANT TOTAL DE LA SOUMISSION Travaux de base (A) + Travaux facultatifs (B) Excluant les taxes applicable(s)	
---	--

REMARQUE : Le prix des travaux facultatifs (B) est inclus dans l'évaluation des soumissions. Les travaux facultatifs (B) pourraient être requis pour une partie ou la totalité des quantités estimatives.

APPENDICE 3 – ATTESTATION VOLONTAIRE À L'APPUI DU RECOURS AUX APPRENTIS

Avis; L'entrepreneur sera appelé à compléter à tous les six mois ou à la fin des travaux un rapport tel qu'inclus à l'annexe B « Rapport volontaire d'apprentis employés pendant les contrats ».

Nom: _____

Signature: _____

Nom de la compagnie: _____

Dénomination sociale: _____

Numéro de l'invitation à soumissionner: _____

Nombre d'employés de l'entreprise: _____

Nombre planifié d'apprentis qui travailleront sur ce contrat: _____

Métiers spécialisés de ces apprentis;

A être complété et remis à l'entrepreneur par l'autorité contractante lors de l'attribution du contrat.

APPENDICE 4 – POUVOIRS DU REPRÉSENTANT DU MINISTÈRE

SERONT NOMMES A L'ATTRIBUTION DU CONTRAT.

L'autorité contractante est :

Nom : _____

Titre : _____

Ministère : _____

Division : _____

Téléphone : ____ - ____ - _____

courriel : _____

Responsable technique :

Nom : _____

Titre : _____

Ministère : _____

Division : _____

Téléphone : ____ - ____ - _____

courriel : _____

Solicitation No. - N° de l'invitation
EZ897-171173/A
Client Ref. No. - N° de réf. du client

Amd. No. - N° de la modif.
File No. - N° du dossier
PWY-6-39120 (022)

Buyer ID - Id de l'acheteur
pwy022
CCC No./N° CCC - FMS No./N° VME

ANNEXE A – ATTESTATION D'ASSURANCE (N'est pas requise lors du dépôt de soumission)



ATTESTATION D'ASSURANCE

Page 1 de 2

Description et emplacement des travaux Assainissement du site du Centre environnemental du Pacifique Rénovation de la paroi drainante en 2016 Site du Centre environnemental du Pacifique, West Vancouver (Colombie-Britannique)	N° de contrat.
	N° de projet EZ897-171173/A

Nom de l'assureur, du courtier ou de l'agent	Adresse (N°, rue)	Ville	Province	Code postal
--	-------------------	-------	----------	-------------

Nom de l'assuré (Entrepreneur)	Adresse (N°, rue)	Ville	Province	Code Postal
--------------------------------	-------------------	-------	----------	-------------

Assuré additionnel
Sa majesté la Reine du chef du Canada représentée par le Ministre des Travaux publics et des Services gouvernementaux

Genre d'assurance	Compagnie et N° de la police	Date d'effet J / M / A	Date d'expiration J / M / A	Plafonds de garantie		
Responsabilité civile des entreprises Responsabilité complémentaire/exc édentaire.				Par sinistre	Global général annuel	Global - Risque après travaux
				\$	\$	\$
				\$	\$	\$
Assurance des chantiers / Risques d'installation				\$		

J'atteste que les polices ci-dessus ont été émises par des assureurs dans le cadre de leurs activités d'assurance au Canada et que ces polices sont présentement en vigueur, comprennent les garanties et dispositions applicables de la page 2 de l'Attestation d'assurance, incluant le préavis d'annulation ou de réduction de garantie.

<div>Nom de la personne autorisée à signer au nom de(s) (l')assureur(s) (Cadre, agent, courtier)</div> <div>Signature</div>	<div>Numéro de téléphone</div> <div>Date J / M / A</div>
---	--

ATTESTATION D'ASSURANCE Page 2 de 2

Généralités

Les polices exigées à la page 1 de l'Attestation d'assurance doivent être en vigueur et doivent inclure les garanties énumérées sous le genre d'assurance correspondant de cette page-ci.

Les polices doivent assurer l'entrepreneur et doivent inclure, en tant qu'assuré additionnel, Sa majesté la Reine du chef du Canada représentée par le Ministre des Travaux publics et des Services gouvernementaux.

Les polices d'assurance doivent comprendre un avenant prévoyant la transmission au Canada d'un préavis écrit d'au moins trente (30) jours en cas d'annulation de l'assurance ou de toute réduction de la garantie d'assurance.

Sans augmenter la limite de responsabilité, la police doit couvrir toutes les parties assurées dans la pleine mesure de la couverture prévue. De plus, la police doit s'appliquer à chaque assuré de la même manière et dans la même mesure que si une police distincte avait été émise à chacun d'eux.

Responsabilité civile des entreprises

La garantie d'assurance fournie ne doit pas être substantiellement inférieure à la garantie fournie par la dernière publication du formulaire BAC 2100.

La police doit inclure ou avoir un avenant pour l'inclusion d'une garantie pour les risques et dangers suivants si les travaux y sont assujettis :

- a) Dynamitage.
- b) Battage de pieux et travaux de caisson.
- c) Reprise en sous-œuvre.
- d) Enlèvement ou affaiblissement d'un support soutenant toute structure ou terrain, que ce support soit naturel ou non, si le travail est exécuté par l'entrepreneur assuré.

La police doit comporter:

- a) un « Plafond par sinistre » d'au moins **5 000 000 \$**;
- b) un « Plafond global général » d'au moins **10 000 000 \$** par année d'assurance, si le contrat d'assurance est assujéti à une telle limite.
- c) un « Plafond pour risque produits/après travaux » d'au moins **5 000 000 \$**.

Une assurance responsabilité complémentaire ou excédentaire peut être utilisée pour atteindre les plafonds obligatoires.

Assurance des chantiers / Risques d'installation

La garantie d'assurance fournie ne doit pas être inférieure à la garantie fournie par la plus récente édition des formulaires BAC 4042 et BAC 4047.

Le contrat doit permettre la mise en service et l'occupation du projet, en totalité ou en partie, pour les fins auxquelles le projet est destiné à son achèvement.

Le contrat d'assurance peut exclure ou avoir un avenant pour l'exclusion d'une garantie pour les pertes et dommages occasionnés par l'amiante, les champignons et spores, le cyber et le terrorisme.

La police doit avoir un plafond qui n'est **pas inférieur à la somme de la valeur du contrat** plus la valeur déclarée (s'il y a lieu) dans les documents contractuels de tout le matériel et équipement fourni par le Canada sur le chantier pour être incorporé aux travaux achevés et en faire partie. Si la valeur des travaux est modifiée, la police doit être modifiée pour refléter la valeur révisée du contrat.

Le contrat d'assurance doit stipuler que toute indemnité en vertu d'icelle doit être payée à sa Majesté ou selon les directives du Canada conformément à la CG10.2, « Indemnité d'assurance » (<https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/R/R2900D/2>).

ANNEXE B - RAPPORT VOLONTAIRE D'APPRENTIS EMPLOYÉS PENDANT LES CONTRATS (exemple)

(Ce rapport volontaire n'est pas requis lors du dépôt de soumission)

L'entrepreneur devrait compiler et tenir à jour des données sur le nombre d'apprentis ayant été embauchés pour travailler sur le contrat, ainsi que leur métier spécialisé.

L'entrepreneur devrait fournir ces données conformément au format ci-dessous. Si aucun apprenti n'a été embauché pendant la durée du contrat, l'entrepreneur devrait soumettre un rapport portant la mention « néant ».

Les données devraient être présentées à l'autorité contractante au plus tard six mois après l'octroi du contrat ou à la fin du contrat, selon la première éventualité.

Nombre d'apprentis embauchés	Métier spécialisé

(Ajouter des lignes au besoin)


ANNEXE C - LISTE DES SOUS-TRAITANTS


- 1) Conformément à la clause IG07 – Liste des sous-traitants et fournisseurs des Instructions générales - Services de construction - Exigences relatives à la garantie de soumission R2710T, le soumissionnaire devrait accompagner sa soumission d'une liste de sous-traitants.
- 2) Le soumissionnaire devrait soumettre la liste des sous-traitants pour toute partie des travaux dont la valeur équivaut à au moins 20 % du prix soumissionné.

	Sous-traitant	Division	Valeur estimative des travaux
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			



APPROVED BY:



Regional Manager ES


Construction Safety Coordinator

2016-08-05
Date

2016-08-04
Date

TENDER:


Project Manager

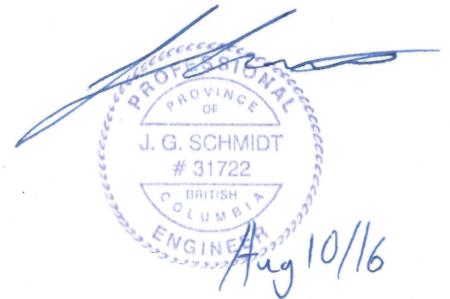
2016 Aug 04
Date

Canada

Division No.	Division Title	Page
01 11 00	Summary of Work	3
01 11 55	General Instructions	11
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02 61 00.04	Soil Remediation PRB Wall	79

Drawing No.	Drawing Title
1	Site Location
2	Site Plan
3	Site Zones
4	Location of Monitoring Wells
5	Treatment Wall Alignment (Plan View)
6	Treatment Wall Section B
7	Treatment Wall Section B – Optional Work

Appendix No.	Appendix Title
A	Summary of Subsurface Soil Conditions
B	Material and Media Specifications
C	Installed Wall Media Sampling and Performance Specifications
D	Grout Cut-Off Wall Specifications



1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. Pre-mobilization Submittals will be paid in accordance with lump sum price established for all Preconstruction Meetings, final design, planning, health and safety, and other Submittals in accordance with the Contract or required and accepted by the Departmental Representative as in accordance with the Contract prior to mobilization to Site.
- 1.1.2. Mobilization will be paid in accordance with lump sum price established for mobilizing all necessary equipment, materials, supplies, facilities, and personnel associated with the Works to the Site. Includes initial insurance, bonding, and permits. Additional insurance, bonding, and permits due to changes in scope, cost, and schedule as accepted by the Departmental Representative will be included in Contract amendments.
- 1.1.3. Site Facilities Provision will be paid in accordance with lump sum price established to design, temporarily provide for duration of Work, and erect all infrastructure in accordance with the Contract. Includes temporary structures and facilities, temporary hoarding, security fencing, federal signage, sanitary facilities, stormwater management infrastructure, and utility installation.
- 1.1.4. Site Facilities Operation will be paid in accordance with unit rate price established for time to operate and maintain all infrastructure between mobilization and demobilization. Measurement as recorded time by Departmental Representative. Includes temporary structures and facilities including temporary hoarding, security fencing, federal signage, sanitary facilities, stormwater management infrastructure, and utility installation. Also includes ongoing services including project management, security, surveying, noise monitoring, vibration monitoring, utilities, project meetings, inspections, progress Submittals, traffic control, health and safety, Environmental Protection and cleaning. Also, includes living out allowances, travel and room and board. Rate must not vary even if hours of work and/or days of work vary. Time will only be paid for duration in accordance with the Contract and changes in schedule as accepted by the Departmental Representative and included in Extension of Time on Contracts.
- 1.1.5. Standby Time will be paid in accordance with unit rate price established, for time when construction Work is unable to proceed, and that is directly attributable to any neglect or delay that occurs after the date of the Contract on the part of the Departmental Representative in providing any information or in doing any act that the Contract expressly requires the Departmental Representative. Measurement as recorded time by Departmental Representative. Includes machinery and labour standby costs. Does not include items covered by Site Facilities Operation. Standby Time may be pro-rated based on hours of work. Make all efforts to minimize impacts due to delays caused by the

Departmental Representative, including re-sequencing Work. Provide documentation of a sufficient description of the facts and circumstances of the occurrence to enable the Departmental Representative to determine whether or not the Standby Time is justified. Reviews, sampling, or other work conducted by the Departmental Representative with time allowances in accordance with the Contract will result in no increase to the Contract Amount nor Extension of Time for completion of the Work.

- 1.1.6. Treatment Media Supply
- 1.1.7. Wall B Excavation and Treatment Media Placement
- 1.1.8. Wall B Extension to the Eastern Property Boundary
- 1.1.9. Excavation, Management, and Stockpiling in Soil Storage Cells
- 1.1.10. Demobilization will be paid in accordance with lump sum price established for demobilizing all equipment and personnel associated with the Works from the Site. Includes decontaminating all equipment prior to removal from Site.
- 1.1.11. Closeout Submittals will be paid in accordance with lump sum price established for Final Site Inspection (for Certificate of Completion purposes), Closeout Meetings, provision of final as-built documents and completion documents as instructed by the Departmental Representative.

1.2. Definitions

- 1.2.1. Certificate of Completion: see General Conditions.
- 1.2.2. Change Order: PWGSC form issued by the Departmental Representative to the Contractor as per the relevant Contemplated Change Notice.
- 1.2.3. Confirmation Samples: soil and sediment samples collected from the base and walls of the excavation by the Departmental Representative to confirm that the remedial objectives for the Work have been met.
- 1.2.4. Contaminated Material: soil and other material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) exceed the levels specified in policies and regulations. Includes Hazardous Waste and Waste Quality; does not include Non-Contaminated Material or Waste. Relevant regulations, unless otherwise in accordance with the Contract or as instructed by the Departmental Representative, include:
 - 1.2.4.1. For all sites: Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* and CCME *Canada-Wide Standards*.
 - 1.2.4.2. For sites in BC: BC *Hazardous Waste Regulations*, BC *Approved Water Quality Guidelines*, BC *Contaminated Sites Regulation*.
- 1.2.5. Contaminated Water: liquid material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) meet or exceed the levels specified in policies and regulations. Includes Hazardous Waste and Waste Quality Water; does not include Non-Contaminated Water or

Sewage Wastewater. Relevant regulations, unless otherwise in accordance with the Contract or as instructed by the Departmental Representative, include:

- 1.2.5.1. For all sites: Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* and CCME *Canada-Wide Standards*.
- 1.2.5.2. For sites in BC: BC *Hazardous Waste Regulations*, BC *Approved Water Quality Guidelines*.
- 1.2.6. Contaminated Water Treatment Plant: a temporary onsite or existing offsite facility located in Canada that is designed, constructed and operated for the handling or processing of Contaminated Water in such a manner as to change the physical, chemical or biological character or composition of the water to lower than the site-specific remedial objective, Discharge Approval, and in compliance with all regulations.
- 1.2.7. Contemplated Change Notice: PWGSC form issued by the Departmental Representative to the Contractor requesting Contractor to provide a quote, which may result in a Change Order.
- 1.2.8. Contract: see General Conditions.
- 1.2.9. Contract Amount: see General Conditions.
- 1.2.10. Contractor: see General Conditions.
- 1.2.11. Departmental Representative: see General Conditions.
- 1.2.12. Discharge Approval: permit, certificate, approval, or any other form of authorization issued by appropriate federal agency, province, territory, or municipality having jurisdiction and authorizing offsite discharge.
- 1.2.13. Disposal Facility: a facility specifically used to introduce waste into the environment for the purpose of final burial.
- 1.2.14. Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- 1.2.15. Environmental Protection: prevention, control, mitigation, and restoration of pollution and habitat or environmental disruption during construction. Control of Environmental Pollution and Damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; vibrations; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- 1.2.16. Environmental Protection Plan: plan developed by the Contractor to ensure Environmental Protection and prevent Environmental Pollution and Damage identifying all environmental risks and mitigation measures, including: personnel requirements, emergency contacts, Environmental Protection methods, procedures, and equipment, and emergency response including a Spill Control Plan.
- 1.2.17. Extension of Time: see General Conditions.



01 11 00
SUMMARY OF WORK

- 1.2.18. Extension of Time on Contracts: PWGSC form requesting an Extension of Time.
- 1.2.19. Final Completion: see General Conditions.
- 1.2.20. Hazardous Waste: Contaminated Material which meets the regulatory definition of Hazardous Waste.
- 1.2.21. Land Surveyor: a person working for the Contractor who is a qualified, registered land surveyor licensed to practice in relevant jurisdiction.
- 1.2.22. Landfill: an existing offsite facility located in Canada that is designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.
- 1.2.23. Materials Source Separation Program: consists of a series of ongoing activities to separate reusable and recyclable waste into categories from other types of waste at point of generation.
- 1.2.24. Non-Contaminated Material: soil and other material which meets the BC *Contaminated Sites Regulation* Schedule 7 Column IV.
- 1.2.25. Non-Contaminated Water: liquids which are suitable for direct discharge to the environment after removal of sediment, and which is not Contaminated Water or Sewage Wastewater. Includes surface runoff, stormwater, and groundwater which has not come into contact with Contaminated Material.
- 1.2.26. On Site Instruction: instructions or other communications issued by the Departmental Representative to the Contractor.
- 1.2.27. On Site Notice: notice or other communication issued by the Contractor to the Departmental Representative.
- 1.2.28. Overburden: Non-Contaminated Material excavated incidentally that is not Topsoil.
- 1.2.29. Progress Payment: see General Conditions.
- 1.2.30. PWGSC: Public Works and Government Services Canada. Representative of Canada with control of the Site.
- 1.2.31. Qualified Professional: a person working for the Contractor who is registered in relevant jurisdiction with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association, and through suitable education, experience, accreditation and knowledge can be reasonably relied on to provide advice within his or her area of expertise. Includes Geotechnical Engineers and Environmental Consultants.
- 1.2.32. Quote: Contractor's cost estimate issued to the Departmental Representative as per the relevant Contemplated Change Notice via an On Site Notice.
- 1.2.33. Remediation by Excavation: complete excavation of Contaminated Material and incidental Non-Contaminated Material to the Site boundaries for the purpose of remediating the Site to meet numerical standards. Includes full treatment and disposal. Does not include risk assessment or risk management of material onsite. Does not include encapsulation or solidification in place.



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SUMMARY OF WORK

- 1.2.34. Sewage Wastewater: liquid waste which is not suitable for direct discharge to the environment, and which must be either treated offsite or discharged to a sanitary sewer. Includes water from hand basin, shower, personal hygiene facilities, or other liquid waste from sanitary facilities.
- 1.2.35. Site: area shown on Drawings.
- 1.2.36. Subcontractor: see General Conditions.
- 1.2.37. Submit/Submittals: documents from the Contractor to the Departmental Representative as: required by Contract; stipulated in permit, certificate, approval, or any other form of authorization; by convention or industry practice. Submittals are final only after review and accepted in writing by Departmental Representative.
- 1.2.38. Substantial Performance: see General Conditions.
- 1.2.39. Superintendent: see General Conditions
- 1.2.40. Supplier: see General Conditions.
- 1.2.41. Topsoil: non-contaminated soil excavated incidentally that is a surface organic layer to facilitate vegetation growth.
- 1.2.42. Treatment Facility: a facility specifically used to treat Contaminated Material. May be Onsite (PWGSC provided) or Offsite (Contractor provided). Onsite facility is located on property under PWGSC control, but may be located at a different location than where construction work occurs.
- 1.2.43. Waste: Non-Contaminated Material that is not soil. Includes cleared and grubbed vegetation, litter, rubbish, debris, cobbles, boulders, excess construction material, lumber, steel, plastic, concrete, and asphalt.
- 1.2.44. Waste Oversize Debris: Waste that is required to be excavated and is: larger than 1 cubic metre or larger than 2 metres in one dimension, cannot be removed with a typical excavator with bucket, and requires the use of special equipment (e.g., saws, hydraulic cutters, excavator hammers, vibratory pile extractors). Includes bedrock, boulders, pilings, building structures, and concrete foundations.
- 1.2.45. Waste Quality: soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the *BC Contaminated Sites Regulation*.
- 1.2.46. Waste Reduction Plan: a written report which addresses opportunities for reduction, reuse or recycling of materials.
- 1.2.47. Work: see General Conditions.
- 1.2.48. Working Day: see General Conditions.

1.3. Action and Informational Submittals

- 1.3.1. After hours work: at least 5 Working Days prior to commencing after hours work Submit a schedule showing requested dates, times, and reasons for after hours work. Approval will only be granted for reasons valid in the opinion of the Departmental Representative and if request can be reasonably accommodated by other contracts.



1.4. Work Covered by Contract

- 1.4.1. Work under the Contract covers remediation of contaminated material by permeable reactive barrier wall.
- 1.4.2. Base Work to be performed under the Contract includes, but is not limited to, the following items covered further in the Contract:
 - 1.4.2.1. Prime Contractor for health and safety and environmental protection at Site.
 - 1.4.2.2. All required design activities to complete Work.
 - 1.4.2.3. Pre-mobilization Submittals
 - 1.4.2.4. Progress Submittals, including cash flow and forecasting.
 - 1.4.2.5. Prepare Site for Work, including clearing site as required and provision of onsite temporary office facilities for Departmental Representative and consultants.
 - 1.4.2.6. Supply and prepare wall treatment material as specified
 - 1.4.2.7. Plan Wall B restoration, including geotechnical design as required.
 - 1.4.2.8. Design and install temporary shoring support as required to allow removal of existing wall material and replacement with new wall material to extents as shown on Drawings.
 - 1.4.2.9. Design and install temporary shoring support as required to allow eastern extension of existing wall material and placement of new wall material to extents as shown on Drawings.
 - 1.4.2.10. Onsite management of excavated material.
 - 1.4.2.11. Restore Site to pre-existing conditions.
 - 1.4.2.12. As-built and closure Submittals.
 - 1.4.2.13. All ancillary activities required to complete Work.
- 1.4.3. Optional Work that may be performed under the Contract includes, but is not limited to, the following items covered further in the Contract:
 - 1.4.3.1. Supply and prepare additional wall treatment material as specified.
 - 1.4.3.2. Design and install temporary shoring support as required to allow vertical extension of existing wall and eastern extension to extents as shown on Drawings.
 - 1.4.3.3. Onsite management of additional excavated material.
 - 1.4.3.4. All ancillary activities required to complete Work.
- 1.4.4. Green Requirements:
 - 1.4.4.1. Use only environmentally responsible green materials/products with no Volatile Organic Compounds (VOC) emissions or minimum VOC emissions of indoor off-gassing contaminants for improved indoor air quality – subject of acceptance of Submittal of Materials Safety Data Sheet (MSDS) Product Data.
 - 1.4.4.2. Use materials/products containing highest percentage of recycled and recovered materials practicable – consistent with maintaining cost effective satisfactory levels of competition.
 - 1.4.4.3. Adhere to waste reduction requirement for reuse or recycling of waste materials, thus diverting materials from Landfill.

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SUMMARY OF WORK

1.4.5. Work not included in the Contract comprises such work and services specifically listed as:

1.4.5.1. Not Used.

1.5. Location

1.5.1. The Site location is located in West Vancouver, BC, shown on Drawings.

1.5.2. There is no civic street address or PIN for the Site.

1.6. Project/Site Conditions

1.6.1. Work at Site will involve contact with contaminated materials, requiring appropriate health and safety and environmental protection procedures.

1.6.2. Complete list of anticipated contaminants and concentration levels on the Site available separately in assessment reports.

1.6.3. Existing condition on the Site is shown on Drawings.

1.7. Other Contracts

1.7.1. Other contracts are currently in progress at Site.

1.7.2. Other contracts are:

1.7.2.1. Environmental and other consultants.

1.7.2.2. Site users as identified in Contract.

1.7.3. Further contracts may be awarded while the Contract is in progress.

1.7.4. Cooperate with other contractors in carrying out their respective works and carry out instructions from Departmental Representative.

1.7.5. Coordinate Work with that of other contractors. If any part of Work under the Contract depends for its proper execution or result upon Work of another contractor, report promptly to Departmental Representative, in writing, any defects which can interfere with proper execution of this Work.

1.8. Products Supplied by the Departmental Representative

1.8.1. Not Used.

1.9. Contractor's Use of Site

1.9.1. Use of Site:

1.9.1.1. For the sole benefit of Canada.

1.9.1.2. Exclusive and only for completion of the execution of Work.

1.9.1.3. Assume responsibility for assigned premises for performance of this Work.

1.9.1.4. Be responsible for coordination of all Work activities onsite, including the Work of other contractors engaged by the Departmental Representative.

1.9.2. There are no pre-existing arrangements for encroachment on the neighbouring properties. Shoring designs accommodating no offsite encroachment, or arrangements for offsite encroachment, are the responsibility of the Contractor.



01 11 00
SUMMARY OF WORK

- 1.9.3. Perform Work in accordance with Contract. Ensure Work is carried out in accordance with schedule accepted by Departmental Representative.
- 1.9.4. Do not unreasonably encumber Site with material or equipment.

1.10. Existing Permits

- 1.10.1. Existing permits are:
 - 1.10.1.1. None

1.11. Schedule Requirements

- 1.11.1. Work to be initiated: within 5 days of Contract Award.
- 1.11.2. Pre-Mobilization Submittals: within 10 days of Contract Award.
- 1.11.3. Mobilization: within 15 days of Contract Award.
- 1.11.4. Demobilization no later than: 2016Dec31.
- 1.11.5. Completion of the Work: no later than: 2017Jan31. Includes all final Submittals including as-built documents, the Certificate of Completion, and the Statutory Declaration at Final Completion.

1.12. Hours of Work

- 1.12.1. Restrictive as follows:
 - 1.12.1.1. Working Day work hours are unrestricted.
- 1.12.2. Obtain consent from Departmental Representative for all after hours Work, including weekends and holidays.
 - 1.12.2.1. Proceed only as instructed by the Departmental Representative.

1.13. Security Clearances

- 1.13.1. Not Used.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



GENERAL INSTRUCTIONS**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Utility Locations: at least 5 Working Days prior to commencing any subsurface disturbance, Submit drawings identifying all utilities on the Site. Update drawings as instructed by the Departmental Representative.
- 1.3.2. Breakdown of Lump Sum Prices: at least 5 Working Days prior to submitting the first Progress Payment, Submit a breakdown of the Contract lump sum prices including labour, material and time, in detail as instructed by the Departmental Representative and aggregating Contract Amount.
- 1.3.3. Daily Work Records: at the end of each shift Submit daily Work records, during onsite Work. Include:
 - 1.3.3.1. Quantities for each Description of Work identified in the Unit Price Table and Change Orders.
 - 1.3.3.2. Description of Work performed.
 - 1.3.3.3. Current Site conditions.
 - 1.3.3.4. General information including: date, time shift started and ended, Subcontractor(s) onsite, Health and Safety items, and Environmental Protection items.
 - 1.3.3.5. Signature of Superintendent and Departmental Representative.
- 1.3.4. Cash Flow: with each Progress Payment, Submit a cash flow forecast. Include:
 - 1.3.4.1. Calculation of planned cost versus actual cost and schedule forecasting and cash flow projections on a monthly basis, indicating anticipated value of future Progress Payments, for each Description of Work identified in the Unit Price Table.
 - 1.3.4.2. Progress Payments will not be processed until cash flow has been accepted by the Departmental Representative.
- 1.3.5. Coordination Meeting Minutes and Drawings: at least 5 Working Days prior to relevant Work commencing, Submit final meeting minutes and drawings from coordination with Subcontractors.
- 1.3.6. Quality Management Plan: within 40 Working Days after Contract award, Submit a quality management plan. Include:
 - 1.3.6.1. Details on planned review, inspection and testing to provide Quality Assurance and Quality Control for the Work.
 - 1.3.6.2. Subcontractors responsible for review, inspection and testing.
 - 1.3.6.3. Schedule of submittals of review, inspection and testing results.



GENERAL INSTRUCTIONS

- 1.3.7. Review, Inspection, and Testing Results: within 5 Working Days of receipt, Submit all results of reviews, inspection, and testing performed as part of the Work, including laboratory reports.

1.4. Division of Specifications

- 1.4.1. This specification is subdivided into Divisions and Sections in accordance with the six digit National Master Specifications System.
- 1.4.2. A Division or Section may consist of the Work of more than one Subcontractor. Responsibility for determining which Subcontractor provides the labour, material, equipment and services required to complete the Work rests solely with the Contractor.

1.5. Documents Required

- 1.5.1. Maintain 1 copy each of the following posted at the job Site:
- 1.5.1.1. General Conditions.
 - 1.5.1.2. Drawings.
 - 1.5.1.3. Specifications.
 - 1.5.1.4. Addenda or other modifications to Contract.
 - 1.5.1.5. Change orders.
 - 1.5.1.6. Copy of current Work schedule.
 - 1.5.1.7. Reviewed and final shop drawings Submittals.
 - 1.5.1.8. One set of record drawings and Specifications for “as-built” purposes.
 - 1.5.1.9. Field and laboratory test reports.
 - 1.5.1.10. Reviewed and accepted Submittals.
 - 1.5.1.11. Manufacturers’ installation and application instructions (as appropriate).
 - 1.5.1.12. *National Building Code of Canada* (as appropriate).
 - 1.5.1.13. Current construction standards of workmanship listed in technical Sections (as appropriate).
 - 1.5.1.14. Health and Safety documents, including all daily toolbox meetings, Notice of Project, and utility clearances.
 - 1.5.1.15. Environmental Protection Plan.
 - 1.5.1.16. Quality Management Plan.
 - 1.5.1.17. Final Meeting Minutes, Agendas and associated attachments.
 - 1.5.1.18. Permits and other approvals.

1.6. Setting out of Work

- 1.6.1. Assume full responsibility for and execute complete layout of Work to locations, lines and elevations in accordance with the Contract.
- 1.6.2. Provide devices needed to layout and construct Work.
- 1.6.3. Supply such services and devices in accordance with the Contract to facilitate Departmental Representative’s inspection of Work.

1.7. Acceptance of Substrates

GENERAL INSTRUCTIONS

- 1.7.1. Each trade must examine surfaces prepared by others and job conditions which can affect his work, and must report defects to the Departmental Representative. Commencement of Work will imply acceptance of prepared Work or substrate surfaces.

1.8. Works Coordination

- 1.8.1. Coordinate Work of Subcontractors.
- 1.8.1.1. Designate one person to be responsible for review of Contract and shop drawings and managing coordination of Work.
- 1.8.2. Convene meetings between Subcontractors whose Work interfaces and ensure awareness of areas and extent of interface required.
- 1.8.2.1. Provide each Subcontractor with complete Drawings and Specifications for Contract, to assist them in planning and carrying out their respective work.
- 1.8.2.2. Develop coordination drawings when required, illustrating potential interference between Work of various trades and distribute to affected parties.
- 1.8.2.3. Facilitate meeting and review coordination drawings. Ensure Subcontractors agree and sign off on coordination drawings.
- 1.8.2.4. Publish minutes of each meeting.
- 1.8.2.5. Submit a copy of coordination drawings and meeting minutes as instructed by the Departmental Representative.
- 1.8.3. Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.
- 1.8.4. Work coordination:
- 1.8.4.1. Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.
- 1.8.4.2. Ensure that each trade provides all other trades reasonable opportunity for Final Completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed Work.
- 1.8.4.3. Ensure disputes between Subcontractors are resolved.
- 1.8.5. Failure to coordinate Work is responsibility of Contractor.

1.9. Approvals of Shop Drawings, Product Data and Samples

- 1.9.1. The term "shop drawings" means drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data which are Submittals by Contractor to illustrate details of a portion of Work.
- 1.9.2. Submit as instructed by the Departmental Representative the requested shop drawings, product data, MSDS sheets and samples in accordance with the Contract.
- 1.9.3. Allow sufficient time for the following:
- 1.9.3.1. Review of product data.
- 1.9.3.2. Acceptance of shop drawings.
- 1.9.3.3. Review of re-submission.
- 1.9.3.4. Ordering of accepted material and/or products.



GENERAL INSTRUCTIONS**1.10. Relics and Antiquities**

- 1.10.1. See General Conditions.

1.11. Additional Drawings

- 1.11.1. The Departmental Representative may furnish additional Drawings for clarification. These additional Drawings have the same meaning and intent as if they were included with Drawings referred to in the Contract.
- 1.11.2. Upon request, Departmental Representative may furnish up to a maximum of 2 sets of Drawings for use by the Contractor at no additional cost. Should more than 2 sets of documents be required the Departmental Representative will provide them at additional cost.

1.12. Record Keeping

- 1.12.1. On Site Notifications: All correspondence from Contractor to the Departmental Representative, including Submittals, Quotes, and Extension Of Time On Contracts, must be as a sequentially numbered On Site Notifications. Include cross references to applicable On Site Instructions. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Notifications.
- 1.12.2. On Site Instructions: All correspondence from the Departmental Representative to the Contractor, including Contemplated Change Notices, Change Orders, and Extension of Time on Contracts, will be as sequentially numbered On Site Instructions. Include cross references to applicable On Site Notifications. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Instructions.
- 1.12.3. Maintain adequate records to support information provided to Departmental Representative.
- 1.12.4. Maintain asbestos waste shipment records or other Hazardous Waste Manifests for minimum of 3 years from date of shipment or longer period required by applicable law or regulation.
- 1.12.5. Maintain bills of lading for minimum of 300 days from date of shipment or longer period required by applicable law or regulation.

1.13. Change Documents

- 1.13.1. Change Documents do not relieve Contractor of any obligation.
- 1.13.2. Change Documents do not change the Contractor's responsibility for sequencing, methods and means.
- 1.13.3. Change Documents do not change by any reason the status of the Contractor, including the function of Prime Contractor or as supervisor.
- 1.13.4. Change Documents include:
- 1.13.4.1. Change Order: There may be an increase to the Contract Amount by reason of any Change Order. No Extension of Time for completion of the Work by reason of any Change Order.

GENERAL INSTRUCTIONS

- 1.13.4.2. Contemplated Change Notice: No increase to the Contract Amount by reason of any Contemplated Change Notice. No Extension of Time for completion of the Work by reason of any Contemplated Change Notice.
- 1.13.4.3. Extension of Time on Contracts: No increase to the Contract Amount by reason of any Extension of Time on Contracts. There may be an Extension of Time for completion of the Work by reason of an Extension of Time on Contracts.
- 1.13.4.4. Quote: No increase to the Contract Amount by reason of any Quote. No Extension of Time for completion of the Work by reason of any Quote. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any Quote.

1.14. System of Measurement

- 1.14.1. The metric system of measurement (SI) will be employed on the Contract.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Preconstruction Meeting Minutes: within 2 Working Days of the Preconstruction Meeting, Submit meeting minutes.
- 1.3.2. Progress Meeting Minutes: within 2 Working Days of a Progress Meeting, Submit meeting minutes.
- 1.3.3. Information for Progress Meetings: at least 2 Working Days prior to scheduled Progress Meetings, Submit all information in accordance with the Contract for Progress Meetings. Include:
 - 1.3.3.1. Agenda for the proposed Progress Meeting.
 - 1.3.3.2. Updated Project Schedule.
 - 1.3.3.3. Copies of transport manifests and disposal receipts for all materials removed from Site.
 - 1.3.3.4. Other information as instructed by the Departmental Representative or relevant to agenda for upcoming progress meeting.
- 1.3.4. Final Site Inspection: within 2 Working Days of the Final Site Inspection, Submit meeting minutes.
- 1.3.5. Closeout Meetings: within 2 Working Days of the Closeout Meeting, Submit meeting minutes.

1.4. Administrative

- 1.4.1. Schedule and administer project meetings throughout the progress of the Work weekly and at the call of the Departmental Representative.
- 1.4.2. Prepare agenda for meetings.
- 1.4.3. Submit written notice with agenda of each meeting 2 Working Days in advance of meeting date as instructed by the Departmental Representative.
- 1.4.4. Provide physical space and make arrangements for meetings, or arrange for teleconference meetings, as instructed by Departmental Representative.
- 1.4.5. Preside at meetings.
- 1.4.6. Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- 1.4.7. Maintain records of meeting minutes for a minimum of 2 years after Work is completed.

PROJECT MEETINGS

- 1.4.8. Representative of Contractor, Subcontractor(s) and Supplier(s) attending meetings must be qualified and authorized to act on behalf of party each represents.

1.5. Preconstruction Meeting

- 1.5.1. Within 5 Working Days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.
- 1.5.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.5.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.5.4. Agenda to include:
- 1.5.4.1. Appointment of official representative of participants in the Work, including Contractor's Superintendent and Departmental Representative.
- 1.5.4.2. Schedule of Work.
- 1.5.4.3. Schedule of Submittals.
- 1.5.4.4. Requirements for temporary facilities.
- 1.5.4.5. Site security.
- 1.5.4.6. Change orders, procedures, approvals required, administrative requirements.
- 1.5.4.7. Monthly Progress Payments, administrative procedures, hold backs.
- 1.5.4.8. Appointment of inspection and testing agencies or firms.
- 1.5.4.9. List of Subcontractor(s).

1.6. Progress Meetings

- 1.6.1. During course of Work schedule progress meetings weekly subject to approval by Departmental Representative.
- 1.6.2. Contractor, Superintendent, major Subcontractor(s) involved in Work, and Departmental Representative are to be in attendance.
- 1.6.3. Agenda to include:
- 1.6.3.1. Review and acceptance of minutes of previous meeting.
- 1.6.3.2. Review health and safety, including incidents, near misses, and corrective measures.
- 1.6.3.3. Review Environmental Protection, including incidents, near misses, and corrective measures.
- 1.6.3.4. Review contractual compliance.
- 1.6.3.5. Review regulatory compliance.
- 1.6.3.6. Review communications, problems or concerns with community.
- 1.6.3.7. Review of Work progress since previous meeting.
- 1.6.3.8. Field observations, problems, conflicts.
- 1.6.3.9. Updated progress schedule detailing activities planned over next 2 week period. Include review of progress with respect to previously established dates for starting and stopping various stages of Work.

PROJECT MEETINGS

- 1.6.3.10. Problems which impede construction schedule.
- 1.6.3.11. Corrective measures and procedures to regain projected schedule.
- 1.6.3.12. Revision to construction schedule.
- 1.6.3.13. Progress schedule, during succeeding Work period.
- 1.6.3.14. Review submittal schedules: expedite as required.
- 1.6.3.15. Maintenance of quality standards.
- 1.6.3.16. Quantities of material transported, treated, and disposed.
- 1.6.3.17. Review proposed changes for affect on construction schedule and on Final Completion date.
- 1.6.3.18. Other business.

1.7. Toolbox Meetings

- 1.7.1. During the course of the Work, schedule daily toolbox meetings at the start of each Work shift. Multiple meetings are required if the Contractor works multiple shifts within a 24-hour period.
- 1.7.2. All on Site workers to attend, including Contractor, Superintendent, major Subcontractor(s), and environmental consultants. Departmental Representative may attend.
- 1.7.3. Agenda to include:
 - 1.7.3.1. Planned Work activities and environmental considerations for that shift.
 - 1.7.3.2. Coordination activities required between Contractor, Subcontractor(s), Departmental Representative, and other contractor(s) including environmental consultant.
 - 1.7.3.3. Health and Safety items.
 - 1.7.3.4. Environmental Protection items.

1.8. Final Site Inspection

- 1.8.1. Within 5 Working Days of completion of Site Works but prior to Demobilization, request a meeting on Site to review the Site.
- 1.8.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.8.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.8.4. Agenda to include:
 - 1.8.4.1. Inspect removal of all temporary equipment, materials, supplies, and facilities.
 - 1.8.4.2. Inspect final surface grades.
 - 1.8.4.3. Inspect final vegetation.
 - 1.8.4.4. Inspect permanent facilities for performance and damage.
 - 1.8.4.5. Document all damage, deficiencies, missing items, and non-conformance.

PROJECT MEETINGS

- 1.8.5. If required, and in the opinion of the Departmental Representative, perform another Final Site Inspection after resolving all documented damage, deficiencies, missing items, and non-conformance.

1.9. Closeout Meeting

- 1.9.1. Within 10 Working Days of completion of the Work, request a meeting to review the project.
- 1.9.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.9.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.9.4. Agenda to include:
 - 1.9.4.1. Review Certificate of Completion.
 - 1.9.4.2. Review final payment.
 - 1.9.4.3. Identify lessons learned.
 - 1.9.4.4. Perform Contractor Performance Evaluation Report Form.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL**1.1. Measurement Procedures**

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Schedule: within 10 Working Days after Contract award, Submit a Master Plan.
- 1.3.2. Schedule of Interruption of Services: at least 5 Working Days prior to any shutdown or closure of active utilities or facilities Submit a schedule identifying type of service and dates of shutdown or closure.
- 1.3.3. Project Schedule and Updates: with Progress Payment, Submit a Project Schedule updated as appropriate. Progress Payment submission is incomplete without an updated Project Schedule acceptable to Departmental Representative.

1.4. Requirements

- 1.4.1. Ensure Master Plan and detail Project Schedules are practical and remain within specified Contract duration.
- 1.4.2. Plan to complete Work in accordance with prescribed milestones and time frame.
- 1.4.3. Limit activity durations to maximum of approximately 10 Working Days, to allow for progress reporting.
- 1.4.4. Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- 1.4.5. Include Work sequencing description and schedule:
- 1.4.5.1. Work Sequencing description must describe sequence, methods and means to perform each major task.
- 1.4.5.2. Work Sequencing schedule must show on a Gantt chart, start, end and dependencies of each major task and also indicates Work to be performed in sequence and in parallel.
- 1.4.5.3. Major tasks includes all items identified on Unit Price Table.

1.5. Master Plan

- 1.5.1. Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- 1.5.2. Departmental Representative will review and return revised schedules within 5 Working Days.
- 1.5.3. Revise impractical schedule and resubmit within 5 Working Days.
- 1.5.4. Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6. Project Schedule

- 1.6.1. Develop detailed Project Schedule derived from Master Plan.
- 1.6.2. Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - 1.6.2.1. Dates of commencement and completion of Work for each Description of Work identified on the Unit Price Table.
 - 1.6.2.2. Dates of Submittals including shop drawings, product data, MSDS sheets and samples.
 - 1.6.2.3. Dates of inspection and testing.
 - 1.6.2.4. Final Completion date within the time period in accordance with the Contract, including Amendments.

1.7. Project Schedule Reporting

- 1.7.1. Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.
- 1.7.2. Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8. Project Meetings

- 1.8.1. Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- 1.8.2. Weather related delays with their remedial measures will be discussed and negotiated

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



1. PART 1 - GENERAL**1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Shop Drawings: at least 5 Working Days prior to commencing applicable Work, Submit Shop Drawings signed by a Qualified Professional.

1.4. General

- 1.4.1. This section specifies general requirements and procedures for the Contractor's Submittals of design drawings, shop drawings, product data, samples and other submittals in accordance with the Contract to Departmental Representative. Additional specific requirements for Submittals are identified in individual technical sections.
- 1.4.2. Present shop drawings, product data and samples in SI Metric units.
- 1.4.3. Where items or information is not produced in SI Metric units, converted values are acceptable.
- 1.4.4. Contractor's responsibility for errors and omissions in Submittals is not relieved by the Departmental Representative's review of Submittals.
- 1.4.5. Notify Departmental Representative in writing at time of Submittals, identifying deviations from requirements of Contract and stating reasons for deviations.
- 1.4.6. Contractor's responsibility for deviations in Submittals from requirements of Contract is not relieved by the Departmental Representative's review of Submittals unless Departmental Representative gives written acceptance of specific deviations.
- 1.4.7. Make any changes in Submittals which Departmental Representative requires to be in accordance with the Contract and resubmit as instructed by the Departmental Representative.
- 1.4.8. Notify Departmental Representative in writing, when resubmitting, of any revisions other than those instructed by the Departmental Representative.
- 1.4.9. Do not proceed with Work until relevant Submittals are finalized and have been accepted.
- 1.4.10. Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to Submit in ample time is responsibility of Contractor.
- 1.4.11. Review Submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each Submittal has been checked and coordinated with requirements of Work and Contract. Submittals not stamped, signed, dated

SUBMITTAL PROCEDURES

and identified as to specific project will be returned without being examined and considered rejected.

- 1.4.12. Verify field measurements and affected adjacent Work are coordinated.
- 1.4.13. Adjustments made on Submittals by the Departmental Representative will not result in an increase the Contract Amount nor an Extension of Time for completion of the Work. If adjustments result in an increase to the Contract Amount or an Extension of Time for completion of the Work, notify Departmental Representative and receive approval prior to proceeding with Work.
- 1.4.14. Keep one final copy of each Submittal onsite.

1.5. Submission Requirements

- 1.5.1. Coordinate each Submittal with the requirements of the Work and the Contract. Individual Submittals will not be reviewed until:
 - 1.5.1.1. Submittals are complete.
 - 1.5.1.2. All related information is available.
- 1.5.2. Allow 10 Working Days for Departmental Representative's review of each Submittal, unless otherwise specified.
- 1.5.3. All Submittals are to be sent to Departmental Representative in duplicate as a hardcopy and in electronic format compatible with Departmental Representative's software.
- 1.5.4. Accompany Submittals with On Site Notification:
 - 1.5.4.1. Date.
 - 1.5.4.2. Project title and number.
 - 1.5.4.3. Contractor's name and address.
 - 1.5.4.4. Identification and quantity of each shop drawing, product data and sample.
 - 1.5.4.5. Other pertinent data.
- 1.5.5. Submittals must include:
 - 1.5.5.1. Date and revision dates.
 - 1.5.5.2. Project title and number.
 - 1.5.5.3. Name and address of:
 - 1.5.5.3.1. Subcontractor.
 - 1.5.5.3.2. Supplier.
 - 1.5.5.3.3. Manufacturer.
 - 1.5.5.4. Signature of Superintendent, certifying approval of Submittals, verification of field measurements and in accordance with the Contract.
 - 1.5.5.5. Qualified Professional to sign and seal Submittals in accordance with the Contract. Submittals to include at a minimum 1 hard copy of original ink sealed document.
 - 1.5.5.6. Details of appropriate portions of Work as applicable.



1.6. Shop Drawings

- 1.6.1. Shop drawings are drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data intended to illustrate details of a portion of the Work which are provided by the Qualified Professional of record.
- 1.6.2. Maximum sheet size: ANSI E (864 x 1118 mm).
- 1.6.3. Submit, as instructed by the Departmental Representative, 2 copies of shop drawings for each requirement requested in the specification sections and/or as instructed by the Departmental Representative.
- 1.6.4. Cross-reference shop drawing information to applicable portions of the Contract.
- 1.6.5. Qualified Professional to sign and seal each individual shop drawing.
- 1.6.6. Qualified Professional to sign and seal final design drawings and submit as instructed by the Departmental Representative upon Final Completion of the construction project. Final design drawings are prepared by a Qualified Professional to reflect design changes made during the construction of the Remediation by Excavation project. Final design drawings are intended to incorporate addenda, change orders and other significant design changes, but not necessarily Site instructions.
- 1.6.7. Shop drawings must include:
 - 1.6.7.1. The original date of issue.
 - 1.6.7.2. The dates of all applicable revisions.
 - 1.6.7.3. The project title.
 - 1.6.7.4. The project address.
 - 1.6.7.5. The project number.
 - 1.6.7.6. Wherever applicable, the name(s) of the: Contractor, Subcontractor(s), Supplier(s), manufacturers, and separate detailers.
 - 1.6.7.7. The sequence number for each shop drawing.
 - 1.6.7.8. Identifications of all products and materials.
 - 1.6.7.9. Relation to adjacent structures or materials.
 - 1.6.7.10. Clearly identified field dimensions.
 - 1.6.7.11. Applicable standards.

1.7. Shop Drawings Review

- 1.7.1. Departmental Representative's review of shop drawings is to determine if shop drawings are consistent with the general intent of the Contract and are in accordance with the Contract.
- 1.7.2. This review will not mean that Departmental Representative approves the detail design inherent in the shop drawings, responsibility for which will remain with Contractor submitting same.
- 1.7.3. This review will not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract.
- 1.7.4. Without restricting the generality of the foregoing, be responsible for:
 - 1.7.4.1. Dimensions to be confirmed and correlated at the Site.

- 1.7.4.2. Information that pertains solely to fabrication processes or to techniques of construction and installation.
- 1.7.4.3. Coordination of the Work of all sub-trades.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

SPECIAL PROCEDURES FOR TRAFFIC CONTROL**4. PART 1 - GENERAL****4.1. Measurement Procedures**

4.1.1. See 01 11 00.

4.2. Definitions

4.2.1. See 01 11 00.

4.3. Action and Informational Submittals

4.3.1. List of Signs and Devices: within 40 Working Days after Contract award and prior to mobilization to Site Submit a list of signs and other devices required for the project.

4.4. Protection of Public Traffic

- 4.4.1. Comply with requirements of acts, regulations and bylaws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- 4.4.2. Comply with current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.
- 4.4.3. Provide and maintain road access and egress to property fronting Site and in other areas in accordance with the Contract, except where other means of road access exist that are accepted.

4.5. Informational and Warning Devices

- 4.5.1. Provide and maintain signs, flashing warning lights, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.
- 4.5.2. Supply and erect signs, delineators, barricades and miscellaneous warning devices to comply with current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.
- 4.5.3. Place signs and other devices in locations recommended in current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.
- 4.5.4. Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation onsite changes, revise list for approval.
- 4.5.5. Continually maintain traffic control devices in use:
 - 4.5.5.1. Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - 4.5.5.2. Remove or cover signs which do not apply to conditions existing from day to day.

SPECIAL PROCEDURES FOR TRAFFIC CONTROL

4.6. Control of Public Traffic

- 4.6.1. Provide competent flag personnel, trained in accordance with, and properly equipped to, current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways* for situations as follows:
 - 4.6.1.1. When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
 - 4.6.1.2. In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

4.7. Operational Requirements

- 4.7.1. Maintain existing conditions for traffic throughout period of Contract except that, when required for construction in accordance with the Contract and when measures have been taken in accordance with the Contract and accepted by Departmental Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:
 - 4.7.1.1. Maintain existing conditions for traffic crossing right-of-way.

5. PART 2 - PRODUCTS

5.1. Not Used

- 5.1.1. Not Used.

6. PART 3 - EXECUTION

6.1. Not Used

- 6.1.1. Not Used.

END OF SECTION



SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Contaminated Material and Non-Contaminated Material Management Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit plan detailing management of Contaminated Material and Non-Contaminated Material. Include:
- 1.3.1.1. Sequence, methods and means to ensure different categories of waste are segregated.
- 1.3.1.2. Sequence, methods and means to handle, transport, and store Contaminated Material and Non-Contaminated Material onsite.

1.4. Sequencing and Scheduling

- 1.4.1. Commence Work involving contact with Contaminated or potentially Contaminated Material or Wastewater after all applicable Environmental Protection procedures (including those identified in Contaminated Material and Non-Contaminated Material Management Plan and Environmental Protection Plan) and facilities (including those identified in Site Layout) are operational and accepted by Departmental Representative.
- 1.4.2. Plan work sequencing and traffic patterns to prevent contamination of clean areas due to traffic or debris.

1.5. Equipment Decontamination Facility

- 1.5.1. Prior to commencing Work involving equipment contact with potentially Contaminated Material, construct equipment decontamination facilities to accommodate the largest potentially contaminated equipment onsite.
- 1.5.2. Collect and contain equipment decontamination wastewater and sediment. Transfer collected wastewater and sediment to treatment facilities accepted by Departmental Representative.

1.6. Personnel Decontamination Facility

- 1.6.1. Provide an area or areas close to the workers' changing facilities to enable workers and other personnel leaving areas such as exclusion area to remove deleterious and contaminated materials from boots, clothing and skin surfaces.
- 1.6.2. Be responsible for ensuring that all materials, chemicals, protective clothing, wash water and deleterious materials are collected, treated and disposed of in accordance with applicable environmental standards and regulations.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.6.3. Personnel Decontamination Facility to be available for use by persons other than the Contractor's workers and Subcontractors, including federal employees, other contractor(s), and environmental agencies. Provide use of facilities to other persons.

1.7. Drum Staging Pad

- 1.7.1. Provide, maintain, and operate drum staging pad as required.
- 1.7.2. Construct drum staging pad with sump capable of collecting leachate and rain runoff. Place impermeable liner that contours over top of berm, and collects leachate and runoff from staging pad which is conducted solely to sump on staging pad. Leachate is Contaminated Water.

1.8. Soil Stockpiling

- 1.8.1. Provide, maintain, and operate temporary storage/stockpiling facilities as per Contractor's Site Layout.
- 1.8.2. Segregate Contaminated Material from Non-Contaminated Material into separate stockpiles to prevent cross-contamination.
- 1.8.3. Prevent precipitation from infiltrating or from directly running off stockpiled materials. Cover stockpiled materials with an impermeable cover during periods of Work stoppage including at end of each Working Day and as instructed by the Departmental Representative.
- 1.8.4. Securely fasten covers over stockpiled material until material is loaded for offsite transport.
- 1.8.5. Store excavated Non-Contaminated Material only on non-contaminated surface areas. Ensure no contact between excavated Non-Contaminated Material and drainage of Contaminated Water or Contaminated Material.
- 1.8.6. Store excavated Contaminated Material in temporary stockpiles.
- 1.8.6.1. Install impermeable liner (eg asphalt or minimum 20 mil (0.5mm) polyethylene) below proposed stockpile locations to prevent contact between stockpile material and ground.
- 1.8.6.2. Cover stockpiled material when not being worked or sampled to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
- 1.8.6.3. Prevent Non-Contaminated Water, such as surface water, from coming into contact with Contaminated Material stockpiles.
- 1.8.7. Segregate Contaminated Material into different treatment/disposal streams, including at a minimum:
- 1.8.7.1. Hazardous Waste
- 1.8.7.2. Waste Quality
- 1.8.8. Segregate different suspect material in discrete stockpiles to facilitate ex-situ characterization as instructed by the Departmental Representative.
- 1.8.9. Assist Departmental Representative in collection of stockpile samples for exsitu characterization. Ex-situ characterization may take up to 5 Working Days, not counting the day the sample is collected. No Standby Time charges or increases

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

to Contract Amount or Extension of Time for completion of the Work can be incurred for Confirmation Sample results provided within 5 Working Days, not counting the day the sample is collected.

- 1.8.10. Do not remove Contaminated Material from stockpiles until exsitu characterization completed and as instructed by Departmental Representative.

1.9. Equipment Decontamination

- 1.9.1. At minimum, perform following steps during equipment decontamination: mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce amount of water needed and to reduce amount of contaminated rinsate generated.
- 1.9.2. If required, as instructed by the Departmental Representative, use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate. Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages. Scrub surfaces with long handle scrub brushes and cleaning agent. Rinse off and collect cleaning agent. Air dry equipment in clean area before removing from Site or travelling on clean areas. Perform assessment as instructed by the Departmental Representative to determine effectiveness of decontamination.
 - 1.9.2.1. Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.
 - 1.9.2.2. Collect decontamination wastewater and sediment which accumulate in decontamination location. Treat collected wastewater as Contaminated Water. Manage decontamination sediment as Hazardous Waste.
- 1.9.3. In the opinion of the Departmental Representative, each piece of equipment must be inspected by the Departmental Representative after decontamination and prior to travel on clean areas or demobilization from Site. Perform additional decontamination as required in the opinion of the Departmental Representative.
- 1.9.4. Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

1.10. Progress Decontamination

- 1.10.1. Decontaminate equipment after working in potentially contaminated Work areas and prior to subsequent Work or travel on clean areas.

1.11. Final Decontamination

- 1.11.1. Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially Contaminated Material prior to demobilization from Site.

1.12. Drums

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.12.1. Storage of liquid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled.
- 1.12.2. Storage of solid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled.

1.13. Contaminated Material Management

- 1.13.1. Remove all Contaminated Material within Work areas in accordance with the Contract and as instructed by the Departmental Representative.
- 1.13.2. Minimize generation of Contaminated Material to greatest extent practicable. Take necessary precautions to avoid mixing during excavation, handling, loading, stockpiling, and transport of Non-Contaminated Material with Contaminated Material, and Waste Quality with Hazardous Waste.
- 1.13.3. Segregate, excavate, handle, stockpile, load, transport, treat, and dispose Contaminated Material separately into the following classifications in accordance with the Contract or as instructed by the Departmental Representative based on insitu results, field observations, field measurements, and/or ex-situ characterization:
 - 1.13.3.1. Hazardous Waste
 - 1.13.3.2. Waste Quality
- 1.13.4. Handle, stockpile, load, and transport Contaminated Material from the Site separately from material from other sites.
- 1.13.5. Treat and dispose Contaminated Material from the Site separately from material from other sites to the extent practicable as acceptable to the Departmental Representative.
- 1.13.6. Material characterization additional to information provided in Contract required by transport, Treatment Facility or Disposal Facility responsibility of Contractor.

1.14. Contaminated Material Transport Onsite

- 1.14.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle, barge, or other vessel for transport.
- 1.14.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.
- 1.14.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
- 1.14.4. Excess water in soil or sediment must not be allowed to flow out of vehicle or vessel during transport.
- 1.14.5. Stabilize soil and sediment as necessary.
- 1.14.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Hazardous Waste soil and sediment.
- 1.14.7. Transport material to location shown on Drawings.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.14.8. Place in Owner Soil Treatment Facility in locations and thicknesses as shown on Drawings.
- 1.14.9. Be responsible for any damage to Owner Soil Treatment Facility caused by placement.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

HEALTH AND SAFETY FOR CONTAMINATED SITES

1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Submit to Departmental Representative Submittals listed for review.
- 1.3.2. Work affected by Submittal must not proceed until review is complete.
- 1.3.3. Submit the following:
 - 1.3.3.1. Health and Safety Plan.
 - 1.3.3.2. Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - 1.3.3.3. Copies of incident and accident reports.
 - 1.3.3.4. Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - 1.3.3.5. Emergency Procedures.
 - 1.3.3.6. Notice of Project.
- 1.3.4. The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 Working Days after receipt of the plan.
- 1.3.5. If changes are required, revise the plan as appropriate and resubmit to Departmental Representative within 5 Working Days.
- 1.3.6. Submittal of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It will not:
 - 1.3.6.1. Be construed to imply approval by the Departmental Representative.
 - 1.3.6.2. Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - 1.3.6.3. Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.4. References

- 1.4.1. Government of Canada:
 - 1.4.1.1. Canada Labour Code - Part II.
 - 1.4.1.2. Canada Occupational Health and Safety Regulations.
- 1.4.2. National Building Code of Canada (NBC):
 - 1.4.2.1. Part 8, Safety Measures at Construction and Demolition Sites.
- 1.4.3. Canadian Standards Association (CSA) as amended:
 - 1.4.3.1. CSA Z797-2009 Code of Practice for Access Scaffold.



HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.4.3.2. CSA S269.1-1975 (R2003) Falsework for Construction Purposes.
- 1.4.3.3. CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
- 1.4.4. National Fire Code of Canada 2010 (as amended):
 - 1.4.4.1. Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
 - 1.4.4.2. FCC No. 302, Standard for Welding and Cutting.
- 1.4.5. American National Standards Institute (ANSI):
 - 1.4.5.1. ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- 1.4.6. Province of British Columbia:
 - 1.4.6.1. Workers Compensation Act Part 3-Occupational Health and Safety.
 - 1.4.6.2. Occupational Health and Safety Regulation.

1.5. Regulatory Requirements

- 1.5.1. Comply with codes, acts, bylaws, standards and regulations applicable to the performance of the Work in accordance with the Contract to ensure safe operations at Site.
- 1.5.2. In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will instruct on the course of action to be followed.

1.6. Worker's Compensation Board Coverage

- 1.6.1. Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the Final Completion of the Work.
- 1.6.2. Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.7. Compliance with Regulations

- 1.7.1. PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- 1.7.2. It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the Work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.8. Responsibility

- 1.8.1. Assume responsibility as the Prime Contractor for Work under this Contract.
 - 1.8.1.1. Be responsible for health and safety of persons onsite, safety of property onsite and for protection of persons adjacent to Site and environment to extent that they may be affected by conduct of Work.



HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.8.1.2. Comply with and enforce compliance by employees with safety requirements of Contract, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9. Health and Safety Coordinator

- 1.9.1. The Health and Safety Coordinator must:
 - 1.9.1.1. Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the Site to perform Work.
 - 1.9.1.2. Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.
 - 1.9.1.3. Be on Site during execution of Work.

1.10. General Conditions

- 1.10.1. Provide safety barricades and lights around Site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- 1.10.2. Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the Site:
 - 1.10.2.1. Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.

1.11. Project/Site Conditions

- 1.11.1. Work at Site will involve contact with contaminants identified in Specifications and environmental reports.

1.12. Work Permits

- 1.12.1. Obtain specialty permits related to project before start of Work.

1.13. Filing of Notice

- 1.13.1. The Prime Contractor is to complete and submit a Notice of Project as required by Provincial or Territorial authorities.
- 1.13.2. Provide copies of all notices to the Departmental Representative.

1.14. Health and Safety Plan

- 1.14.1. Conduct a site-specific hazard assessment based on review of Contract, required Work, and project Site. Identify any known and potential health risks and safety hazards.
- 1.14.2. Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - 1.14.2.1. Primary requirements:
 - 1.14.2.1.1. Contractor's safety policy.
 - 1.14.2.1.2. Identification of applicable compliance obligations.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.14.2.1.3. Definition of responsibilities for project safety/organization chart for project.
- 1.14.2.1.4. General safety rules for project.
- 1.14.2.1.5. Job-specific safe work, procedures.
- 1.14.2.1.6. Inspection policy and procedures.
- 1.14.2.1.7. Incident reporting and investigation policy and procedures.
- 1.14.2.1.8. Occupational Health and Safety Committee/Representative procedures.
- 1.14.2.1.9. Occupational Health and Safety meetings.
- 1.14.2.1.10. Occupational Health and Safety communications and record keeping procedures.
- 1.14.2.2. Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the Work.
- 1.14.2.3. List hazardous materials to be brought onsite as required by Work.
- 1.14.2.4. Indicate engineering and administrative control measures to be implemented at the Site for managing identified risks and hazards.
- 1.14.2.5. Identify personal protective equipment (PPE) to be used by workers.
- 1.14.2.6. Identify personnel and alternates responsible for site safety and health.
- 1.14.2.7. Identify personnel training requirements and training plan, including site orientation for new workers.
- 1.14.3. Develop the plan in collaboration with all Subcontractors. Ensure that work/activities of Subcontractors are included in the hazard assessment and are reflected in the plan.
- 1.14.4. Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
- 1.14.5. Departmental Representative's review: the review of Health and Safety Plan by Public Service and Procurement Canada (PWGSC) will not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract.

1.15. Emergency Procedures

- 1.15.1. List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (ie names/telephone numbers) of:
 - 1.15.1.1. Designated personnel from own company.
 - 1.15.1.2. Regulatory agencies applicable to Work and as per legislated regulations.
 - 1.15.1.3. Local emergency resources.
 - 1.15.1.4. Departmental Representative and site staff.
- 1.15.2. Include the following provisions in the emergency procedures:
 - 1.15.2.1. Notify workers and the first-aid attendant, of the nature and location of the emergency.
 - 1.15.2.2. Evacuate all workers safely.
 - 1.15.2.3. Check and confirm the safe evacuation of all workers.

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- 1.15.2.4. Notify the fire department or other emergency responders.
- 1.15.2.5. Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
- 1.15.2.6. Notify Departmental Representative and Site staff.
- 1.15.3. Provide written rescue/evacuation procedures as required for, but not limited to:
 - 1.15.3.1. Work at high angles.
 - 1.15.3.2. Work in confined spaces or where there is a risk of entrapment.
 - 1.15.3.3. Work with hazardous substances.
 - 1.15.3.4. Underground work.
 - 1.15.3.5. Work on, over, under and adjacent to water.
 - 1.15.3.6. Workplaces where there are persons who require physical assistance to be moved.
- 1.15.4. Design and mark emergency exit routes to provide quick and unimpeded exit.
- 1.15.5. Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.16. Hazardous Products

- 1.16.1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- 1.16.2. Where use of hazardous and toxic products cannot be avoided:
 - 1.16.2.1. Notify Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as required.
 - 1.16.2.2. In conjunction with Departmental Representative, schedule to carry out Work during "off hours" when tenants have left the building.
 - 1.16.2.3. Provide adequate means of ventilation as required.

1.17. Unforeseen Hazards

- 1.17.1. Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the Work, immediately stop Work and notify the Departmental Representative verbally and in writing.

1.18. Posted Documents

- 1.18.1. Post legible versions of the following documents onsite:
 - 1.18.1.1. Health and Safety Plan.
 - 1.18.1.2. Sequence of Work.
 - 1.18.1.3. Emergency procedures.
 - 1.18.1.4. Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - 1.18.1.5. Notice of Project.
 - 1.18.1.6. Floor plans or Site plans.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.18.1.7. Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the Site for review by employees and workers.
- 1.18.1.8. Workplace Hazardous Materials Information System (WHMIS) documents.
- 1.18.1.9. Material Safety Data Sheets (MSDS).
- 1.18.1.10. List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- 1.18.2. Post all Material Safety Data Sheets (MSDS) onsite, in a common area, visible to all workers and in locations accessible to tenants when Work of this Contract includes construction activities adjacent to occupied areas.
- 1.18.3. Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as accepted by the Departmental Representative.

1.19. Meetings

- 1.19.1. Attend health and safety preconstruction meeting and all subsequent meetings called by the Departmental Representative.
- 1.19.2. Ensure all site personnel attend a health and safety toolbox meeting at the beginning of each shift, which must include:
 - 1.19.2.1. Sign-in of all attendees.
 - 1.19.2.2. Planned Work activities and environmental considerations for that shift.
 - 1.19.2.3. Hazards associated with these Work activities, including environmental hazards (eg potential for hypothermia, heat exhaustion, heat stroke).
 - 1.19.2.4. Appropriate job-specific safe work procedures.
 - 1.19.2.5. Required personal protective equipment (PPE).
 - 1.19.2.6. Appropriate emergency procedures.
 - 1.19.2.7. Review recent accidents on Site, including near misses.
- 1.19.3. Retain records of all health and safety meetings onsite during Work, and retain as corporate records for a minimum of 7 years after Work is completed.

1.20. Correction of Non-Compliance

- 1.20.1. Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- 1.20.2. Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- 1.20.3. The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time.
- 1.20.4. Correct non-compliance.

1.21. Hazardous Occurrence Investigation and Reporting

- 1.21.1. Hazard includes:
 - 1.21.1.1. Any source of potential damage, harm or adverse effects on life, health, property or environment at work. It refers to any biological, chemical, ergonomic, physical, psychosocial and safety factor that is reasonably likely

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to cause harm or damage to humans, other organisms, or the environment in the absence of its control. Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example the disease tuberculosis might be called a hazard by some but in general the tuberculosis-causing bacteria would be considered the “hazard” or “hazardous biological agent”. Exposure to tuberculosis would be the hazardous incident. For types of Hazards refer to Annex 3 of the Standard on Hazard Prevention Program.

1.21.2. Hazardous Occurrence includes:

1.21.2.1. An event occurring at a PWGSC managed building or worksite, or through the course of an employee's work that results in, or has the potential to result in, a fatality, injury, illness, exposure to a hazardous substance or property damage or an escapement of a hazardous material. For the purpose of investigating, recording and reporting hazardous occurrences, the following are included under this term: disabling injuries, minor injuries and near-misses.

1.21.3. Hazardous Occurrence Investigation and Reporting Procedures:

1.21.3.1. Includes information regarding the person involved and the basic circumstances surrounding the hazardous occurrence.

1.21.3.2. Provides a detailed and thorough description of the hazardous occurrence and the sequence of events.

1.21.3.3. Indicates corrective measures that have been taken since the occurrence.

1.21.3.4. Requires the appointment of a qualified investigator.

1.21.3.5. Provides recommendations for additional corrective measures, if required.

1.21.4. Fatal or Serious Accidents Procedures:

1.21.4.1. Call 911 to advise the police organization having jurisdiction to secure the scene and investigate the matter.

1.21.4.2. Advise the Departmental Representative of the fatality or serious accident within 1 hour.

1.21.4.3. No investigation will be conducted at the scene until the police service having jurisdiction has released the scene.

1.21.4.4. No person shall, unless authorized to do so, remove or in any way interfere with or disturb any wreckage, article or thing related to the incident except to the extent necessary to: save a life, prevent injury or relieve human suffering in the vicinity; maintain an essential public service; or prevent unnecessary damage to or loss of property.

1.22. Utility Clearance

1.22.1. The Contractor is solely responsible for utility clearance.

1.22.2. The Contractor will not rely upon Drawings or other information provided with utility locations.

HEALTH AND SAFETY FOR CONTAMINATED SITES

1.23. Personal Protective Equipment Program

- 1.23.1. Submit Personal Protective Equipment (PPE) program to the Departmental Representative addressing:
 - 1.23.1.1. Donning and doffing procedures.
 - 1.23.1.2. PPE selection based upon Site hazards.
 - 1.23.1.3. PPE use and limitations of equipment.
 - 1.23.1.4. Work mission duration, PPE maintenance and storage.
 - 1.23.1.5. PPE decontamination and disposal.
 - 1.23.1.6. PPE inspection procedures prior to, during, and after use.
 - 1.23.1.7. Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.
 - 1.23.1.8. Medical surveillance requirements for personnel assigned to work at Site.
 - 1.23.1.9. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
 - 1.23.1.10. Site control measures employed at Site including site map, site work zones, use of 'buddy system', site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
 - 1.23.1.11. Decontamination procedures for both personnel and equipment.
 - 1.23.1.12. Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.
 - 1.23.1.13. Written respiratory protection program for project activities.
 - 1.23.1.14. Procedures dealing with heat and/or cold stress.
 - 1.23.1.15. Spill containment program if waste material is generated, excavated, stored, or managed onsite.

1.24. Offsite Contingency and Emergency Response Plan

- 1.24.1. Prior to commencing Work involving handling of hazardous materials, develop offsite Contingency and Emergency Response Plan.
- 1.24.2. Plan must provide immediate response to serious site occurrence such as explosion, fire, or migration of significant quantities of toxic or hazardous material from Site.

HEALTH AND SAFETY FOR CONTAMINATED SITES**1.25. Personnel Health, Safety, and Hygiene**

- 1.25.1. Training: ensure personnel entering Site are trained in accordance with specified personnel training requirements. Training session must be completed by Health and Safety Officer.
- 1.25.2. Levels of Protection: establish levels of protection for each Work area based on planned activity and location of activity.
- 1.25.3. Personal Protective Equipment:
 - 1.25.3.1. Furnish site personnel with appropriate PPE as specified above. Ensure that safety equipment and protective clothing is kept clean and maintained.
- 1.25.4. Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:
 - 1.25.4.1. Ensure prescription eyeglasses worn are safety glasses and do not permit contact lenses onsite within work zones.
 - 1.25.4.2. Ensure footwear is steel-toed safety shoes or boots and is covered by rubber overshoes when entering or working in potentially contaminated work areas.
 - 1.25.4.3. Dispose of or decontaminate PPE worn onsite at end of each workday.
 - 1.25.4.4. Decontaminate reusable PPE before reissuing.
 - 1.25.4.5. Ensure site personnel have passed respirator fit test prior to entering potentially contaminated work areas.
 - 1.25.4.6. Ensure facial hair does not interfere with proper respirator fit.
- 1.25.5. Respiratory Protection:
 - 1.25.5.1. Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied-air respirators in accordance with specified regulations.
 - 1.25.5.2. Develop, implement, and maintain respirator program.
 - 1.25.5.3. Monitor, evaluate, and provide respiratory protection for site personnel.
 - 1.25.5.4. Ensure levels of protection as listed have been chosen consistent with site-specific potential airborne hazards associated with major contaminants identified onsite.
 - 1.25.5.5. In absence of additional air monitoring information or substance identification, retain an industrial hygiene specialist to determine minimum levels of respiratory protection required.
 - 1.25.5.6. Immediately notify Departmental Representative when level of respiratory protection required increases.
 - 1.25.5.7. Ensure appropriate respiratory protection during Work activities. As minimum requirement, ensure that persons entering potentially contaminated work areas are supplied with and use appropriate respiratory protection.
- 1.25.6. Heat Stress/Cold Stress: implement heat stress or cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.
- 1.25.7. Personnel Hygiene and Personnel Decontamination Procedures. Provide minimum as follows:
 - 1.25.7.1. Suitable containers for storage and disposal of used disposable PPE.
 - 1.25.7.2. Potable water and suitable sanitation facility.
- 1.25.8. Emergency and First-Aid Equipment:

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.25.8.1. Locate and maintain emergency and first-aid equipment in appropriate location onsite including first-aid kit to accommodate number of site personnel; portable emergency eye wash; two 9 kg ABC type dry chemical fire extinguishers.
- 1.25.9. Site Communications:
 - 1.25.9.1. Post emergency numbers near site telephones.
 - 1.25.9.2. Ensure personnel use of "buddy" system and develop hand signal system appropriate for site activities.
 - 1.25.9.3. Provide employee alarm system to notify employees of site emergency situations or to stop Work activities if necessary.
 - 1.25.9.4. Furnish selected personnel with 2-way radios.
 - 1.25.9.5. Safety Meetings: conduct mandatory daily safety meetings for personnel, and additionally as required by special or Work-related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on as-needed basis.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

ENVIRONMENTAL PROCEDURES**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Environmental Protection Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing protection of the environment. Include:
- 1.3.1.1. Comprehensive overview of known or potential environmental issues to be addressed during Work.
 - 1.3.1.2. Identify requirements that plan complies with. Includes: permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract.
 - 1.3.1.3. Names and qualifications of persons responsible for ensuring adherence to Environmental Protection Plan.
 - 1.3.1.4. Names and qualifications of persons responsible for manifesting material to be removed from Site.
 - 1.3.1.5. Names and qualifications of persons responsible for training Site personnel.
 - 1.3.1.6. Description of Environmental Protection personnel training program.
 - 1.3.1.7. Work Area Plan showing proposed activity in each portion of areas, such as exclusion zone(s), decontamination zone(s) and clean zone(s), and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized Work areas.
 - 1.3.1.8. Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials onsite.
 - 1.3.1.9. Historical, Archaeological, Cultural Resources, Biological Resources and Wetlands Plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands. Include procedures if previously unknown historical, archaeological, cultural, and biological resources are discovered during Work.
 - 1.3.1.10. Noise Control Plan identifying methods and procedures for preventing, monitoring, and controlling noise for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract.

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- Include thresholds and procedures if: noise does not comply with appropriate levels, or if there are public complaints.
- 1.3.1.11. Vibration Control Plan identifying methods and procedures for preventing, monitoring, and controlling vibration for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract. Include thresholds and procedures if: vibration does not comply with appropriate levels, there are public complaints, or if onsite or offsite damage occurs
 - 1.3.1.12. Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to prevent mud transported onto public roads by vehicles or runoff, and mitigation measures if mud is transported onto public roads by vehicles or runoff. Vehicles and vehicle traffic must comply with all federal, provincial, and municipal laws and regulations.
 - 1.3.1.13. Contamination Prevention Plan identifying hazardous, deleterious or regulated substances to be used onsite; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with federal, provincial, and municipal laws and regulations for storage and handling of these materials.
 - 1.3.1.14. Spill Control Plan including procedures, instructions, and reports to be used in event of spill of hazardous, deleterious or regulated substances. Identify locations and contents of spill kits.
 - 1.3.1.15. Communications Plan identifying emergency contact list and conditions for implementing emergency contact. Emergency contact to include: Contractor emergency response team including Superintendent; Departmental Representative and alternate, and other contractor(s) and individuals as instructed by the Departmental Representative; and federal, provincial, and municipal emergency contacts.
 - 1.3.1.16. Air Pollution Control Plan detailing provisions to assure that contaminants, dust, debris, materials, and trash, are contained onsite. Include procedures, in accordance with the Contract, if air pollution does not comply with appropriate levels, there are public complaints, or if onsite or offsite damage occurs.
 - 1.3.1.17. Non-Contaminated Material Disposal Plan identifying methods and locations for solid waste disposal including clearing waste. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Landfill.
 - 1.3.1.18. Wastewater Management Plan identifying methods and procedures for management and discharge of Contaminated and Non-Contaminated Water including surface waters and wastewater which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of groundwater, disinfection water, hydrostatic test water, and water used in flushing of lines. Include method of treatment and disposal.



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- 1.3.1.19. Wastewater Disposal Plan identifying methods and locations for solid waste disposal including clearing waste. Include name, location, provincial or territorial authorizations, and evidence of compliance with Municipal zoning and bylaws of Disposal Facility and/or copy of municipal permit to discharge to sewer system
- 1.3.1.20. Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, federal, provincial, and municipal laws and regulations.
- 1.3.2. Pollution Control Procedures Modification: immediately when pollution control procedures are inadequate, as instructed by the Departmental Representative, Submit modified procedures to resolve problem.
- 1.3.3. Pollution Control Remediation: immediately when soil, sediment or water contaminated by Contractor's activities are inadequate as instructed by the Departmental Representative, Submit remediation procedures.
- 1.3.4. Dust and Particulate Control Procedures Modification: immediately when dust and particulate control measures are inadequate as instructed by the Departmental Representative, Submit modified procedures to resolve problem.

1.4. Fires

- 1.4.1. Fires and burning of rubbish onsite not permitted.

1.5. Cleaning

- 1.5.1. Maintain cleanliness of Work and surrounding Site to comply with federal, provincial, and municipal fire and safety laws, ordinances, codes, and regulations applicable to the performance of the Work.
- 1.5.2. Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.
- 1.5.3. Ensure cleanup of the Work areas each day after Final Completion of Work.

1.6. Site Clearing and Plant Protection

- 1.6.1. Minimize stripping of Topsoil and vegetation.
- 1.6.2. Restrict tree and plant removal to areas in accordance with the Contract or as instructed by the Departmental Representative. Protect all other trees and plants onsite and offsite.
- 1.6.3. Salvage all trees and plants to be removed in accordance with the Contract or as instructed by the Departmental Representative.
- 1.6.4. Wrap in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.
- 1.6.5. Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.



ENVIRONMENTAL PROCEDURES**1.7. Vibration**

- 1.7.1. Maintain acceptable vibration levels as to not damage structures adjacent to the Site as a result of the Work.

1.8. Maintenance of Public Roads

- 1.8.1. Prevent tracking or spilling of debris or material onto public roads.
- 1.8.2. Immediately sweep or scrape up debris or material on public roads.
- 1.8.3. Clean public roads within a 200 m radius of the Site entrance at least once per shift.

1.9. Pollution Control

- 1.9.1. Pollution includes spills or other releases from Contractor's activities that could potentially contaminate soil, sediment, water, and atmosphere from discharge of hazardous, deleterious or regulated substances, including from equipment and material handling.
- 1.9.2. Provide sequence, methods and means, and facilities to prevent spills or releases.
 - 1.9.2.1. Maintain temporary erosion and pollution control features.
 - 1.9.2.2. Do not store fuel onsite other than tanks forming part of the equipment.
 - 1.9.2.3. Control emissions from equipment and plant to meet applicable authorities' emission requirements.
 - 1.9.2.4. Contractor to regularly inspect all machinery on the Site to ensure it is in good repair and free of leaks.
- 1.9.3. Inadequate procedures:
 - 1.9.3.1. Stop relevant Work if procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract.
 - 1.9.3.2. Submit procedures proposed to resolve problem.
 - 1.9.3.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause spills or other releases.
 - 1.9.3.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.
- 1.9.4. Be prepared to intercept, cleanup, and dispose of spills or other releases that can occur whether on land or water.
- 1.9.5. Spill kits and containment are to be maintained onsite and ready for deployment in the event of spills or other releases.
 - 1.9.5.1. Spill kits are to include sufficient quantities of absorbent material, containers, booms, shovels and other tools, and personal protective equipment.
 - 1.9.5.2. Spill response materials must be compatible with type of equipment being used or type of material being handled.
 - 1.9.5.3. Spill kits are to be in close proximity to machinery.

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- 1.9.5.4. During the Work there are to be trained and qualified personnel available that are ready to deploy spill kits when necessary.
- 1.9.6. Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.
- 1.9.7. Promptly report spills and releases potentially causing damage to environment to:
 - 1.9.7.1. Authority having jurisdiction or interest in spill or other release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
 - 1.9.7.2. Contractor emergency response team including Superintendent
 - 1.9.7.3. Departmental Representative and other contractor(s) and individuals as instructed by the Departmental Representative.
- 1.9.8. Departmental Representative can collect samples for chemical analyses prior to, during, and upon Final Completion of Work to monitor potential pollution caused by Contractor's activities. Assist Departmental Representative in collection of samples.
- 1.9.9. Remediation of soil, sediment or water contaminated by Contractor's activities.
 - 1.9.9.1. Remediate all soil, sediment or water contaminated by Contractor's activities associated with the Work onsite and offsite.
 - 1.9.9.2. Remediation includes excavation, pumping, testing, transport, treatment and disposal as appropriate for the type of contamination incurred, and at a minimum in accordance with the Contract.
 - 1.9.9.3. Submit procedures for remediating soil, sediment or water contaminated by Contractor's activities.
 - 1.9.9.4. Remediate as instructed by the Departmental Representative.
 - 1.9.9.5. Contractor is responsible for any additional investigation, testing, and assessments required as acceptable to the Departmental Representative.

1.10. Dust and Particulate Control

- 1.10.1. Execute Work by methods to minimize raising dust from construction operations.
- 1.10.2. Prevent fugitive dust from the Site from interfering with onsite and offsite uses.
- 1.10.3. Prevent dust from spreading to neighbouring properties.
- 1.10.4. Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads, excavations, and stockpiles.
- 1.10.5. Implement and maintain dust and particulate control measures immediately as instructed by the Departmental Representative during Work and in accordance with regulations and in accordance with the Contract.
- 1.10.6. Provide positive means to prevent airborne dust from dispersing into atmosphere. Use fresh (non-saline) water for dust and particulate control.
- 1.10.7. As minimum, use appropriate covers on vehicles, including trucks, barges, and trains, hauling fine or dusty material. Use watertight vehicles to haul wet materials.
- 1.10.8. Inadequate procedures:



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- 1.10.8.1. Stop relevant Work if dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract.
- 1.10.8.2. Submit procedures proposed to resolve problem.
- 1.10.8.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause release of dusts or particulates.
- 1.10.8.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent release of dusts or particulates, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.11. Non-Contaminated Material Removal

- 1.11.1. Remove all Non-Contaminated Material within Work areas in accordance with the Contract and as instructed by the Departmental Representative.
- 1.11.2. Assume ownership of, and be responsible for, Non-Contaminated Material once it is loaded on a vehicle, barge, or other vessel for transport offsite.
- 1.11.3. Remove surplus materials and temporary facilities from Site.
- 1.11.4. Dispose waste offsite.
- 1.11.5. Do not burn or bury any waste onsite.
- 1.11.6. Do not discharge wastes into streams or waterways.
- 1.11.7. Do not dispose of volatile or hazardous materials such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- 1.11.8. Dispose of following materials at appropriate Landfill provided by Contractor and accepted by Departmental Representative:
 - 1.11.8.1. Non-Contaminated Material.
 - 1.11.8.2. Disposable PPE.

1.12. Sewage Wastewater

- 1.12.1. Store Sewage Wastewater from toilet facilities with wastewater from handbasins, and/or showers, for ultimate disposal.
- 1.12.2. Provide, operate, and maintain Sewage Wastewater storage tanks to store Sewage Wastewater.
- 1.12.3. Transport and dispose of Sewage Wastewater at a Disposal Facility, or discharge to municipal sanitary sewer system in compliance with Municipal requirements, as accepted by Departmental Representative.
- 1.12.4. Discharges: comply with applicable discharge limitations and requirements; do not discharge Sewage Wastewater to Site sewer systems that do not conform to or are in violation of such limitations or requirements; and obtain approval prior to discharge of Sewage Wastewater.



ENVIRONMENTAL PROCEDURES**1.13. Wastewater Control**

- 1.13.1. Dewater various parts of Work including, without limitation, excavations, structures, foundations, and Work areas.
- 1.13.2. Employ construction methods, plant procedures, and precautions that ensure Work, including excavations, are stable, free from disturbance, and dry.
- 1.13.3. Direct surface waters that have not contacted potentially Contaminated Materials to surface drainage systems.
- 1.13.4. Control surface drainage including ensuring that gutters are kept open, wastewater is not allowed across or over pavements or sidewalks except through accepted pipes or properly constructed troughs, and runoff from unstabilized areas is intercepted and diverted to suitable outlet.

1.14. Non-Contaminated Water Disposal

- 1.14.1. Dispose of Non-Contaminated Water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.
- 1.14.2. Control disposal or runoff of Non-Contaminated Water containing suspended materials or other harmful substances in accordance with local authority requirements.
- 1.14.3. Ensure pumped Non-Contaminated Water into waterways, sewer or drainage systems is free of suspended materials. Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas
- 1.14.4. Obtain permits to discharge Non-Contaminated Water to environment or Municipal sewers.
- 1.14.5. Do not discharge water which may have come in contact with potentially Contaminated Material or otherwise be Contaminated directly offsite to the environment or to municipal sewers.

1.15. Erosion and Sediment Control

- 1.15.1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other Work areas. Prevent erosion and sedimentation.
- 1.15.2. Minimize amount of bare soil or sediment exposed at one time. Stabilize disturbed soil or sediment as quickly as practical. Strip vegetation, regrade, or otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as instructed by the Departmental Representative.
- 1.15.3. Provide and maintain temporary erosion and sediment control measures.
- 1.15.3.1. Temporary erosion and sediment control measures are required to prevent erosion and migration of silt, mud, sediment, and other debris offsite or to other areas of Site where damage might result, or that might otherwise be required by laws and regulations.



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- 1.15.3.2. Temporary erosion and sediment control measures include: silt fences, hay or straw bales, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, vegetative cover, dikes, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads, and other measures appropriate to specific condition.
- 1.15.3.3. Temporary improvements must remain in place and in operation as necessary or until otherwise instructed by the Departmental Representative
- 1.15.3.4. Place silt fences and/or hay or straw bales in ditches to prevent sediment from escaping from ditch terminations.
- 1.15.3.5. Do not construct bale barriers and silt fence in flowing streams or in swales.
- 1.15.3.6. Check erosion and sediment control measures weekly after each rainfall; during prolonged rainfall check daily.
- 1.15.3.7. Bales and/or silt fence can be removed at beginning of Working Day, replace at end of Working Day.
- 1.15.3.8. Repair damaged bales, end runs, and undercutting beneath bales.
- 1.15.3.9. Unless instructed by the Departmental Representative, remove temporary erosion and sediment control devices upon Final Completion of Work. Temporary erosion and sediment control devices once removed become property of Contractor.
- 1.15.4. Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
- 1.15.5. Construct fill areas to prevent erosion.
- 1.15.6. Do not disturb existing embankments or embankment protection in accordance with the Contract.
- 1.15.7. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- 1.15.8. If soil, sediment and debris from Site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where it is undesirable, remove accumulation and restore area to original condition, as instructed by the Departmental Representative.

1.16. Work In or Adjacent to Waterways

- 1.16.1. Approvals and Practices:
 - 1.16.1.1. Obtain Discharge Approval prior to commencing work which may impact waterways.
 - 1.16.1.2. Comply with Fisheries Act Authorization and other relevant authorizations and in accordance with the Contract.
 - 1.16.1.3. Follow practices described in Fisheries and Oceans Canada (September 1993) *Land Development Guidelines for the Protection of Aquatic Habitat*.
 - 1.16.1.4. Follow practices described in BC Ministry of Environment (March 2004) *Standards and Best Practices for Instream Works*.
- 1.16.2. Timing



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- 1.16.2.1. Time work in water to respect timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.
- 1.16.2.2. Minimize duration of in-water work.
- 1.16.2.3. Conduct instream work during periods of low flow, or at low tide, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.
- 1.16.2.4. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- 1.16.3. Site Selection
 - 1.16.3.1. Design and plan activities and works in waterbody such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.
 - 1.16.3.2. Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
 - 1.16.3.3. Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.
 - 1.16.3.4. Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.
- 1.16.4. Contaminant and Spill Management
 - 1.16.4.1. Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.
 - 1.16.4.2. Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
 - 1.16.4.3. Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.
- 1.16.5. Erosion and Sediment Control
 - 1.16.5.1. Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear.
- 1.16.6. Erosion and Sediment Control Plan includes:
 - 1.16.6.1. Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
 - 1.16.6.2. Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. This includes pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.



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- 1.16.6.3. Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).
- 1.16.6.4. Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
- 1.16.6.5. Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.
- 1.16.6.6. Repairs to erosion and sediment control measures and structures if damage occurs.
- 1.16.6.7. Removal of non-biodegradable erosion and sediment control materials once site is stabilized.
- 1.16.7. Shoreline/Bank Re-vegetation and Stabilization
 - 1.16.7.1. Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction.
 - 1.16.7.2. When practicable, prune or top the vegetation instead of grubbing/uprooting.
 - 1.16.7.3. Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.
 - 1.16.7.4. Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
 - 1.16.7.5. Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored.
 - 1.16.7.6. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
 - 1.16.7.7. Remove all construction materials from site upon project completion.
- 1.16.8. Fish Protection
 - 1.16.8.1. Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
 - 1.16.8.2. Retain a qualified environmental professional to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.
 - 1.16.8.3. Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water



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intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.

- 1.16.8.4. Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.
- 1.16.9. Operation of Machinery
 - 1.16.9.1. Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
 - 1.16.9.2. Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
 - 1.16.9.3. Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure.
 - 1.16.9.4. Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
 - 1.16.9.5. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water

1.17. Noncompliance

- 1.17.1. Departmental Representative will inform Contractor in writing of observed noncompliance with federal, provincial or municipal environmental laws, regulations, permits, or other environmental procedure violations.
- 1.17.2. After receipt of notice, inform the Departmental Representative of the proposed corrective action. Corrective action will be subject to acceptance of Departmental Representative.
 - 1.17.2.1. Do not take action until after receipt of written acceptance.
- 1.17.3. Departmental Representative will issue stop order of Work until satisfactory corrective action has been taken.

2. PART 2 - PRODUCTS**2.1. Not Used**

- 2.1.1. Not Used.



3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION



REGULATORY REQUIREMENTS**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Not Used.

1.4. Laws, Regulations, Permits

- 1.4.1. Generally, provincial and municipal laws, regulations, bylaws and other requirements do not apply on federal lands, activities or undertakings. Soil and other materials that are removed from federal lands may become subject to provincial or municipal laws and regulations.
- 1.4.2. Provincial or municipal standards may be used in relation to federal lands only as guidelines for the purpose of establishing remediation goals and objectives. The term "standards" is used in this part in order to maintain consistency in terminology throughout this document, and does not imply that standards contained in provincial or municipal laws and regulations apply on Federal lands, activities or undertakings.
- 1.4.3. Comply with certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work that have already been obtained.
- 1.4.4. Obtain and pay for certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work that have not already been obtained or that are required to be amended.
- 1.4.5. Provide applicable authorities with plans and information required for issue of acceptance certificates.
- 1.4.6. Furnish inspection certificates in evidence that the Work installed conforms with the requirements of the authority having jurisdiction.

1.5. Codes, Bylaws, Standards

- 1.5.1. Meet or exceed requirements of Contract, standards, and codes applicable to the performance of the Work and referenced documents.
- 1.5.2. In any case of conflict or discrepancy, the most stringent requirements will apply.
- 1.5.3. Perform Work in accordance with the *National Building Code* of Canada (NBC), and other requirements or codes in accordance with the Contract, construction standards and/or any other code or bylaw applicable to the performance of the Work.



REGULATORY REQUIREMENTS

- 1.5.4. Certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work: see 01 11 00.
- 1.5.5. Comply with all attachments, references, and reports relevant to Work, including environmental protection.

1.6. Smoking Environment

- 1.6.1. Smoking on the Site is not permitted.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Not Used.

1.4. Quality of Work

- 1.4.1. Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman, or Qualified Professional.
- 1.4.2. Meet or exceed standards set out in the National Building Code of Canada as applicable for workmanship, erection methods and procedures.
- 1.4.3. In cases of dispute, perform Work to standard or quality in accordance with any decisions by the Departmental Representative.
- 1.4.4. Follow Departmental Representative's instructions to meet the Quality of Work in accordance with the Contract at no increase to the Contract Amount and no increase to Extension of Time for completion of the Work. Quality of Work includes addressing comments on Submittals, modifying environmental procedures, and preventing or remediating contaminated material spills.

1.5. Quality Management

- 1.5.1. Be responsible for all Quality Assurance and Quality Control during the performance of the Work.
- 1.5.2. Quality Assurance and Quality Control includes monitoring, inspecting, testing, documenting and reporting the means, methods, materials, workmanship, processes, and products of all aspects of the Work, including design, construction, and management as necessary to ensure conformance with the Contract.
- 1.5.3. Assist Departmental Representative in quality audit inspections and submit all indicated information within 5 Working Days of collection or as instructed.

1.6. Inspection

- 1.6.1. Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Site, allow access to such Work whenever it is in progress. Work at locations other than Site includes offsite Transportation (eg transfer stations), Treatment, and Disposal Facilities.

- 1.6.2. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Site.
- 1.6.3. If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- 1.6.4. Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.7. Independent Inspection Agencies

- 1.7.1. Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- 1.7.2. Provide equipment required for executing inspection and testing by appointed agencies.
- 1.7.3. Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- 1.7.4. If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.8. Access to Work

- 1.8.1. Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- 1.8.2. Co-operate to provide reasonable facilities for such access.

1.9. Procedures

- 1.9.1. Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- 1.9.2. Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- 1.9.3. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.10. Rejected Work

- 1.10.1. Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been

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rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

- 1.10.2. Make good other Contractor's work damaged by such removals or replacements promptly.
- 1.10.3. If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, PWGSC will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.11. Reports

- 1.11.1. Submit 2 copies of inspection and test reports to [Departmental Representative.
- 1.11.2. Provide copies to subcontractor of work being inspected or tested.

1.12. Tests and Mix Designs

- 1.12.1. Furnish test results and mix designs as requested.
- 1.12.2. Test results must be signed by Qualified Professional.
- 1.12.3. The Departmental Representative may require, and pay for, additional inspection and testing services not included above.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Site Layout: within 10 Working Days after Contract award and prior to mobilization to Site, Submit Site Layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor. Include:
- 1.3.1.1. Equipment and personnel decontamination areas.
 - 1.3.1.2. Means of ingress, egress and temporary traffic control.
 - 1.3.1.3. Equipment and material staging areas.
 - 1.3.1.4. Stockpile areas and construction details, including base preparation and water control features.
 - 1.3.1.5. Exclusion areas, contaminant handling areas, and other areas identified in Contractor's site-specific Health and Safety Plan and Environmental Protection Plan.
 - 1.3.1.6. Grading, including contours, required to construct temporary facilities.
 - 1.3.1.7. Location of all temporary facilities including: Contaminated Water Treatment Plant, truck wash and decontamination units, office trailers, parking, storage, environmental monitoring stations, above ground and underground utilities, and temporary facilities and roads.
- 1.3.2. Signs: at least 5 Working Days prior to posting, Submit any signs viewable by public.

1.4. Utilities

- 1.4.1. Power is not available at existing Site and must be supplied at the Contractor's expense.
- 1.4.2. Water supply is not available at existing Site and must be supplied at the Contractor's expense.

1.5. Fire Protection

- 1.5.1. Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

1.6. Access and Delivery

- 1.6.1. Only the designated entrance in accordance with the Contract can be used for access to Site.



CONSTRUCTION FACILITIES

- 1.6.1.1. Maintain for duration of Contract.
- 1.6.1.2. Make good damage resulting from Contractor's use.
- 1.6.2. Use of the Site will be granted to the Contractor through the Departmental Representative.

1.7. Installation and Removal

- 1.7.1. Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- 1.7.2. Identify areas which have to be gravelled to prevent tracking of mud.
- 1.7.3. Indicate use of supplemental or other staging area.
- 1.7.4. Provide construction facilities in order to execute work expeditiously.
- 1.7.5. Provide temporary utilities in order to execute Work expeditiously.
- 1.7.6. Remove from Site all such Work after use.

1.8. Site Storage/Loading

- 1.8.1. Confine work and operations of employees in accordance with the Contract. Do not unreasonably encumber premises with products.
- 1.8.2. Storage space must be limited to the Site.
- 1.8.3. Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9. Construction Parking

- 1.9.1. Parking of private vehicles will not be permitted on Site.
- 1.9.2. Provide and maintain adequate access to project site.

1.10. Security

- 1.10.1. Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.
- 1.10.2. Control access to Site and maintain a log of all personnel onsite. No non-Work visitors allowed without prior written consent of Departmental Representative

1.11. Departmental Representative and Consultant Offices

- 1.11.1. Provide office facilities for the exclusive use of the Departmental Representative and their consultants with the following:
 - 1.11.1.1. Two work stations within the Factory fabricated modular double wide units in accordance with the Contract.
 - 1.11.1.2. Work stations must include; 1 desk (minimum size 120 cm x 50 cm, minimum height 70 cm), 1 swivel desk chair (minimum load requirement 100 kg), 1 bookshelf (minimum 3 shelves with a minimum shelf height of 32 cm), 1 locking filing cabinet (minimum dimensions 50 cm x 39 cm x 60 cm), 1 garbage can, and 1 recycling bin.
 - 1.11.1.3. Building envelope: watertight construction.

CONSTRUCTION FACILITIES

- 1.11.1.4. Completed building: exterior to interior minimum sound attenuation of STC 30.
- 1.11.1.5. Building interior environment: heated and cooled to maintain temperature of 20 degrees C minimum to 25 degrees C maximum with relative humidity of 35% to 60%.
- 1.11.1.6. Provide ventilation and outdoor air as per ASHRAE 62.1 – 2010 Standard.
- 1.11.1.7. Building lighting: maintain measured lighting level of 200 lx at 1500 mm above finished floor, after building finishes and painting complete.
- 1.11.1.8. Thermal performance of window units: Maximum heat transfer rate (U-value) not to exceed 2.0 W/m²K.
- 1.11.1.9. Regularly collect refuse and recyclables and keep the office clean and properly maintained with heat and light.
- 1.11.1.10. Provide private washroom facilities in offices in accordance with the Contract, complete with flush or chemical type toilet, lavatory and mirror and maintain supply of paper towels and toilet tissue.
- 1.11.1.11. Furnish offices in accordance with the Contract.
- 1.11.1.12. Work stations must include; 1 desk (minimum size 120 cm x 50 cm, minimum height 70 cm), 1 swivel desk chair (minimum load requirement 100 kg), 1 bookshelf (minimum 3 shelves with a minimum shelf height of 32 cm), 1 locking filing cabinet (minimum dimensions 50 cm x 39 cm x 60 cm), 1 garbage can, and 1 recycling bin.
- 1.11.1.13. The work stations and contents must be for the sole use of the Departmental Representative and their consultant(s) for the duration of the Work and may, if necessary, be used concurrently with other inspection agencies.
- 1.11.2. Installation:
 - 1.11.2.1. Install stable timber foundation as shown on Contractor's Site Layout.
 - 1.11.2.2. Install level and plumb.
 - 1.11.2.3. Install skirting and stairs.
 - 1.11.2.4. Adjust doors and windows for smooth operation.
 - 1.11.2.5. Install personnel decontamination facility immediately adjacent to stairs.
- 1.11.3. Provide a minimum of 2 parking spaces for Departmental Representatives and their consultants adjacent to offices.

1.12. Equipment, Tools and Materials Storage

- 1.12.1. Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- 1.12.2. Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13. Sanitary Facilities

- 1.13.1. Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

CONSTRUCTION FACILITIES

- 1.13.2. Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.14. Construction Signage

- 1.14.1. Provide and erect project signs within 10 Working Days of mobilization in a location designated by Departmental Representative.
- 1.14.2. Provide project identification site sign comprising foundation, framing, and one 1200 x 2400 mm signboard as detailed and as described below.
 - 1.14.2.1. Foundations: 15 MPa concrete to CSA-A23.1 minimum 200 mm x 900 mm deep.
 - 1.14.2.2. Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
 - 1.14.2.3. Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA O121.
 - 1.14.2.4. Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
 - 1.14.2.5. Fasteners: hot-dip galvanized steel nails and carriage bolts.
 - 1.14.2.6. Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Departmental Representative.
- 1.14.3. Locate project identification sign as directed by Departmental Representative and construct as follows:
 - 1.14.3.1. Build concrete foundation, erect framework, and attach signboard to framing.
 - 1.14.3.2. Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - 1.14.3.3. Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- 1.14.4. Direct requests for approval to erect Contractor signboard to Departmental Representative. For consideration general appearance of Contractor signboard must conform to project identification site sign. Wording in both official languages.
- 1.14.5. Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- 1.14.6. Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.15. Protection and Maintenance of Traffic

- 1.15.1. Provide access and temporary relocated roads as necessary to maintain traffic.
- 1.15.2. Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- 1.15.3. Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around



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- and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- 1.15.4. Protect travelling public from damage to person and property.
- 1.15.5. Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- 1.15.6. Verify adequacy of existing roads and allowable load limit on these roads.
Contractor: responsible for repair of damage to roads caused by construction operations.
- 1.15.7. Construct access and haul roads necessary.
- 1.15.8. Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- 1.15.9. Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- 1.15.10. Dust control: adequate to ensure safe operation at all times.
- 1.15.11. Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- 1.15.12. Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- 1.15.13. Provide snow removal during period of Work.
- 1.15.14. Remove, upon completion of work, haul roads designated by Departmental Representative.

1.16. Truck Wash and Decontamination Units

- 1.16.1. Supply, install and operate the truck wash, including the installation of a water supply.
 - 1.16.1.1. No vehicles which have come in contact with Contaminated Material must leave the Site without passing through the truck wash.
 - 1.16.1.2. The truck wash must provide, at a minimum, the ability to wash truck tires and load boxes to a minimum height of 1.7 m.
 - 1.16.1.3. Truck wash must have a solid separation tank and all solids collected must be classified as Contaminated Material and disposed of at a Disposal Facility.
 - 1.16.1.4. Recycle or treated as Contaminated Water water used in the truck wash.
- 1.16.2. Supply personnel decontamination units (minimum of 2) for use by hazardous material, testing and inspection personnel working in areas of hazardous materials and for general clean-up of personal protective equipment to remove Contaminated Material.
 - 1.16.2.1. At least one personnel decontamination unit must have overhead shower capability.
 - 1.16.2.2. The personnel decontamination units to be available to Departmental Representative and their consultants.
 - 1.16.2.3. The personnel decontamination units are subject to acceptance of Departmental Representative.

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CONSTRUCTION FACILITIES

- 1.16.3. The truck wash and personnel decontamination units must be maintained in good working order during onsite Work.
- 1.16.4. The truck wash and personnel decontamination units must be removed from the Site during Site Decommissioning.

1.17. Clean-Up

- 1.17.1. Remove construction debris, waste materials, packaging material from work site daily.
- 1.17.2. Clean dirt or mud tracked onto paved or surfaced roadways.
- 1.17.3. Store materials resulting from demolition activities that are salvageable.
- 1.17.4. Stack stored new or salvaged material not in construction facilities.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

PRODUCT REQUIREMENTS**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Product Data: at least 5 Working Days prior to use, Submit data on products to be used in Work. Include:

1.3.1.1. Manufacturers' catalogue sheets, MSDS sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products or any other information in accordance with the Contract.

1.3.1.2. Delete information not applicable to project.

1.3.1.3. Supplement standard information to provide details applicable to project.

1.3.1.4. Cross-reference product data information to applicable portions of Contract.

1.3.2. Substitution: at least 5 Working Days prior to use and after Contract award, Submit proposals for substituting products, if required. Include statements of respective costs of items originally in accordance with the Contract and the proposed substitution.

1.3.3. Quality of Work: at least 5 Working Days prior to Work, Submit alternate means to meet or correct quality of work, if required.

1.4. Products, Material and Equipment

1.4.1. Use new products, material and equipment in accordance with the Contract. The term "products" is referred to throughout the specifications.

1.4.2. Use products of one manufacturer for material and equipment of the same type or classification in accordance with the Contract.

1.4.3. Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation method in accordance with the Contract s.

1.4.4. Notify Departmental Representative in writing of any conflict between Contract and manufacturer's instructions. Departmental Representative will instruct which document is to be followed.

1.4.5. Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

1.4.6. Prevent damage, adulteration and soiling of products during delivery, handling and storage. Immediately remove rejected products from Site.

1.4.7. Store products in accordance with Suppliers' instructions.

PRODUCT REQUIREMENTS**1.5. Quality of Products**

- 1.5.1. Products, materials and equipment (referred to as products) incorporated into Work must be new, not damaged or defective, and of the best quality (compatible with the specifications) for the purpose intended. As instructed by the Departmental Representative, furnish evidence as to type, source, and quality of the products provided.
- 1.5.2. Defective products will be rejected regardless of previous inspections.
 - 1.5.2.1. Inspection does not relieve responsibility, but is precaution against oversight or error.
 - 1.5.2.2. Remove and replace defective products.
- 1.5.3. Retain purchase orders, invoices and other documents to prove that all products utilized in the Work meet the requirements of the Contract. Produce documents as instructed by the Departmental Representative.
- 1.5.4. Should any dispute arise as to quality or fitness of products, the decision rests strictly with the Departmental Representative in accordance with the Contract.
- 1.5.5. Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.6. Availability of Products

- 1.6.1. Immediately upon signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for any items.
- 1.6.2. If delays in supply of products are foreseeable, Notify Departmental Representative of such in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the Work.
- 1.6.3. In event of failure to Notify Departmental Representative at the start of Work and should it subsequently appear that the Work may be delayed for such reason, the Departmental Representative reserves the right to substitute more readily available products of similar character.

1.7. Manufacturer's Instructions

- 1.7.1. Install or erect products in accordance with the manufacturer's instructions in accordance with the Contract.
 - 1.7.1.1. Do not rely on labels or enclosures provided with products.
 - 1.7.1.2. Obtain written instructions directly from the manufacturer.
- 1.7.2. Notify Departmental Representative in writing of any conflict between Contract and manufacturer's instructions. Departmental Representative will instruct which document is to be followed.
- 1.7.3. Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental Representative to instruct the removal and re-installation.

PRODUCT REQUIREMENTS**1.8. Contractor's Options for Selection of Products for Tendering**

- 1.8.1. Products specified by "Prescriptive" specifications: select any product meeting or exceeding requirements in accordance with the Contract.
- 1.8.2. Products specified by performance and referenced standard: select any product meeting or exceeding the referenced standard.
- 1.8.3. Products specified to meet particular design requirements or to match existing materials: use only material in accordance with the Contract.
- 1.8.4. When products are specified by a referenced standard or by performance specifications, as instructed by the Departmental Representative obtain from manufacturer and independent laboratory report showing that the product meets or exceeds the requirements in accordance with the Contract.

1.9. Storage, Handling and Protection

- 1.9.1. Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions.
- 1.9.2. Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in Work.
- 1.9.3. Store products subject to damage from weather in weatherproof enclosures.
- 1.9.4. Remove and replace damaged products as instructed by the Departmental Representative.

1.10. Transportation

- 1.10.1. Pay costs of transportation of products required in performance of Work.
- 1.10.2. Transport products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- 1.10.3. Transport products subject to damage from weather in weatherproof enclosures.
- 1.10.4. Transport in an efficient manner that does not cause delays to the Work schedule.

1.11. Quality of Work

- 1.11.1. Ensure quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately Notify Departmental Representative if required Work is such as to make it impractical to produce results in accordance with the Contract. Provide alternate means to meet or correct quality of work, as accepted by the Departmental Representative.
- 1.11.2. Do not employ anyone unskilled in their required duties.
- 1.11.3. Perform Work to standard of fitness of Quality of Work in accordance with any decision by the Departmental Representative.

1.12. Coordination

- 1.12.1. Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

1.13. Remedial Work

- 1.13.1. Perform remedial Work required to repair or replace parts or portions of Work as instructed by the Departmental Representative as defective or unacceptable. Coordinate adjacent affected Work as required.
- 1.13.2. Perform remedial Work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.14. Storage Tanks

- 1.14.1. Abide by the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* for stored petroleum products and allied petroleum products tank system located on federal or Aboriginal land, or within federal jurisdiction as described in the regulations.
- 1.14.2. Temporary storage tanks subject to the regulations must be registered with Environment Canada.
- 1.14.3. Mobile tanks subject to the regulations must be certified to be mobile.
- 1.14.4. Storage tanks to meet the following minimum requirements:
 - 1.14.4.1. Corrosion protection.
 - 1.14.4.2. Secondary containment.
 - 1.14.4.3. Containment sumps, if applicable.
 - 1.14.4.4. Overfill protection.
- 1.14.5. All components of tank system must bear certification marks indicating that they conform to the standards set out in the regulations.
- 1.14.6. Product transfer area must be designed to contain spills.
- 1.14.7. Prepare an emergency plan.
- 1.14.8. Prior to first filling, storage tanks must:
 - 1.14.8.1. Be registered.
 - 1.14.8.2. Be certified and marked.
 - 1.14.8.3. Transfer area be constructed.
 - 1.14.8.4. Emergency plan in place.

2. PART 2 - PRODUCTS**2.1. Asbestos Containing Materials Prohibition**

- 2.1.1. Any material containing any degree of asbestos is banned from use in any and all sites, designs and projects.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

EXAMINATION AND PREPARATION

1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Preconstruction Condition Survey: within 10 Working Days prior to mobilization to Site, Submit Preconstruction Condition Survey of existing structures, utilities and surface features.
- 1.3.2. Preconstruction As-Built Documents: at least 5 Working Days prior to mobilization to Site, Submit preconstruction as-built documents prepared by a Land Surveyor.

1.4. Qualifications of Surveyor

- 1.4.1. A Land Surveyor registered in BC.

1.5. Survey Reference Points

- 1.5.1. Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- 1.5.2. Make no changes or relocations without prior written notice to Departmental Representative.
- 1.5.3. Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- 1.5.4. Require surveyor to replace control points in accordance with original survey control.

1.6. Survey Requirements

- 1.6.1. Establish permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- 1.6.2. Establish lines and levels, locate and lay out, by instrumentation.
- 1.6.3. Stake for grading, fill.

1.7. Existing Services

- 1.7.1. Size, depth and location of existing utilities and structures as specified are for guidance only. Completeness and accuracy are not guaranteed.
- 1.7.2. Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative. All utilities entering Site must be confirmed prior to subsurface disturbance (ie do not rely on as-built



EXAMINATION AND PREPARATION

- documents). As appropriate, confirm locations of buried utilities by independent utility locator and using hand test excavations or hydrovac methods
- 1.7.3. Remove abandoned service lines within 2m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.
 - 1.7.4. Maintain and protect from damage all utilities and structures encountered, unless Work involves temporarily breaking, rerouting, or connecting into existing utilities.
 - 1.7.5. Where Work involves temporarily breaking, rerouting, or connecting into existing utilities, obtain permission from utility companies of intended interruption of services, and carry out Work at times determined by the authorities having jurisdiction.
 - 1.7.6. Submit schedule to and obtain approval for any shutdown or closure of active service. Adhere to schedule accepted by Departmental Representative and provide notice to affected parties.
 - 1.7.7. Provide temporary services as required to maintain critical building and tenant systems.
 - 1.7.8. Where unknown utilities are encountered, immediately verbally notify Departmental Representative and confirm findings in writing.

1.8. Examination

- 1.8.1. Examine Site and Contract and be familiar and conversant with existing conditions likely to affect Work, including Contaminated Material.

1.9. Records

- 1.9.1. Land Surveyor to prepare preconstruction as-built drawings of all utilities.
- 1.9.2. Land Surveyor to prepare postconstruction as-built drawings of all utilities, including existing, reinstated, rerouted, and abandoned.
- 1.9.3. Maintain a complete, accurate log of control and survey work as it progresses.
- 1.9.4. Preconstruction Condition Survey:
 - 1.9.4.1. Conduct Preconstruction Condition Survey of existing structures and other features which can be affected by Work, both onsite and offsite. Includes: buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, roads, survey bench marks, monuments and other features.
 - 1.9.4.2. Survey to include detailed photographic documentation of any preconstruction damage, and measurements where appropriate, including crack width and length, angles out of true. Record written notices to owners of features that have existing damage.
 - 1.9.4.3. Record written notices of offsite owners which refused entry to conduct Preconstruction Condition Survey.

2. PART 2 - PRODUCTS

EXAMINATION AND PREPARATION

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

WASTE MANAGEMENT AND DISPOSAL**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Waste Reduction Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing material separation. Include:

1.3.1.1. List of materials to be reused or recycled.

1.3.1.2. Sequence, methods and means to dispose Waste offsite. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Disposal Facilities.

1.3.2. Landfill Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of material delivered to Landfill.

1.3.3. Recycling Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of materials sent for recycling.

1.4. Waste Disposal

1.4.1. Waste and Non-Contaminated Material Disposal:

1.4.1.1. Divert materials other than soil which can be practically reused or recycled from Landfill as approved by Departmental Representative.

1.4.1.2. Dispose all other Waste in Landfill.

1.4.1.3. Dispose all soil in Landfill.

1.4.2. Landfill must:

3.1.1.1. Be an existing offsite facility located in Canada.

3.1.1.2. Conform with the BC Ministry of Environment *Landfill Criteria For Municipal Solid Waste*.

1.4.2.1. Hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the disposal of Non-Contaminated Material.

1.4.3. Dispose material as soon as practical and within 100 Working Days of leaving Site unless otherwise accepted by Departmental Representative.

1.4.4. Material sent to a Landfill must be permanently stored at that facility.

1.4.5. If proposed Landfill is not acceptable to Departmental Representative, identify an alternate Landfill that is acceptable.

1.4.6. Submit recycling receipts or landfill receipts for all material disposed offsite.

WASTE MANAGEMENT AND DISPOSAL**1.5. Materials Source Separation**

- 1.5.1. Provide separate containers for reusable and/or recyclable materials of the following:
 - 1.5.1.1. Metals.
 - 1.5.1.2. Wood.
 - 1.5.1.3. Plastics.
 - 1.5.1.4. Paper.
 - 1.5.1.5. Glass.
 - 1.5.1.6. Other materials in accordance with the Contract.
- 1.5.2. Implement Materials Source Separation Program for waste generated on project in compliance with methods accepted by the Departmental Representative.
- 1.5.3. Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- 1.5.4. Locate separated materials in areas which minimize material damage.

1.6. Diversion of Materials

- 1.6.1. Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, as accepted by the Departmental Representative and consistent with applicable fire regulations.
 - 1.6.1.1. Mark containers.
 - 1.6.1.2. Provide instruction on disposal practices.

1.7. Storage, Handling and Application

- 1.7.1. Do Work in compliance with Waste Reduction Plan.
- 1.7.2. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes, and dispose at Landfill weekly.
- 1.7.3. Materials in separated condition: collect, handle, store onsite, and transport offsite to an authorized recycling facility accepted by the Departmental Representative, and remove from Site weekly.
- 1.7.4. Materials must be immediately separated into specified categories for reuse or recycling.
- 1.7.5. Unless otherwise in accordance with the Contract, materials for removal become the Contractor's property.
- 1.7.6. Onsite sale of salvaged/recyclable material is not permitted.
- 1.7.7. Submit as instructed by the Departmental Representative receiving facility weigh scale receipts indicating quantity of material delivered to Landfill.
- 1.7.8. Submit as instructed by the Departmental Representative receiving facility weigh scale receipts indicating quantity and type of materials sent for recycling.

2. PART 2 - PRODUCTS**2.1. Not Used**

- 2.1.1. Not Used.



WASTE MANAGEMENT AND DISPOSAL

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL**1.1. Measurement Procedures**

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Product Instructions: at least 10 Working Days before Substantial Performance of the Work is completed, Submit instructions and data by personnel experienced in maintenance and operation of products and equipment constructed and remaining onsite, if required.
- 1.3.2. Closeout Documents: within 20 Working Days of Final Completion of Site Restoration, Submit completion documents and as-built documents.

1.4. As-Built Documents

- 1.4.1. The Departmental Representative will provide 2 sets of Drawings, 2 sets of Specifications, and 2 copies of the original AutoCAD files for “as-built” purposes.
- 1.4.2. As Work progresses, maintain accurate records to show all deviations from the Contract. Note changes as they occur on as-built Specifications, Drawings and shop drawings.
- 1.4.3. Drawings and shop drawings: legibly mark each item to record actual construction, including:
- 1.4.3.1. Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - 1.4.3.2. Field changes of dimension and detail.
 - 1.4.3.3. Changes made by change orders.
 - 1.4.3.4. Details not on original Drawings.
 - 1.4.3.5. References to related shop drawings and modifications.
- 1.4.4. Contract Specifications: legibly mark each item to record actual workmanship of construction, including:
- 1.4.4.1. Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - 1.4.4.2. Changes made by addenda and change orders.
- 1.4.5. As-built information:
- 1.4.5.1. Record changes in red ink.
 - 1.4.5.2. Mark on 1 set of Drawings, Specifications and shop drawings at Final Completion of project and, before final inspection, neatly transfer notations to second set.
 - 1.4.5.3. Submit 1 set in editable AutoCAD 14 file format with all as-built information.

- 1.4.5.4. Submit all sets as instructed by the Departmental Representative.
- 1.4.6. As required, surveying to be completed by a Land Surveyor for as-built documents.

1.5. Completion Documents

- 1.5.1. Submit as instructed by the Departmental Representative, a written certificate that the following have been performed:
 - 1.5.1.1. Work has been completed and inspected by the Departmental Representative in accordance with the Contract.
 - 1.5.1.2. Treatment and disposal of treatable soils have been completed and disposal of all other soils has been completed.
 - 1.5.1.3. Damage has been repaired, deficiencies have been completed, missing items have been provided, and non-conformance has been corrected, in the opinion of the Departmental Representative.
 - 1.5.1.4. Equipment and systems have been tested, adjusted and balanced, and are fully operational, as applicable.
 - 1.5.1.5. Certificates required by the Fire Commissioner of Canada, and utility companies have been submitted, as applicable.
 - 1.5.1.6. Operation of systems has been demonstrated to the personnel as instructed by the Departmental Representative, as applicable.
 - 1.5.1.7. Qualified Professional report documenting backfilling has met all requirements of the Contract.
 - 1.5.1.8. Work is complete and ready for Final Site Inspection.
- 1.5.2. Defective products will be rejected, regardless of previous inspections. Replace defective products.
- 1.5.3. Prepare all documentation required as part of any permits or other authorizations obtained or otherwise the responsibility of the Contractor.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



SOIL REMEDIATION PRB WALL CONSTRUCTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

- 1.1.1. See 01 11 00.

1.2. Definitions

- 1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Permeable Reactive Barrier Wall Plan: within 10 Working Days after Contract award and prior to construction of Permeable Reactive Barrier Wall, Submit documentation describing plan. Include:
- 1.3.1.1. Methods, means, and sequence for mixing of wall media.
 - 1.3.1.2. Methods, means, and sequence for excavation of existing wall.
 - 1.3.1.3. Methods, means, and sequence for extending existing wall from 10.5m below ground surface to 12.5m below ground surface.
 - 1.3.1.4. Methods, means, and sequence for extending existing wall to the eastern property boundary at 12.5m depth.
 - 1.3.1.5. Monitoring and inspection requirements, including frequency or milestones when a Qualified Professional must inspect Works.
 - 1.3.1.6. PRB Wall Plan must be signed and sealed by a Qualified Professional.

2. PART 2 - PRODUCTS

2.1. Wall Media

- 2.1.1. Wall replacement material requirements are described in Appendices.
- 2.1.2. Grout requirements are described in the Appendices.

3. PART 3 - EXECUTION

3.1. Wall Media Preparation

- 3.1.1. Supply and prepare new wall media as described in Appendices.
- 3.1.2. Stockpile and mix wall media as shown in Drawings or instructed by Departmental Representative.
- 3.1.3. Wall media must be mixed in stockpiles less than 500 m³.
- 3.1.4. Assist in collecting representative wall media mixture target samples of mixed stockpiles by Departmental Representative:
 - 3.1.4.1. Sampling, analysis, and assessment may take up to 5 Working Days. No Standby Time charges or increases to Contract Amount or Extension of Time

SOIL REMEDIATION PRB WALL CONSTRUCTION

for completion of the Work can be incurred for wall media mixture target samples provided within 5 Working Days, not including day of sample collection.

- 3.1.5. Mix stockpiles homogeneously.
- 3.1.6. Mix stockpiles to keep free of contaminants (eg topsoil).
- 3.1.7. Place mixed wall media in rejuvenated wall within 10 calendar days of notification that Wall Media Samples are acceptable.
- 3.1.8. Ensure wall media do not aggregate (clump).
- 3.1.9. Wall media that do not comply with Contract requirements must be amended, re-mixed, and re-sampled/analysed/assessed. Noncompliance includes:
 - 3.1.9.1. Wall media mixture not meeting target.
 - 3.1.9.2. Wall media heterogeneous.
 - 3.1.9.3. Wall media contamination.
 - 3.1.9.4. Wall media mixed stockpiles exceeding surface stockpile duration.
 - 3.1.9.5. Wall media mixed stockpiles aggregates.

3.2. Wall Excavation

- 3.2.1. Notify Departmental Representative at least 5 Working Days in advance of excavation operations.
- 3.2.2. Segregate overburden from existing wall media.
- 3.2.3. Confirm depth of excavation meets Contract requirements. At a minimum survey 3m intervals referenced to onsite benchmark.
- 3.2.4. Place excavated existing wall media as shown on Drawings and as instructed by Departmental Representative.

3.3. Wall Media Placement

- 3.3.1. Notify Departmental Representative at least 5 Working Days in advance of media placement.
- 3.3.2. Place wall media as shown on Drawings and as instructed by Departmental Representative.
- 3.3.3. Ensure placed wall media does not settle or stratify.
- 3.3.4. Assist in collecting representative insitu placed wall media samples by Departmental Representative.
 - 3.3.4.1. Departmental Representative may use under a separate contract a drill to collect insitu placed wall media samples; drill is not responsibility of Contractor. Allow up to 8 hours at each location for drilling.
- 3.3.5. Placed wall media that settles or stratifies must be excavated and replaced.
- 3.3.6. Restore Wall B to pre-project elevations. Stripped overburden must be reused.

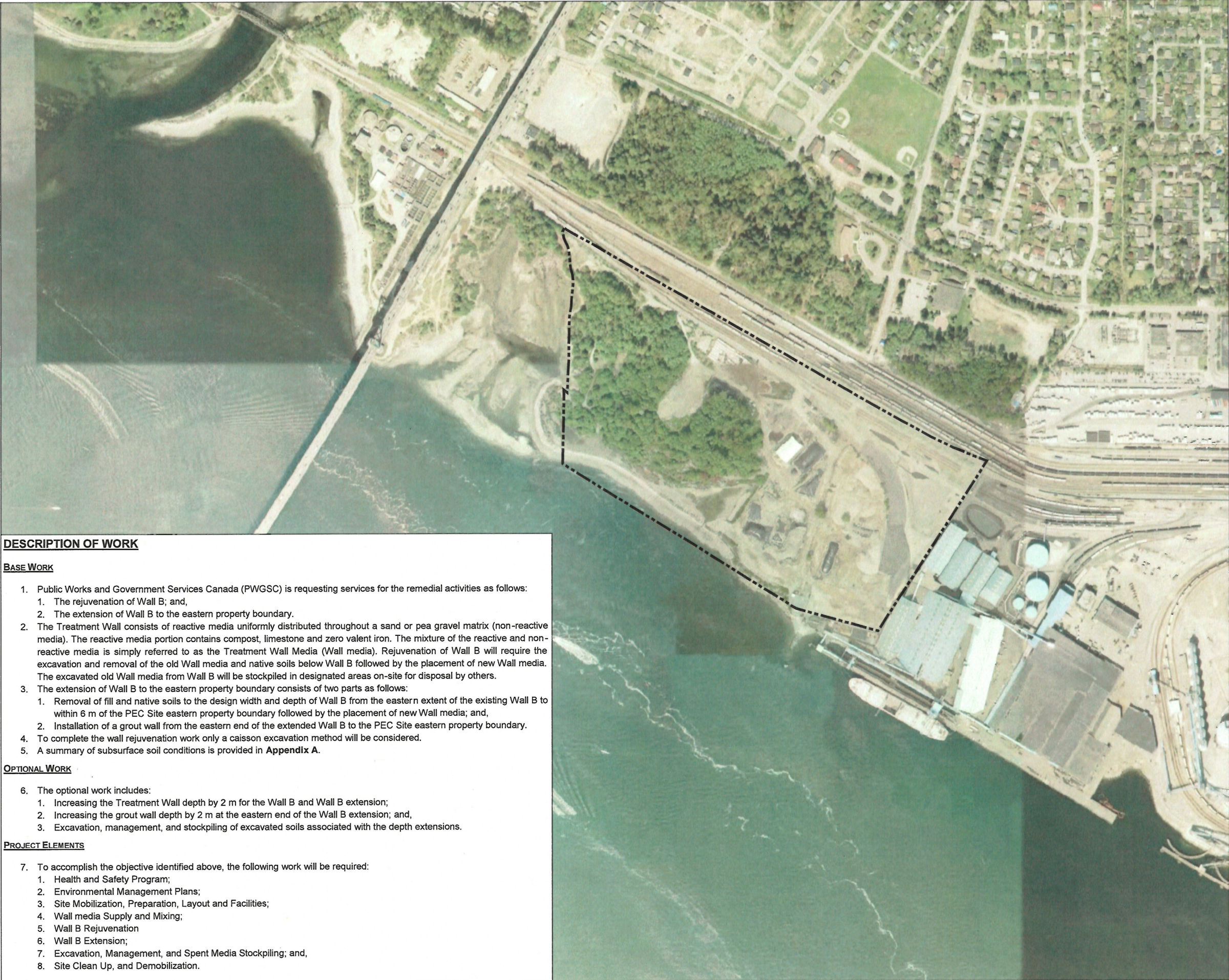
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DRAWINGS



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DESCRIPTION OF WORK

BASE WORK

- Public Works and Government Services Canada (PWGSC) is requesting services for the remedial activities as follows:
 - The rejuvenation of Wall B; and,
 - The extension of Wall B to the eastern property boundary.
- The Treatment Wall consists of reactive media uniformly distributed throughout a sand or pea gravel matrix (non-reactive media). The reactive media portion contains compost, limestone and zero valent iron. The mixture of the reactive and non-reactive media is simply referred to as the Treatment Wall Media (Wall media). Rejuvenation of Wall B will require the excavation and removal of the old Wall media and native soils below Wall B followed by the placement of new Wall media. The excavated old Wall media from Wall B will be stockpiled in designated areas on-site for disposal by others.
- The extension of Wall B to the eastern property boundary consists of two parts as follows:
 - Removal of fill and native soils to the design width and depth of Wall B from the eastern extent of the existing Wall B to within 6 m of the PEC Site eastern property boundary followed by the placement of new Wall media; and,
 - Installation of a grout wall from the eastern end of the extended Wall B to the PEC Site eastern property boundary.
- To complete the wall rejuvenation work only a caisson excavation method will be considered.
- A summary of subsurface soil conditions is provided in **Appendix A**.

OPTIONAL WORK

- The optional work includes:
 - Increasing the Treatment Wall depth by 2 m for the Wall B and Wall B extension;
 - Increasing the grout wall depth by 2 m at the eastern end of the Wall B extension; and,
 - Excavation, management, and stockpiling of excavated soils associated with the depth extensions.

PROJECT ELEMENTS

- To accomplish the objective identified above, the following work will be required:
 - Health and Safety Program;
 - Environmental Management Plans;
 - Site Mobilization, Preparation, Layout and Facilities;
 - Wall media Supply and Mixing;
 - Wall B Rejuvenation
 - Wall B Extension;
 - Excavation, Management, and Spent Media Stockpiling; and,
 - Site Clean Up, and Demobilization.

2016 Treatment Wall Rejuvenation
Pacific Environment Centre Site
West Vancouver, BC

Site Location



Legend

Site Location

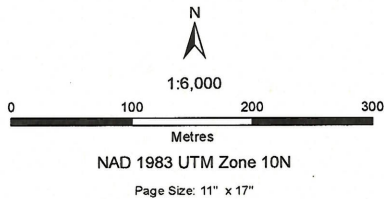


Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- ESRI World Imagery



457-002.48 Production Date: Aug 2, 2016 Figure 1



Site Plan

Legend

- Site Location
- Empty storage cell
- Filled storage cell
- Transfer facility
- Site Support Zone
- Lysimeter Pad
- Wheel wash
- Water holding cell
- Access road
- Gravel, Cobble, Soil, and Debris Stockpiles
- Weather Station
- Fence

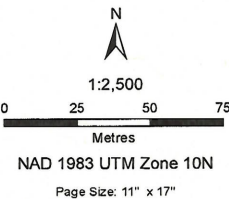
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OF
J. G. SCHMIDT
31722
BRITISH
COLUMBIA
ENGINEER
Aug 3/16

Notes

1. Aerial image used for general reference only - may not be representative of post remediation phase.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described

Sources

- Trevita Survey orthophoto - March 2015
- ESRI World Imagery - Vancouver 2011, North Vancouver 2009



1. There are two right-of-ways crossing the PEC Site. A Metro Vancouver Right-of-Way (ROW) containing two water mains is present from the northern property boundary to the southern shoreline along Burrard Inlet. A District of North Vancouver (DNV) ROW, containing one water main runs from the Metro Vancouver water main to the eastern property boundary. To mitigate potential damage to the water main pipes, heavy equipment movement is limited across the ROWs, parking or storage of materials over top of the ROWs is prohibited, and excavations anywhere within or across the ROWs are prohibited. The Contractor shall also maintain 24 hour access to the Metro Vancouver ROW. The Contractor is to ascertain and abide by all DNV and Metro Vancouver requirements for work in and around the ROWs. This project shall not include any excavation within the Metro Vancouver or DNV right of ways.
2. Wherever possible, the access roads shall be constructed around the existing stockpiles to minimize relocation of existing stockpiles. Should the Contractor want to move a stockpile on site, the cost to relocate the pile is solely the cost of the Contractors and must be approved in writing before movement by the Departmental Representative.

Site Zones

Legend

- Site Location
- Empty storage cell
- Filled storage cell
- Transfer facility
- Site Support Zone
- Proposed Contractor Support Zone
- Lysimeter Pad
- Wheel wash
- Water holding cell
- Access road
- Gravel, Cobble, Soil, and Debris Stockpiles
- Fence
- No Entry Zone

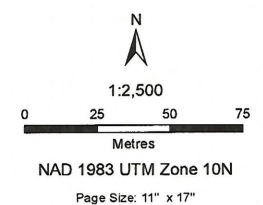
[Signature]
J. G. SCHMIDT
31722
BRITISH COLUMBIA
ENGINEER
Aug 3/16

Notes

1. Aerial image used for general reference only - may not be representative of post remediation phase.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described

Sources

- Trevisa Survey orthophoto - March 2015
- ESRI World Imagery - Vancouver 2011, North Vancouver 2009



HEALTH AND SAFETY

1. Upon contract award, the Contractor shall fulfill the following health and safety requirements:
 1. The Contractor shall review the most recent PEC Site Master Health and Safety Plan
 2. The Contractor shall supply and maintain a temporary First Aid Station.
 3. The Contractor shall familiarize all employees and subcontractors with the PEC Site Master Health and Safety Plan and PEC Site management procedures.
2. The Contactor shall not conduct any type of work in the Work Exclusion Zone without the written consent of Departmental Representative.

Location of Monitoring Wells

Legend

- Site Location
- Monitoring Well
- Transfer facility
- Site Support Zone
- Lysimeter Pad
- Wheel wash
- Water holding cell
- Access road
- Treatment Wall
- Hydraulic Barrier Wall
- Grout Wall

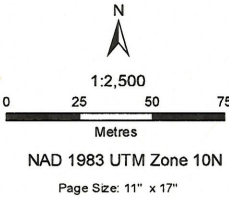


Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Trevita Survey orthophoto - March 2015
- ESRI World Imagery - Vancouver 2011, North Vancouver 2009



1. More than 100 groundwater-monitoring wells (MWs) have been installed on-site, including within and near the work areas. The Contractor must make all reasonable efforts to maintain the integrity of the MWs located outside of the Wall B footprint. If necessary, the Contractor may cut and cap the MWs polyvinyl chloride (PVC) well pipes as the work progresses. The Contractor is responsible for the cost of repairs necessary to the MWs located outside of the Wall B footprint in the event they are damaged during their activities. An effort has been made to identify and mark the MWs on-site; however, extreme caution must be exercised during the moving of equipment, placing of materials, foot traffic, etc.

SUPPLY OF TREATMENT MEDIA

1. The Contractor is required to supply the new Wall media materials required for the Wall B Excavation, and the Wall B Extension. The Contractor must provide written documentation that Wall media materials meet the material specifications listed in **Appendix B** prior to delivering the materials to the PEC Site.
2. Media materials may be trucked to the PEC Site as determined by the Contractor. Due to work area space constraints on-site, it is anticipated the media materials will be delivered on an intermittent basis throughout the project duration. The Contractor is required to schedule media material shipments.
3. The Wall media materials must be stockpiled in staging areas on-site as designated by the Departmental Representative.

MIXING OF WALL MEDIA

4. The Contractor must mix the various media materials in stockpiles not exceeding 500 m³ in order to meet the Wall media specifications listed in **Appendix B**. The Contractor must mix the media stockpiles according to the average target mixtures specified. The contractor should understand that mixed media stockpile volumes will be less than the total volume of individual stockpile materials.
5. The Contractor may use standard excavation equipment such as loaders to measure media material quantities and excavators to mix the Wall media.
6. The M-1 treatment media is subject to clumping and the contractor is responsible for breaking apart clumping media prior to placement in the Treatment Wall caissons.

WORK BY OTHERS

7. The Departmental Representative will review the media material documentation to verify that the media materials comply with the applicable media material specifications.
8. The Departmental Representative will sample the mixed Wall media stockpiles and coordinate sample testing. The Departmental Representative will review the sample testing results to determine if the mixed media stockpiles comply with the applicable Wall media specifications.

WALL B EXCAVATION AND WALL MEDIA PLACEMENT

EXCAVATION OF WALL B WALL MEDIA

9. The Contractor shall excavate and remove overburden and depleted Wall media, and native soils from Wall B to the design depth, width, and length as shown on **Figures 5 and 6**.
10. The overburden soils along the Wall B alignment vary in thickness from approximately 1.5 m to 2.0 m.
11. The neat Wall media excavation volume for the Wall B design is 2,658 m³.
12. The Contractor must segregate overburden soils from the excavated Wall media and stockpile the overburden soils in a designated on-site area approved by the Departmental Representative. The segregated overburden must be re-used to restore the Wall B alignment to pre-project elevations.
13. The depleted Wall B media and excavated native soils must be placed in a designated on-site area approved by the Departmental Representative.
14. The Contractor's caisson layout pattern used to excavate the Wall B media must be as follows:
 1. The total unexcavated volume of Wall B depleted Wall media must be less than 6% of the 2016 design neat volume of 2,658 m³.
15. The Contractor must confirm that the depleted Wall media and native soils have been removed to the design depth at 3.0 metre intervals along the entire Wall B alignment. The excavation depths must be surveyed and referenced to an on-site benchmark.

PLACEMENT OF NEW WALL MEDIA

16. The Contractor is to supply new Wall media as per the Wall media specifications M-1 or M-2, as appropriate (see **Figure 6**).
17. Placement of the new Wall media in excavated portions of Wall B shall not proceed until approved by the Departmental Representative.
18. Placement of new Wall media in excavated portions of Wall B must be done in a manner that minimizes settlement or stratification of the media constituents. Utilizing a clamshell bucket to place the media is an acceptable method provided that the clamshell bucket is grounded at the bottom of the excavation prior to releasing the media. This requirement will be strictly enforced.
19. Placement elevations of the new Wall media must meet the design tolerance as follows:
 1. The lower elevation for media specification M-1 must be at or below the design elevations indicated on **Figure 6**.
 2. The upper elevation for media specification M-1 must be -1.0 m NVD +/- 0.25 m.
 3. The lower elevation for media specification M-2 must be -1.0 m NVD +/- 0.25 m.
 4. The upper elevation for media specification M-2 must be at or above the design elevation indicated on **Figure 6**.
20. The Contractor is responsible for any placed media settlement that occurs during the project. Based on the media placement method used by the Contractor media settlement may occur. During treatment media placement activities the Contractor will be required to place additional treatment media above the design elevations if any placed media settlement is observed during the installation work.
21. Placed Wall B Wall media will be drilled and sampled to confirm that the installed Wall media complies with the performance specification (See **Appendix C**). The Contractor must allow for access by others to conduct this work. Up to three locations of Wall B will be drilled and the Contractor must allow for 8 hours of drilling time at each location.
22. Upon completing Wall B backfilling with new Wall media to the design elevations as per **Figure 6** the Contractor must restore the Wall B alignment to the pre-project elevations. Over burden soils removed for the excavation of the Wall B must be re-used for this purpose.

WORK BY OTHERS

23. The Departmental Representative will provide an on-site benchmark for surveying the excavation depths and media placement elevations.
24. The Departmental Representative will conduct spot checks to confirm excavation depths and media placement elevations are within the design tolerance indicated in **Note 19**.
25. The Departmental Representative will coordinate the drilling and sampling of the placed Wall media to confirm that the installed Wall media complies with the performance specification (See **Appendix C**).

WALL B EXTENSION EXCAVATION AND MEDIA PLACEMENT

SUMMARY OF WORK

26. The extension of Wall B to the eastern property boundary consists of two parts as follows:
 1. Removal of fill and native soils to the design width and depth of Wall B from the eastern extent of the existing Wall B to within 6 m of the PEC Site eastern property boundary (Station 0+00 Station 0+15.4, see **Figures 5 and 6**) followed by the placement of new Wall media; and,
 2. Installation of a grout wall from the eastern end of the extended Wall B to the PEC Site eastern property boundary (Station 0+00 Station 0+6.0, see **Figures 5 and 6**)

EXCAVATION OF THE WALL B EXTENSION

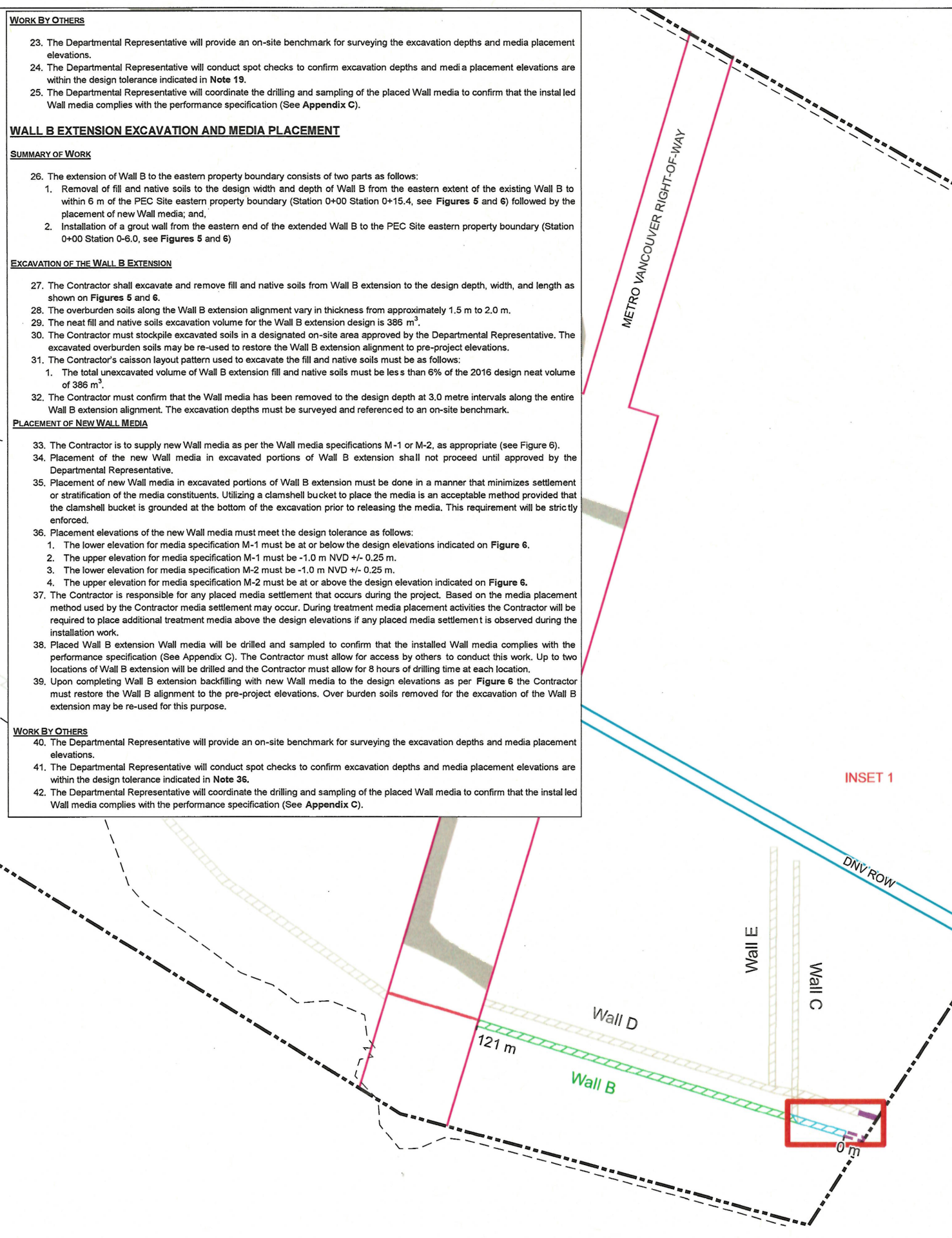
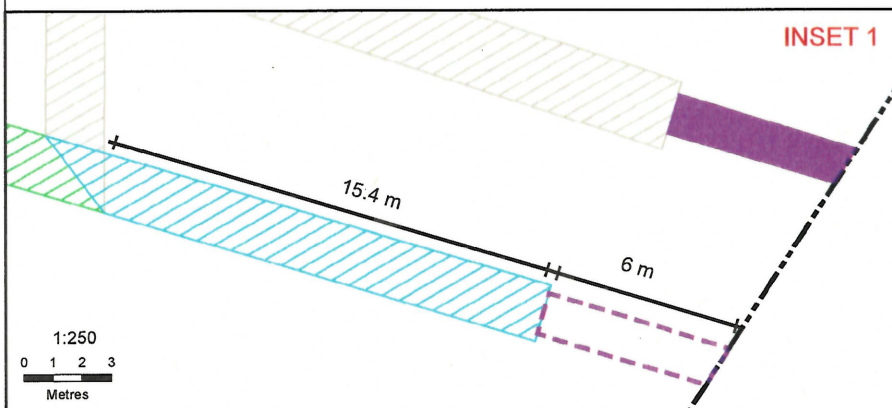
27. The Contractor shall excavate and remove fill and native soils from Wall B extension to the design depth, width, and length as shown on **Figures 5 and 6**.
28. The overburden soils along the Wall B extension alignment vary in thickness from approximately 1.5 m to 2.0 m.
29. The neat fill and native soils excavation volume for the Wall B extension design is 386 m³.
30. The Contractor must stockpile excavated soils in a designated on-site area approved by the Departmental Representative. The excavated overburden soils may be re-used to restore the Wall B extension alignment to pre-project elevations.
31. The Contractor's caisson layout pattern used to excavate the fill and native soils must be as follows:
 1. The total unexcavated volume of Wall B extension fill and native soils must be less than 6% of the 2016 design neat volume of 386 m³.
32. The Contractor must confirm that the Wall media has been removed to the design depth at 3.0 metre intervals along the entire Wall B extension alignment. The excavation depths must be surveyed and referenced to an on-site benchmark.

PLACEMENT OF NEW WALL MEDIA

33. The Contractor is to supply new Wall media as per the Wall media specifications M-1 or M-2, as appropriate (see **Figure 6**).
34. Placement of the new Wall media in excavated portions of Wall B extension shall not proceed until approved by the Departmental Representative.
35. Placement of new Wall media in excavated portions of Wall B extension must be done in a manner that minimizes settlement or stratification of the media constituents. Utilizing a clamshell bucket to place the media is an acceptable method provided that the clamshell bucket is grounded at the bottom of the excavation prior to releasing the media. This requirement will be strictly enforced.
36. Placement elevations of the new Wall media must meet the design tolerance as follows:
 1. The lower elevation for media specification M-1 must be at or below the design elevations indicated on **Figure 6**.
 2. The upper elevation for media specification M-1 must be -1.0 m NVD +/- 0.25 m.
 3. The lower elevation for media specification M-2 must be -1.0 m NVD +/- 0.25 m.
 4. The upper elevation for media specification M-2 must be at or above the design elevation indicated on **Figure 6**.
37. The Contractor is responsible for any placed media settlement that occurs during the project. Based on the media placement method used by the Contractor media settlement may occur. During treatment media placement activities the Contractor will be required to place additional treatment media above the design elevations if any placed media settlement is observed during the installation work.
38. Placed Wall B extension Wall media will be drilled and sampled to confirm that the installed Wall media complies with the performance specification (See **Appendix C**). The Contractor must allow for access by others to conduct this work. Up to two locations of Wall B extension will be drilled and the Contractor must allow for 8 hours of drilling time at each location.
39. Upon completing Wall B extension backfilling with new Wall media to the design elevations as per **Figure 6** the Contractor must restore the Wall B alignment to the pre-project elevations. Over burden soils removed for the excavation of the Wall B extension may be re-used for this purpose.

WORK BY OTHERS

40. The Departmental Representative will provide an on-site benchmark for surveying the excavation depths and media placement elevations.
41. The Departmental Representative will conduct spot checks to confirm excavation depths and media placement elevations are within the design tolerance indicated in **Note 36**.
42. The Departmental Representative will coordinate the drilling and sampling of the placed Wall media to confirm that the installed Wall media complies with the performance specification (See **Appendix C**).



2016 Treatment Wall Rejuvenation
Pacific Environment Centre Site
West Vancouver, BC

Treatment Wall Alignment (Plan View)

Legend

- Site Location
- Access road
- Hydraulic Barrier Wall
- Treatment Wall A/C/D/E
- Treatment Wall B
- Treatment Wall B Extension
- Grout Wall
- Proposed Grout Wall

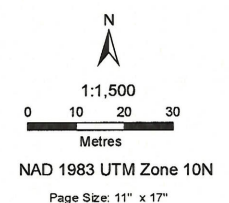
[Signature]
PROFESSIONAL
OF
J. G. SCHMIDT
31722
BRITISH
COLUMBIA
ENGINEER
Aug 31/16

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
2. Wall dimensions shown are approximate.

Sources

- Trevita Survey orthophoto - March 2015
- ESRI World Imagery - Vancouver 2011, North Vancouver 2009



457-002.48

Production Date: Aug 2, 2016

Figure 5

HEMMERA

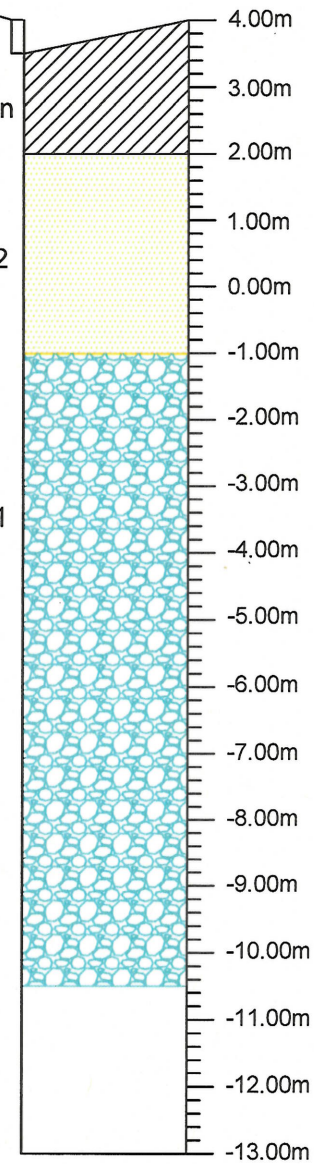
Environment
Canada

Ground Surface
varies from approx
3.5 to 4.0mNVD

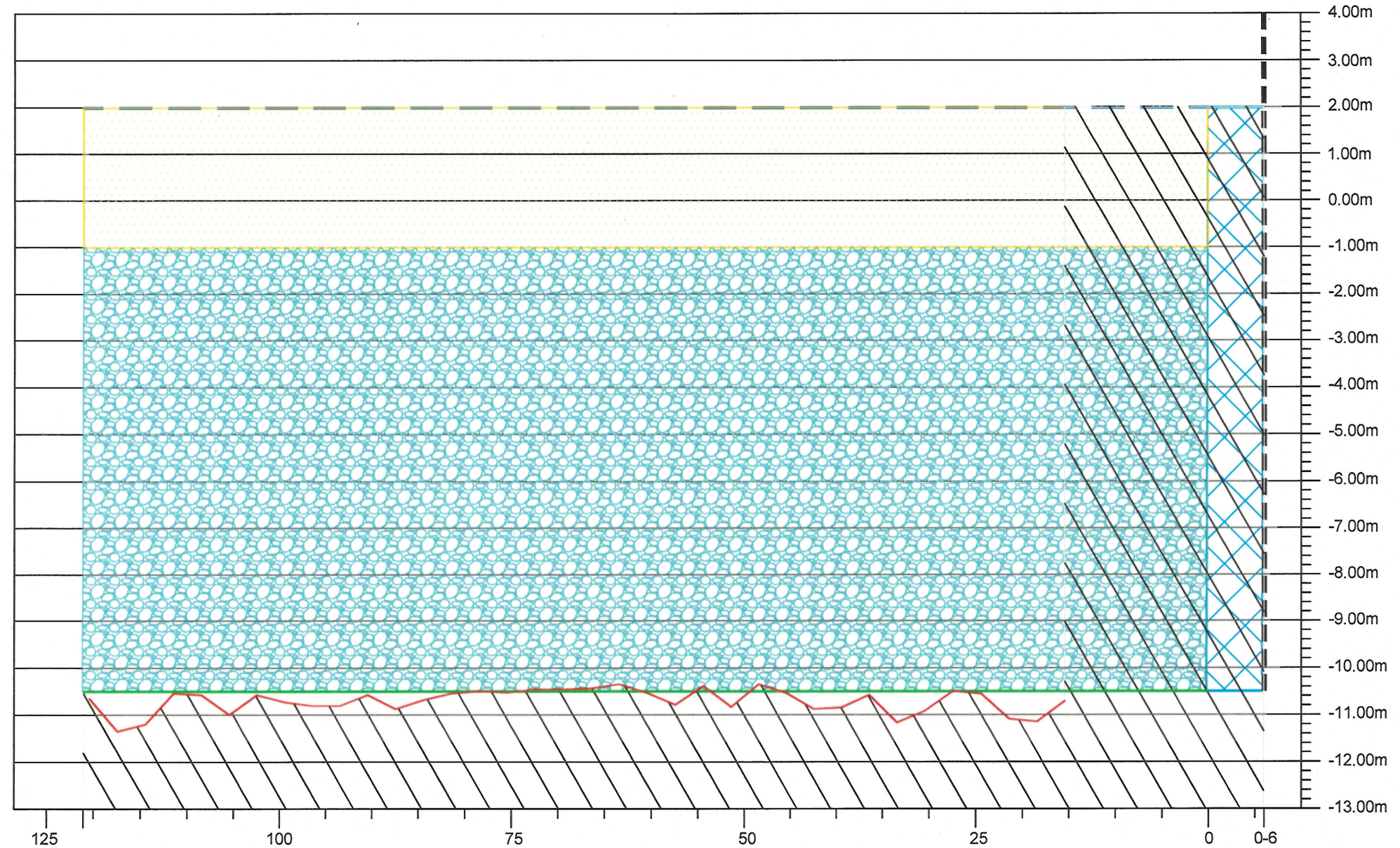
Overburden

M-2

M-1

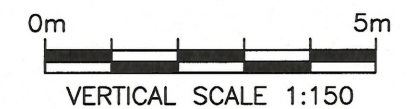


Wall Width - approx. 2.0m



Depth (mNVD)

Station (m)



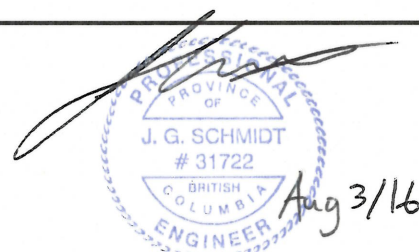
NOTES:

GROUT WALL INSTALLATION

1. The details and design specifications for the grout wall installation are provided in Appendix D.

LEGEND

- Approx Final Graded Treatment Media Surface
- 2016 Design Trench Depth
- 2001 As-Built Trench Depth
- Property Line
- Previously Unexcavated Area
- Grout Wall
- Overburden
- M-2 Media
- M-1 Media



NVD - North Vancouver Datum

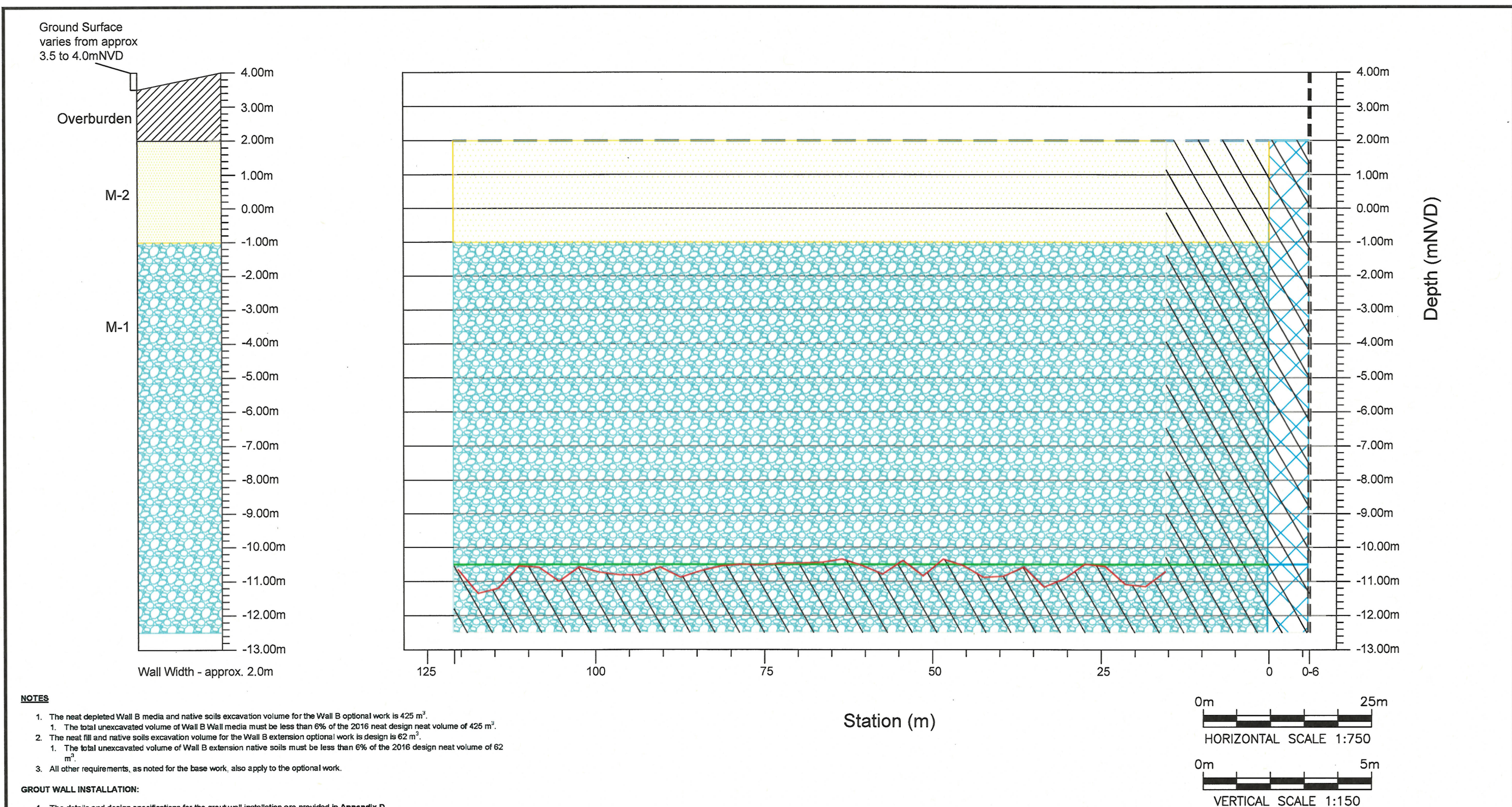


CLIENT:  ENVIRONMENT CANADA

2016 Treatment Wall Rejuvenation
Pacific Environment Centre Site, West Vancouver, BC

Treatment Wall Section B

PROJECT No. 457-002.48 August 2016 Figure 6



LEGEND

- Approx Final Graded Treatment Media Surface
- 2016 Design Trench Depth - Optional Work
- 2001 As-Built Trench Depth
- Property Line
- Previously Unexcavated Area
- Grout Wall
- Overburden
- M-2 Media
- M-1 Media

HEMMERA

CLIENT: ENVIRONMENT CANADA

NVD - North Vancouver Datum

2016 Treatment Wall Rejuvenation
Pacific Environment Centre Site, West Vancouver, BC

Treatment Wall Section B - Optional Work

PROJECT No.	457-002.48	August 2016
		Figure 7

APPENDIX A

Summary of Subsurface Soil Conditions



Summary of Subsurface Soil Conditions

1.1 BACKGROUND

A geotechnical site investigation conducted prior to the 2001 Treatment Wall installation indicated the following subsoil conditions along the Treatment Wall alignment:

"...the site is underlain by well-graded sand and gravel fill, typically 1.2 m to 4.6 m thick. Beneath the fill lies a native organic layer, which contains traces of gravel, cobbles and fine sand lenses. The silt layer varies from 0 m to 2.1 m thick. Coarse sand and gravel, with occasional sand beds and varying cobble and boulder contents, underlie the native silt layer."

The 2001 Treatment Wall was installed with a cut and fill excavation method. A bio-degradable slurry was used to maintain excavation trench stability. The 2001 Treatment Wall installation was believed to have achieved the design dimensions. However, the contractor must consider that deviations to the actual Treatment Wall width, depth, and vertical and horizontal alignment are likely. In 2011 Treatment Wall D, located upgradient of Wall B (see Figure 5), was successfully extended and deepened to approximately -8.0 mNVD using a caisson excavation method. It is anticipated that cobbles between 64 and 256 mm in diameter will be encountered below the existing 2001 approximate lower elevation.

2001 Treatment Wall installation dimensions are provided in **Table 1** below.

Table 1: 2001 Treatment Wall Design Dimensions

Wall	Approximate Upper Elevation	Approximate Lower Elevation	Approximate Width	Approximate Length
B	2.35 mNVD	-10.5 mNVD	2.0 m	106 m

Notes:

1. NVD is North Vancouver Datum
2. Ground elevation along Treatment wall alignment is approximately 3.5 mNVD to 4.0 mNVD
3. All dimensions are approximate.

1.2 TREATMENT WALL B ALIGNMENT

Treatment Wall B is typically overlain with a combination of sand and gravel fill, and sand fill. Portions of the overburden also contain silt fill and trace to some cobbles. The depleted Wall B media typically consists of unconsolidated pea gravel with trace amounts sand and depleted reactive media (compost and limestone). The 2016 Treatment Wall rejuvenation includes an option to extend the lower design elevation for Wall B and the Wall B extension to -12.5 mNVD. The 2001 lower design elevation for Wall B was -10.5.0 mNVD and therefore the rejuvenation of Wall B below -10.5 mNVD and the Wall B Extension will consist of the excavation of native and fill soils to the design depth and width. Borehole logs from wells installed several meters south of the Wall B alignment are attached for reference.

1.3 WOOD WASTE AND DEBRIS

Wood waste and debris may be encountered during the excavation of the Wall B Extension and along the previously installed Treatment Wall B alignment if the excavation extends beyond the width of the previously installed Treatment Walls. To date wood waste and debris encountered in the area of the Treatment Wall has been typically encountered within 4 m of the current ground surface. The wood waste has consisted of processed and non-processed wood and the debris has typically consisted of plastic sheeting.

SAMPLE		Depth Scale (ft) (m)	Graphic Log	Stratigraphic Description Top of Pipe Elevation (mNVD): 3.85 Surface Elevation (mNVD): 3.91	Elev. Depth (m)	Type 3 Well Diagram
Sample Interval	Sample I.D.					
				BERM MATERIAL		
		1			3.0	Cement
		5		SAND and GRAVEL (native) - brown, trace silt, trace cobble, compact	0.9	Bentonite chips
		2				
		10				
		4				
		15				
		5			-1.6	
5 5	MW146C-1	20		SANDY SILT - grey, dense at 6.4m	5.5	
					-2.5	Bentonite grout
	Cadmium: <0.5 Copper: 1140 Lead: 51 Nickel: 16 Zinc: 77	7		SAND and GRAVEL (native) - brown, trace silt, trace cobble, compact	6.4	
		25				
		8				
5 5	MW146C-2	30			-5.5	
	Cadmium: <0.5 Copper: 48 Lead: <50 Nickel: 8 Zinc: 39	10		SAND and GRAVEL - grey brown, some cobbles	9.4	
		35				
		11				
		40				10/20 silica filter sand pack
		12				Coarse silica filter sand pack
5 5	MW146C-3	45				0.025 cm slot, 5 cm diameter PVC well screen
	Cadmium: <0.5 Copper: 16 Lead: <50	14				
		50			-11.3	
	Nickel: 7 Zinc: 33				15.2	

SAMPLE TYPE:

WC Wash Cuttings

WC Wash Cuttings

WC Wash Cuttings

APPENDIX B

Material and Media Specifications



Compost Specification (C-1)

1 MATERIAL AGE AND SIZE DISTRUBUTION

The compost shall be an unscreened organic material composed of shredded leaf and branch fragments, grass clippings and plant material from yard and garden waste. The material shall be aged for a minimum 20 weeks and a maximum of 1 year. The material must not contain any food or food processing waste.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will also sample as required to determine that the material supplied meets or exceeds the criteria stated below. The Departmental Representative reserve the right to reject any materials supplied that fail to meet these standards.

2.1 SAMPLING METHOD

The method of sampling for compost shall be random grab samples. The grab samples shall be a minimum size of 250 grams based on dry weight. The number of samples shall be 1 sample per 250 m³ compost. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the PWGSC Representative.

2.2 TEST METHOD

The method of analysis for compost grade is plant nutrients in soil for available nitrate (NO₃) and phosphorous (P).

2.3 TARGET GRADE

The target grade and suitability of the compost shall be based on a nitrate to phosphorus ratio of 15:1 to 25:1.

Iron Specification (I-1)

1 APPROVED MATERIALS

The following materials and suppliers have been pre-approved:

1. ETI CC-1004 provided by Connelly – GPM, Inc.

Equivalent materials may be substituted but all materials will be required to undergo subsequent testing and approval by the Departmental Representative. The cost for this testing for alternative materials will be borne by the Contractor.

Limestone Specification (L-1)

1 MATERIAL SIZE DISTRIBUTION

The limestone shall be a crushed granular material composed of fragments of uniform size, free from excess flatness, elongation or disintegrated pieces.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will also sample as required to determine that the material supplied meets or exceeds the criteria stated below. The Departmental Representative reserves the right to reject any materials supplied that fail to meet these standards.

2.1 SAMPLING METHOD

The method of sampling for limestone for gradation shall be according to ASTM D75. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

The method of sampling for limestone for purity shall be according to a modified ASTM D75 procedure. Section 4 of ASTM D75 is applied with the following noted changes to Subsection 4.4. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the PWGSC Representative.

The minimum number of representative samples to be taken are based on total tonnage as follows:

Minimum Number of Samples for Specification Sampling and Testing	
Material Tonnage (metric tonnes)	Minimum Number of Samples
< 10,000	3
< 100,000	8
< 1,000,000	26
< 10,000,000	80

(Based on Minimum Number of Samples for Preliminary Static Testing: Price and Errington, 1997)

The minimum sample mass required is as described in Subsection 4.4, based on the dominant size fraction for coarse aggregate.

2.2 TARGET GRADATION

The target gradation for the limestone is given below:

Sieve Size (mm)	Total Passing (%)	
25.0	100	
19.0	90	100
12.5	60	90
9.5	5	60
4.75	0	5

Limestone Specification (L-1)

2.3 TEST METHOD

The method of analysis for limestone purity is whole rock oxide by lithium metaborate fusion preparation followed by multi-element ICP scan that includes and reports SiO_2 , Al_2O_3 , Fe_2O_3 , CaO , MgO , Na_2O , K_2O , SO_3 , Cl , P_2O_5 , TiO_2 , H_2O , LOI and conversion of CaO to CaCO_3 .

The method of sampling for limestone gradation is according to ASTM C136. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.4 TARGET PURITY

The target purity for the limestone is 95 % CaCO_3 or higher (53 % CaO).

Wall Media Mixing Specification (M-1)

1 MATERIAL SIZE DISTRIBUTION

The pea gravel, compost, iron, and limestone used to create a homogeneous permeable reactive wall mixture (Wall media) shall meet specifications PG-1, C-1, I-1, and L-1, respectively. These materials must be tested according to their respective specifications and approved by the Departmental Representative **prior to commencement of material mixing.**

1.1 MIXING METHOD

The pea gravel, compost, iron, and limestone are to be mixed to create a homogeneous Wall Media. The materials are to be mixed in a manner such that:

1. A homogeneous mixture is obtained;
2. Material degradation (physical breakdown) is minimized during the mixing process; and,
3. Material handling prior to placement in the wall excavation is minimized to prevent material segregation.

1.2 TARGET MIXTURE

Pea gravel, compost, iron, and limestone are to be mixed in the following proportions based on % volumes.

Wall Material	Target Mixture	
	Average (% volume)	Standard Deviation (% volume)
Pea Gravel	72	± 5.0
Compost	20	± 4.0
Iron	4	± 1.0
Limestone	4	± 1.0

Verification that the Wall media is homogeneously mixed will also be provided from the results of the permeability testing.

1.3 TARGET PERMEABILITY

Pea gravel, compost, iron, and limestone are to be mixed to a target permeability of 2.0 cm/sec to 10.0 cm/sec.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will also sample as required to determine that the Wall media meets or exceeds the criteria stated below. The Departmental Representative reserves the right to reject any materials supplied that fail to meet these standards.

Wall Media Mixing Specification (M-1)

2.1 MIXTURE SAMPLING METHOD

The method of sampling the Wall media shall be 4 grab samples of approximately equal size from each quadrant of the treatment media stockpile, to form a minimum of one 20-litre composite sample per 500 m³ of treatment media. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.2 MIXTURE TEST METHOD

Each 20 litre Wall media sample shall be tested according to the procedure determined by laboratory bench-scale testing for the Treatment Media containing 72% pea gravel, 20% compost, 4% iron, and 4% limestone.

2.3 PERMEABILITY TEST METHOD

A minimum of three Wall media samples (approximately 5 litres each) from each Wall media stockpile will be tested as per ASTM D2434-68 (1994) E1 Standard Test Method for Permeability of Granular Soils (Constant Head). Compare and report the differences between each sample and the allowable standard deviation.

Wall Media Mixing Specification (M-2)

1 MATERIAL SIZE DISTRIBUTION

The pea gravel, sand, compost and limestone used to create a homogeneous permeable reactive wall mixture (Wall media) shall meet specifications PG-1, S-1, C-1, and L-1, respectively. These materials must be tested according to their respective specifications and approved by the Departmental Representative **prior to commencement of material mixing.**

1.1 MIXING METHOD

The pea gravel, compost, iron, and limestone are to be mixed to create a homogeneous Wall media. The materials are to be mixed in a manner such that:

1. A homogeneous mixture is obtained;
2. Material degradation (physical breakdown) is minimized during the mixing process; and,
3. Material handling prior to placement in the wall excavation is minimized to prevent material segregation.

1.2 TARGET MIXTURE

Pea gravel, compost, iron, and limestone are to be mixed in the following proportions based on % volumes.

Wall Material	Target Mixture	
	Average (% volume)	Standard Deviation (% volume)
Pea Gravel	57	± 5.0
Sand	19	± 5.0
Compost	20	± 4.0
Limestone	4	± 1.0

Verification that the Wall media is homogeneously mixed will also be provided from the results of the permeability testing.

1.3 TARGET PERMEABILITY

Pea gravel, sand, compost, and limestone are to be mixed to a target permeability of 1.0 cm/sec to 8.0 cm/sec.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will sample as required to determine that the Wall media meets or exceeds the criteria stated above. The Departmental Representative reserves the right to reject any materials supplied that fail to meet these standards.

Wall Media Mixing Specification (M-2)

2.1 MIXTURE SAMPLING METHOD

The method of sampling the Wall media shall be 4 grab samples of approximately equal size from each quadrant of the Wall media stockpile, to form a minimum of one 20-litre composite sample per 500 m³ of treatment media. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.2 MIXTURE TEST METHOD

Each 20 litre Wall media sample shall be tested according to the procedure determined by laboratory bench-scale testing for the Wall media containing 57% pea gravel, 19% sand, 20% compost and 4% limestone.

2.3 PERMEABILITY TEST METHOD

A minimum of three Wall media samples (approximately 5 litres each) from each Treatment Media stockpile will be tested as per ASTM D2434-68 (1994) E1 Standard Test Method for Permeability of Granular Soils (Constant Head). Compare and report the differences between each sample and the allowable standard deviation.

Pea Gravel Specification (PG-1)

1 MATERIAL SIZE DISTRIBUTION

The material shall be an uncrushed natural stone composed of inert, tough, durable stones of uniform size, free from excess flatness, elongation or disintegrated pieces. The material shall be washed to remove any fines may be present.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will sample as required to determine that the material supplied meets or exceeds the criteria stated below. The Departmental Representative reserves the right to reject any materials supplied that fail to meet these standards.

2.1 SAMPLING METHOD

The method of sampling for aggregate shall be according to ASTM D75. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.2 TEST METHOD

The method of sampling for aggregate gradation is according to ASTM C136. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.3 TARGET GRADATION

The target gradation for the aggregate material is given below:

Sieve Size (mm)	Total Passing (%)	
	Low	High
20.0	100	100
14.0	95	100
10.0	50	75
5.00	0	5
0.08	0.5	1

Sand Specification (S-1)

1 MATERIAL SIZE DISTRIBUTION

The material shall be an uncrushed natural stone composed of inert, tough, durable stones of uniform size, free from excess flatness, elongation or disintegrated pieces.

2 MATERIAL SAMPLING AND TESTING

The Departmental Representative will also sample as required to determine that the material supplied meets or exceeds the criteria stated below. The Departmental Representative reserve the right to reject any materials supplied that fail to meet these standards.

2.1 SAMPLING METHOD

The method of sampling for aggregate shall be according to ASTM D75. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.2 TEST METHOD

The method of sampling for aggregate gradation is according to ASTM C136. Any deviations from this sampling procedure must be identified in advance of sampling and agreed to by the Departmental Representative.

2.3 TARGET GRADATION

The target gradation for the aggregate material is given below:

Sieve Size (mm)	Total Passing (%)	
	Low	High
10.0	100	100
5.0	60	100
2.5	1	6
1.25	0.5	2.5

APPENDIX C

Installed Wall Media Sampling and Performance Specifications



Installed Wall Media Sampling and Performance Specifications

1.1 DRILLING AND SAMPLING OF INSTALLED WALL MEDIA

1.1.1 Purpose

The purpose of the drilling and sampling of the placed Wall media is to confirm that the Wall media constituents have not settled or stratified during the installation process. The drilling and sampling will be coordinated and conducted by the Department Representative.

1.1.2 Sampling

Drilling will be conducted with a truck or track mounted rig equipped with either a three inch hollow stem auger, or approved equivalent. Up to three locations of Wall B and up to two locations of the Wall B extension may be drilled and sampled. Representative samples at each drilling location will be collected at three elevations. The upper most sample will be collected in the M-2 Wall media and the lower two samples will be collected in the M-1 Wall media. Sample recoveries must meet or exceed 80% to be deemed a valid sample. The sampling interval must not be conducted within 0.5 m of the upper and lower design elevations for the various wall media.

1.1.3 Sample Analysis

Samples collected at each location will be analyzed for the volume of Wall media constituents using the same analytical procedure used for the Wall media stockpiles. For the analysis of samples collected from within rejuvenated Wall media the surrounding soils contained within the Wall media sample will be considered as non reactive media in the volume calculation.

1.2 PERFORMANCE SPECIFICATIONS

The performance specifications for the installed M-1 and M-2 wall media are provided in **Table 1**, below.

Table 1: Performance Specifications for Installed M-1 and M-2 Wall Media

Wall Media Specification M-1 Target Mixture and Allowable Standard Deviation for Installed Wall Media		
Media	Average (% volume)	Standard Deviation (% volume)
Non Reactive Media (Pea Gravel)	72	± 10.0
Compost	20	± 8.0
Iron	4	± 2.0
Limestone	4	± 2.0
Wall Media Specification M-2 Target Mixture and Allowable Standard Deviation for Installed Wall Media		
Media	Average (% volume)	Standard Deviation (% volume)
Non-Reactive Media (Pea Gravel, Sand)	76	± 10.0
Compost	20	± 8.0
Limestone	4	± 2.0

1.3 SAMPLES RESULTS AND COMPLIANCE WITH PERFORMANCE SPECIFICATIONS

If a sample result does not comply with the applicable performance specification then a second sample must be obtained from the same Wall media at the same elevation within 2 lateral meters of the noncompliant sample. If the second sample also does not comply with the performance specification then a portion of the Treatment Wall will be considered to be noncompliant with the performance specification. Additional drilling and sampling will be conducted at 5 m intervals along the Treatment Wall alignment to determine the extent of the noncompliant wall section.

The Contractor will be responsible for all costs associated with remedying the section(s) of the Treatment Wall deemed noncompliant.

APPENDIX D

Grout Cut-Off Wall Specifications

Grout Cut-Off Wall Specification

(Pacific Environmental Site, West Vancouver, BC)

1) Scope of work:

The work includes furnishing a grout wall to create a barrier between the east end of the proposed reactive barrier wall and the adjacent property.
This is a performance type specification. The Contractor shall be responsible for both design and construction of the grout wall at the location shown on the drawings prepared by Hemmera included with these specifications.
The wall shall have a hydraulic conductivity of less than 10-7 cm/s.
The dimension of hte grout wall are shown on the drawings prepared by Hemmera. The grout shall have a minimum compressive strength of 6 MPa.

2) Contractor's Experience Requirement

The Contractor shall be experienced in the construction of grout barrier walls of the type proposed and shall have successfully completed at least five (3) projects in the last five (5) years involving construction of walls of similar or greater scope; preferably in mixed fill soils and preferably in B.C.

4) References

- API (American Petroleum Institute)-RP 13B-1-Recommended Practice Standard Procedure for Field Testing Water-Based Drilling Fluids.
- CAN/CSA A5-M Portland Cement
- CAN/CSA-A23.2 Methods of Test for Concrete

5) Submittals

- Provide working drawings, methods, and descriptions, including computations for proposed technique showing the the following information:
- 5.1) Plant, equipment and material descriptions.
 - 5.2) Arrangement of grout mixing and injection equipment, location and orientation activity to complete the volume of soil in the contract plans, and other necessary details and calculations.
 - 5.3) Sequence of work and verification operations.
 - 5.4) Layout and procedures for a test program to establish optimum grouting parameters.
 - 5.5) Grout mix design, source of mix materials, and material data demonstrating compliance with requirements.
 - 5.6) Daily grouting report form(s) in an electronic format (see article 10)
 - 5.7) Verification program(s) location and means to verify acceptable grout installation.

6) Materials

- Use materials meeting the requirements of the following Sections of the Standard Specifications and this special provision:
- 6.1) Cement - Portland Cement Type I, Type II or Type III cement
 - 6.2) Water - The water shall be free of oil, or chemical and organic impurities, or any other substances harmful to Portland cement, and shall comply with CAN/CSA-A23.1
 - 6.3) Admixtures - Other materials and/or admixtures may be used in the mix, provided they are shown necessary in order to satisfy strength, permeability, or other technical requirements and are approved by the Owner or his representative.
 - 6.4) Grout Mix - The grout mix utilized shall be as required to provide the completion of the work as defined by these specifications, and as verified by test of the cement grout program results. The specific gravity shall be not less than 1.5.

7) Equipment

7.1) General

Spare parts and/or equipment and/or accessories shall be available on site to maintain the equipment in satisfactory operating conditions at all times during execution of the work so as to not cause delays to the project schedule.

- 7.2) The drilling equipment shall be equipped with sensors able to record as necessary: depth, speed, pressure, torque and rpm.
- 7.3) The grout mixers, holding tanks, pumps, and associated equipment shall be of a type and capacity for continuously producing a uniform grout mixture at the times, and in the quantities, required for timely execution of the work.

8) Design

The grout wall design shall satisfy the requirements of these spectfications. Further information may be requested by the owner or the owners representative.
The proposed design shall be presented in such manner that it can be reviewed by the owner or owners representative.

9) Test Program

- 9.1) Prior to production work, test program shall be conducted by the Contractor in accordance with the accepted work plan. The test program shall be used to optimize the various parameters including grout mix, grout pressures, rotational speed, lifting rate, grout flow rate, number and size of grout jet nozzles, and drilling methods. The test program and its results will be observed and reviewed by the Owner or his representative.
- 9.2) Execute test program in accordance with the procedures submitted and accepted by the Owner or his representative.
- 9.3) To verify the results of the test program, the grout wall shall be excavated to allow for visual inspection.
- 9.4) Subject to the results of the test program, the owner's Engineer may require modification to the grout wall production to achieve satisfactory results.
- 9.5) The contractor shall submit at least 3 test cylinders for testing of grout density and compressive strength.

10) Quality Control

- 10.1) Uniformity of grout mixture shall be measured by the Contractor by taking unit weight (density) measurements of the mixed grout by mud balance, taken at the mix plant. Frequency shall be at least one measurement per 5 m3 of grout mixed and pumped. Appropriate records shall be kept by the Contractor and submitted to the Engineer to verify that grout mixture(s) are as accepted.

11) Daily Reports

- Submit daily reports during the work including the information listed below. A sample report form shall be submitted for approval in accordance with section 4.
- a) Daily description of work completed (#'s, Areas, etc.)
 - b) Time and date of beginning and completion of drilling and grouting (if applicable)
 - c) Grout mix data, including mix proportions and specific gravity measurements.
 - d) Grout pumping pressures used.
 - e) Grout flow rates (if applicable).
 - f) Total grout quantity used (daily)

REFERENCE:	<div>#215-1200 West 73-rd Ave. Vancouver, B.C. Canada V6P 6G5</div> <div><div>Ph. (604) 439-0922</div><div>Fax (604) 439-9189</div></div> <div><div>GeoPacific</div><div>Consultants Ltd.</div></div>	DATE: AUGUST 29, 2010		PROPOSED GROUT CUT-OFF WALL PACIFIC ENVIRONMENT CENTRE, WEST VANCOUVER, B.C. SPECIFICATIONS	FILE NO.: 8740	REVISIONS:
		DRN. BY: -	APP'D. S.M.F.			A.
		SCALE: AS SHOWN				B.
						C.
					DWG. NO.: N-1	