PUBLIC WORKS AND GOVERNEMENT SERVICES CANADA

QUAIS DE LA REINE - RECONSTRUCTION OF WHARVES 97-98

(PROJECT NO 052833-001 & R.052834.001)

ADDENDUM NO 02

ROCHE

1. GENERAL

This addendum is part of the tender call documents in the same way as the plans and specifications and is applicable immediately; in case of conflict between plans and this addendum, the latter must prevail.

The contractor must, upon reception of this addendum, inform the sub-contractor immediately of its content, as the requirements or modifications contained therein remain under its full responsibility.

2. TECHNICAL SPECIFICATIONS

Section 01 11 00 Work related general information

Article 1.8 Measurement for payment

Delete: Item no 3 – Demolition and excavation and replace by:

Item no 3 - Demolition and excavation

.1 This item will be measured as a global unit and includes all the work required for the demolition, dismantling, as well as excavation of soil of Wharf, all as described in the plans and specifications. This item also includes the removal and disposal in authorized sites of all materials from the excavation of the wharf that cannot be reintroduced in the work which also includes materials from the demolition. This item includes trenches for water, electricity, cathodic protection and other type of conduit. The materials from the underwater excavation and the wharf's excavation which has an undetermined level of contamination are not included in this present item. They will be mentioned in items 37 and 38.

.2 More specifically, this item includes, without limitation, demolition, dismantling and excavation of the following works:

.1 All existing surface elements to be dismantled and / or demolished;

.2 Excavation of the existing wharf for the installation of tie rods and/or foundations;

.3 Temporary stockpiling, drying, transport and disposal of excess or contaminated material in accordance with applicable laws and regulations;

.4 Demolition and disposal of creosoted wood of the berm in accordance with applicable laws and regulations;

.5 Temporary excavation, reprofiling and replacing of existent riprap as required to installation of combined wall or to reach the required water depths levels is included in this item;

.6 Demolitions of reinforced concrete walls including anchor blocks, and reinforced concrete or creosoted wood slabs and asphalt paving;

.7 Partial demolition of sheet piling;

.8 Control of drainage waters and contaminated sediments on the platform.

Item no 8 Concrete:

Add:

.7 Inspection holes are included in sub-item 8.1 of the price schedule.

Article .7 becomes .8.

Item no 13 – Tie rods:

Delete: .4

Add:

.4 The temporary equipments and installations needed for the setting and tests on the drilled and inclined tie rods are included in the installation costs.

Add the following items:

Item no 37 – Underwater excavation

.1 Excavation of soils is measured by metric ton.

.2 The soils in front of the face of wharfs 97 and 98 will be characterized by a Department Representative and will be disposed depending of their level of contamination. After the beginning of the bidding process, the results will help determine the nature of soil management at this site.

.3 If the soils are not contaminated and are clean in accordance to the CEO criteria they will be used for the berm without being taken out of the water. On the contrary, if the soils are contaminated, they will be excavated and disposed of in accordance with the rules and regulations in force and in accordance to their level of contamination.

.4 The costs includes the disposal of materials, the excavation and the storing of excavated materials, the sifting of non contaminated materials, the management of residual water, the handling, the transportation and disposal of excavated materials of in accordance with the rules and regulations in force and in accordance to their level of contamination. The costs also applies to materials in zones 13 and 14 shown in the annexe documents in section 01 35 13.43

.5 The item is divided as follow:
- .1 Clean soil to the berm
- .2 Inferior non contaminated soil in A
- .3 Contaminated soils A-B
- .4 Contaminated soils B-C
- .5 Contaminated soils higher then C
- .6 Debris and large aggregates

.6 The cost includes all the requirements under sections 01 35 13.43 and also sections 01 35 43 and 01 74 21.

Item no 38 – Land excavation

.1 Excavation of soils is measured by metric ton. This concern soils coming from the excavation of the wharf which has an undetermined level of contamination (estimated volume: 2344 m^3). Refer to the annexed documents in 01 35 13.43 for details in regards of the excavation's location and depth. For soils which the level of contamination is known, are included in item 3 except for zones 13 and 14 which belong to items 37.

.2 The costs includes the excavation and the storing of excavated materials, the sifting of non contaminated materials, the characterization by a certified laboratory, the management of residual water, the handling, the transportation and disposal of excavated materials of in accordance with the rules and regulations in force and in accordance to their level of contamination.

.3 The item is divided as follow:
- .1 Clean soil to the berm
- .2 Inferior non contaminated soil in A
- .3 Contaminated soils A-B
- .4 Contaminated soils B-C
- .5 Contaminated soils higher then C
- .6 Debris and large aggregates

.4 The cost includes all the requirements under sections 01 35 13.43 and also sections 01 35 43 and 01 74 21.

Section 03 30 00 Cast-in-place concrete

Article 2.1 Materials

Delete: .6

Add:

.6 Expansive grout: premixed product containing aggregate, Portland cement, a plasticizer and a water-reducer according to norm CAN/CSA-A23.1/A23.2.

.1 Compressive strength: 35MPa at 28 days.

Section 05 51 25 Floating dock

Article 1.1: Details and references

Delete: .4

Add:

.4 Structures and components of floating docks must be designed with a minimum safety factor, as specified in ACNOR norm: Construction of welded aluminum structures S-157-05 in the case of aluminum floating dock.

Delete Article 2.1 Materials and replace by:

Article 2.1 Materials

.1 The Contractor will have the choice to present the floating dock either in aluminum or in steel.

.2 Aluminum floating dock

.1 Flotation unit

.1 The floats shall be polyethylene filled with structural foam.
.2 The floats shall be molded in one piece.
.3 Polyethylene thickness: 5 mm.
Color: black UV-resistant.
.4 Structural foam: expanded polystyrene in the floats with a minimum density of 16 $kg/m^3 \pm 5\%$.
.5 The floats shall meet the following standards: ASTM 1603, ASTM D638, ASTM D1525, ASTM D746, ASTM D790.
.6 The floats and their attachments shall be designed to withstand the loads imposed by the waves.

.2 Aluminium : the aluminium structure at Warren farm will be a modular type consisting of an assembly of 6061-T6 aluminium alloy profiles. The structure shall be MIG welded using a filler metal certified according to the standard CSA W47.2.

.3 The shore profiles shall be a closed tubular type with a minimum weight of 14 kg/linear meter.

.4 Fasteners and bolts: bolts used to connect hardware to the floating docks will be of type ALRA, 16 mm diam. 316 stainless steel.

.3 Steel floating dock

.1 Comply with indicated nominal freeboard.

.2 The steel structure will be in steel 350W except for plates that will be in steel 300W. Steel elements must comply with section 05 50 00 Metallic structures. Steel elements will be painted in accordance with Section 09 97 27 unless otherwise specified.

.3 Screws and Bolts. Bolts used to connect pieces of hardware to the floating docks will be in galvanized steel.

.4 Common elements:

.1 Decking: decking used for the floating docks will be a non-slip type. A sample shall be provided to the Departmental Representative.

.2 Hardware: A-316 stainless steel for the aluminum floating dock and galvanized steel for the steel floating dock.

.3 6 tabs with a capacity of 10 tons shall be installed on the edge of the floating dock to moor the design vessel.

.4 A rubber protection system shall be installed on the periphery of the floating dock

.5 Supply and install on the floating dock a small shed to store small materials

Article 2.2.4 Live loads

Delete: .4

Add:

.4 The floating dock structure shall withstand the impact of a boat 14 meters long (22 metric tons) hitting the dock at a speed of 1 m/s at an angle of 45 degrees.

Section 09 97 20 – Paint

Article 1.2 Work description

Article 1.2.1

Add:

.2 Shop painting of the dock in case a steel dock is selected: 2 components black epoxy, 85% solids content by volume according to norm ASTM D-523, Interzone 954 type or equivalent, designed for marine applications.

Article 2.1 Materials

Add:

.3 If a steel structure is selected for a floating dock, the coating consists in a painting.

Section 31 23 33.01 Excavating, trenching and backfilling

Article 3.1 Site preparation

Add:

.7 Plans and technical specifications have been designed according to wharves' loads used in the exploitation stage, without considering loads during the construction stage. The contractor will be responsible of his own construction method and must ensure the stability of wharves and neighboring structures is not affected for all steps of the wharves' construction. In all cases, the work method for each construction stage must be established considering all applied loads, including equipment **loads**. The Contractor will have to present his working method in a prepared document signed and sealed by a qualified engineer

member of the Ordre des ingénieurs du Québec (OIQ). For submission purposes, the placement of the combined berm and wall as well as the tie rods should be performed prior to backfilling the new wharf. If the Contractor wishes to do otherwise, he shall submit to a Departmental Representative for approval, his working method which must inevitably be signed and sealed by an engineer member of the Ordre des ingénieurs du Québec (OIQ).

Article 3.5 Excavation

Delete: .12

Add:

12. The geotechnical study indicated that the presence of dense soil layers and blocks at multiple elevations. For the superficial layers, it is recommended to excavate soils for the placement of the combined wall and for the deeper layers, foresee a placement method of the combined wall which is suitable to soil conditions. A multi-beam survey is attached in the appendix of this section as additional information.

Section 31 63 18 Rock anchoring system

Article 2.1 Materials

Delete: .2

Add:

.2 Grout: Shrinkage **compensated** grout – According to section 03 30 00 - Cast in place concrete.

Section 35 31 19 Protective structures

Article 3.1 Leveling works

Add:

.4 Regarding the berm construction, the Contractor must ensure the adequacy of the berm placement and leveling across its width in order to meet the plans' cross-sections. If the use of a barge is required to obtain these results, it must be taken into account in its working methods.

3. PLANS

Sheet S02

The bathymetry was added on the berm of wharf 96 and on the riprap south of dock 98.

Sheet S03

The edges, sidewalks and bollards in the work zone of buildings 500 and 900 are to be demolished.

Sheet S04

The rock size of the wharf 96's berm is specified.

Sheet S07

Concrete bases for the rectifiers are removed. They are replaced by temporary pull boxes.

The location and distance between the temporary pull boxes are specified.

Sheet S07

Some design criterion regarding the permanent wharf are added.

Sheet S07

Bollards and sidewalks, in the sectors of buildings 500 and 900, are to be reconstructed as the present ones were. The bollards which are set up in concrete must be added in accordance to the indications.

Sheet S18

Monitoring wells are added to the concrete slab (12 in total). The location and distance between wells are specified.

Sheet S37

Concrete rectifiers bases are removed. The bases of service islands are maintained.

Sheet S37

Details of cleanouts are added.

4. ADDITIONAL INFORMATION

Documents regarding the pre-purchase of piles and sheet piles are attached to this addendum no 2.

The attached bidding form replaces the bidding form.

Concrete curbs and sidewalks of building 500 are part of the item 8.1 Concrete slab on ground.

Question 1: Can the concrete planned in the connection to dock 96 be casted in multiple steps?

Yes, the Contractor must make sure that the existing structure should be able to withstand its construction loads. Retaining walls and additional measures may be required.

Question 2 (answered in this addendum):

For the construction of wharves 97 and 98, must the planned berm in front of the pile/sheet pile wall be placed before backfilling between the new and existing wall? (see answer in section 2. Specifications of this addendum in the article regarding section 31 23 33.01 Excavating, trenching and backfilling).

Question 3: Can the contractor have an agreement with Skyline (PHP) Canada for the rental of the storing site?

Piles and sheet piles are stored at the provider Skyline (PHP) Canada ULC. It is already planned in the contract that the Contractor provides a field to receive materials ordered by the Departmental Representative. In the event that the Contractor has an agreement with Skyline for the rental of its storing site, the Contractor will become liable as if it was its own storage site.

Question 4: Does the content of the island 97A becomes the property of the contractor?

The island 97A will be demolished once the Departmental Representative has recovered some of its parts.

Question 5: We received some plans related to Wharves 97 and 98 and we can read the specification of 4 x 750 STC or approved equivalent. In order to suggest our treatment solution, would it be possible to provide the necessary design information?

Here are the parameters, without limitation, that must be met to establish the equivalence of treatment units of stormwater:

1. Submerged mode operation, allowing, according to tides, an equal or greater treatment period every day and without any contaminant losses.
2. An inlet pipe per equipment.
3. Total drained area R-1, R-2 and R-3: 0.37 ha.
4. Total drained area RP-4: 0,11 ha.
5. % of impermeable surface: R-1, R-2, R-3 and RP-4: 100%.
6. Grading curve used: NJDEP (1@1000 microns).
7. % of minimum removal sought: 80%.
8. % of average minimum runoff volume desired annually: 90%.
9. The structure must be installed by integrating itself between the structure elements without adding holes in the structural slab. The structure's geometrical dimensions must be similar in order to avoid the weakening of the structural slab.

Question 6: On the drawing S17/40, near the gutter, there is 25M galvanized frame specified for the slab. Is there really galvanized steel frame or is it a mistake and all the steel is black?

There is no galvanized steel in the slab.

Question 7: Can you specify the excavation limitations at the wharf 96's level?

Answer pending.

Valérie Despaux, Eng.
Project Manager

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Travaux publics et Services gouvernementaux Canada
Direction générale des biens immobiliers

Région du Québec

Public Works and Government Services Canada
Real Property branch

Quebec region

Canada

Projet/*Project* RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98	Titre du dessin/*Drawing title:* ZONE RÉSERVÉE À L'ENTREPRENEUR RESERVED AREA FOR CONTRACTOR
conçu par/*designed by:* date: Christophe Rigert,ing.	approuvé par/*approved by:* date Esad Odobasic,ing M.Sc.
dessiné par/*drawn by:* date: Jordan Morissette.Tech.	no. de projet/*project no.* R-052833.001 — date
révisions: — échelle/*scale:*	nom du fichier/*file name* QU-13-026M-S-02 — A01/08

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Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec Public Works and Government Services Canada Real Property branch Quebec region Canada	Projet/*Project* RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98	Titre du dessin/*Drawing title:* SITUATION EXISTANTE, DÉMOLITION EXISTING ARRANGEMENT DRAWING, DÉMOLITION
	conçu par/*designed by:* date: Christophe Rigert,ing.	approuvé par/*approved by:* date Esad Odobasic,ing M.Sc.
	dessiné par/*drawn by:* date: Jordan Morissette.Tech.	no. de projet/*project no.* date R–052833.001
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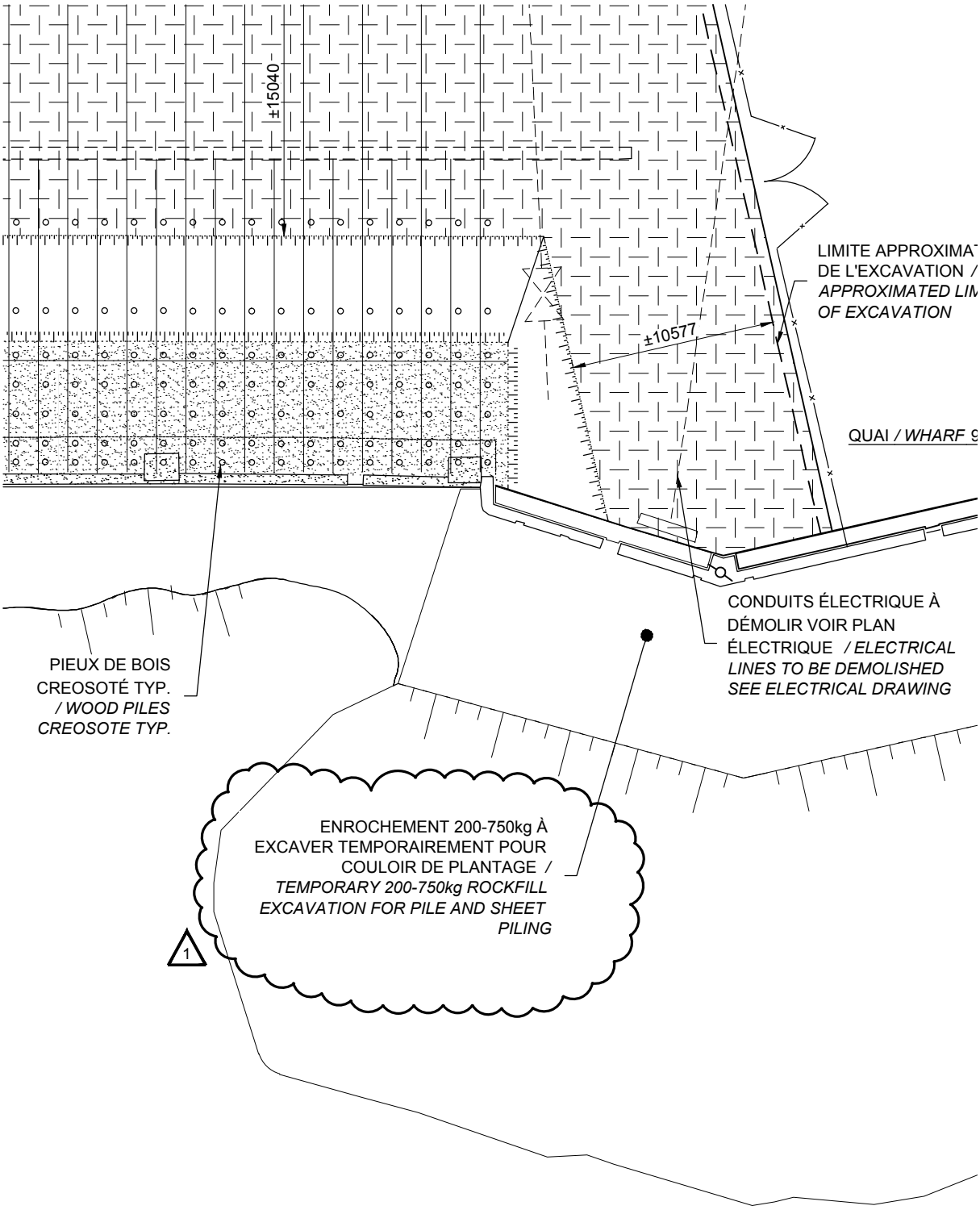

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Projet/*Project*	Titre du dessin/*Drawing title:*
RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98	DÉMOLITION ET EXCAVATION, VUE EN PLAN DEMOLITION AND EXCAVATION, PLAN VIEW
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dessiné par/*drawn by:* date: Jordan Morissette.Tech.	no. de projet/*project no.* date R-052833.001
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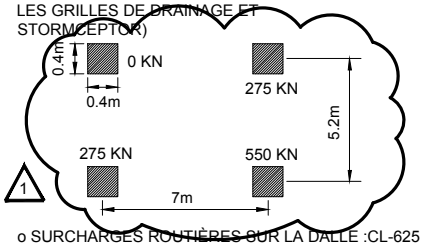
CRITÈRES DE CONCEPTON

- SURCHARGE D'EXPLOITATION :
  - o CHARGE VIVE UNIFORMÉMENT RÉPARTIE: 25 kPa
  - o CHARGE DE GRUE : 100T (SAUF SUR LES GRILLES DE DRAINAGE ET STORMCEPTOR)



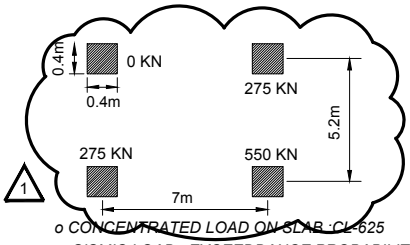
  - o SURCHARGES ROUTIÈRES SUR LA DALLE :CL-625
  - o CHARGE SISMIQUE : PROBABILITÉ DE DÉPASSEMENT DE 10% EN 50 ANS
  - o CAPACITÉ DES BORNES D'AMARRAGE : 100 TONNES
  - o POUSSÉE HYDROSTATIQUE : TÊTE D'EAU DE 300mm

- TAUX DE CORROSION CONSIDÉRÉS (CÔTÉ EXTÉRIEUR DU MUR PIEUX-PALPLANCHES) :
  - o AU DESSUS DE LA ZONE DE MARNAGE : 0.10mm/AN
  - o DANS LA ZONE DE MARNAGE : 0.20 mm/AN
  - o SOUS LA ZONE DE MARNAGE : 0.10 mm/AN

- NAVIRES DE CONCEPTION:
  - o QUAIS: PIERRE RADISSON ET DES GROSEILLERS
    - -LONGUEUR: 98.15m
    - -TIRANT: 7.16m
    - -DÉPLACEMENT: 8850 t.
  - o PUISSANCE MAX. DU PROPULSEUR D'ÉTRAVE SUR PIERRE 400-600mm:1300KW
  - o PONTON FLOTTANT: EMBARCATION DE LA GCC
    - -LONGUEUR: 14m
- DURÉE DE LA VIE UTILE: 30 ANS
  - o(SANS PROTECTION CATHODIQUE ET EN CONSIDÉRANT LES CHARGES D'UN REHAUSSEMENT DU DESSUS DU QUAI @ +7.25m)
- REHAUSSEMENT DU QUAI:
  LE QUAI A ÉTÉ CONÇU POUR REPRENDRE LES CHARGES D'UN REHAUSSEMENT FUTURE DU DESSUS DU QUAI DE +6.50m@+7.25m
- DÉFENSE:
  - o ÉNERGIE D'ACCOSTAGE
  - DÉFENSE DU QUAI :3.9 Ton-m
  - DÉFENSE DE COIN TRAPÉZOÏDALE:9.5Ton-m

DESIGN CRITERIA

- *LIVE LOADS :*
  - *o UNIFORMALY DISTRIBUTED LOAD: 25 kPa*
  - *o CRANE LOAD : 100T (EXCEPT ON DRAINAGE GRID AND STORMCEPTORS)*



  - *o CONCENTRATED LOAD ON SLAB :CL-625*
  - *o SISMIC LOAD : EXCEEDDANCE PROBABILITY OF 10% IN 50 YEARS*
  - *o BOLLARD CAPACITY : 100 TONS*
  - *o HYDROSTATIC PRESSURE : HEAD OF WATER 300mm*

- *CORROSION RATE (CONSIDERED ON EXTERIOR SIDE OF PILE-SHEETPILE WALL) :*
  - *o UPON TIDAL ZONE: 0.10mm/YEAR*
  - *o TIDAL ZONE : 0.20 mm/YEAR*
  - *o UNDER TIDAL ZONE : 0.10 mm/YEAR*

- *DESIGN BOATS:*
  - *o WARVES: PIERRE RADISSON AND DES GROSEILLERS*
    - *-LENGTH: 98.15m*
    - *-DRAFT: 7.16m*
    - *-DISPLACEMENT TONNAGE: 8850 t.*
  - *o BOW THRUST POWER ON 400-600mm STONE: 1300KW*
  - *o FLOATING DOCK: CCG CRAFT*
    - *-LENGTH: 14m*

- *SERVICE LIFE:30 YEARS (WITHOUT CATHODIC PROTECTION AND CONSIDERING THE LOADS OF A RAISE OF THE WHARF'S TOP TO +7.25m)*
- *RAISING OF WHARF:*
  THE WHARF HAS BEEN DESIGNED TO TAKE THE LOAD OF A FUTURE RAISE OF THE WHARF'S TOP FROM +6.50m TO +7.25m
- *FENDER*
  - *o BERTHING ENERGY*
    WHARF FENDER : 3.9 Ton-m
    COIN FENDER (LAMBDA) : 9.5 Ton-m

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Quebec region

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dessiné par/*drawn by:* Jordan Morissette.Tech. — date:	no. de projet/*project no.* R-052833.001 — date
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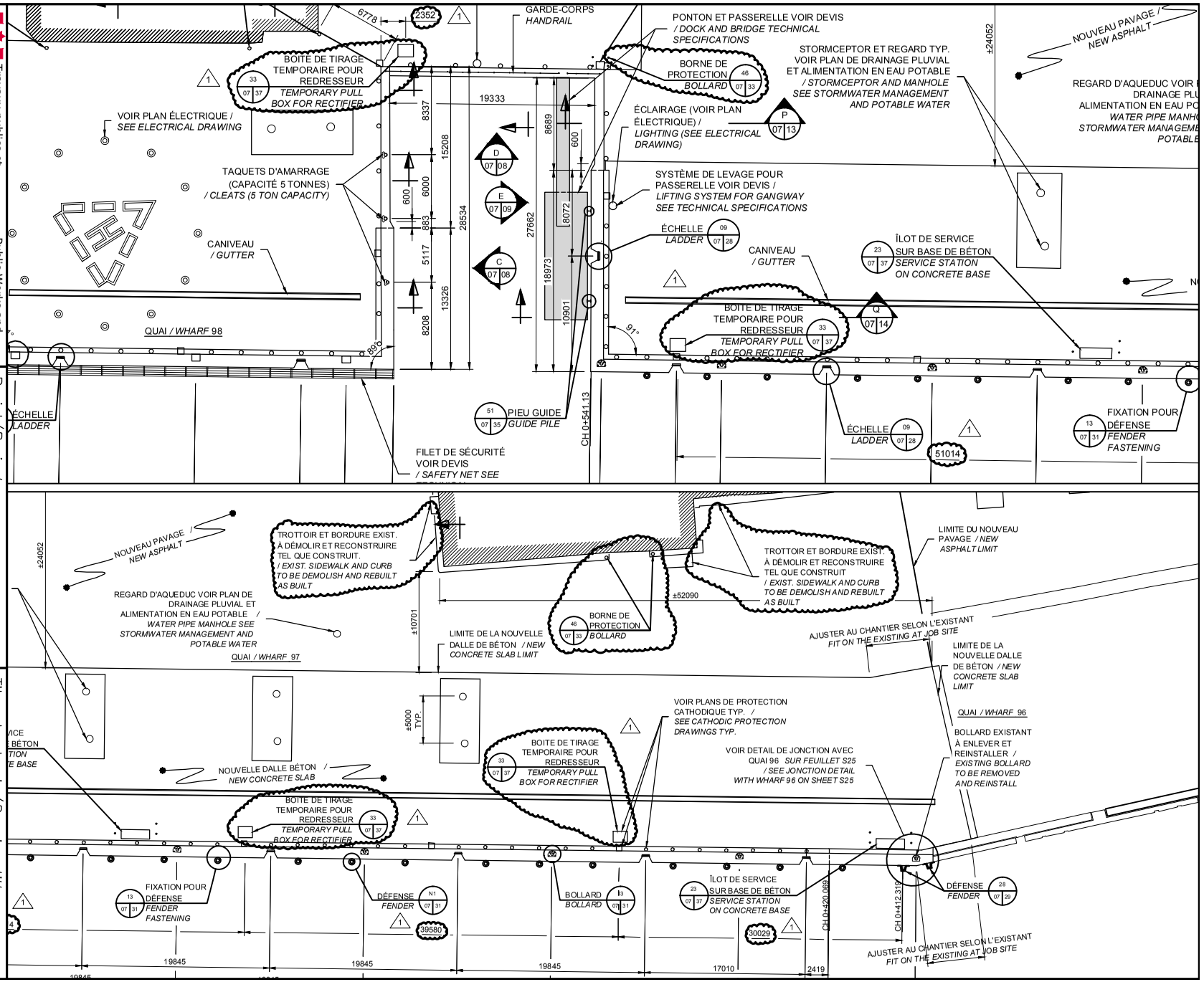

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Projet/*Project*

RECONSTRUCTION DES QUAIS 97 & 98
RECONSTRUCTION OF WHARVES 97 & 98

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PROJECTED NEW LAYOUT,PLAN VIEW

conçu par/*designed by:* Christophe Rigert,ing. date:

dessiné par/*drawn by:* Jordan Morissette.Tech. date:

révisions: échelle/*scale:*

approuvé par/*approved by:* Esad Odobasic,ing M.Sc. date

no. de projet/*project no.* R-052833.001 date

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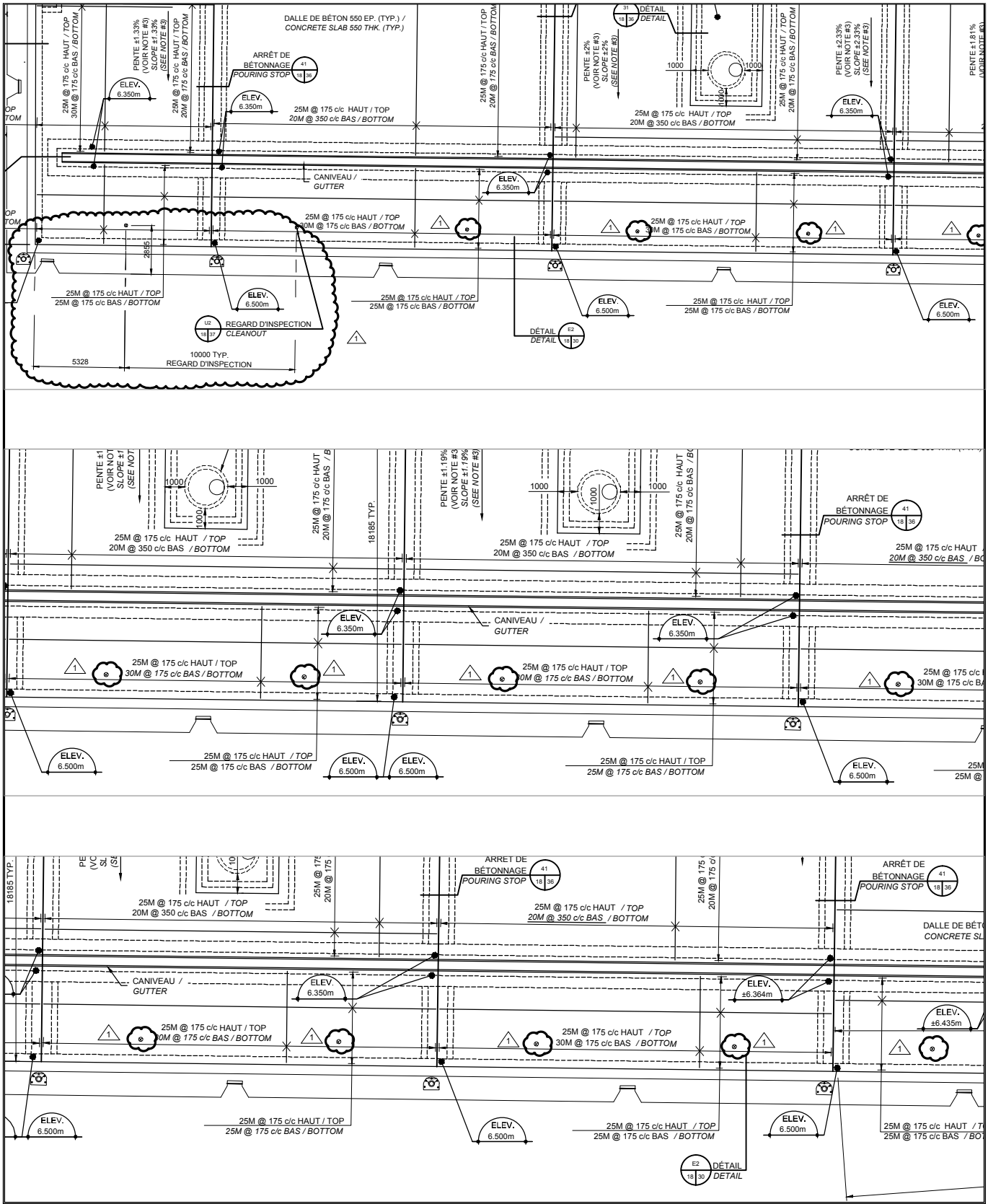
A05/08



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Projet/*Project*

RECONSTRUCTION DES QUAIS 97 & 98
RECONSTRUCTION OF WHARVES 97 & 98

Titre du dessin/*Drawing title:*

ZONE RÉSERVÉE À L'ENTREPRENEUR
RESERVED AREA FOR CONTRACTOR

conçu par/*designed by:* date:
Christophe Rigert,ing.

approuvé par/*approved by:* date
Esad Odobasic,ing M.Sc.

dessiné par/*drawn by:* date:
Jordan Morissette.Tech.

no. de projet/*project no.*
R-052833.001

date

révisions:

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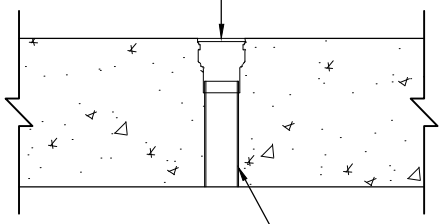
QU-13-026M-S-18

A06/08

REGARD DE NETTOYAGE EN FONTE OU EN ACIER, GALVANISÉ.LE REGARD DOIT AVOIR UN DIAMÈTRE INTÉRIEUR MINIMAL DE 127mm ET LE COUVERCLE DOIT ÊTRE SUFFISAMMENT RÉSISTANT POUR REPRENDRE LES SURCHARGES ROUTIÈRES (CL-625).
/ CAST IRON OR GALVANIZED STEEL CLEANOUT. THE CLEANOUT MUST HAVE A MINIMUM INSIDE DIAMETER OF 127mm AND THE COVER MUST BE SUFFICIENTLY RESISTANT TO TAKE THE ROAD OVERLOAD.(CL-625).



TUYAU EN PVC Ø125mm EXT.
/ PVC PIPE Ø125mm OUTSIDE

△1

DÉTAIL TYPE - REGARD D'INSPECTION (12 UNITÉS)
TYPICAL DETAIL - INSPECTION HOLE (12 UNITS)

0 x
1: X

U2
18 | 37

Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec Public Works and Government Services Canada Real Property branch Quebec region Canada	Projet/*Project* RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		Titre du dessin/*Drawing title:* BASES ET DALLE DE BÉTON CONCRETE BASES AND SLAB,
	conçu par/*designed by:* date: Christophe Rigert,ing.		approuvé par/*approved by:* date Esad Odobasic,ing M.Sc.
	dessiné par/*drawn by:* date: Jordan Morissette.Tech.		no. de projet/*project no.* date R–052833.001
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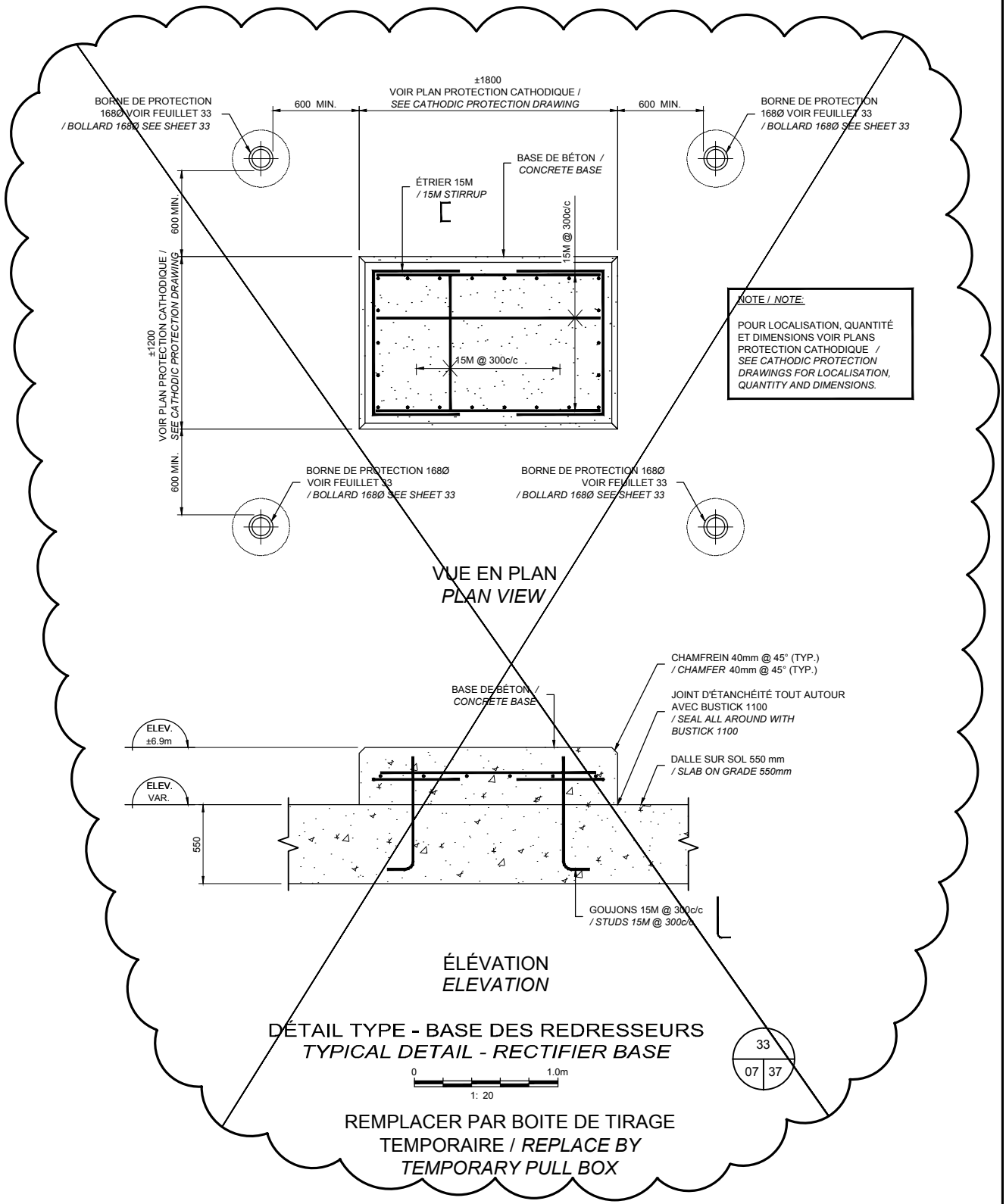

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2014/05/09

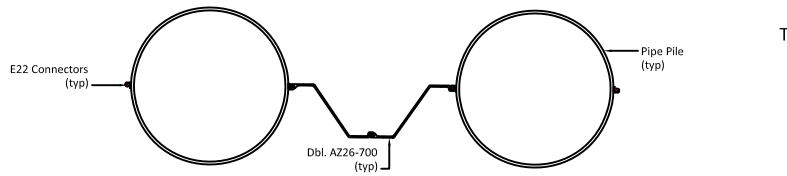
AutoCAD

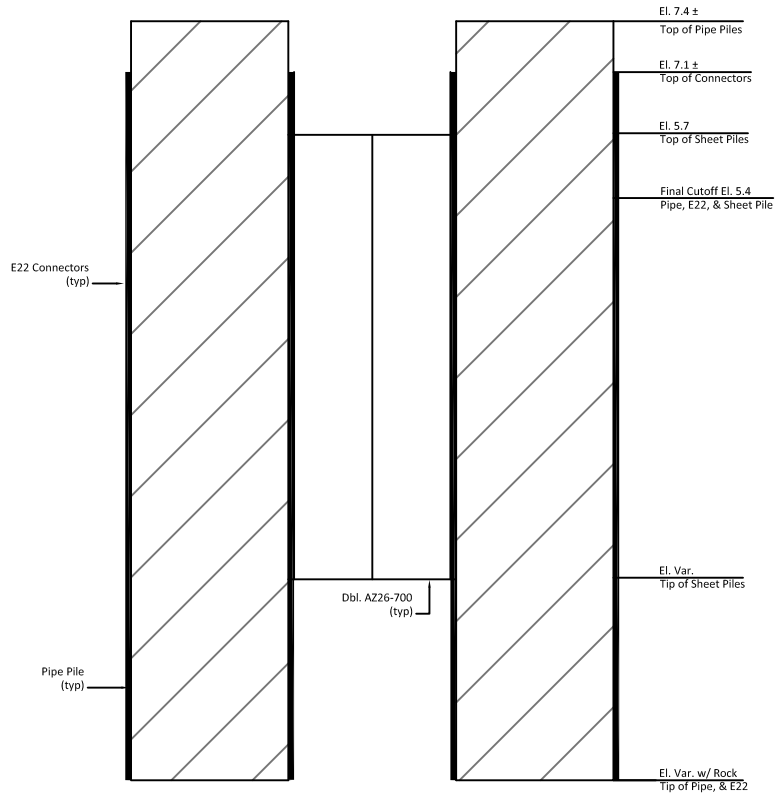
Travaux publics et Services gouvernementaux Canada
Direction générale des biens immobiliers
Région du Québec

Public Works and Government Services Canada
Real Property branch
Quebec region

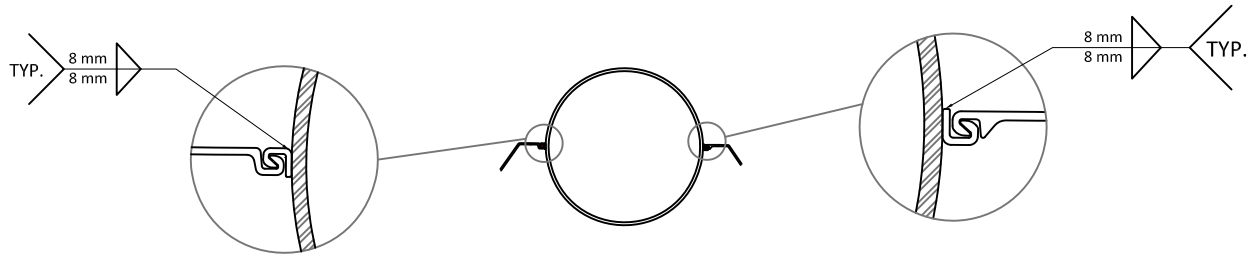
Canada

Projet/*Project*: RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98	Titre du dessin/*Drawing title:* BASES ET DALLE DE BÉTON CONCRETE BASES AND SLAB,
conçu par/*designed by:* Christophe Rigert,ing. — date:	approuvé par/*approved by:* Esad Odobasic,ing M.Sc. — date
dessiné par/*drawn by:* Jordan Morissette.Tech. — date:	no. de projet/*project no.* R-052833.001 — date
révisions: — échelle/*scale:*	nom du fichier/*file name* QU-13-026M-S-37 — A08/08

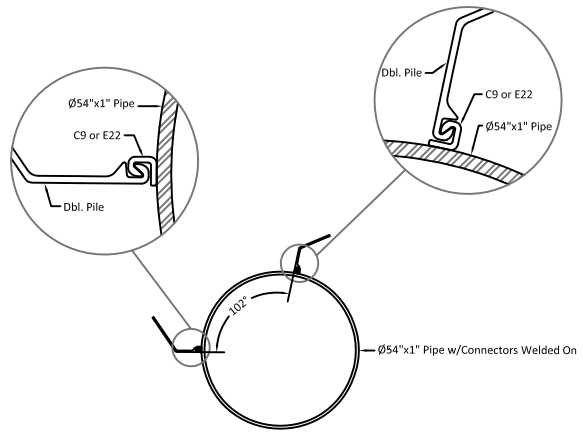




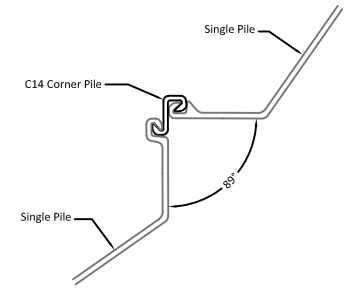
Typical Elevation View



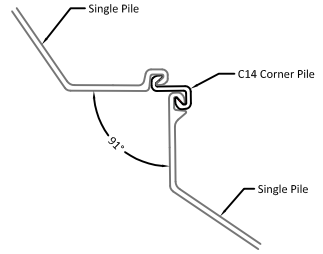
Typicall Pipe-Connector
Weld Detail



Pipe #18 Detail

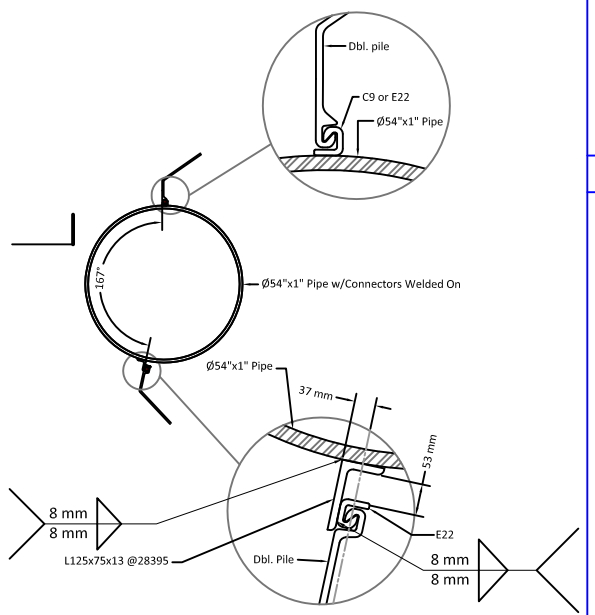


Detail A



Detail B

Pipe #5 Detail



Pipe #19 Detail

Notes:
1. Spiralweld Pipe to meet ASTM A252 (Steel to API 5Lx52)
2. E22 Connectors to meet EN S355GP
3. Steel Sheet Piling to meet CSA G40.21M + G40.20 Gr. 350W

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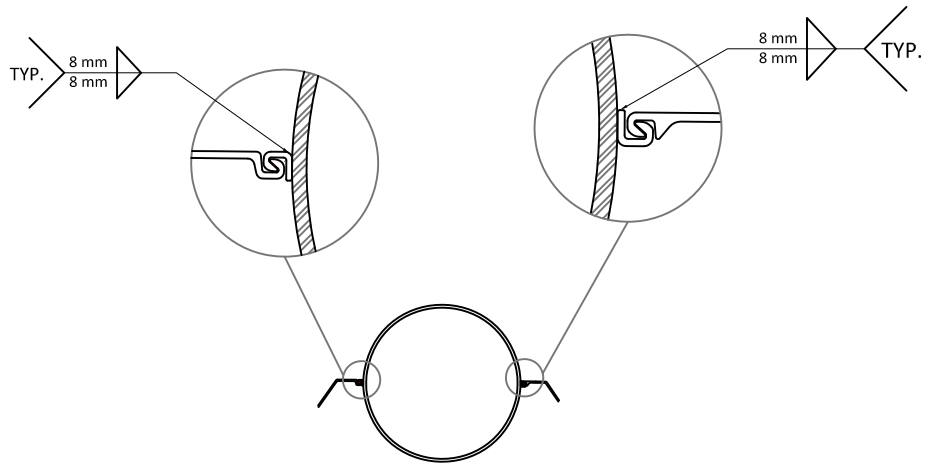
8 WOODHOLLOW RO, PARSIPPANY, NJ 07054 TEL: (973) 428-6100 FAX: (973) 428-7399

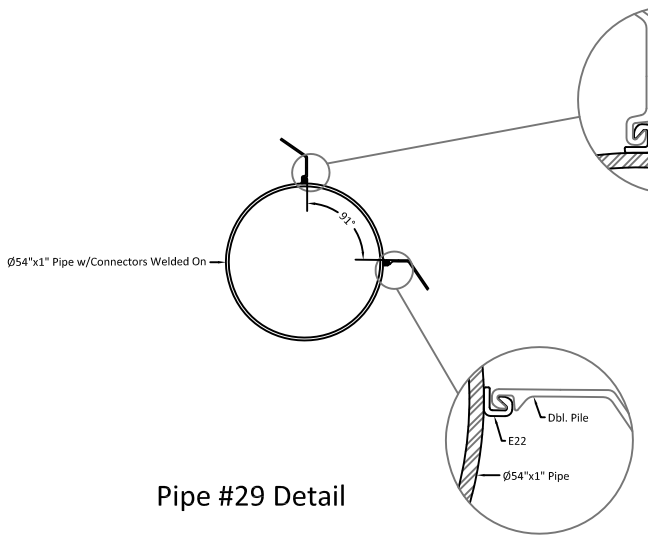
REV.	DESCRIPTION	DWB By	Date	CKD By
2		KL	03-27-14	
1		KL	03-12-14	
0	Released For Approval	JA	02-18-14	

PROJECT: Queens Wharf Wharfs 97 & 98 — Quebec
CONTRACTOR: Cananda

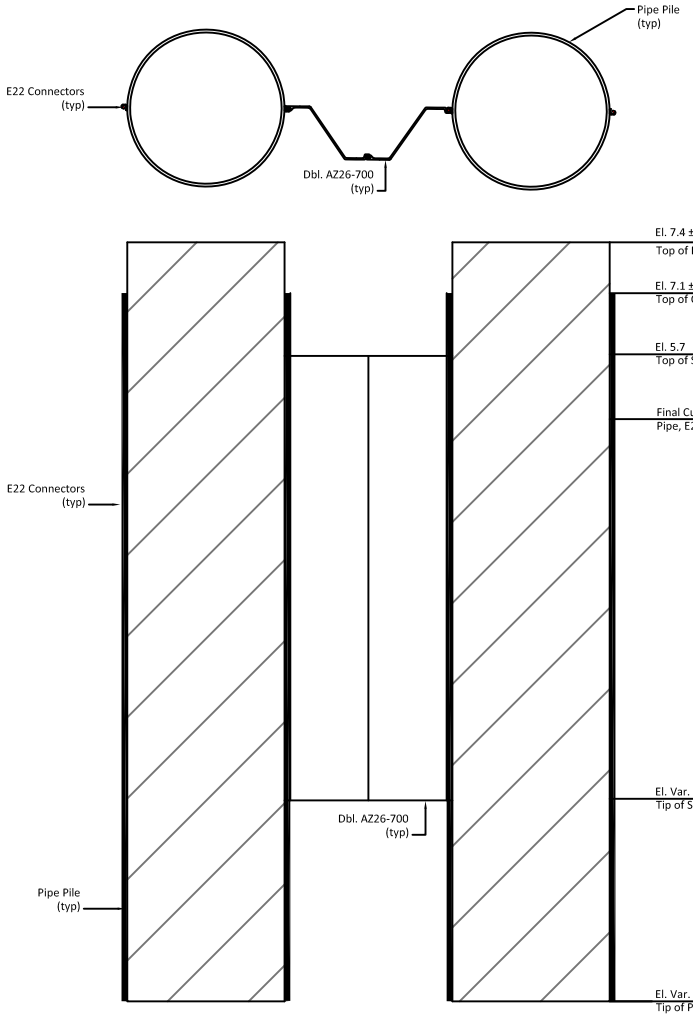
DATE: 02-18-14
SCALE: N.T.S.
DRAWN BY: J.Austro
PROJECT NO. 4041
SHEET: L—1
REV. 2



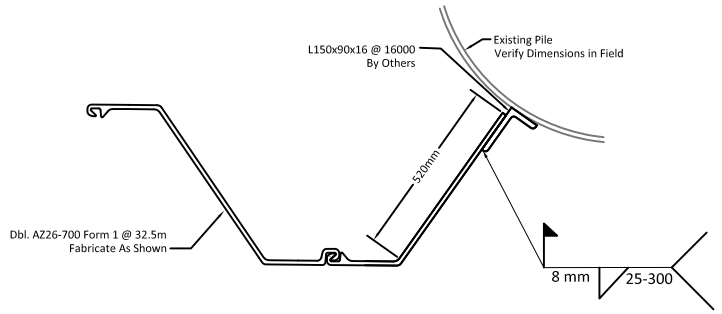
Typicall Pipe-Connector
Weld Detail



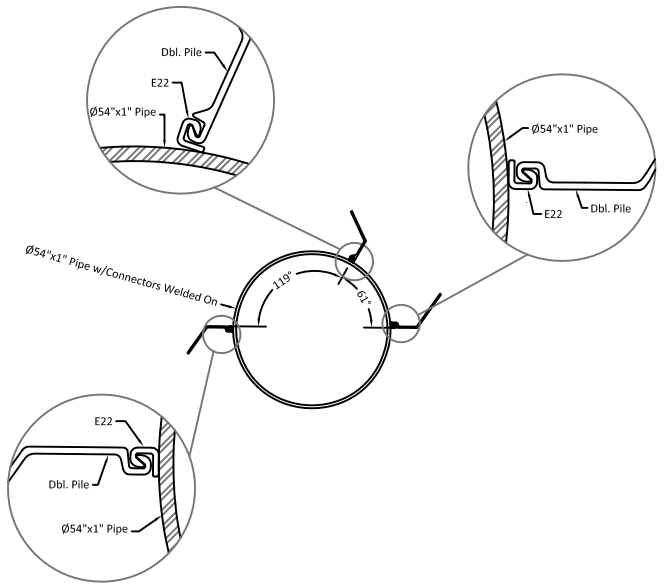
Pipe #29 Detail



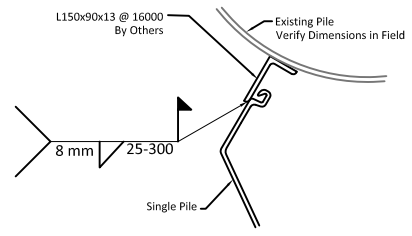
Typical Elevation View



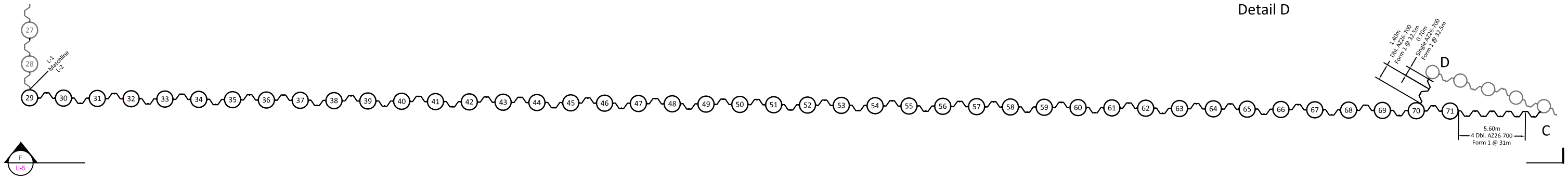
Detail C



Pipe #70 Detail



Detail D



Notes:
1. Spiralweld Pipe to meet ASTM A252 (Steel to API 5Lx52)
2. E22 Connectors to meet EN S355GP
3. Steel Sheet Piling to meet CSA G40.21M + G40.20 Gr. 350W

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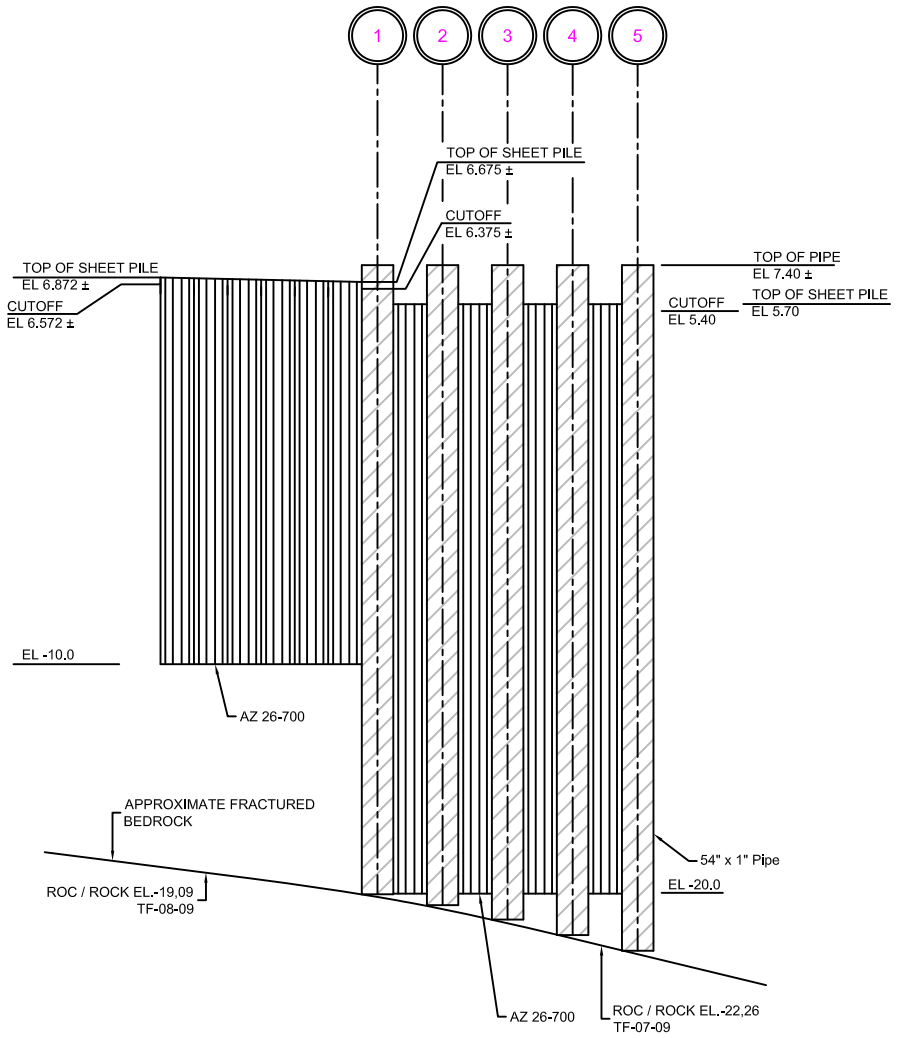
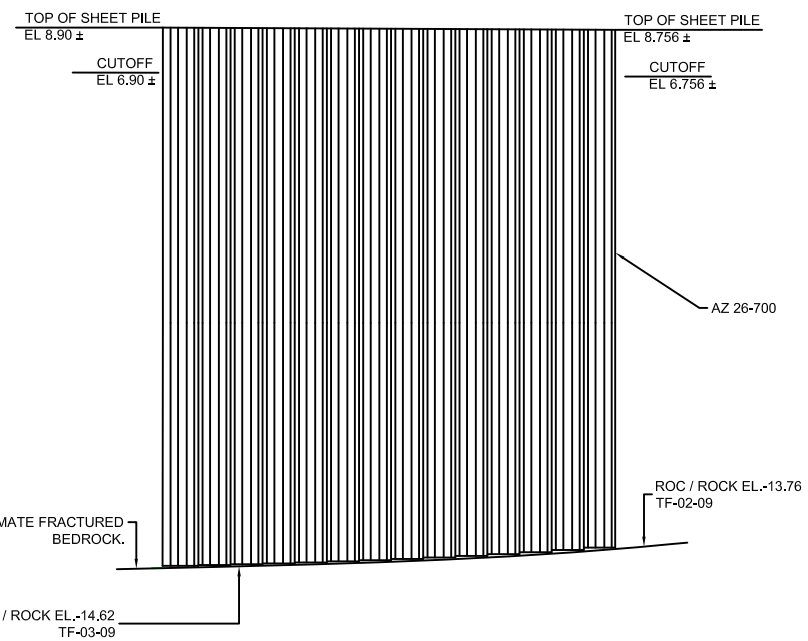
REV.	DESCRIPTION	DWB By	Date	CKD By
0	Released For Approval	JA	02-18-14	
1		KL	03-12-14	
2		KL	03-27-14	

PROJECT: Queens Wharf
Wharfs 97 & 98
Quebec
Cananda
CONTRACTOR

DATE: 02-18-14
SCALE: N.T.S.
DRAWN BY: J.Austro
PROJECT NO. 4041
SHEET: L-2
REV. 2

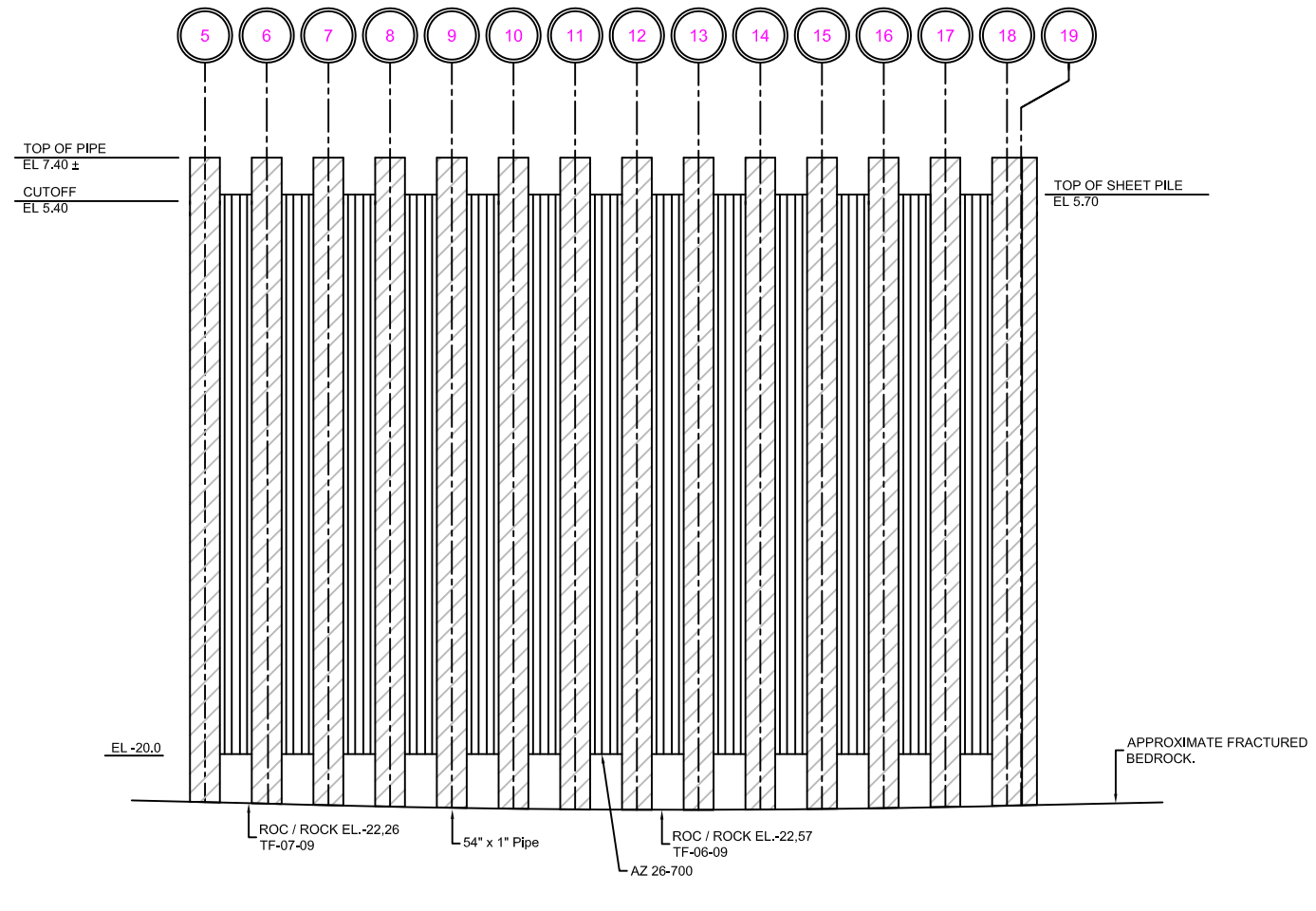


A L-1 Elevation View

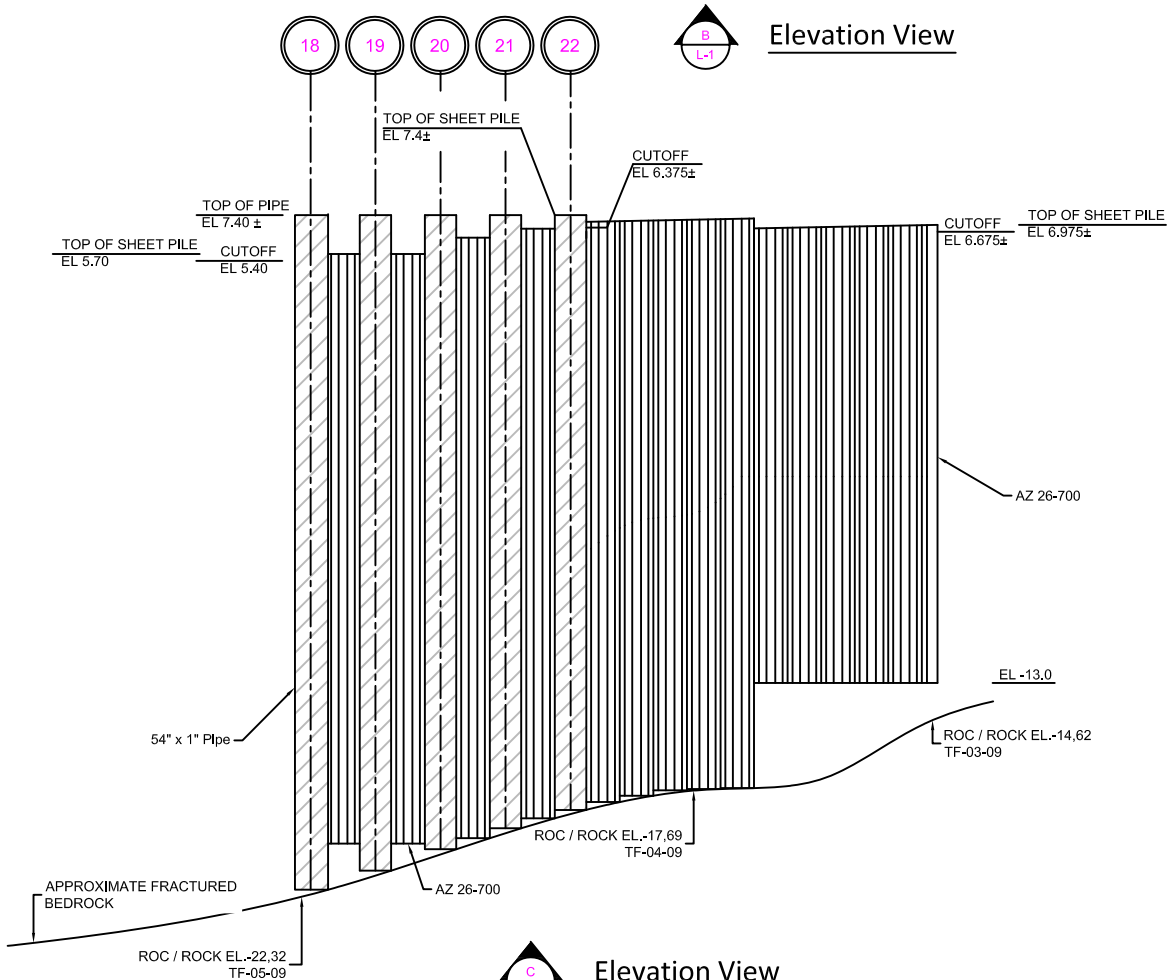


D L-1 Elevation View

Notes:
1. Spiralweld Pipe to meet ASTM A252 (Steel to API 5Lx52)
2. E22 Connectors to meet EN S355GP
3. Steel Sheet Piling to meet CSA G40.21M + G40.20 Gr. 350W



B L-1 Elevation View



C L-1 Elevation View

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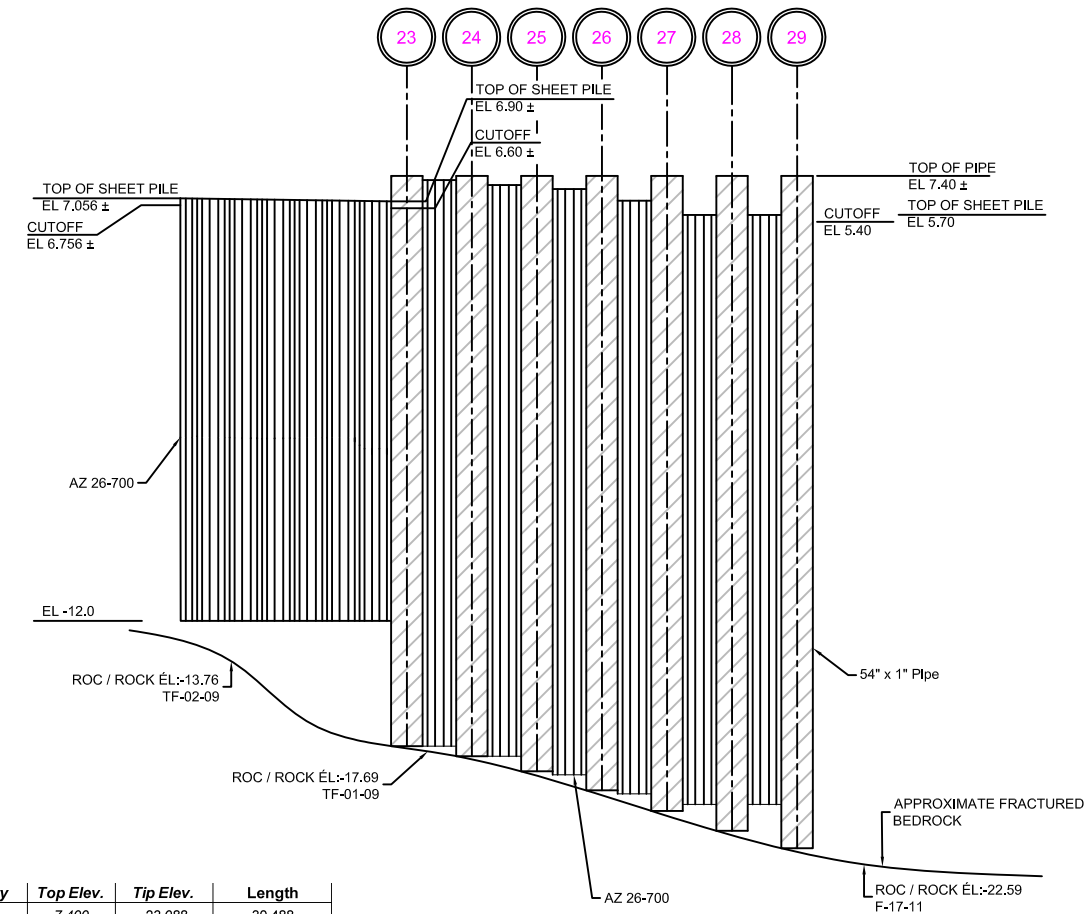
REV.	DESCRIPTION	DWB By	Date	CKD By
2	Released For Approval	KL	03-27-14	
1		KL	03-12-14	
0		JA	02-18-14	

PROJECT: Queens Wharf Wharfs 97 & 98 — Cananda Quebec
CONTRACTOR

DATE: 02-18-14
SCALE: N.T.S.
DRAWN BY: J.Austro
PROJECT NO. 4041
SHEET: L–3
REV. 2

Pipe #	Description / Items	Qty	Top Elev.	Tip Elev. ±	Length
1	54" x 1" wt Spiral Pipe	1	7.400	-20.308	27.708
	E22 Connectors	1	7.100	-20.308	27.408
	E22 Connectors	1	7.100	-20.308	27.408
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
2	54" x 1" wt Spiral Pipe	1	7.400	-20.831	28.2306
	E22 Connectors	2	7.100	-20.831	27.931
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
3	54" x 1" wt Spiral Pipe	1	7.400	-21.353	28.7532
	E22 or C9 Connectors	2	7.100	-21.353	28.4532
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
4	54" x 1" wt Spiral Pipe	1	7.400	-21.876	29.2758
	E22 Connectors	2	7.100	-21.876	28.9758
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
5	54" x 1" wt Spiral Pipe	1	7.400	-22.398	29.7984
	E22 Connectors	2	7.100	-22.398	29.4984
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
6	54" x 1" wt Spiral Pipe	1	7.400	-22.600	30
	E22 Connectors	2	7.100	-22.600	29.7
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
7	54" x 1" wt Spiral Pipe	1	7.400	-22.300	29.7
	E22 Connectors	2	7.100	-22.300	29.4
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
8	54" x 1" wt Spiral Pipe	1	7.400	-22.346	29.746
	E22 Connectors	2	7.100	-22.346	29.446
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
9	54" x 1" wt Spiral Pipe	1	7.400	-22.392	29.792
	E22 Connectors	2	7.100	-22.392	29.492
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
10	54" x 1" wt Spiral Pipe	1	7.400	-22.438	29.838
	E22 Connectors	2	7.100	-22.438	29.538
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
11	54" x 1" wt Spiral Pipe	1	7.400	-22.484	29.884
	E22 Connectors	2	7.100	-22.484	29.584
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
12	54" x 1" wt Spiral Pipe	1	7.400	-22.530	29.93
	E22 Connectors	2	7.100	-22.530	29.63
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
13	54" x 1" wt Spiral Pipe	1	7.400	-22.570	29.97
	E22 Connectors	2	7.100	-22.570	29.67
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
14	54" x 1" wt Spiral Pipe	1	7.400	-22.530	29.93
	E22 Connectors	2	7.100	-22.530	29.63
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
15	54" x 1" wt Spiral Pipe	1	7.400	-22.490	29.89
	E22 Connectors	2	7.100	-22.490	29.59
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
16	54" x 1" wt Spiral Pipe	1	7.400	-22.450	29.85
	E22 Connectors	2	7.100	-22.450	29.55
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
17	54" x 1" wt Spiral Pipe	1	7.400	-22.410	29.81
	E22 Connectors	2	7.100	-22.410	29.51
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
18	54" x 1" wt Spiral Pipe	1	7.400	-22.370	29.77
	E22 Connectors	2	7.100	-22.370	29.47
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
19	54" x 1" wt Spiral Pipe	1	7.400	-21.295	28.695
	E22 Connectors	2	7.100	-21.295	28.395
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
	L5"x3"x0.5" Connection Angle	1	7.100	-21.295	28.395
20	54" x 1" wt Spiral Pipe	1	7.400	-20.517	27.917
	E22 Connectors	2	7.100	-20.517	27.617
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
21	54" x 1" wt Spiral Pipe	1	7.400	-19.739	27.139
	E22 Connectors	2	7.100	-19.739	26.839
	AZ26-700 interm. pair	1	7.400	-19.739	27.139
22	54" x 1" wt Spiral Pipe	1	7.400	-18.961	26.361
	E22 Connectors	2	7.100	-18.961	26.061
23	54" x 1" wt Spiral Pipe	1	7.400	-17.556	24.956
	E22 Connectors	2	7.100	-17.556	24.656
	AZ26-700 interm. pair	1	5.700	-17.556	23.256
24	54" x 1" wt Spiral Pipe	1	7.400	-18.328	25.728
	E22 Connectors	2	7.100	-18.328	25.428
	AZ26-700 interm. pair	1	5.700	-18.328	24.028
25	54" x 1" wt Spiral Pipe	1	7.400	-19.100	26.5
	E22 Connectors	2	7.100	-19.100	26.2
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
26	54" x 1" wt Spiral Pipe	1	7.400	-19.872	27.272
	E22 Connectors	2	7.100	-19.872	26.972
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
27	54" x 1" wt Spiral Pipe	1	7.400	-20.644	28.044
	E22 Connectors	2	7.100	-20.644	27.744
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
28	54" x 1" wt Spiral Pipe	1	7.400	-21.416	28.816
	E22 Connectors	2	7.100	-21.416	28.516
	AZ26-700 interm. pair	1	5.700	-20.000	25.7

Pipe #	Description / Items	Qty	Top Elev.	Tip Elev.	Length
29	54" x 1" wt Spiral Pipe	1	7.400	-22.188	29.588
	E22 Connectors	2	7.100	-22.188	29.288
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
30	54" x 1" wt Spiral Pipe	1	7.400	-22.636	30.036
	E22 Connectors	2	7.100	-22.636	29.736
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
31	54" x 1" wt Spiral Pipe	1	7.400	-22.551	29.9508
	E22 Connectors	2	7.100	-22.551	29.6508
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
32	54" x 1" wt Spiral Pipe	1	7.400	-22.466	29.8656
	E22 Connectors	2	7.100	-22.466	29.5656
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
33	54" x 1" wt Spiral Pipe	1	7.400	-22.380	29.7804
	E22 Connectors	2	7.100	-22.380	29.4804
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
34	54" x 1" wt Spiral Pipe	1	7.400	-22.295	29.6952
	E22 Connectors	2	7.100	-22.295	29.3952
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
35	54" x 1" wt Spiral Pipe	1	7.400	-22.210	29.61
	E22 Connectors	2	7.100	-22.210	29.31
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
36	54" x 1" wt Spiral Pipe	1	7.400	-22.125	29.5248
	E22 Connectors	2	7.100	-22.125	29.2248
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
37	54" x 1" wt Spiral Pipe	1	7.400	-22.040	29.4396
	E22 Connectors	2	7.100	-22.040	29.1396
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
38	54" x 1" wt Spiral Pipe	1	7.400	-21.954	29.3544
	E22 Connectors	2	7.100	-21.954	29.0544
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
39	54" x 1" wt Spiral Pipe	1	7.400	-21.869	29.2692
	E22 Connectors	2	7.100	-21.869	28.9692
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
40	54" x 1" wt Spiral Pipe	1	7.400	-21.784	29.184
	E22 Connectors	2	7.100	-21.784	28.884
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
41	54" x 1" wt Spiral Pipe	1	7.400	-21.699	29.0988
	E22 Connectors	2	7.100	-21.699	28.7988
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
42	54" x 1" wt Spiral Pipe	1	7.400	-21.614	29.0136
	E22 Connectors	2	7.100	-21.614	28.7136
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
43	54" x 1" wt Spiral Pipe	1	7.400	-21.528	28.9284
	E22 Connectors	2	7.100	-21.528	28.6284
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
44	54" x 1" wt Spiral Pipe	1	7.400	-21.420	28.82
	E22 Connectors	2	7.100	-21.420	28.52
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
45	54" x 1" wt Spiral Pipe	1	7.400	-21.552	28.952
	E22 Connectors	2	7.100	-21.552	28.652
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
46	54" x 1" wt Spiral Pipe	1	7.400	-21.684	29.084
	E22 Connectors	2	7.100	-21.684	28.784
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
47	54" x 1" wt Spiral Pipe	1	7.400	-21.816	29.216
	E22 Connectors	2	7.100	-21.816	28.916
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
48	54" x 1" wt Spiral Pipe	1	7.400	-21.948	29.348
	E22 Connectors	2	7.100	-21.948	29.048
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
49	54" x 1" wt Spiral Pipe	1	7.400	-22.080	29.48
	E22 Connectors	2	7.100	-22.080	29.18
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
50	54" x 1" wt Spiral Pipe	1	7.400	-22.212	29.612
	E22 Connectors	2	7.100	-22.212	29.312
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
51	54" x 1" wt Spiral Pipe	1	7.400	-22.344	29.744
	E22 Connectors	2	7.100	-22.344	29.444
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
52	54" x 1" wt Spiral Pipe	1	7.400	-22.476	29.876
	E22 Connectors	2	7.100	-22.476	29.576
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
53	54" x 1" wt Spiral Pipe	1	7.400	-22.608	30.008
	E22 Connectors	2	7.100	-22.608	29.708
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
54	54" x 1" wt Spiral Pipe	1	7.400	-22.740	30.14
	E22 Connectors	2	7.100	-22.740	29.84
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
55	54" x 1" wt Spiral Pipe	1	7.400	-22.872	30.272
	E22 Connectors	2	7.100	-22.872	29.972
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
56	54" x 1" wt Spiral Pipe	1	7.400	-23.004	30.404
	E22 Connectors	2	7.100	-23.004	30.104
	AZ26-700 interm. pair	1	5.700	-20.000	25.7



E
L-1

Elevation View

Pipe #	Description / Items	Qty	Top Elev.	Tip Elev.	Length
57	54" x 1" wt Spiral Pipe	1	7.400	-23.088	30.488
	E22 Connectors	2	7.100	-23.088	30.188
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
58	54" x 1" wt Spiral Pipe	1	7.400	-23.139	30.5391
	E22 Connectors	2	7.100	-23.139	30.2391
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
59	54" x 1" wt Spiral Pipe	1	7.400	-23.190	30.5902
	E22 Connectors	2	7.100	-23.190	30.2902
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
60	54" x 1" wt Spiral Pipe	1	7.400	-23.241	30.6413
	E22 Connectors	2	7.100	-23.241	30.341
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
61	54" x 1" wt Spiral Pipe	1	7.400	-23.292	30.6924
	E22 Connectors	2	7.100	-23.292	30.3924
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
62	54" x 1" wt Spiral Pipe	1	7.400	-23.344	30.7435
	E22 Connectors	2	7.100	-23.344	30.4435
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
63	54" x 1" wt Spiral Pipe	1	7.400	-23.395	30.7946
	E22 Connectors	2	7.100	-23.395	30.4946
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
64	54" x 1" wt Spiral Pipe	1	7.400	-23.446	30.8457
	E22 Connectors	2	7.100	-23.446	30.5457
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
65	54" x 1" wt Spiral Pipe	1	7.400	-23.497	30.8968
	E22 Connectors	2	7.100	-23.497	30.5968
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
66	54" x 1" wt Spiral Pipe	1	7.400	-23.548	30.9479
	E22 Connectors	2	7.100	-23.548	30.6479
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
67	54" x 1" wt Spiral Pipe	1	7.400	-23.599	30.999
	E22 Connectors	2	7.100	-23.599	30.699
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
68	54" x 1" wt Spiral Pipe	1	7.400	-23.650	31.0501
	E22 Connectors	2	7.100	-23.650	30.7501
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
69	54" x 1" wt Spiral Pipe	1	7.400	-23.650	31.05
	E22 Connectors	2	7.100	-23.650	30.75
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
70	54" x 1" wt Spiral Pipe	1	7.400	-23.650	31.05
	E22 Connectors	3	7.100	-23.650	30.75
	AZ26-700 interm. pair	1	5.700	-20.000	25.7
71	54" x 1" wt Spiral Pipe	1	7.400	-23.650	31.05
	E22 Connectors	2	7.100	-23.650	30.75

Notes:
1. Spiralweld Pipe to meet ASTM A252 (Steel to API 5Lx52)
2. E22 Connectors to meet EN S355GP
3. Steel Sheet Piling to meet CSA G40.21M + G40.20 Gr. 350W

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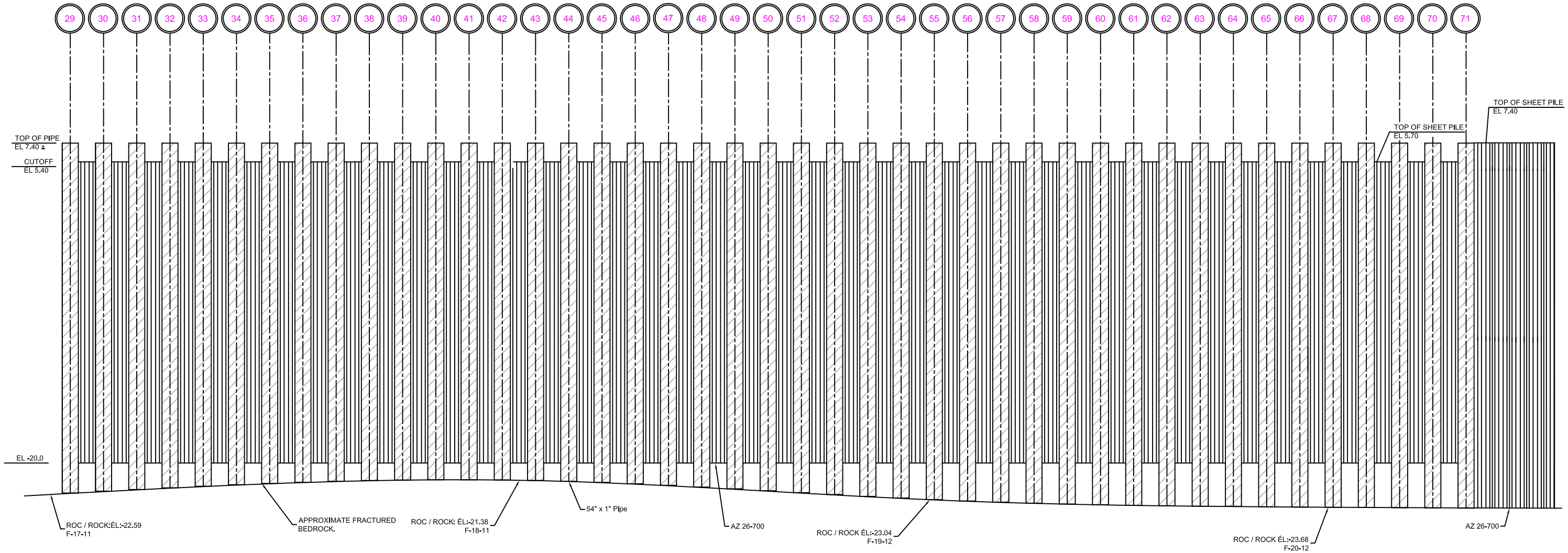
REV.	DESCRIPTION	DWB By	Date	CKD By
2		KL	03-27-14	
1		KL	03-12-14	

PROJECT: Queens Wharf Wharfs 97 & 98 Quebec

CONTRACTOR

DATE: 02-18-14
SCALE: N.T.S.
DRAWN BY: J.Austro
PROJECT NO. 4041
SHEET: L-4
REV. 2



F
L-2

Elevation View

Notes:
1. Spiralweld Pipe to meet ASTM A252 (Steel to API 5Lx52)
2. E22 Connectors to meet EN S355GP
3. Steel Sheet Piling to meet CSA G40.21M + G40.20 Gr. 350W

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REV.	DESCRIPTION	DWB By	Date	CKD By
2		KL	03-27-14	
1		KL	03-12-14	

PROJECT: Queens Wharf Wharfs 97 & 98 Quebec

CONTRACTOR

DATE: 02-18-14
SCALE: N.T.S.
DRAWN BY: J.Austro
PROJECT NO. 4041
SHEET: L–5
REV. 2