



**TENDER 16-20**

**WATER TREATMENT BUILDING**

**ADDENDUM NO. 5**

October 7<sup>th</sup>, 2016

**This addendum forms part of the Tender Documents** and shall be read, interpreted, and coordinated with all other parts. The costs of all elements contained herein shall be included in the submission. The following revisions, changes, corrections, additions, and or deletions supersede the information contained in the original Documents to the extent referenced and shall become part thereof.

**Addendum Item 1**  
**Questions & Answers**

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134. **Proponent Question:**

With reference to Drawing C202 please provide profiles for Connection Details 1 and 2. Specifically we need to determine where the new 900 mm steel, 760 mm steel, 250 mm PVC, and 100 mm PVC drain are to be installed relative to the existing mains on Detail 1. Similarly for Detail 2 please provide a profile showing new installation relative to existing supply mains.

**Response:**

Inverts have been provided refer to C202 for details.

135. **Proponent Question:**

I cannot find BBH 4, 5 & 6 on electrical drawings. Please confirm location.

**Response:**

BBH 4,5 and 6 are no longer part of the design. A future addendum will resolve this conflict in the drawings.

136. **Proponent Question:**

Please identify location point of electrical connection for crane motors 1, 2 & 3.

**Response:**

A future addendum will be submitted to identify the location of this tie point.

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**137. Proponent Question:**

Specification is calling for an odour control unit with fan in an aluminum enclosure – is there any more information on this odour control unit? The only odour control unit our supplier uses is the FRP unit without a fan.

**Response:**

Odour control does not need a fan; can be a passive system such as a charcoal filter on the gooseneck

**138. Proponent Question:**

Trolley cranes and beams are shown on the plan drawings – are these included in this tender? Please provide specification if required.

**Response:**

Trolley crane spec 41 22 00 is attached.

**139. Proponent Question:**

Can you please clarify the response to Question #87 in Addendum 3 as the response provided was the same as Question #104. Question #87 read:

“For the emergency generator for the above mentioned tender, could you please advise which payment item in division 26 – Electrical should we place the emergency generator in? As there is separate payment item for PLC’s, MCC/VFD’s. it’s not very clear which item we should put the cost of the emergency genset. Item 26.6 Power or should it be in a separate item”?

**Response:**

Backup generator; complete has been added as a separate line item in Appendix 1A (Revised September 30<sup>th</sup>, 2016).

**140. Proponent Question:**

It has been identified by the Communications sub-contractor that Fiber cable will be required

**Response:**

The contract will not be modified to accommodate for the installation of fibre along the existing communication ducting at this time.

**141. Proponent Question:**

Is there a conduit duct between the new intake facility and the Chlorination plant?

**Response:**

At the Water Quality Centre, Yes, installed to the new facility property line

142. **Proponent Question:**

What is the overall length of the duct from building to building?

**Response:**

3 km.

143. **Proponent Question:**

What size is the duct?

**Response:**

75mm.

144. **Proponent Question:**

How far apart are the pull boxes?

**Response:**

Pull boxes are located every 200m

145. **Proponent Question:**

Is the duct fully installed into the Chlorination building?

**Response:**

Yes.

146. **Proponent Question:**

Why is the duct missing from the electrical drawing?

**Response:**

On Dwg C103.

147. **Proponent Question:**

Who is installing the duct into the Intake Building?

**Response:**

Prime Contract choice. Assume Electrical Contractor.

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148. **Proponent Question:**

How far away is the end of the duct on the intake site?

**Response:**

Conduit has currently been installed to the end of the watermain installation.

149. **Proponent Question:**

What specification of fiber cable is required?

**Response:**

Not applicable

150. **Proponent Question:**

How many spare strands are required?

**Response:**

Not applicable

151. **Proponent Question:**

Can we install a 50 foot utility pole at the Brewster Intake and obtain power for both radios?  
Do we have permission to install a pole, and obtain power from within the building?

**Response:**

There is no concern with the installation and use of a 50 foot structure to mount (at least) one antenna at the John Hart Lake Pump Station site, nor is there an issue accessing power from the existing building at the John Hart Lake Pump Station (that is the design intent). The design intent under specification 270513.1.1.4.3 calls for a 30 foot structure to support the radio link across the lake to the new facility, and if a 50 foot is confirmed by the radio supplier as required, please provide pricing for a 50 foot structure instead of a 30 foot structure. Please note that there will be no trees between the new building and the water's edge, and the radio at the new structure will be almost 30 feet above the ground (20' building + 10' antenna pole).

152. **Proponent Question:**

There is an electric actuator on P&ID number P009 with tag FCV-604. We cannot locate actuator requirements in the tender docs (manufacturer, voltage, on/off or modulating, etc.). Are you able to confirm what is required? Also for us to size this to the existing valve we would need the torque data for that valve. Are you able to confirm the manufacturer and model number? Is the actuator requirement for FCV-501 the same?

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**Response:**

Actuator specs provided in Addendum 3. Existing butterfly valve is currently installed just upstream from the UV reactors or shown on drawings as BFV-101 and 102 on existing drawings.

**153. Proponent Question:**

For specification BF01 and BF02 we are looking to supply our keystone model GRL up to 900 mm and GRF for the 1050 mm valve. These valves are designed to API 609 as per the spec. Are you able to confirm this is a requirement? Reason we ask is because we have lower cost options available that do not meet this aspect of the spec and it appears that some of the other manufacturers that are approved do not meet that requirement.

**Response:**

The requirement of API 609 refers to only to lug or wafer type valves but alternative valves (i.e. flanged connections) will be considered.

**154. Proponent Question:**

Can the cellular requirement be dropped from this tender to avoid a 250 foot tower and the mandatory public consultation period and quarter million dollar cost

**Response:**

Refer to Clarification in Addendum 5 on Scope of Work.

**155. Proponent Question:**

If they insist on keeping cellular involved then we need a 6 month extension and the outcome is not guaranteed due to public consultation.

**Response:**

No extension to the construction contract is warranted. Refer to Clarification in Addendum 5 on Scope of Work.

**156. Proponent Question:**

Can the contract limits for electrical ducts (Hydro, Telus, and Fiber) not shown on electrical drawings be clarified?

**Response:**

Refer to Addendum 2.

**157. Proponent Question:**

Please provide a spec. or design requirements for the '600mm  $\Phi$  Flex Joints' as shown on Sheet P105, Section D

**Response:**

1.1 Expansion Joints

1.1.1 Select materials suitable for service commodity, temperature and pressure. Both steel and elastomer materials are acceptable.

1.1.2 Provide control rods –if required - on expansion joint connectors to prevent excessive axial elongation and to accept the static pressure thrust in the piping system. Manufacturer to determine number and sizes of control rods.

1.1.3 Materials to conform to NSF61 standards for contact with potable water

1.1.4 Minimum lateral, compression and elongation movement is 25 mm each.

1.1.5 Flanged connections to conform to ANSI B16.5 standards.

1.1.6 Acceptable manufacturers are:

- Senior Flexonics.
- Garlock.
- Mercer.
- Techniquip.
- Approved equivalent

158. **Proponent Question:**

Pipe size – ‘TW’ process commodity – please confirm that the nominal pipe diameter is to be 1050mm. The continuation drawing (for the buried carbon steel pipe) on Sheet C103 indicates this line is to be 1000mm  $\Phi$  out in the yard. No reducer or expander is shown on the drawings in between the 1000/1050 mm transition point.

**Response:**

External pipe is to be 1000mm nominal diameter. Reducer to be provided outside the building to facilitate pipe size difference from inside to outside.

159. **Proponent Question:**

Please define the wall thicknesses required for the following 304L SST pipe sizes, as they are outside the standard range for Sch. 10S :1200mm & 1050mm

**Response:**

For all SS pipes up to 600 mm – 10S schedule

For all SS pipes above 600 mm – XS schedule (wall thickness 0.5 in)

160. **Proponent Question:**

If API 609 is required are you able to confirm which standard of API 609 you require?

**Response:**

Mainly dimensions, materials and pressure ratings.

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**161. Proponent Question:**

We request the addition of GE MCCs, ATS, CBs, Starters and Pilot devices and Danfoss Vacon 100 Flow VFDs as approved equal to the currently approved brands.

**Response:**

Will accept both the MCC and VFD offerings from 3 phase power, provided it meets the provisions identified in the specifications.

**162. Proponent Question:**

We would like to have a chance to bid for the Sanitary Lift Station – Fiberglass Package; as the specified Manufacturer is Flygt, can Barnes Pump be approved as an alternate.

**Response:**

Approved.

**163. Proponent Question:**

There is a Taco KV pump specified for the hydrant pump on this project. Please clarify the following:

- a. The model of the pump specified is a KV (Taco vertical inline close coupled), the description is for an end suction base mounted (Taco FI). The drawing shows a vertical inline close coupled pump. Please clarify what model is required.
- b. What accessories (if any) are needed with the pump (i.e. suction guide, multi-purpose valve, pump base)?
- c. What pressure rating is needed for the pump (i.e. 175 psi or 300 psi)?

**Response:**

- a. Both models will be considered, vertical inline close coupled pump was used in design. Alternatives will be considered if match power requirements and fit within allowable footprint and allow easy motor removal.
- b. Pump base will be required to install on concrete pedestal, other accessories only if required or included in base scope
- c. Correct, 175 is adequate.

**164. Proponent Question:**

Please advise as to how the transition is to be done between Stainless steel piping and outside civil piping.

**Response:**

Robar coupling rated for working pressure of 150psi.

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**165. Proponent Question:**

Please consider the following alternatives:

- a. Integris R per Inch QuikTherm
- b. QuikTherm SGI Compressive Strength
- c. SGI Radon and Vapour Barrier MH
- d. Cantech FlexPro Specs

**Response:**

- a. Not approved. EPS cores are not acceptable for wall applications. Also, taping of joints is not an acceptable alternate for providing a waterproof membrane.
- b. Is this simply the compressive strength test for the multi-purpose /subgrade insulation?
- c. This product is not on your website and there is no quantifiable data. The report from Morrison Hershfield indicates it can be used as an alternate to a polyethelyne vapour barrier. This project is not using polyethelyene, therefore, this product is not approved as an equal.
- d. No approved as a waterproof membrane substitution.

**166. Proponent Question:**

Please provide Specification 270513.

**Response:**

See tender documents.

**167. Proponent Question:**

Can you provide a structural analysis of the 911 tower?

**Response:**

This will be provided post award.

**168. Proponent Question:**

Has the City obtained permission from the 911 Corp to install equipment on their tower?

**Response:**

Refer to Clarification in Addendum 5 on Scope of Work

**169. Proponent Question:**

We require some clarification on the Siemens Ultrasonic level:

- a. Is the MultiRanger to be panel mounted or wall mounted?
- b. Is the MultiRanger 100...230vac or 12...30vdc powered?
- c. How many output relays are needed on the MultiRanger?



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**Response:**

Question received and will be responded to in the next addendum.

**170. Proponent Question:**

What cable length is required for the XPS-15? Choices are 5, 10, 30, 50 or 100meters.

**Response:**

Question received and will be responded to in the next addendum.

**171. Proponent Question:**

Section 01 12 00 1.4.2 "Contractor will be required to sign Novation agreements as part of the contract to take responsibility for the owner supplied equipment". Can a copy of this Novation agreement be provided? Will the contractor be required to sign the Novation agreement before award of the main contract?

**Response:**

The only Novation Agreement required will be with Corix for supply of vertical turbine pumps as OSHG system has been delivered to and accepted by the Owner.

**172. Proponent Question:**

Have the shop drawings for owner supplied equipment been reviewed or will the shop drawings need to be submitted for review after novation?

**Response:**

The shop drawings for the vertical turbine pumps will be submitted for review and approval after Novation. Shop drawings for all other Owner supplied equipment have been completed.

**173. Proponent Question:**

The OSHG equipment supply contains a list of specification deviations. Could the contractor or sub-contractors be responsible for any additional cost after novation that related to specification deviations, shop drawing review, supplier commissioning, and errors and omissions found in the novation packages?

**Response:**

The OSHG equipment package has been supplied to and turned over to the Owner. The Contractor will not be responsible for any errors or omissions with this package.

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**174. Proponent Question:**

Addendum #3 Question 99 “Can Calgon’s scope of work be a PC Sum?” Response “Calgon will bill the Owner directly for their required attendance as such the contractor should not carry any allowance for Calgon commissioning/site expenses”

Addendum #3 Question 115 “Please confirm that UV-501 Panel CP-501 Panel & CP-511 are part of the existing, relocated ultra violet disinfection reactor system? Response “Cabling between the equipment to be replaced, recommissioning of the equipment included in the scope of the contractor”

**Response:**

Refer to Clarification in Addendum 5 on Scope of Work.

**175. Proponent Question:**

Will Calgon bill the owner directly for all wire and cable shown on the cable schedule as “Purchase from Calgon”?

**Response:**

Yes as per amendment to Section 46 66 56 below.

**176. Proponent Question:**

Will Calgon bill the owner directly for down loading the existing programming and then reprogramming the Calgon UV PLCs?

**Response:**

Yes.

**177. Proponent Question:**

Will Calgon bill the owner directly for the HMI modification in the UV PLCs?

**Response:**

Yes.

**178. Proponent Question:**

Is it the intent for the contractor to assist Calgon recommission their equipment?

**Response:**

Yes. Assume 3 working days of support for recommissioning, in addition to time required to commission the entire facility.

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179. **Proponent Question:**

Spec. for the ground test station wells. E002/6, E101?

**Response:**

Detail plus 260501, 260521, 260528, 262419.

180. **Proponent Question:**

Spec. for the Generator package is missing pages 3-5, 8,9, 12-14?

**Response:**

Tender documents are complete for this section. No missing pages in generator spec.

181. **Proponent Question:**

Sizing of the incoming Telus u/g conduits not listed. E101/E307?

**Response:**

Previous Addendum (clarified).

182. **Proponent Question:**

The VFD'S are listed as S & I by electrical SPEC., drawing E203 states Vendor supplied?

**Response:**

VFDs for P-400 and P-410 vendor supplied with Sodium Hypochlorite Package.

183. **Proponent Question:**

Drawing E304, is it 2 Type 'FE' or 3 as it is stated in the note?

**Response:**

Pendent mount as typical for wired lights in the space.

184. **Proponent Question:**

E308, are there horns and strobes in this project?

**Response:**

No.

185. **Proponent Question:**

What electrical is required for the Sanitary Lift Station?

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**Response:**

See C103, C303, E101, E202, various detail drawings. All electrical support to the installation, wiring and commissioning of the lift station components and remote control station.

**186. Proponent Question:**

Drawing E101, Waste Pump Control Station conduit runs are?

**Response:**

Previous Addendum (clarified).

**187. Proponent Question:**

Drawing E101, Conduits for P1, A,B,C,D are?

**Response:**

Previous Addendum (clarified).

**188. Proponent Question:**

How long the pipeline is from the new intake to Chlorination?

**Response:**

John Hart Water Quality Centre to Treatment Building is 2650m.

**189. Proponent Question:**

Regarding Section 44 42 73 Chemical Storage Tanks:

- a. 1.1.6. Can we just have the materials in contact with the chemical NSF 61 approved?
- b. 2.1.1.8. The specification states to provide 316 SS handrail, ladder with safety cage. The next sentence has the ladders as Fiberglass. Which is correct? Also if the caged ladder is fiberglass, should not the handrail be fiberglass also?
- c. 2.1.2.5. We normally do not paint FRP vessels. Instead we apply a gel coat that has FRP resin, UV Inhibitors and a pigment. The color of the pigment is the owners choice, but Typical colors are white and light gray. Can we off this in lieu of acrylic or latex mastic paints? If can paint with these if needed, we just will be unable to guarantee that the paint will stay onThe FRP tanks.
- d. 1.3.1., 2.1.5 and 2.4.2. We normally design the seismic loading per ASCE 7-10, so can we Use that as an equivalent to BCBC 2012 referenced ? We use Jabacus software to obtain the Wind, seismic and/or snow loads for major town/cities in each Canadian Province.
- e. Drawing 15-508-P106 Sheet 1 of 2: It show an internal pipe bolted to the overflow on The inside of each tank. Is this correct? If so what material is it ? FRP?
- f. Please note that all design, fabrication, QC/QA and documentation will be in American English and use US customary units. We may need to change some sizes to match up with the AFC standard size for diameters of fittings, tank shell, etc. (Example 3000 mm (3 m) changes to 120" or 10 feet diameter.)

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**Response:**

- a. Yes.
- b. Provide ladders, handrails and safety cage in 316 SS.
- c. This is acceptable.
- d. All loadings shall meet the requirements of the BCBC 2012.
- e. If it is part of the tank it can be FRP, otherwise conform to the piping spec for chemical piping PVC Schedule 80.
- f. OK.

**190. Proponent Question:**

Can you drop cellular off of tender 16-20 and re-tender it on its own?

**Response:**

Refer to Clarification in Addendum 5 on Scope of Work

**191. Proponent Question:**

Drawing C201 General Note 1 indicates that Asphalt Paving/Milling is performed by the City's paving contractor. What is to be included in item tender 32.16 Colds milling to maximum 50 mm min?

**Response:**

Cold milling by contractor. City's contractor to provide asphalt paving.

**192. Proponent Question:**

Is the traffic control and traffic management for the City's paving contractor supplied under this contract, or is it supplied by the City's paving contractor under their contract with the City?

**Response:**

Traffic control is the responsibility of the Contractor.

**193. Proponent Question:**

It was our understanding at the site visit that all site clearing had been completed and all remaining work would be carried out within the currently cleared area. It appears that the top of slope cut line indicated on drawing C103 could be beyond the tree line. Please provide the clearing and grubbing limits on a drawing or provide where the existing tree line is with respect to the top of slope, so that the area of clearing and grubbing can be calculated.

**Response:**

The whole of the site is cleared.

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**194. Proponent Question:**

Although denied in a previous addendum we'd like to propose Alumicor 2500 Versawall series curtainwall given the specified U value of 2.84W/m<sup>2</sup>\*k (Addendum 3). We'd also like to propose Alumicor 1350 operable vents installed into the curtainwall system.

**Response:**

Versawall 2500 and 1350 operable vents are approved.

**195. Proponent Question:**

Can you please provide a spec for the exterior curtainwall sealed units.

**Response:**

**MATERIALS: SEALED INSULATING GLASS**

- .1 Insulating glass units: to CAN/CGSB 12.8, double unit, 25 mm overall thickness.
- .1 Glass: to CAN/CGSB 12.3, CAN/CGSB 12.1 and as scheduled at the end of this section.
- .2 Glass thickness: 6 mm each light.
- .3 Inter cavity space thickness: 13 mm with low conductivity spacers.
- .4 Glass coating: surface number 3 low "E".
- .5 Inert gas fill: argon.

**196. Proponent Question:**

Regarding the surge tank, can you clarify if the tank is to be epoxy coated or glass fused to steel? The specifications reference both. If it is to be glass fused to steel I would like to get the Permastore GFS tank accepted as an approved equal to the Aquastore tank.

**Response:**

Surge tank is epoxy coated.

**197. Proponent Question:**

Regarding the water heater that is spec'd. The spec reads: PVI or acceptable can be A.O. Smith DRE-120. Here is where the problem lies: The PVI spec'd is s/s and 150 gal, and 20 year warranty. The A.O. Smith Model DRE-120 is only 120 gal, and carries a 3 year warranty and is only glass-lined not s/s. We have quoted a DVE-150 as the schedule calls for 150 gal. Can you please clarify if this tank being ASME rated will be fine, or should we be quoting the PVI Tank

**Response:**

Alternate equipment is required to meet all performance requirements of the base specified piece of equipment

**198. Proponent Question:**

H2Flow has proposed an alternate to the surge tank, will this be an accepted alternative?

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**Response:**

The alternate tank provided by H2Flow is approved. The specification calls for epoxy lined tank.

**199. Proponent Question:**

Can you please forward the concerns for clarification/direction, etc. from one of the communications contractors in regards to the cellular and radio systems.

**Response:**

Cell repeater to remain the contract per specifications. Contractor to price radio implementation per drawings and specifications. Note assumptions listed to achieve pricing.

**200. Proponent Question:**

Please provide a civil drawing detailing the piping arrangement and material types for the surge prevention tank. The process piping drawings reference overflow and drain piping that does not appear on civil drawings.

**Response:**

Refer to C101 and C 103 for details.

**201. Proponent Question:**

Section 43 41 11, paragraph 2.9 is not consistent with details on P109 in terms of pipe sizing and layout.

**Response:**

Overflow is 300mm PVC.

**202. Proponent Question:**

Please explain Note #1 on P109.

**Response:**

Has been revised for Addendum 5

**203. Proponent Question:**

In response to a previous query Addendum #3 provided for a new detail on C302 for the blowdown. The check valve sizing was updated, however the gate valves sizing on the plan view remained at a smaller size to the piping.

**Response:**

Refer to drawing C302 in Addendum 5.

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**204. Proponent Question:**

Further to the detail for the blowdown it was previously asked what the depth for the blowdown would be. The added dimension (Addendum #3) for the blowdown indicated a "1.0 Cover Min". In the absence of profiles for the work at Hwy 28 and Powerhouse Road (previously requested but nothing provided yet), are we to price this at the minimum 1.0 M cover? In all likelihood this chamber will be much deeper and require a deeper chamber.

**Response:**

Refer to C202 for details.

**205. Proponent Question:**

Addendum #2, Proponent Question 47 ("Please provide detail for Air Valve") is responded to ".....will be responded to in Addendum #3". We are at Addendum #4 and still no detail.

**Response:**

From Addendum 3 Question 71: Model number has been provided and is sufficient.

**206. Proponent Question:**

Addendum #2, Proponent Question 58 was responded to ".....will be responded to in Addendum #3". We are at Addendum #4 and still no detail.

**Response:**

From Addendum 3 Question 71: Model number has been provided and is sufficient.

**207. Proponent Question:**

Can you please clarify if the purchase of these tanks used for Sodium Hypochlorite Storage at the facility, and showed on the specs section 44 42 73, will be through the Contractor or would be "Owner Supplied".

**Response:**

These tanks will be purchased and installed by the Contractor

**208. Proponent Question:**

Are we allowed to bid Barnes Series 3SE-DS as an "alternate to the specified" for the Sanitary Lift Station 33 32 14

**Response:**

Approved.



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**209. Proponent Question:**

My recommendation is to address this in a separate tender so that it does not hold up the installation of the 365 radio network and fiber connectivity to the Chlorination plant.

**Response:**

Cell repeater to remain the contract per specifications. Contractor to price radio implementation per drawings and specifications. Note assumptions listed to achieve pricing.

**210. Proponent Question:**

We are looking into quoting Siemens VFDs as per your attached specifications. For that purpose, can we have more detailed motor info especially motor FLA for the 300HP motors?

**Response:**

Siemens is approved as an alternate. Detailed shop drawings not available.

**211. Proponent Question:**

Will the vertical turbine pumps be available for install mid Feb before the roof is on?

**Response:**

The scheduled duration for supply of the vertical turbine pumps is 24 weeks after shop drawings are approved.

**212. Proponent Question:**

Please provide copies of the supply contracts that will be assigned to us through the novation agreement.

**Response:**

The vertical turbine pump supply contract is currently being executed and will be issued as soon as this is complete. It is anticipated that this will occur the week of October 10, 2017.

**213. Proponent Question:**

Please confirm that the City will compensate the Contractor for any changes in scope to the novated contracts.

**Response:**

Any changes in scope will follow the Change process as set forth in the contract documents.

**214. Proponent Question:**

Please confirm that the Contractor will not be responsible for costs and delays due to errors and omissions in the novated contracts that are a result of the actions of either the supplier or

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the City prior to the signing of the novation agreement, even if the errors and omissions are not discovered until after the agreement is signed.

**Response:**

The contractor will not be responsible for errors or omissions with the vertical turbine pump supply contract.

**215. Proponent Question:**

Process valve tags on drawings differ from that in section 40 06 23, do you know which is to be correct?

**Response:**

Please provide specific examples.

**216. Proponent Question:**

Check valves in section 40 06 23 of specs state flanged and silent check but the drawing P101 states double leaf. Which is to be correct?

**Response:**

The double leaf check valves are preferable.

**217. Proponent Question:**

In addendum 3 on the revised schedule of quantities page 20 lists 3- 900mm dismantling joints, are these in fact owner supplied? 3 dismantling joints were supplied with the 3 900mm gate valves to Upland Contracting a couple years ago. I am lead to believe these would be the same 3 valves.

**Response:**

These dismantling joints will be owner supplied.

**218. Proponent Question:**

Please identify location of JB-191 and provide detailed drawings so we can price it.

**Response:**

JB-191 At the new water tank. Reference is in cable schedule.

**219. Proponent Question:**

Please provide detailed drawings for LCP-801 & LCP-901 so we can price them.

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**Response:**

LCP-801 Air compressor skid, supplied by package supplier. NE corner of building. LCP-901, wastewater control skid, detail on drawings E003 and specifications for control panels. Location shown E-101.

**220. Proponent Question:**

Please identify location of LCP-100 and provide detailed drawings so we can price it.

**Response:**

LCP-100 Sodium Hypo skid control panel, and is located in process area 2 (location clarified by previous addendum)

**221. Proponent Question:**

Mechanical Spec Section 22 11 00 2.15.14 Domestic Water Booster Pump Capacity has 31kpa suction lift. Booster inlet on drawing (15-508-M200) shows connection to the city water main. What is the booster inlet pressure? Is it a lift condition?

**Response:**

Maximum inlet pressure anticipated at the building is 16psi. Minimum inlet pressure at the building is anticipated to be approximately 7psi.

**222. Proponent Question:**

Do you know the manufacturer and model of the existing valve with tag FCV-604?

**Response:**

No, this information is not available at this time. This is to be confirmed by the Contractor.

**223. Proponent Question:**

**Section 262313 – Low Voltage Switchgear:**

1. Clause 2.1.1 - Specifies the E-house ***“shall be sized to accommodate all future switchgear cells”***. In order to size the E-House properly, please provide physical details (weights and dimensions) of these “future” components.
2. Clause 2.1.15 - Specifies ***“provide wall space for and HMI (by others) and floor space for a 125VDC battery bank and charging system (by others)...”*** In order to size the E-house properly, please provide physical details (weights and dimensions) of these components. Alternately we can include these items in our Scope of Supply if appropriate specifications are provided.
3. Clause 2.4.1 - Specifies ***“Blanked off spaces for future units”***. Please provide details of what is required to meet this item.
4. Clause 2.4.9 - UL1558 provides for Glastic fire-rated insulation between compartments. We can provide UL1558 SWGR compliance, generally regarded as the standard on which 30 cycle equipment is certified. What has been specified is not UL891/CSA-C22.2 No. 31 verifiable.

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5. Clause 2.18.3 - Specifies **“Cubicle Interiors: white”**. The process of 2 colours on a sheet of metal, is very difficult, messy and expensive to do. In lieu of white interior we propose to provide white Control Back-Pans. If the intent is to brighten the controls compartment, adding automatic door-activated LED lights in Control compartment makes far more economic sense. Please advise.

**Response:**

1. There are no identified future switchgear cells. Quote what is presented.
2. Revision provided in this addendum.
3. There are no identified future switchgear cells. Quote what is presented.
4. Clause removed.
5. Provide alternate pricing for difference (white interior versus standard colour interior), submit in bid, and will consider alternate during shop drawing review.

**224. Proponent Question:**

**Section 263213 – Electrical Generator:**

1. Clause 1.1.2.18 - Specifies **“1 meter access clearances”** in E-House enclosure. The E-House enclosure shown in drawing E101 appears to include clearances far in excess of this 1 meter requirement (~70” between genset and enclosure side walls, and 148” between genset and front/rear walls – see below), resulting in the indicated enclosure being ~19 ft. wide x 62 ft. long. Please confirm that this is a generic representation only, and the actual enclosure dimensions can be reduced as required to house the equipment with specified 1 meter clearances.
2. Clause 2.5.4 - Specifies **“All panels to be insulated to control E-House temperature to a maximum of 30°C...”**. Please confirm if this means Air Conditioning should be provided if necessary to meet the 30°C. requirement, and if so that it only applies to the Switchgear room and not the genset room.
3. Clause 2.10.5 - Specifies **“Control system to allow synchronization of the utility and generator for load testing, transfer from utility to generator and generator to utility (bumpless)”**. Please clarify if this indicate the intent to (baseload) load test against the utility for durations in excess of standard Closed Transition limits (soft transfer operation limit <10 seconds; fast transfer operation limit <100msec.).
4. Clause 2.10.9 Addendum No.2 – page-12/12 – Specifies **“Each section of the Generator transfer scheme breakers shall be listed and labeled including all covers, barriers and supports”**. Is this to identify what each component part of the compartment includes? Is a Bill of Materials, linked to the mechanical compartment drawings sufficient identification? Please clarify.
5. Specifies **“Breakers and individual control sections shall be isolated from each other by insulated metal barriers”**. Not sure what is intended or required that is not already provided for by UL1558 Safety Standards, to ANSI, IEEE and CSA requirements?
6. What is the application of insulation to metal barriers meant to achieve?
7. Generally speaking, the design criteria of most SWGR is to reject BTU's, not maintain to create a higher ambient. Please explain?

**Response:**

1. Meet access clearances of 1m. Representation is generic representation only. Intent is that overall dimensions meet size restrictions showcased on drawings.
2. If air conditioning is recommended in combination with insulation to meet ambient air requirements for the electrical room, please present these requirements and anticipated

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scenarios that require cooling equipment. The intent is not to maintain this temperature in the generator space during operation, but what is not expected is for the ambient air temperature in the generator room to be above the manufactures recommendation when operating and to be at a temperature that operations cannot perform extended maintenance tasks when equipment is not operating.

3. Intent is to requested permission to allow make-before-break transition from BC Hydro, but the intent of this clause is to ensure the control system achieves a seamless transition from one source to the other without disturbing the site load.
4. The desire is a list of equipment on a common label on the switchgear, as well as each item labelled individually.
5. Statement intent is to ensure all components are separated, allowing one device to be potentially de-energized for service while other components continue to be energized and not present a hazard. Nothing beyond what has already been stated or referenced.
6. Provide bonded barriers to provide a means of separation.
7. Please clarify question.

**225. Proponent Question:**

Ref. Drawing 15-508-C202, the existing 500mm & 760mm Steel watermain in which we have to cut & tie into, could you please provide us with the specs of the lining & coating of these watermains?

**Response:**

This information is not available at this time and will only be known when the tie-in works are completed.

**226. Proponent Question:**

We request to be an approved equal on the Epoxy lined bolted steel tank Section 42 41 11 (Surge Tank). Furthermore, at the requested diameter, it is more cost effective to the client that an epoxy roof be supplied and installed, could this be an approved alternate to the geodesic dome?

**Response:**

Approved.

**227. Proponent Question:**

Regarding the Hydrant Pump specified in section 43 060 13:

The model of the pump specified is a KV (Taco vertical inline close coupled), the description is for an end suction base mounted (Taco FI). The drawing shows a vertical inline close coupled pump. Please clarify what model is required. We would normally recommend a split coupled pump for this size of horse power. I would recommend a split coupled vertical inline pump (Taco KS series).

What accessories (if any) are needed with the pump (i.e. suction guide, multi-purpose valve, pump base)?

What pressure rating is needed for the pump (i.e. 175 psi or 300 psi)?

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**Response:**

Refer to Question 163.

**228. Proponent Question:**

We suggest that the radio/cellular requirements for this project be removed entirely from this tender and dealt with under a separate contract.

**Response:**

Refer to Clarification in Addendum 5 on Scope of Work.

**229. Proponent Question:**

Can you please provide more detail with regards to the shutdown of the existing UV Plant. Can the existing plant be bypassed completely to enable both UV reactors and all valves to be removed at once? If not, will a phased shut down be required with temporary pipes installed in place of the reactors?

**Response:**

Existing UV facility can be isolated and bypassed entirely to allow for relocation of the two existing reactors and all associated components simultaneously and in conjunction with completion of the new building. The timing of this UV facility isolation and bypass cannot commence any earlier than October 1, 2017.

**Addendum Item 2**

**Appendix 1A (Revised September 30<sup>th</sup>, 2016) Correction**

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Appendix 1A (Revised September 30<sup>th</sup>, 2016) states *“As specified in the Form of Tender paragraph 5.1.1. (i)”*. The correct paragraph is 5.1.1. (f).

**Addendum Item 3**

**Scope Clarifications**

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The following descriptions are intended to clarify the scope of this contract as pertains to 3 items raised in a number of RFI's.

**2.1: Communications**

The following description clarifies the scope of work for the Communications Services, described in Section 27 05 13 of the Tender Documents. The below intention is to clarify the responsibility of the contractor as it relates to supply and commissioning of the systems. The contractor will not be held responsible for

*Radio Communication Link*

The design intent is as detailed in Section 27 05 13, Clause 1.1.4.1, 1.1.4.2 and 1.1.4.3. The intent is to provide a 3.65GHz network completely from the new facility to the City Yard/Corporate

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network. The intention is to achieve this by gaining access to the 911 tower to install the required equipment on as per the contract documents. It is understood that access to the 911 tower is not guaranteed and is subject to approval from a third party. The project shall be priced assuming that access to the 911 tower can be achieved.

If access to the 911 tower cannot be achieved, communications will be achieved using the existing 2.4GHz path currently in place to the John Hart Pump Station. See Drwg E501.

The contractor will not be held responsible if access to the 911 tower is not granted.

Clause 3.1 of Section 27 05 13 applies whichever of the above options for communications service (with or without access to the 911 Tower) is ultimately pursued. The contractor will still be responsible for commissioning the system, on the understanding that alternative options are available and acceptable to the City for communications if access to the 911 tower is not feasible.

**Cell Phone Booster**

No tower at the new facility will be installed as part of this project. The intent is to install a small antenna on the roof of the building to pick up any possible cell signal at building roof height, and a second interior antenna to boost the available exterior signal within the building. It is understood that cell signal coverage is poor at site with Rogers, and extremely poor with Bell/Telus. Contractor will not be held responsible for poor results if no exterior signal is available at roof height. Provide a technology that allows for the specified functionality at the building roof height for both Bell/Telus and Rogers cell service, per specification 27 05 13.

**Addendum Item 4  
Replace specification clause 270513.1.1.4.4 with**

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Supply and install a cell phone booster system at the new facility, NW corner, with an exterior antenna mounted at roof height, and the repeater antenna installed within the building. Intent is to make available in the building any cellular signal that is available at ground level outside of the building. Interior broadcast area focus is the process area and SCADA room. This scope does not require the supplier to acquire a cell phone signal at tree-top height to make available throughout the site. The booster equipment loading capacity is requested to support 10 users.

**Addendum Item 5  
Calgon Scope**

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The following spec changes should be noted in order to clarify the scope of Calgon within the contract. All Calgon costs should be billed directly to the owner.

“Amend Supplementary Section 46 66 56 to as follows:

2.1 General

Add the following clause:

.2 Calgon have undertaken an assessment of the existing UV Reactor system and will be providing any required Calgon components needed to undertake the relocation. Calgon will invoice the Owner directly for any Calgon supplied materials.

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3.1 Manufacturer's Representative:

Add the following clauses:

.3 All costs related to Calgon's supervision and attendance on-site during work related to the UV reactor relocation and commissioning shall be billed directly to Owner. Contractor to allow for 3 days coordination with the Calgon representatives during the relocation and commissioning period.

.4 Calgon shall be consulted by the Contractor prior to commencing with the execution of the UV reactor relocation and all necessary instructions related to the relocation shall be received and Reviewed with the Contract Administrator and the City prior to this work being undertaken.

.5 Calgon contact is as follows:

Scott Visilak – Services and Parts Coordinator  
Calgon Carbon UV Technologies  
2000 McClaren Woods Drive  
Coraopolis, PA 15109  
(724) 218-7018

**Addendum Item 6  
Novation Agreement**

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Novation agreement is attached.

**Addendum Item 7  
Amend Supplementary Specification 26 23 12 as follows:**

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**Replace Clause 2.1.15 with** "Provide a HMI panel integral in the switchgear, and provide a 125VDC battery bank and charging system to power the low voltage switchgear breaker(s) trip and close circuits (sized for the required load, and can be separate from the Switchgear but located in the E-House electrical room)".

**Addendum Item 8  
Amend Supplementary Specification 26 32 13 as follows:**

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**Replace Clause 1.1.2.17 with** "Standby Generator, double-walled fuel tank shall be installed in a sound attenuated and weathertight E-House enclosure, access platforms as required and all accessories to be supplied by the Supplier. The equipment will be installed and commissioned by the Contractor. Allowance will be made to install a fuel tank on the exterior of the E-House, provided that additional space is not required; use the E-House footprint shown in drawing C103 – Site Utilities".

**End of Addendum**

**Acknowledgement of this Addendum in your Tender submission is required.**

Clinton J. Crook, SCMP, CPSM  
Senior Buyer



**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Design, manufacture, supply, installation, testing, commissioning and certification of the following fully operational Monorail System.
- .2    Requirements for coordination with building structural steel trade contractor.
- .3    For the purposes of this specification, the term “crane” shall mean monorail systems unless noted otherwise.

**1.2                RELATED SECTIONS**

- .1    Section 05 12 00 - Structural Steel

**1.3                REFERENCES**

- .1    All work shall comply with the following. In the event of conflict, the most stringent requirements shall govern:
  - .1    American Institute of Steel Construction (AISC):
    - .1    AISC 325-11, Steel Construction Manual, Thirteenth Edition.
  - .2    American Gear Manufacturers Association (AGMA):
    - .1    AGMA 2001-D04, Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth.
    - .2    AGMA 2009-B01, Bevel Gear Classification, Tolerances and Measuring Methods.
    - .3    AGMA 2011-B14, Cylindrical Worm gearing Tolerance and Inspection Methods.
    - .4    AGMA 2015-1-A01, Accuracy Classification System - Tangential Measurements for Cylindrical Gears.
    - .5    AGMA 6013-A06, Standard for Industrial Enclosed Gear Drives.
    - .6    AGMA 6113-A06, Standard for Industrial Enclosed Gear Drives (Metric Edition).
  - .3    American Society for Testing and Materials (ASTM):
    - .1    ASTM A325M-14, Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric).
    - .2    ASTM A563M-07a(2014), Specification for Carbon and Alloy Steel Nuts (Metric).
    - .3    ASTM F959M-13, Specification for Compressible-Washer-Type Direct Tension Indicators for Use With Structural Fasteners (Metric).
    - .4    ASTM-A668-15 – Specification for Steel Forging, Carbon & Alloy for General Industrial Use.
  - .4    ASME International (ASME):
    - .1    ANSI/ASME HST-2-2014, Performance Standard for Hand Chain Manually Operated Chain Hoists.

- .2 ASME B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist).
- .3 ASME B30.16-2012 Overhead Hoists (Underhung).
- .5 Canadian Standards Association (CSA):
  - .1 CAN/CSA-B167-08(R2014) – Overhead travelling cranes – Design, inspection, testing, maintenance, and safe.
  - .2 CAN/CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .3 CSA C22.1 12 – Canadian Electric Code, Part 1, 22<sup>nd</sup> Edition.
  - .4 CSA C22.2 No. 33M1984 – Construction and Testing of Electric Cranes and Hoists.
  - .5 CAN/CSA-S16-14, Limit States Design of Steel Structures.
  - .6 CAN/CSA-S136-12, North American Specification for the Design of Cold Formed Steel Structural Members.
  - .7 CSA-S136.1-12, Commentary on CSA Standard S136.
  - .8 CSA W47.1-09 (R2013), Certification of Companies for Fusion Welding of Steel Structures.
  - .9 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
  - .10 CSA W55.3-08(R2013), Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
  - .11 CSA W59-13, Welded Steel Construction (Metal Arc Welding) Metric.
- .6 Crane Manufacturers Association of America (CMAA):
  - .1 CMAA #74 – 2010 Specifications for Top Running and Under Running Single Girder Electric Traveling Cranes Utilizing Under Running Trolley Hoist.
  - .2 CMAA #70 – 2010 Specification for Top Running Bridge & Gantry Type Multiple Girder Electric Overhead Traveling Cranes.
- .7 Material Handling Industry of America (MHIA):
  - .1 ANSI MH27.1 (2009) Specifications for Patented Underhung Cranes and Monorail Systems.
- .8 National Building Code of Canada 2010.
- .9 National Electrical Manufacturers Association (NEMA):
  - .1 NEMA 250-2014, Enclosures for Electrical Equipment (1000 Volts Maximum).
  - .2 NEMA ICS3-2009(R2014), Industrial Control and Systems: Medium Voltage Controllers Rated 2001 to 7200 Volts AC.
  - .3 NEMA ICS6-1993 (R2001, R2006), Industrial Controls and Systems Enclosures.
  - .4 NEMA ICS8-2011, Industrial Control and Systems: Crane and Hoist Controllers.
  - .5 NEMA MG1-2014, Motors and Generators.
- .10 Worksafe BC Occupational Health and Safety Regulations.
  - .1 Worksafe BC Occupational Health and Safety Regulations Part 14 – Cranes and Hoists.

<http://www2.worksafebc.com/publications/OHSRegulation/part14.asp>

- .11 Latest applicable standards from the following organizations:
  - .1 National Fire Protection Association (NFPA).
  - .2 American Welding Society (AWS).
  - .3 Electrical and Electronic Manufacturer's Association of Canada (EEMAC) Standards.
  - .4 Hoist Manufacturers Institute (HMI) Specifications.

#### **1.4 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittals.
- .2 Submit high quality electronic copies of all drawings and documents. All information and data shall be in PDF electronic format. The PDF electronic format shall be used for insertion into the Building Interactive Electronic Operating and Maintenance and Commissioning Manuals. All PDF submittals must be text searchable.
- .3 Shop drawings shall provide at least the following information:
  - .1 General arrangement drawing showing:
    - .1 Overall crane layout in relation to the building.
    - .2 Overall dimensions and clearances.
    - .3 Hoist capacity.
    - .4 Hook lift and reach coverage, including dimensions relative to the nearest building gridline(s).
    - .5 Other important features of the crane.
    - .6 Runway conductor arrangement.
    - .7 Crane identification number.
    - .8 CMAA classification.
  - .2 Total weights, crane wheel loads, reaction loads at interface and terminal points.
  - .3 Electrical drawings, showing load and power requirements, schematic wiring diagram, electrical connection point, control panel, inter-wiring details, bill of material for electrical components, lockout, etc.
  - .4 Type of primer and coatings.
  - .5 Bill of materials.
- .4 All shop drawings shall be prepared and stamped by professional engineers of respective disciplines registered in the Province of British Columbia.

#### **1.5 CRANE SUPPORT SYSTEM AND COORDINATION**

- .1 Structural crane support system: Crane runways, structural diagonal braces, and all structural work including connections to building structural system will be provided as per structural steel specs. Provide and carry out the following:
  - .1 Coordinate crane wheel size with structural member provided.
  - .2 Installation of crane support system will be as per CMAA and other applicable standards. Provide installation tolerances if different from applicable codes and standards.

- .3 Provide support to structural steel trade contractor during installation of crane support system with respect to installation tolerances. Also review and accept crane support system prior to crane installation. If there is any specific crane erection method, then provide details so such approach can be incorporated by structural steel trade contractor in the installation and erection sequence.
- .4 End Stops: Provide requirements for crane stops such as height and required structural capacity of crane.

## **1.6 PAINTING**

- .1 Cranes shall be cleaned and painted in accordance with CMAA specifications.
- .2 Crane colour shall be safety yellow.
- .3 Machined surfaces – apply rust preventing compound.
- .4 Gearbox interiors – 1 coat of oil resistant enamel.
- .5 After completion of installation, thoroughly clean and touch-up the paint work as required.

## **1.7 LABELLING**

- .1 Hoist shall be labelled with load rating.
- .2 Underside of the hoist shall be permanently labelled with arrows indicating direction of travel, which coordinates with the directions shown on the pendant.
- .3 A corrosion-resistant nameplate shall be fixed to the crane with the following information:
  - .1 Name of manufacturer.
  - .2 Mfg.'s model number and serial number.
  - .3 Capacity.
  - .4 Date of manufacture (month and year).

## **1.8 QUALITY CONTROL**

- .1 Submit for review Crane supplier's quality control program related to the manufacture of cranes.
- .2 Submit for review quality control and coordination procedures for the installation of cranes in the new facility.

## **1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **1.10 CRANE SUPPLIER'S REPRESENTATIVES**

- .1 Crane Supplier's qualified technical personnel shall be present at the site and carry out work as required during installation, testing, training, commissioning and certification of Crane Systems.

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**1.11 OPERATIONS AND MAINTENANCE MANUALS AND DRAWINGS**

- .1 Submit Operations and Maintenance Manuals in accordance with Section 01 33 00 – Submittal Procedures for all equipment supplied under this section including the following:
  - .1 The Technical Data Sheet information required shall be supplied for each crane (see Technical Data Sheet at the end of this section).
  - .2 Description of crane system’s method of operation and control; including motor control system, gear reducers, load brakes and special or non-standard features provided.
  - .3 Preventive maintenance program and schedule including instructions for lubrication, adjustment and care of equipment, detailed technical descriptions of operation, adjustment, and settings of electrical circuits and mechanical lists.
  - .4 Parts catalogue giving complete list of repair and replacement parts with cuts and identifying numbers.
  - .5 Names and addresses of suppliers of parts, lubricants, grades and trade names of lubricants.
  - .6 “Troubleshooting” information on diagnosis of malfunctions and failures.
  - .7 Name and telephone number of systems installer and their key technicians and supervisory personnel.
  - .8 Test procedures for all systems.
- .2 Provide prints of drawings of the following:
  - .1 Legible schematic wiring diagrams covering electrical equipment as supplied and installed, including changes made in final work, with symbols listed corresponding to identity markings on equipment.
  - .2 Schematic wiring and lubrication with operation sequence.
  - .3 General arrangement drawings showing location of all components and clearances to scale.

**1.12 WARRANTY**

- .1 Provide a 1 year warranty period starting from the date of Substantial Completion.

**Part 2 Products**

**2.1 GENERAL REQUIREMENTS**

- .1 Crane shall be designed in accordance with all applicable standards, whichever is more stringent, and meet the requirements described in this specification.
- .2 Use crane components from a standard product line of one manufacturer.
- .3 Crane Supplier to supply, install, test, commission, provide training and certify fully operational Crane Systems as specified under this section.
- .4 Summary of Crane System to be supplied under this contract including locations in the new facility stated in this document and indicated on the drawings.

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## 2.2 CRANE SYSTEMS

- .1 Safety Devices:
  - .1 Warning devices shall be as per CMAA regulation.

## 2.3 FUNCTIONAL REQUIREMENTS

- .1 Design Crane System to operate in accordance with the CMAA classification as indicated in section 2.4 of this specification.
- .2 Crane System to be capable of lifting its full rated capacity at any location along the runway.
- .3 Crane System to be capable of lifting its full rated capacity from the floor level to clear hook height.
- .4 Crane System to meet the explosion proof classifications as indicated in section 2.4 of this specification

## 2.4 CAPACITY AND DIMENSIONAL CRITERIA

- .1 Crane ID: FP-1
  - .1 Crane Type: Monorail.
  - .2 Lifting capacity: 7500lbs for the crane exiting the west side of the building, 4,200 lbs for the crane exiting the south east corner of the building.
  - .3 CMAA: A.
  - .4 Environment: Indoor environment.
  - .5 Hoist: Chain.
  - .6 Hoist Type: 1-Speed.
  - .7 Hoist Max Speed: 6.1 m/min.
  - .8 Hoist Ratio Low/High: N/A.
  - .9 Trolley Type: Manual.
  - .10 Trolley Max Speed: N/A.
  - .11 Trolley Ratio Low/High: N/A.
  - .12 Bridge Type: N/A.
  - .13 Bridge Max Speed: N/A.
  - .14 Bridge Ratio Low/High: N/A.
  - .15 Crane Span: N/A.
  - .16 Lift Height: 4000 mm AFF.
  - .17 Runway Elevation: 4500 mm AFF.
  - .18 Power: 208V 3 Phase.

## 2.5 SERVICE REQUIREMENTS

- .1 Cranes shall remain operational under the following conditions:
  - .1 Building sway under wind loads:  $H/400$  (H: Height of building).
  - .2 Deflection of building roof beams under live loads:  $L/240$  (L: Span).
  - .3 Vertical deflection of crane runway beams under crane loads:  $L/600$  (L: Span).

- .4 Lateral deflection of crane runway beams under crane loads:  $L/600$  (L: Span).
- .5 Design Crane Systems for seismic horizontal loadings equivalent to crane self-dead weight. Crane shall remain on the rails during such an event.

### **Part 3 Execution**

#### **3.1 GENERAL**

- .1 Carry out work in accordance with the requirements of this specification including all codes, standards and specifications and standards of the organizations listed in this section.
- .2 Plan manufacturing, delivery, installation, testing, commissioning and certification of Crane Systems to meet the approved construction schedule.

#### **3.2 SHIPMENT, PROTECTION AND STORAGE**

- .1 Store the crane system in an area to prevent deterioration or damage prior to installation.
- .2 All factory finished items to be wrapped and crated in a manner to protect their finishes.
- .3 Operating and moveable equipment is to be fully protected from the weather.
- .4 All crates, pieces of equipment, etc., shall be clearly labelled describing contents, weight and lift points.

#### **3.3 ACCEPTANCE OF BUILDING STRUCTURE**

- .1 Prior to installation of Crane Systems, coordinate and verify with the building structural steel trade contractor the alignment, levels and tolerances of the building structure and identify any adjustments that may be required.

#### **3.4 INSTALLATION**

- .1 Install Crane Systems in accordance with drawings and specifications meeting the requirements of all applicable codes, standards, specifications and regulations.
- .2 Provide all necessary material, labour, tools and equipment for the installation.
- .3 Provide required clearances between the building structure and Crane System.
- .4 Upon completion of installation, touch up and restore to new condition, damaged or defaced factory finished surfaces.
- .5 Remove protective coverings and clean exposed surfaces after completion.

#### **3.5 TESTING, COMMISSIONING AND CERTIFICATION**

- .1 Test Crane Systems in accordance with Worksafe BC, Occupational Health and Safety Regulation Part 14 – Cranes and Hoists.
- .2 All crane equipment shall be operated through a complete lift and lowering cycle and through a complete travel of the trolley to determine that the equipment shall perform smoothly and safely and that pendant cable length is sufficient to permit operation from desired floor levels.

- .3 Provide all necessary material, labour, tools and equipment required for all testing and commissioning.
  - .1 Provide all test weights, connectors, slings, and equipment necessary for safe complete testing.
    - .1 Lift test weights shall be of minimal physical size, shape and clearly labelled.
    - .2 Remove from site test weights upon successful completion of testing and commissioning.
- .4 Commissioning of cranes shall commence after successful completion of operational testing and deficiencies.
- .5 Provide commissioning check lists to be used in commissioning.
- .6 Carry out certification of cranes as required by Provincial and Federal Regulations. Crane, as an entire assembly, must be CSA Certified. The use of CSA approved components only does not constitute conformance to this requirement. A copy of the Certificate of Compliance must be provided for each crane.
- .7 Upon successful completion of commissioning and correction of all deficiencies identified during commissioning, provide certification that cranes are installed and in operating condition in accordance with the requirements of the contract and all applicable standards and regulations. Any other certification required by Provincial and Federal Regulations shall also be provided.
- .8 Any defects shall be corrected by the supplier without any expense to the owner.

### **3.6 DEMONSTRATION AND TRAINING**

- .1 Upon successful completion of testing and commissioning of Crane Systems, after the delivery of all documentation (manuals, drawings, certificates, etc.) and prior to issuance of Substantial Completion, carry out equipment and system demonstration and training in accordance with the requirements of Section 01 79 00 – Demonstration and Training.
- .2 Demonstrate operations and maintenance of equipment and systems and provide training to City's operations and maintenance personnel. Include for the following demonstration and training:
  - .1 4 Hours (1/2 Day)



**3.7 TECHNICAL DATA SHEET**

Manufacturer:

Model No./ Crane No.

Application on (Duty)

1.0 Crane Data

Recommended Rail Size

Bridge Weights

Trolley Weights

Maximum Wheel Loads

Wheel Spacing

Headroom Above Rails

CMAA Crane Service Classifications

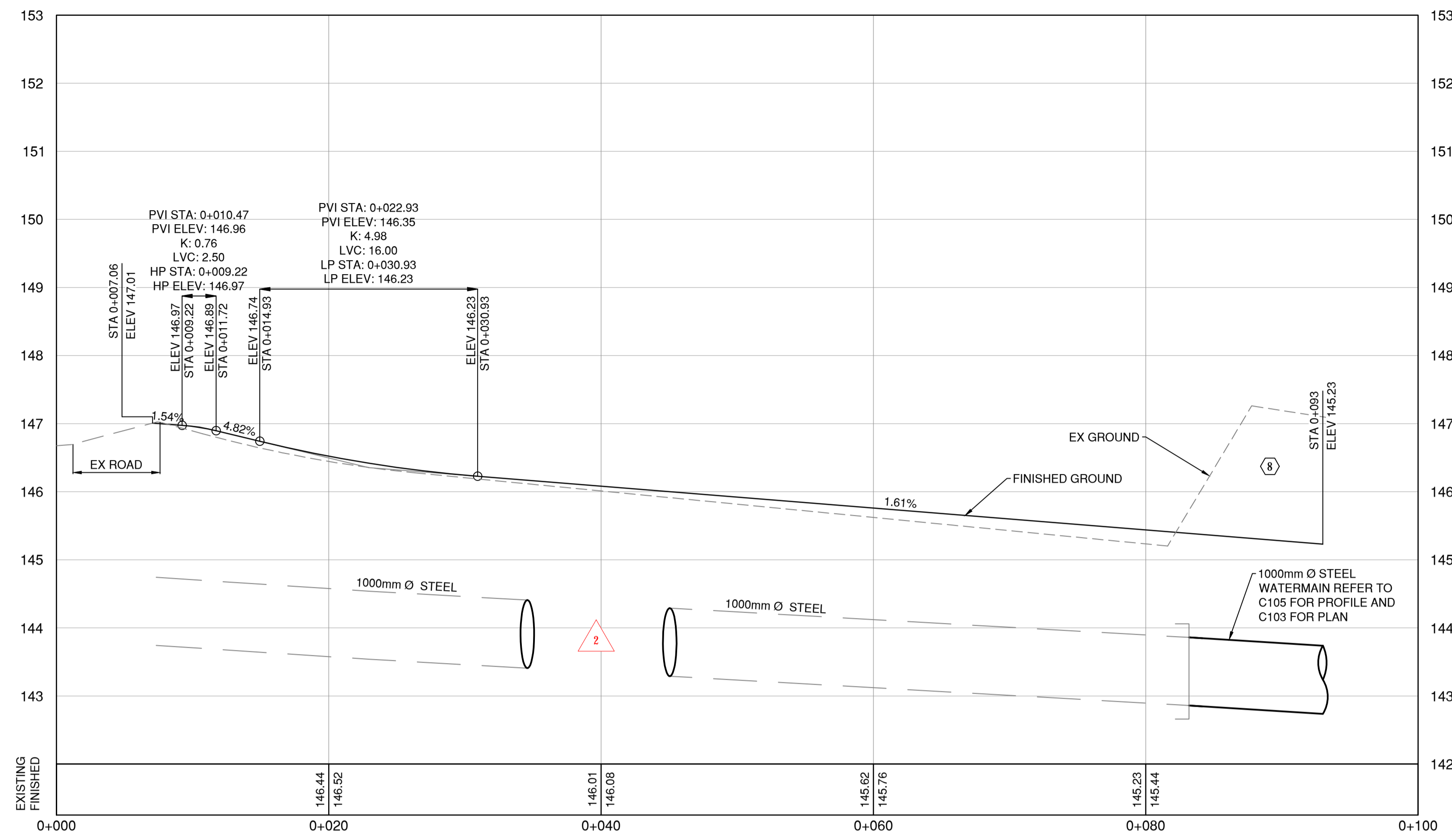
Hazardous Location Classification

Frame No.

Service Factor

Insulation Class

**END OF SECTION**



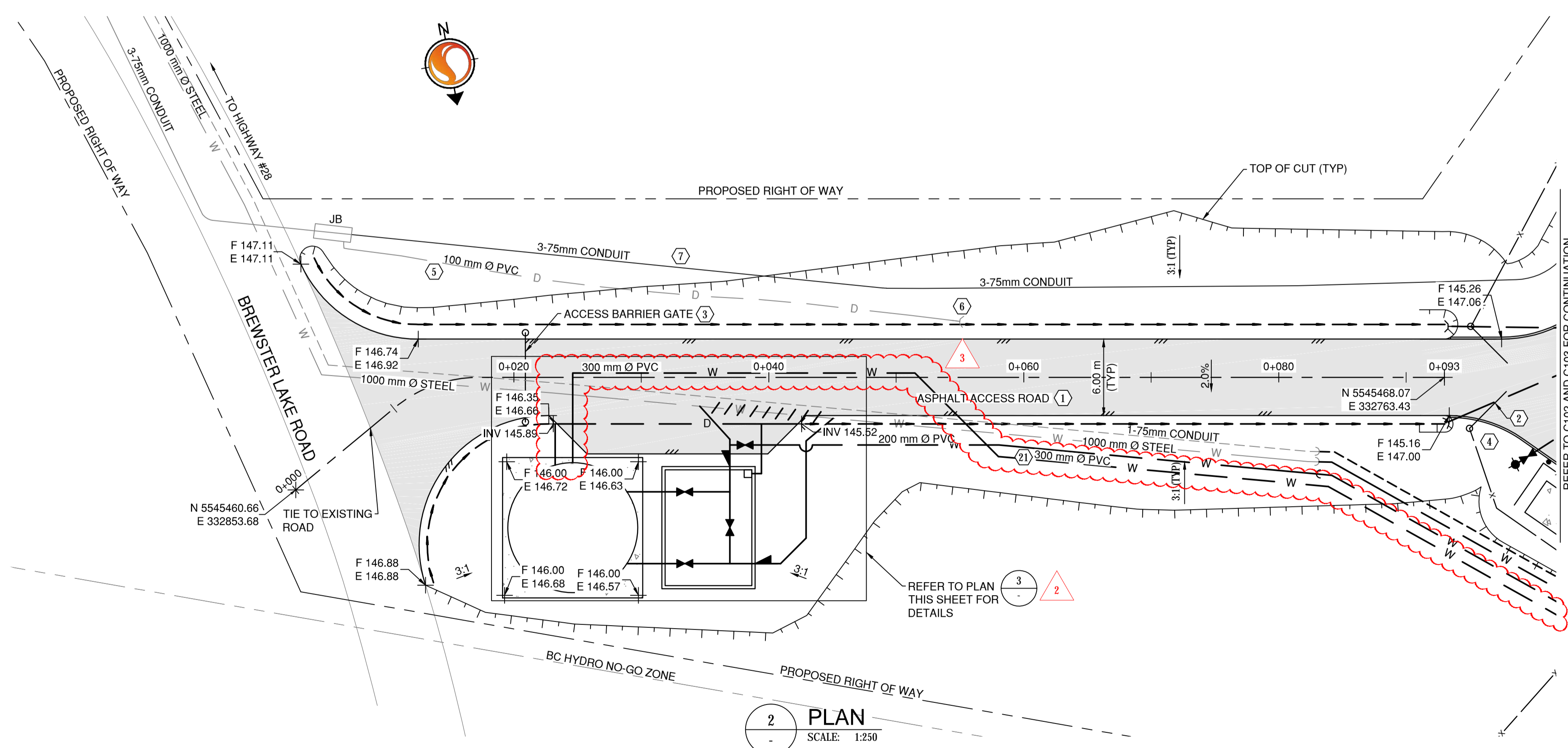
**1 PROFILE**  
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**CONSTRUCTION NOTES:**

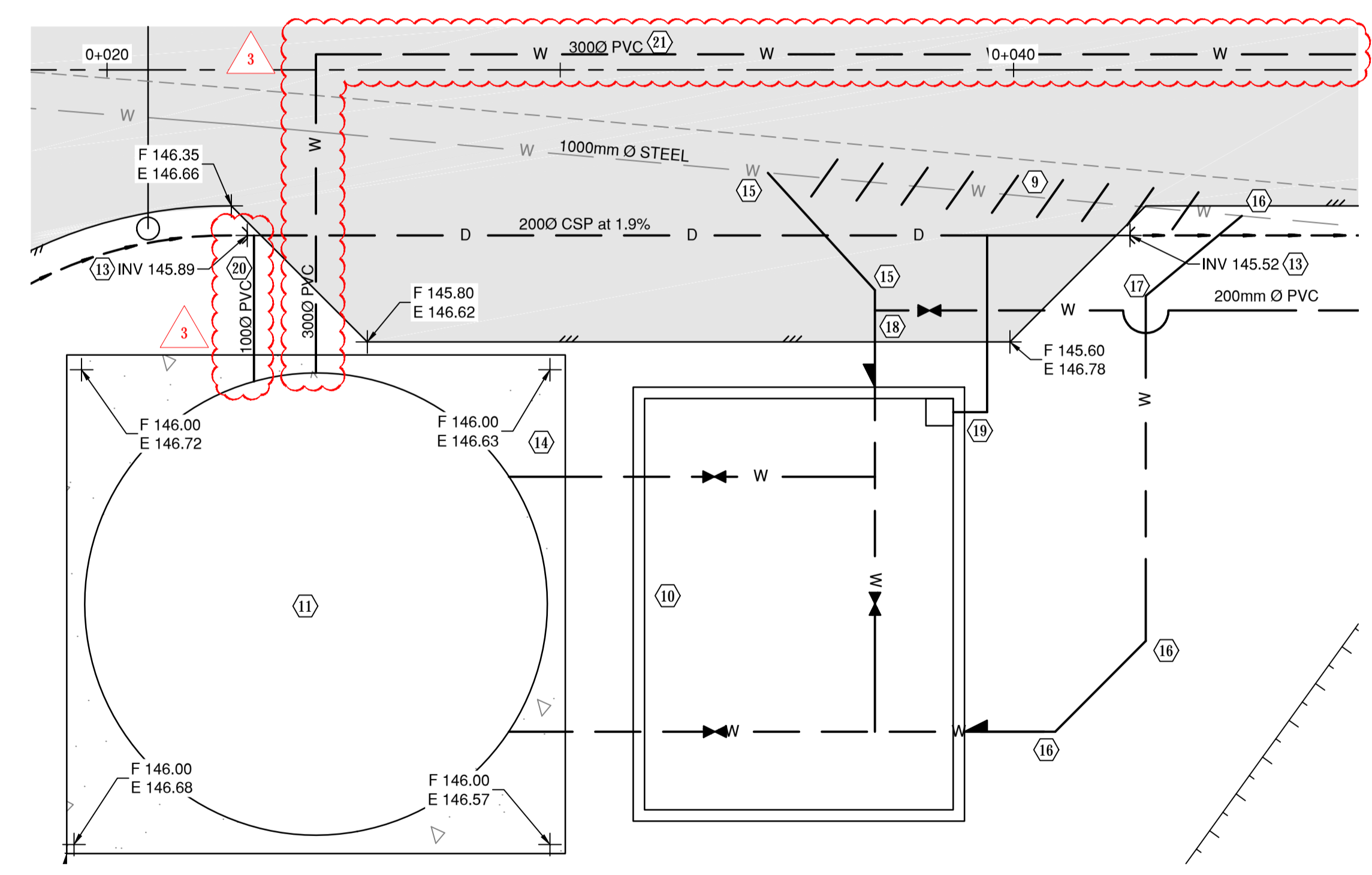
- ① ASPHALT ACCESS ROAD. FOR TYPICAL SECTION REFER TO C301. FOR ASPHALT PAVEMENT STRUCTURE REFER TO C301 FOR DETAILS. CONTRACTOR TO COORDINATE ALL WORK WITH ASPHALT CONTRACTOR. ALL GRAVEL PLACEMENT AND PREPARATION BY CONTRACTOR. ASPHALT PAVING/ MILLING BY ASPHALT CONTRACTOR.
- ② SECURITY GATE. REFER TO C302 FOR DETAILS.
- ③ ACCESS BARRIER GATE. REFER TO C302 FOR DETAILS.
- ④ CHAINLINK FENCE (TYP). REFER TO C302 FOR DETAILS.
- ⑤ EXISTING 100mm Ø PVC DRAIN FROM BC HYDRO JUNCTION BOX.
- ⑥ ADJUST EXISTING BC HYDRO DRAIN HEADWALL TO SUIT EMBANKMENT.
- ⑦ 3-75mm PVC CONDUIT FOR BC HYDRO POWER SUPPLY.
- ⑧ EXISTING GROUND IN THIS AREA TO BE CONFIRMED FOLLOWING COMPLETION OF CONTRACT 1
- ⑨ REMOVE 1000mm Ø PIPE AS SHOWN
- ⑩ CONCRETE VALVE CHAMBER. FOR DETAILS REFER TO C305 AND STRUCTURAL.
- ⑪ 10.2m Ø STEEL SURGE TANK. REFER TO SPECIFICATIONS DETAILS. REFER TO PROCESS FOR DETAILS.
- ⑫ PROVIDE ASPHALT PULL OUT
- ⑬ INSTALL LANGLEY TYPE 11 PRECAST CONCRETE HEADWALL, OR APPROVED EQUIVALENT C/W RODENT FLAP GATE. PROVIDE 100mm CRUSHED GRANULAR BASE. COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
- ⑭ CONCRETE PAD FOR SURGE TANK. REFER TO S111 FOR DETAILS.
- ⑮ HORIZONTAL DEFLECTION AT JOINT (42.40°)
- ⑯ HORIZONTAL DEFLECTION AT JOINT (45.00°)
- ⑰ HORIZONTAL DEFLECTION AT JOINT (50.19°)
- ⑱ PROVIDE 200mm Ø TEE ON 1000mm Ø STEEL WATERMAIN. PROVIDE FLANGE ADAPTERS FOR CONNECTION TO 200mm PVC GATE VALVE
- ⑲ PROVIDE 50mm Ø PE FORCEMAIN FROM SUMP PUMP. PROVIDE DIRECT TEE CONNECTION INTO 200mm Ø CSP
- ⑳ PROVIDE 100mm Ø DRAIN FROM TANK. TIE DRAIN DIRECTLY INTO 200mm Ø CSP.
- ㉑ 300mm PVC OVERFLOW BACK TO CAISSON. LAY IN SAME TRENCH WHERE POSSIBLE WITH 200mm Ø WATERMAIN.

**GENERAL NOTES:**

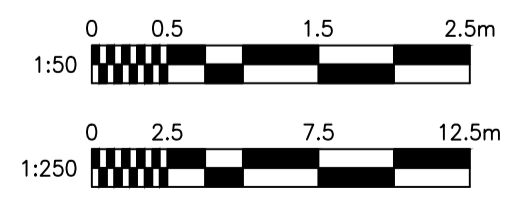
- 1. TOP SOIL AND SEED ALL CUT SLOPES AND AREAS DISTURBED DURING CONSTRUCTION. REFER TO C301 FOR DETAILS.



**2 PLAN**  
SCALE: 1:250



**3 PLAN**  
SCALE: 1:250



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DRAWING PATH: \\ced1208-104\workgroup\11231316\active\11231316\drawings\current\pump\_station\c101.dwg Tab: C101 Oct 07, 2016 11:21:28am DESTROY PRINTS OF PREVIOUS REVISION

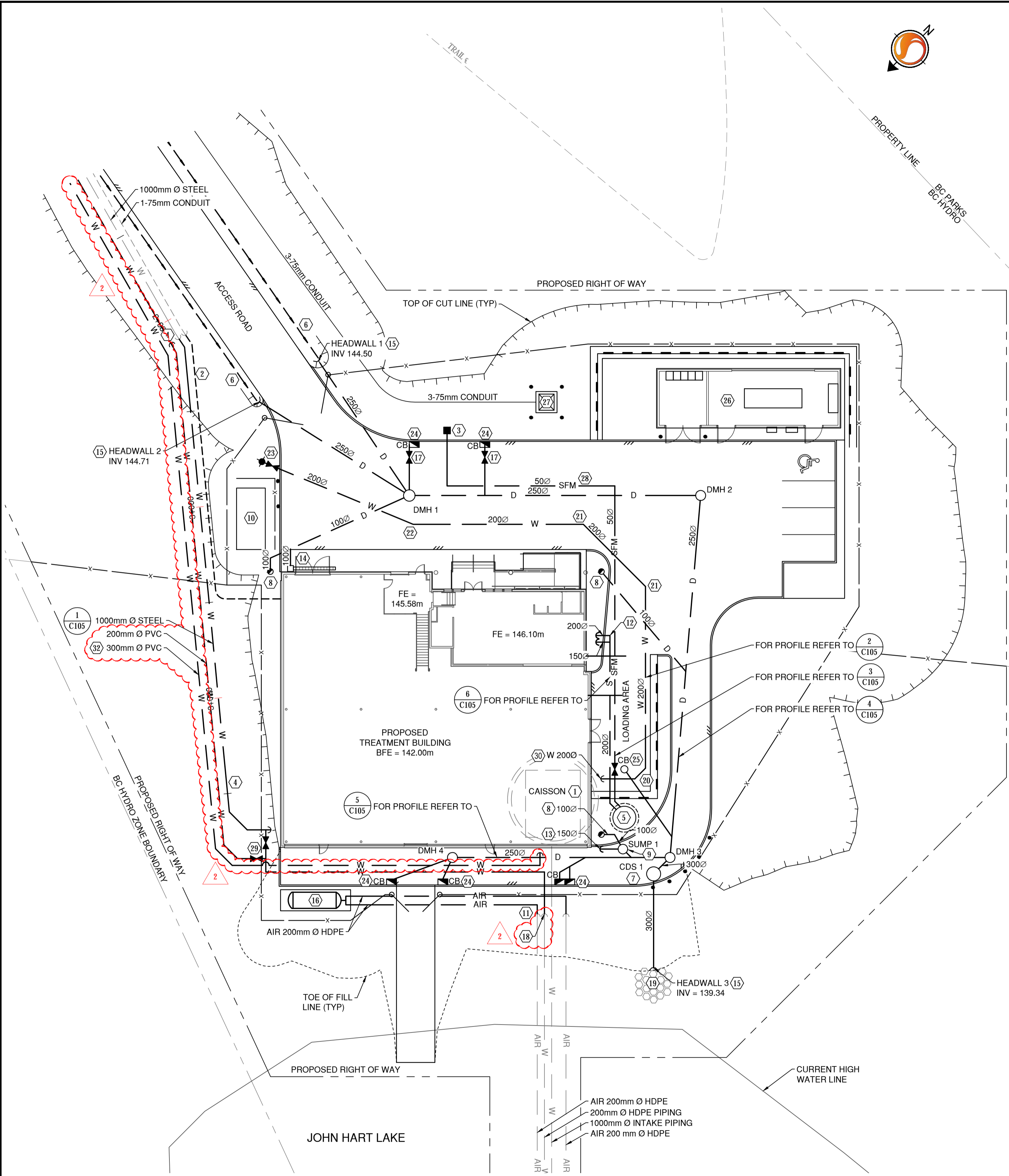
NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
3	ADDENDUM 5	AG	16/10/07		
2	ADDENDUM 2	AG	16/09/23		
1	ISSUED FOR TENDER	AG	16/09/02		

DESIGNED: SS	SCALE: H 1:250 V 1:50
DRAWN: OB	DATE: 16/10/07
CHECKED: AG	DATE: 16/10/07
APPROVED: AG	DATE: 16/10/07

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2 PLAN AND PROFILE - ACCESS ROAD	DRAWING NO. 15-508- C101 PROJECT: 11231316 REV. 3
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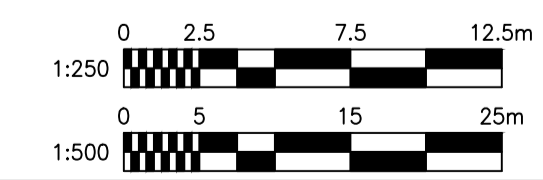
**CONSTRUCTION NOTES:**

- ① CAISSON. REFER TO CAISSON DRAWINGS FOR DETAILS (CONTRACT 1)
- ② EXTEND COMMS DUCT TO BUILDING AND ELECTRICAL SKID. REFER TO C301 FOR DETAILS.
- ③ SANITARY PUMP OUT CONNECTION. REFER TO C302 FOR DETAILS.
- ④ REMOVE WELDED CAP AND CONNECT TO EXISTING 1000 mm Ø STEEL WATERMAIN AND EXTEND WATERMAIN TO 1.0m FROM BUILDING. REFER TO PROCESS DRAWINGS FOR CONTINUATION WITHIN BUILDING AND WATERMAIN PROFILE ON SHEET C105 FOR DETAILS.
- ⑤ INSTALL SANITARY STORAGE TANK REFER TO C303 FOR DETAILS.
- ⑥ PROVIDE DRAINAGE DITCH. REFER TO ACCESS ROAD TYPICAL SECTION ON C301 FOR DETAILS.
- ⑦ INSTALL CDS OIL SEPARATOR, MODEL CDS2015-4
- ⑧ INSTALL LAWN DRAIN AS PER MMCD STANDARD DETAIL S12 TYPE 2.
- ⑨ INSTALL SEDIMENT SUMP. REFER TO C301 FOR DETAILS
- ⑩ CONDENSING UNIT REFER TO MECHANICAL FOR DETAILS
- ⑪ MAKE CONNECTIONS TO 200Ø HDPE AIR LINES FROM CONTRACT 1 AND INSTALL AS SHOWN TO AIR TANK.
- ⑫ INSTALL 200Ø 90° HxH BEND AND 200Øx200Øx150ØH TEE AND CONNECT TO SANITARY SERVICES 1.0 m FROM BUILDING. REFER TO MECHANICAL DRAWINGS FOR CONTINUATIONS.
- ⑬ CONNECT TO SUB-SOIL DRAIN 1.0 m FROM BUILDING. REFER TO MECHANICAL FOR CONTINUATION. INV = 140.50m
- ⑭ ACO K100S KALSSIK DRAIN, LOAD RATED CLASS E.
- ⑮ INSTALL LANGLEY TYPE 11 PRECAST CONCRETE HEADWALL, OR APPROVED EQUIVALENT
- ⑯ INSTALL AIR RECEIVER. REFER TO PROCESS FOR DETAILS.
- ⑰ INSTALL 150Ø HxH GATE VALVE. NORMALLY OPEN; TO BE CLOSED DURING SANITARY STORAGE TANK PUMP OUT.
- ⑱ MAKE CONNECTION TO 200Ø HDPE WATER LINE FROM CONTRACT 1, AND INSTALL AS SHOWN.
- ⑲ INSTALL RIP RAP ARMOURING ANGULAR 300mm SINGLE SIZE 20kg WITHIN AREA SHOWN.
- ⑳ INSTALL 2-45° HxH BENDS C/W PIPE RESTRAINTS. REFER TO C301 FOR DETAILS
- ㉑ INSTALL 1-45° HxH BEND C/W PIPE RESTRAINTS. REFER TO C301 FOR DETAILS
- ㉒ INSTALL 1-22.5° HxH BEND C/W PIPE RESTRAINTS. REFER TO C301 FOR DETAILS
- ㉓ INSTALL FIRE HYDRANT ASSEMBLY AS PER MMCD STANDARD DETAIL W4
- ㉔ INSTALL CATCHBASIN AS PER MMCD STANDARD DETAIL S11
- ㉕ INSTALL CIRCULAR GRATE CATCHBASIN. REFER TO C301 FOR DETAILS.
- ㉖ ELECTRICAL SKID. REFER TO ELECTRICAL FOR DETAILS.
- ㉗ BC HYDRO TRANSFORMER
- ㉘ INSTALL 50Ø SFM C/W BENDS AND RESTRAINTS
- ㉙ INSTALL 200Ø FxHxH TEE C/W 2 - 200 FxH GATE VALVE
- ㉚ FIRE HYDRANT SUPPLY. REFER TO PROCESS FOR CONTINUATION
- ㉛ CAP 200Ø WATERMAIN FOR FUTURE EXTENSION
- ㉜ 300Ø PVC OVERFLOW FROM SURGE TANK TO CAISSON. LAY IN SAME TRENCH AS 200Ø WHERE POSSIBLE. REFER TO PROCESS FOR CONTINUATION.

**GENERAL NOTES:**

1. ALL CATCH BASIN LEADS TO BE 150 mm Ø PVC AT 1.0% MIN.
2. MAKE CONNECTIONS FROM CATCH BASIN LEADS, TRENCH DRAIN LEAD AND ROOF LEADERS INTO STORM DRAIN MAINS WITH WYE FITTINGS.
3. PROVIDE FLEXIBLE COUPLINGS AT ALL CONNECTIONS TO SERVICES COMING FROM THE BUILDING.
4. INSTALL HORIZONTAL AND VERTICAL BENDS ON SANITARY AND STORM PIPES (150 mm Ø OR SMALLER) TO MATCH ALIGNMENT AS SHOWN AND ENSURE 1.0m COVER (MIN).

**1 SITE UTILITIES**  
SCALE: 1:250



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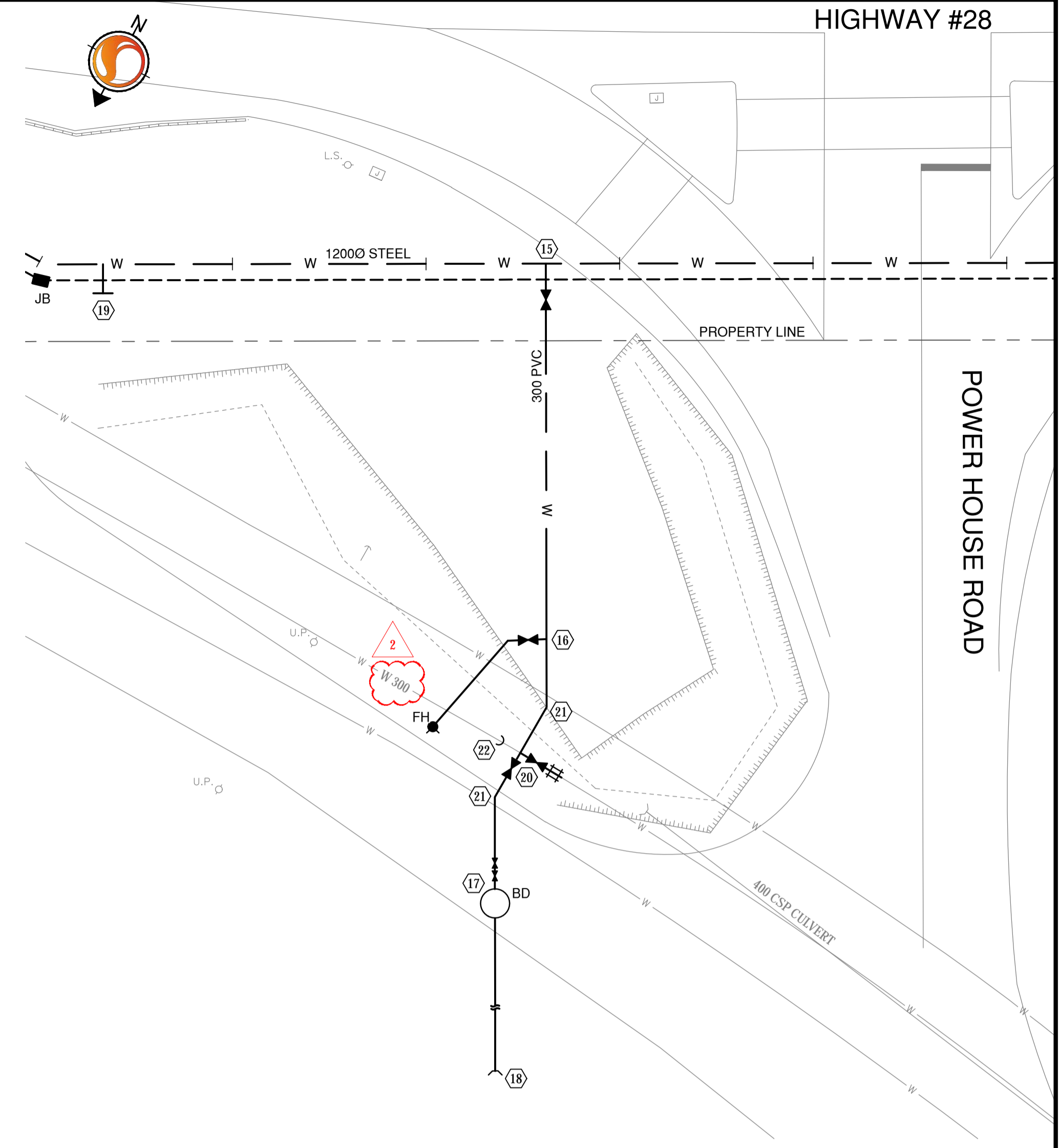
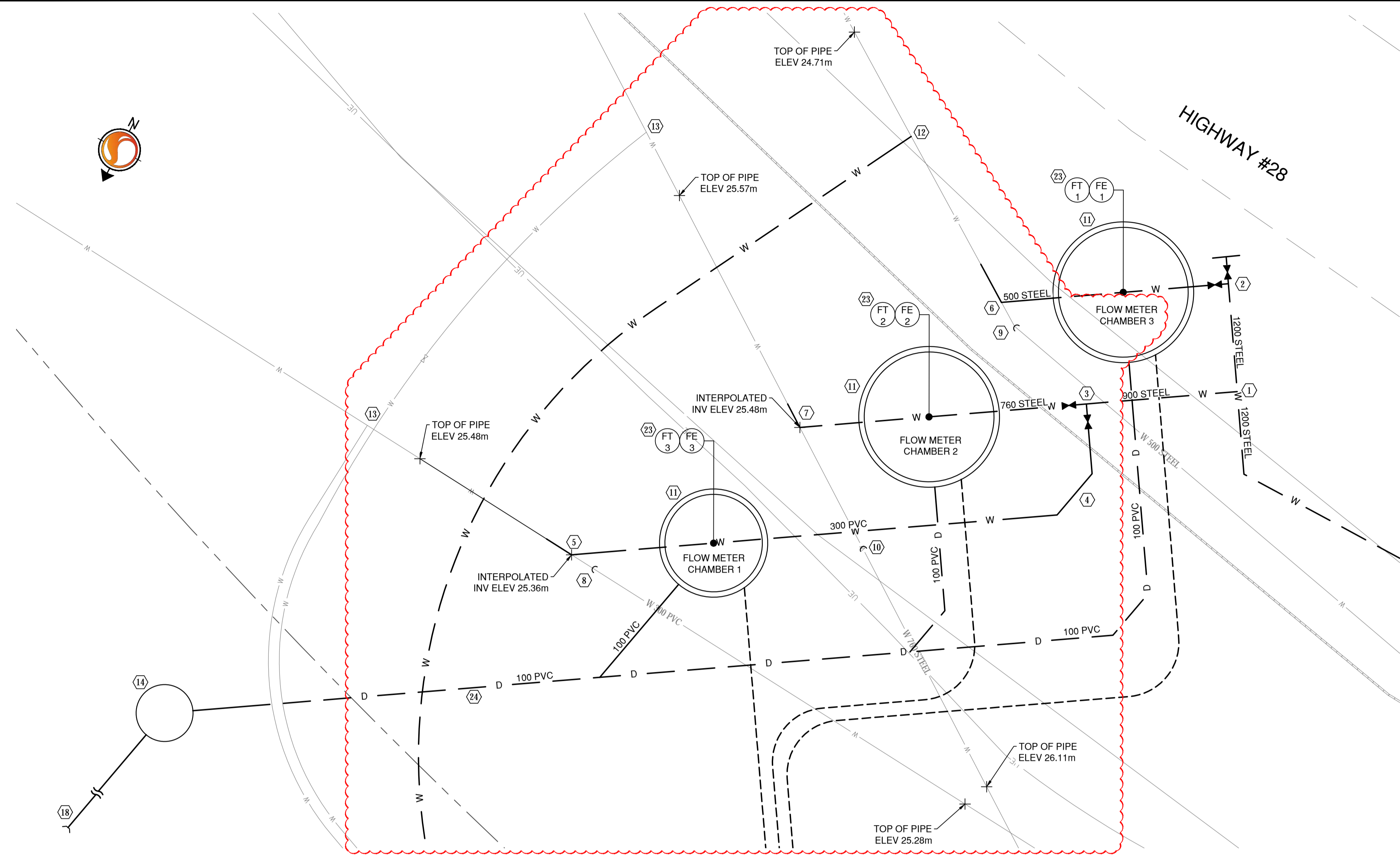
NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
2	ADDENDUM 5	AC	16/10/07		
1	ISSUED FOR TENDER	AG	16/09/02		

DESIGNED: SS	SCALE: 1:250
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CHECKED: AG	DATE: 16/10/07
APPROVED: AG	DATE: 16/10/07

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- C103
SITE UTILITIES	PROJECT: 112311316
	REV. 2

DRAWING PATH: \\ced1208-104\workgroup\11231\316\4\_drawings\current\pump\_station\11231\_316\_C103\_C105.dwg Tab: C103 Oct 07 2016 12:55:35pm



**1 CONNECTION DETAIL**  
SCALE: 1:50

**2 CONNECTION DETAIL**  
SCALE: 1:200

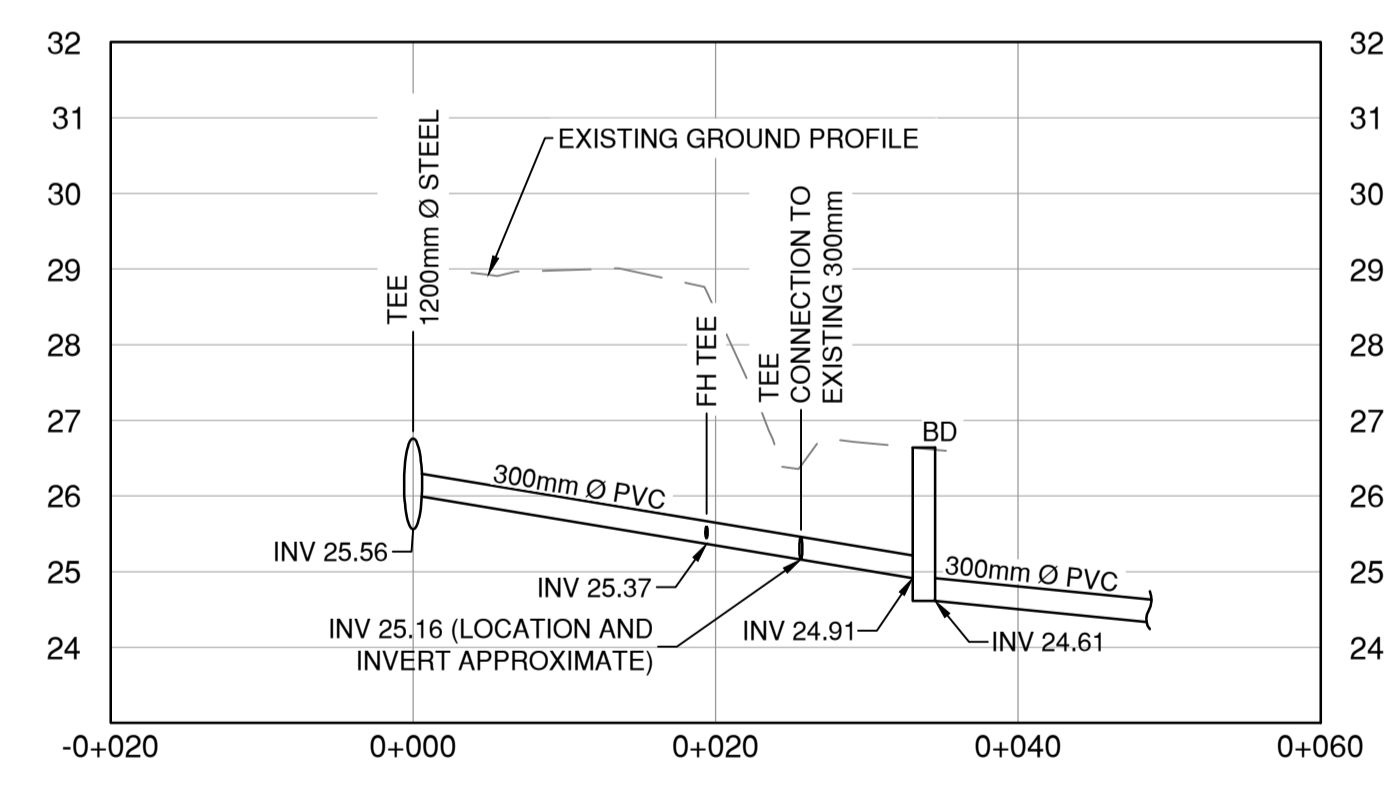
**CONSTRUCTION NOTES:**

- ① INSTALL  
1 - 1200 W X 1200 W X 900 W TEE
- ② INSTALL  
1 - 1200 W X 900 F X 500 F TEE  
1 - 900 F X F GATE VALVE (DIRECT BURY)  
1 - 900 BLIND FLANGE  
1 - 500 F X F GATE VALVE (DIRECT BURY)
- ③ INSTALL  
1 - 900 W X 760 F X 300 F TEE  
1 - 760 F X F GATE VALVE (DIRECT BURY)  
1 - 300 F X F GATE VALVE (DIRECT BURY)
- ④ 2 - 45° HORIZONTAL BENDS
- ⑤ 22.5° + 11.25° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 300 PVC. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.
- ⑥ 66.13° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 500 STEEL USING 500 M.J. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.
- ⑦ 67.21° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 760 STEEL USING 760 M.J. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.
- ⑧ CAP AND ABANDON EXISTING 300 PVC
- ⑨ CAP AND ABANDON EXISTING 500 STEEL
- ⑩ CAP AND ABANDON EXISTING 760 STEEL
- ⑪ FLOW METER CHAMBER C/W ULTRASONIC FLOW METER, ANTI-SIPHON VALVE AND 50mm TEE WITH BALL VALVE. REFER TO C304 FOR DETAILS
- ⑫ EXTEND 19mm Ø PE WATER SUPPLY LINE AS SHOWN. INSTALL CURB STOPS AT CONNECTION POINTS.

- ⑬ CONFIRM LOCATION OF WATER SUPPLY LINE
- ⑭ INSTALL 1050mm SUMP MANHOLE AS PER MMCD STANDARD DETAIL S1. EXACT LOCATION AND ELEVATION TO BE CONFIRMED IN FIELD.
- ⑮ INSTALL  
1 - 1200 W X 1200 W X 300 F TEE  
1 - 300 FXH GATE VALVE
- ⑯ INSTALL  
1 - 300 H X 300 H X 150 F TEE  
1 - FIRE HYDRANT AS PER MMCD STANDARD DETAIL W4
- ⑰ INSTALL BLOW DOWN CHAMBER. REFER TO C302 FOR DETAILS.
- ⑱ 300Ø PVC DRAIN TO DAYLIGHT. CONFIRM EXACT LOCATION IN FIELD WITH ENGINEER.
- ⑲ EMERGENCY CONNECTION POINT  
INSTALL  
1 - 1200 X 1200 X 500 WELDED TEE.  
1 - 500 BLIND FLANGE
- ⑳ MAKE CONNECTION TO EXISTING 300Ø AC WATERMAIN AS FOLLOWS:  
1 - 300 H X 300 F X 300 F  
1 - 300 FXF GATE VALVE  
1 - 300 FXH GATE VALVE  
1 - 300 ROBAR COUPLING
- ㉑ 30° HORIZONTAL BEND
- ㉒ CAP AND ABANDON 300 AC
- ㉓ SUPPLY AND INSTALL ULTRASONIC FLOWMETER. WIRE POWER AND SIGNAL CABLE BACK TO JHWQC BUILDING. TERMINATE POWER TO UPS CIRCUIT. TERMINATE 4-20mA INSTANT FLOW SIGNAL TO AVAILABLE PLC INPUT.
- ㉔ 100mm Ø PVC DRAIN LINE AT MINIMUM 1.0%. ASSUME 2.5m COVER OVER ENTIRE LENGTH; EXCEPT PROFILE TO BE CONFIRMED IN FIELD.

**GENERAL NOTES**

- 1. RESTORE CROSSWALK, ASPHALT AND PAINTLINES FOLLOWING PIPE INSTALLATION. FOR ASPHALT PAVEMENT STRUCTURE REFER TO C301 FOR DETAILS. CONTRACTOR TO COORDINATE ALL WORK WITH ASPHALT CONTRACTOR. ALL GRAVEL PLACEMENT AND PREPARATION BY CONTRACTOR. ASPHALT PAVING/ MILLING BY ASPHALT CONTRACTOR.
- 2. TOP OF PIPE ELEVATION INFORMATION OBTAINED ON 2016.09.09 BY HIGHLAND ENGINEERING AND SURVEYING



**3 BLOWDOWN CONNECTION PROFILE**  
SCALE: 1:500



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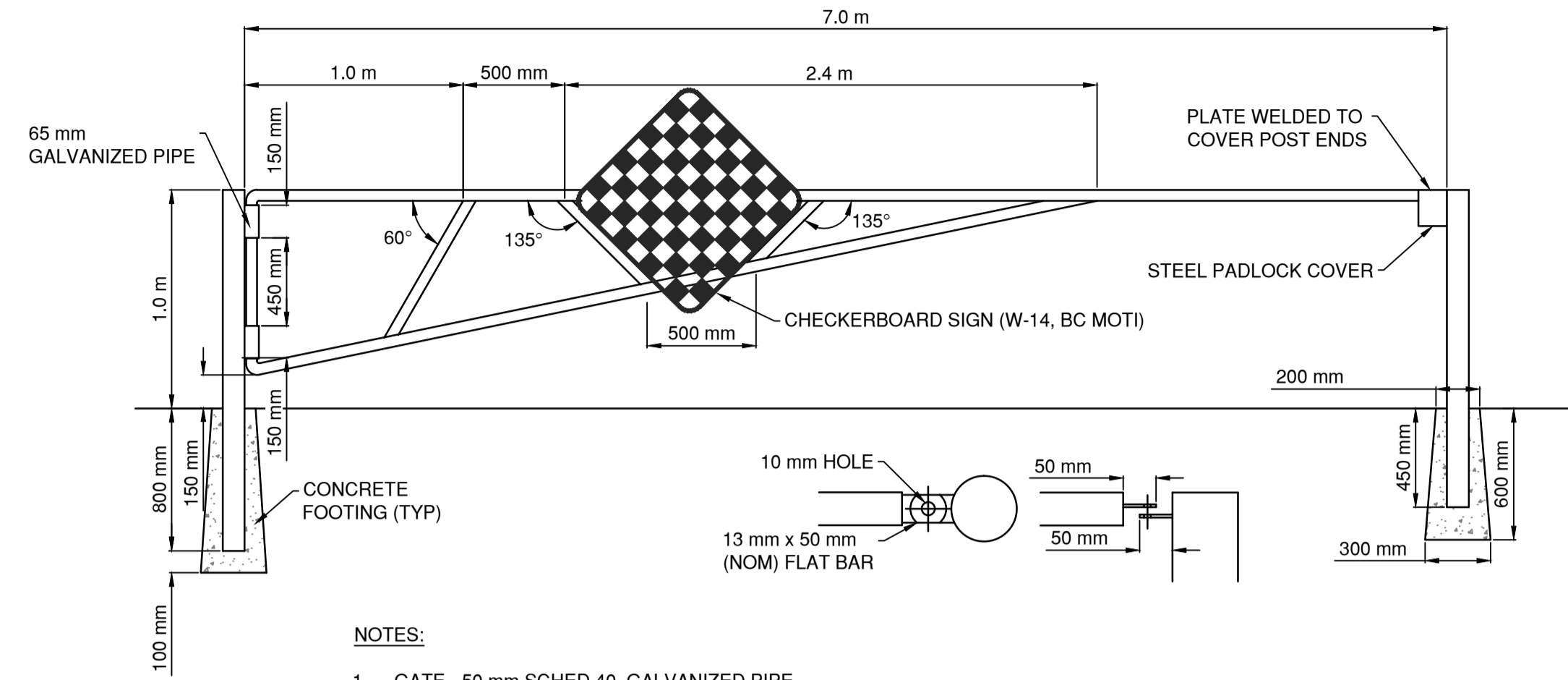
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2	ADDENDUM 5	AG	16/10/07		
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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- C202
JOHN HART WATER QUALITY CENTRE WATERMAIN TIE-IN DETAILS	PROJECT: 112311316
	REV. 2

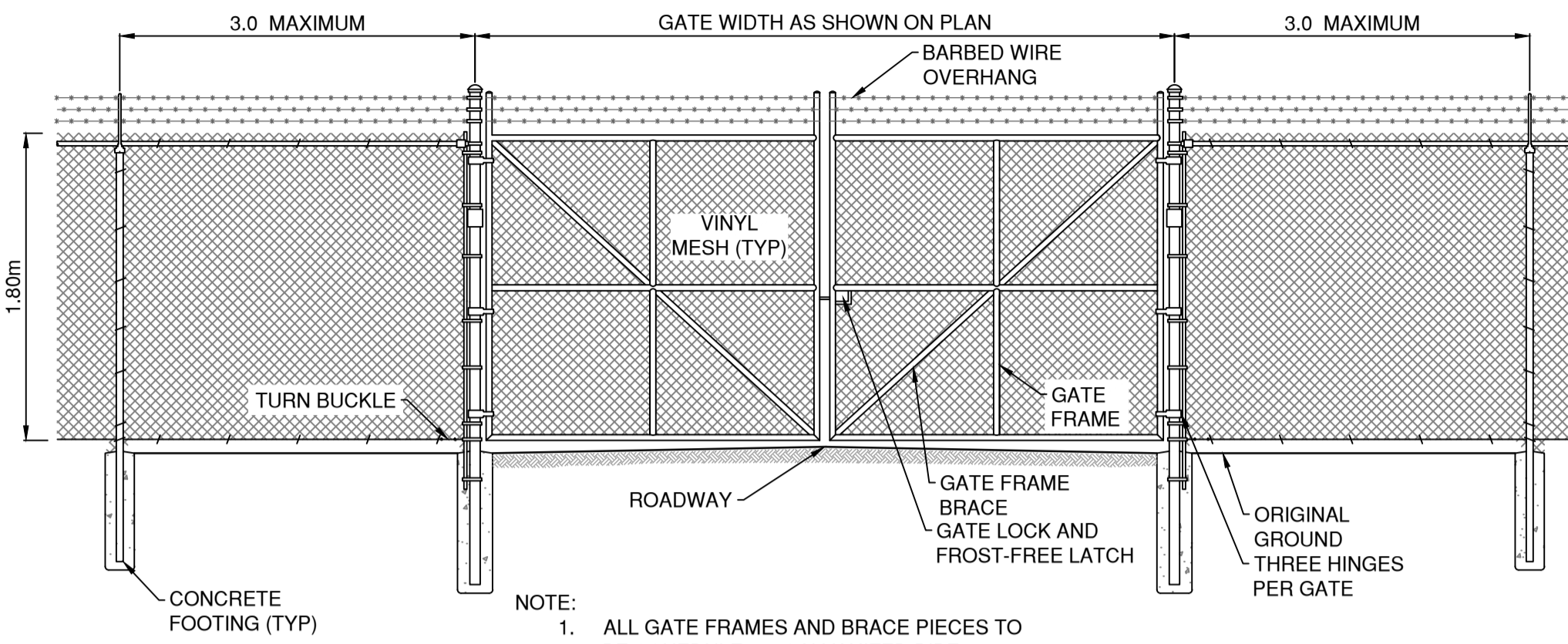
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**NOTES:**

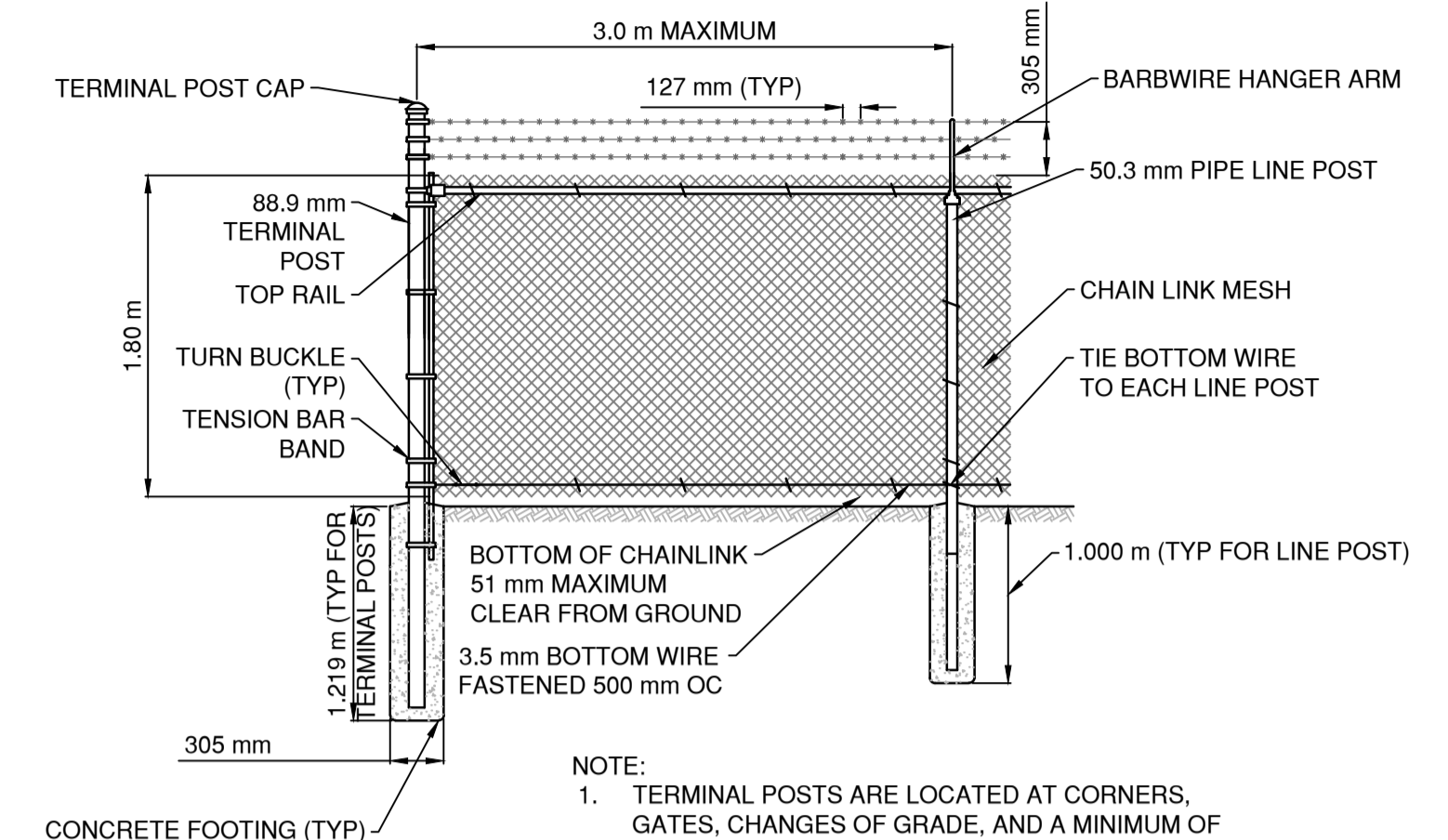
- GATE - 50 mm SCHED 40 GALVANIZED PIPE
- POSTS - 100 mm SCHED 40 GALVANIZED PIPE
- WELDS TO BE TREATED WITH GALVACON OR EQUIVALENT
- GATE TO SWING 180° MINIMUM

**1 ACCESS BARRIER GATE DETAIL**  
SCALE: NTS



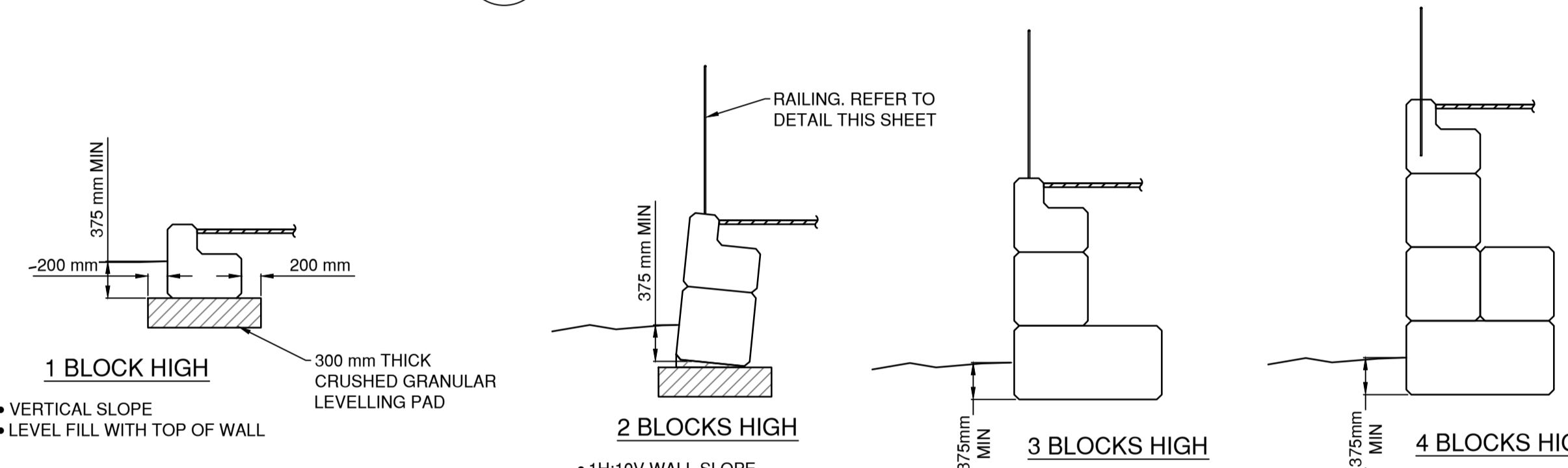
- NOTE:**
- ALL GATE FRAMES AND BRACE PIECES TO BE SCHEDULE 40 GALVANIZED PIPE.
  - GATE LOCK TO BE FITTED WITH STEEL BARREL SHROUD

**2 SECURITY GATE DETAIL**  
SCALE: NTS



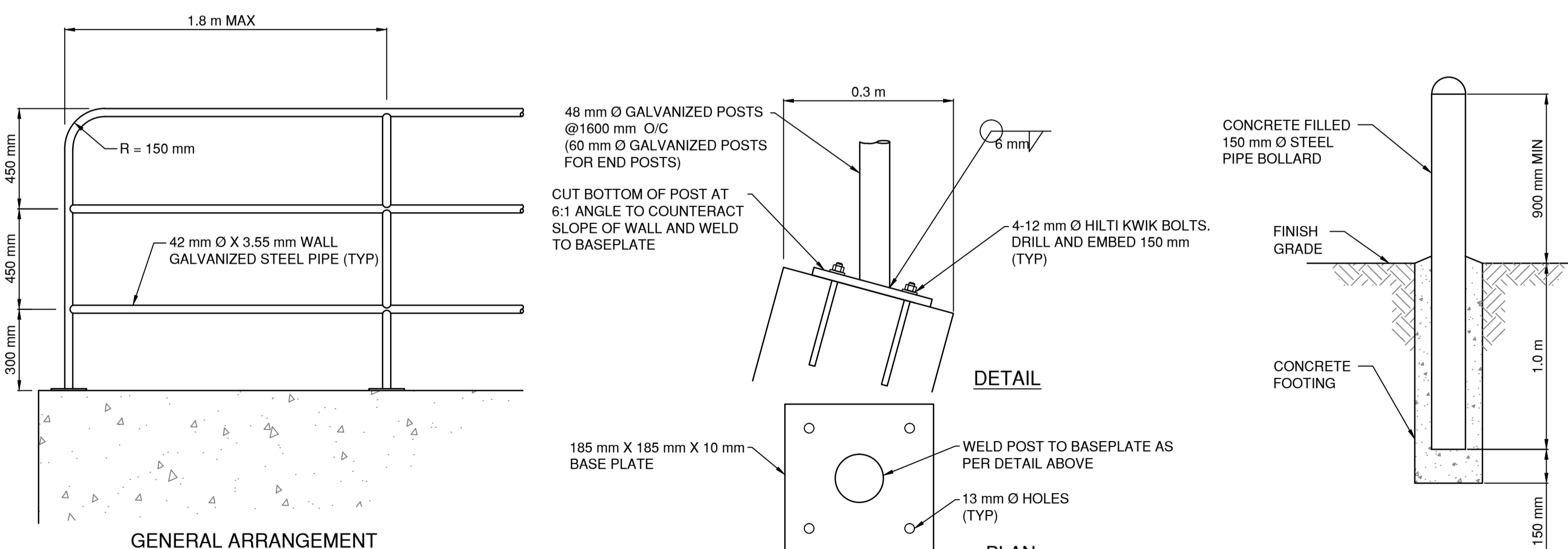
- NOTE:**
- TERMINAL POSTS ARE LOCATED AT CORNERS, GATES, CHANGES OF GRADE, AND A MINIMUM OF EVERY 90.000 m ON STRAIGHT LEVEL SECTIONS.

**3 CHAINLINK FENCE PANEL DETAIL**  
SCALE: NTS

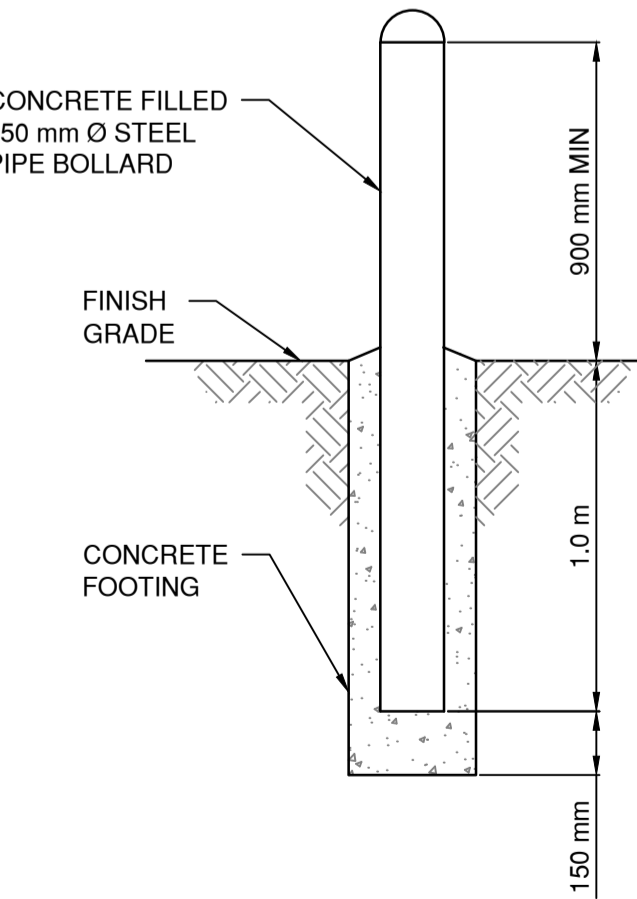


- CONCRETE BLOCK SPECIFICATIONS**
- DIMENSIONS: 750 mm X 750 mm X 1500 mm
  - FACE: 1.125 sq.m
  - MIN RADIUS FOR VERTICAL CURVES: 23 m
  - LIFTING LOOP MIN BREAKING STRENGTH: 15,900 kg
  - CONCRETE STRENGTH: MIN 20 MPa AFTER 28 DAYS (VERIFIED)
- 1 BLOCK HIGH**
- VERTICAL SLOPE
  - LEVEL FILL WITH TOP OF WALL
- 2 BLOCKS HIGH**
- 1H:10V WALL SLOPE
  - LEVEL FILL WITH TOP OF WALL
  - 1.2 m HIGH RAILING
- 3 BLOCKS HIGH**
- VERTICAL SLOPE
  - LEVEL FILL WITH TOP OF WALL
  - 1.2 m HIGH RAILING
  - LOWEST COURSE OF BLOCKS IS TURNED PERPENDICULAR TO THE WALL FACE
- 4 BLOCKS HIGH**
- VERTICAL SLOPE
  - LEVEL FILL WITH TOP OF WALL
  - 1.2 m HIGH RAILING
  - LOWEST COURSE OF BLOCKS IS TURNED PERPENDICULAR TO THE WALL FACE
  - ADDITIONAL BLOCK REQUIRED ON TOP OF THE IN TURNED ROW

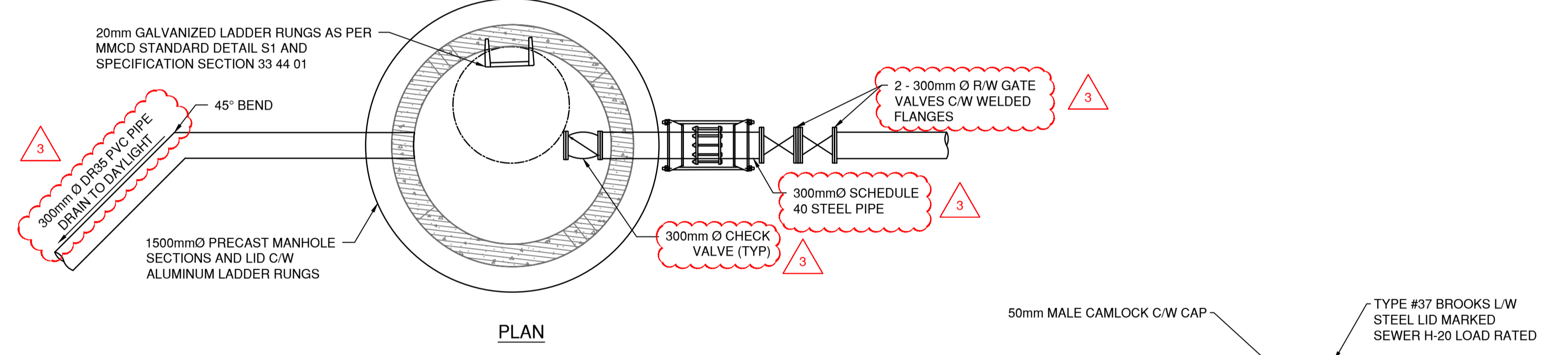
**4 LOCK BLOCK WALL INSTALLATION DETAILS**  
SCALE: NTS



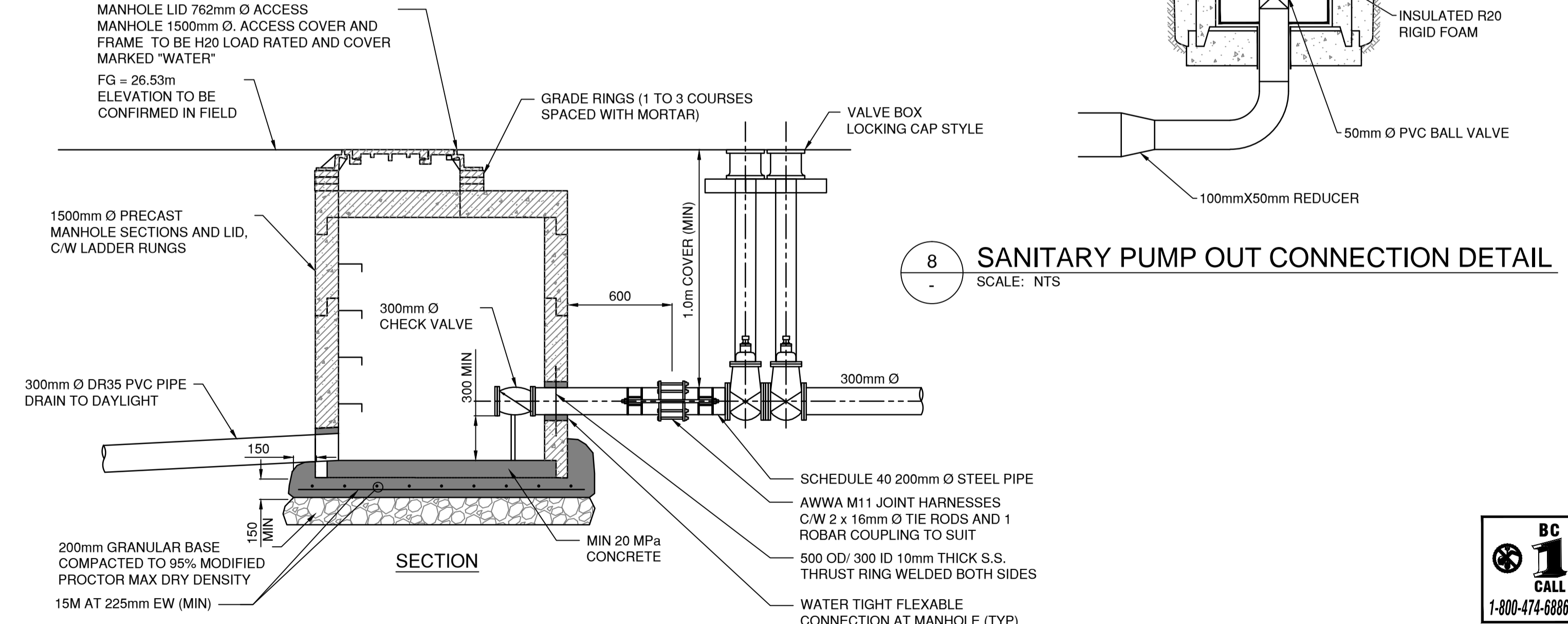
**5 BLOCK WALL FENCE AND BASE PLATE DETAIL**  
SCALE: NTS



**6 BOLLARD DETAIL**  
SCALE: NTS



**7 DAYLIGHT DRAINING BLOW DOWN CHAMBER DETAIL**  
SCALE: NTS



**8 SANITARY PUMP OUT CONNECTION DETAIL**  
SCALE: NTS

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2	ADDENDUM 3	AC	16/09/30		
1	ISSUED FOR TENDER	AG	16/09/02		

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AG	16/10/07
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AG	16/10/07

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TITLE:	DRAWING NO.
PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	15-508- C302
PROJECT:	REV.
112311316	3
CIVIL DETAILS	

MANHOLE LID 762mm Ø ACCESS. ACCESS COVER AND FRAME TO BE H20 LOAD RATED AND COVER MARKED "WATER"

VALMATIC COMBINATION AIR VALVE (DUAL BODY) C/W AIR/VACUUM VALVE MODEL NO. 106S AND AIR RELEASE VALVE MODEL 38.5 (WORKING PRESSURE OF 200 PSI)

MANHOLE TO MMCD STANDARD DETAIL S1

500mm MIN (TYP)

50mm TEE WITH BALL VALVE

FLANGE SUPPORT

REFER TO TABLE FOR MANHOLE SIZE

100mm Ø PVC DRAIN PIPE

ENDRESS + HAUSER PROLINE PROSONIC FLOW 91W TRANSMITTER

ENDRESS + HAUSER PROLINE PROSONIC FLOW 91W REFER TO TABLE FOR DISTANCE BETWEEN SENSORS

REFER TO TABLE FOR PIPE SIZE

AWWA M11 JOINT HARNESSES C/W 2 x 16mm Ø TIE RODS AND 1 ROBAR COUPLING TO SUIT

	PIPE SIZE	MANHOLE SIZE	DISTANCE BETWEEN SENSORS	RIM ELEVATION	
FLOW METER CHAMBER 1	300mm	1800Ø	379.53mm	26.95m	INVERTS AS PER PLAN
FLOW METER CHAMBER 2	500mm	2400Ø	532.09mm	26.78m	
FLOW METER CHAMBER 3	760mm	2400Ø	730.64mm	26.51m	

1 FLOW METER CHAMBER DETAIL  
SCALE: NTS



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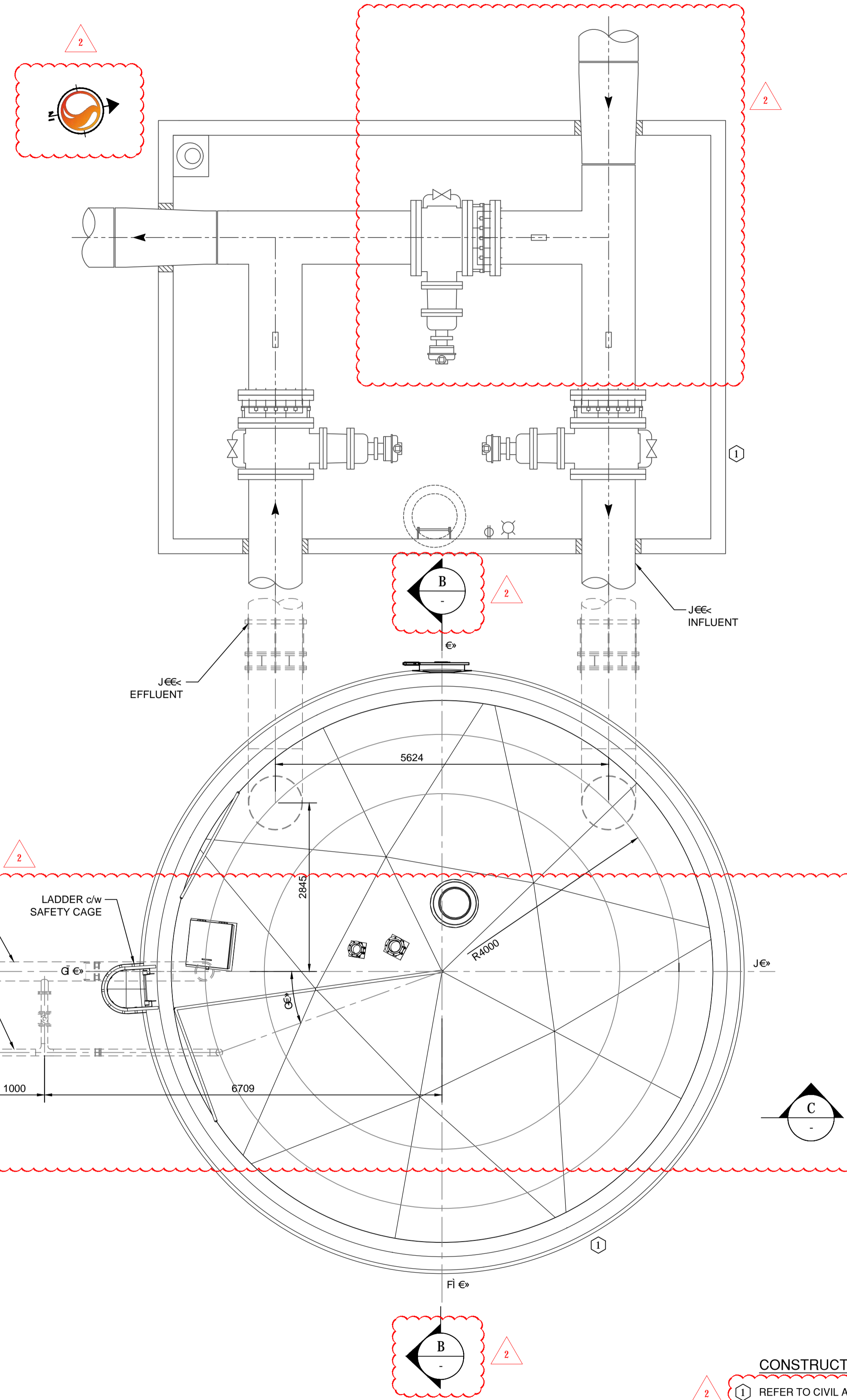
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TITLE:	PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2
DRAWING NO.	15-508- C304
PROJECT:	112311316
REV.	2

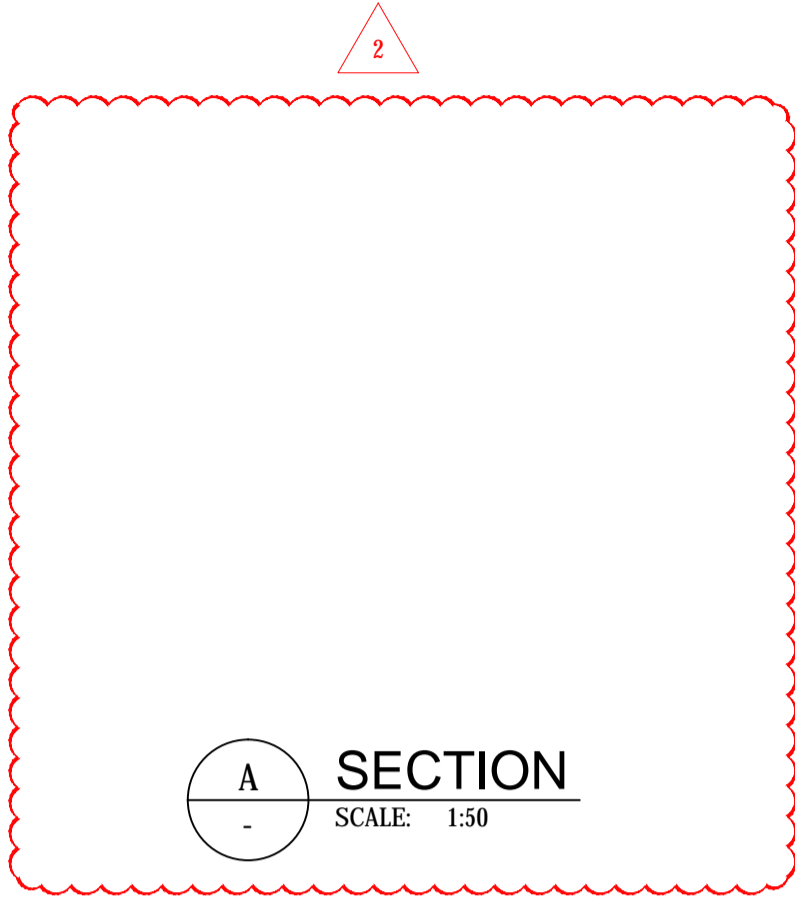
CIVIL DETAILS
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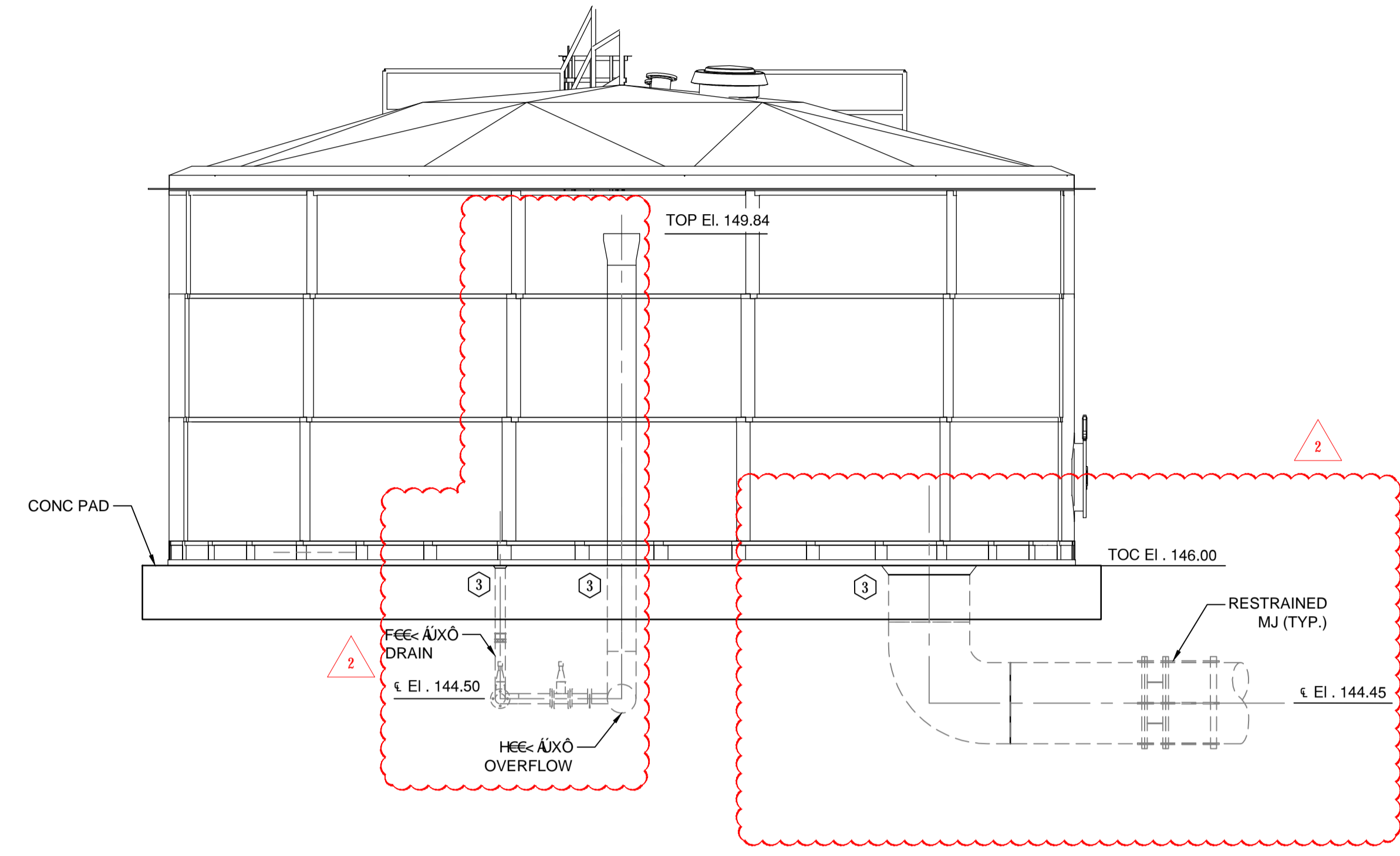
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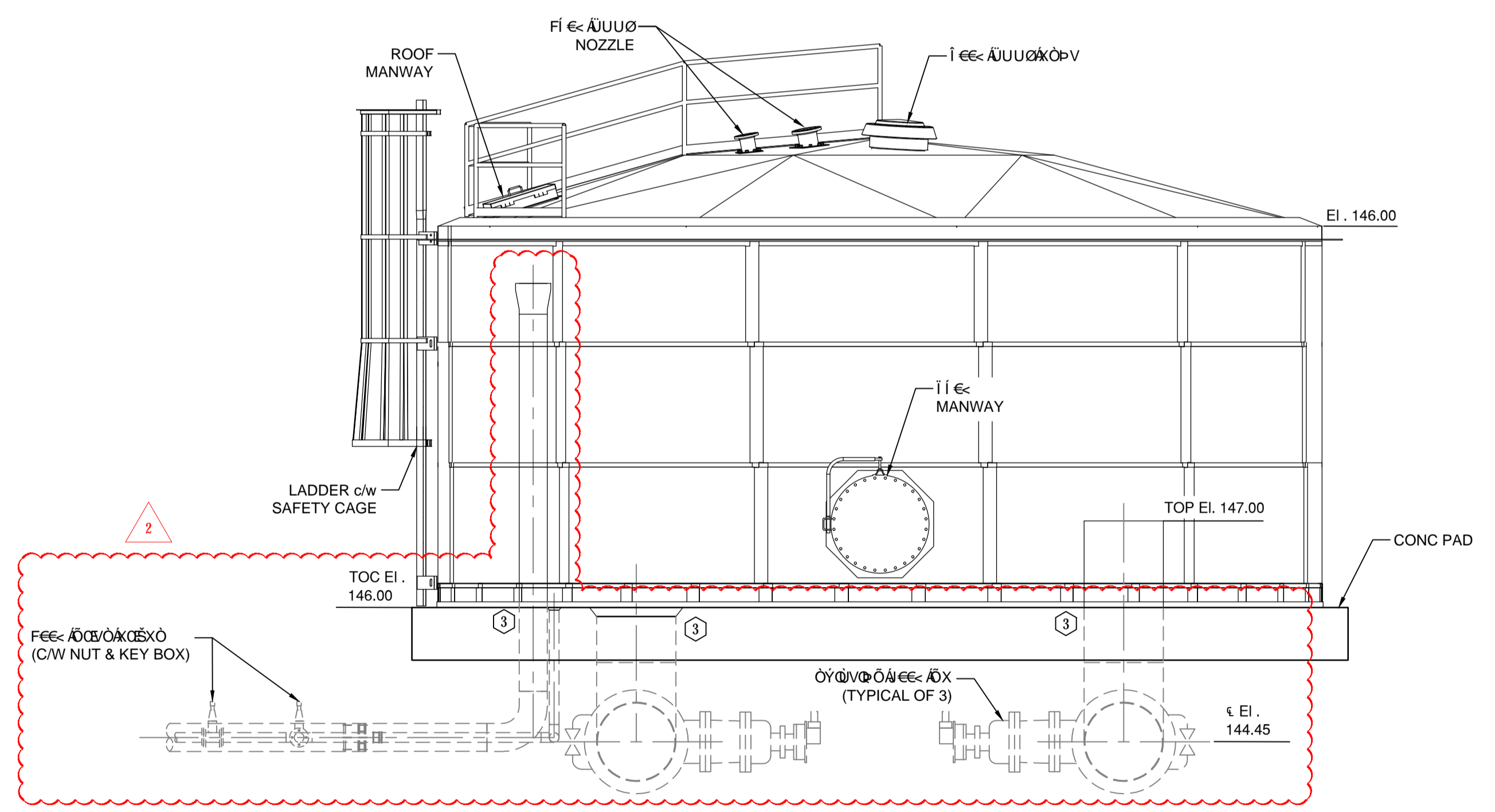
**1 SURGE PREVENTION TANK - PLAN**  
SCALE: 1:50



**A SECTION**  
SCALE: 1:50



**B SECTION**  
SCALE: 1:50



**C SECTION**  
SCALE: 1:50

- CONSTRUCTION NOTES:**
- ① REFER TO CIVIL AND STRUCTURAL DRAWINGS FOR VALVE CHAMBER DETAILS.
  - ② WATER STORAGE TANK BY STT ENVIRO CORP., 10.20m x 4.5m (SWD).
  - ③ PENETRATIONS THROUGH SLAB TO BE WATERTIGHT AND COORDINATED WITH TANK SUPPLIER.



INFORMATION SHOWN ON THIS DRAWING IS COMPILED FROM NUMEROUS SOURCES AND MAY NOT BE COMPLETE OR ACCURATE. THE CITY OF CAMPBELL RIVER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING.

**NOT FOR CONSTRUCTION**

NO.	REVISION/ISSUE	APP'D BY	DATE	CONST'D BY	DATE
2	ADDENDUM 5	BP	16/10/07		
1	ADDENDUM 3	BP	16/09/30		
1					

DESIGNED: BP	SCALE: 1:50
DRAWN: BZ	DATE: 16/10/07
CHECKED: BP	DATE: 16/10/07
APPROVED: BP	DATE: 16/10/07

400-655 Ysee Road  
Victoria, BC V9A 6X5  
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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2 SURGE PREVENTION TANK	DRAWING NO. 15-508- P109 PROJECT: 112311316 REV. 2
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DRAWING PATH: \\CD1208-F04\workgroup\112311316\112311316\4\_drawings\current\pump\_station\process\112311316\_P109.dwg Tab P109 Oct 07 2016 12:50:58pm



**APPENDIX A**  
**NOVATION AGREEMENT**

BETWEEN: CITY OF CAMPBELL RIVER (CITY)

AND: (CONTRACTOR)

AND: (SUPPLIER)

WHEREAS:

- A. City entered into a Contract with the Supplier dated [ \_\_\_\_\_ ], for the Vertical Turbine Pumps (Supply Contract), which is annexed hereto as Appendix "B";
- B. It is a requirement of the Supply Contract that the Supplier enter into a Novation Agreement with the General Contractor (hereby referred to as "the Contractor") selected by the City for the Construction Contract;
- C. City entered into a contract with Contractor dated [ \_\_\_\_\_ ], for [ \_\_\_\_\_ ] (Construction Contract);
- D. It is a requirement of the Construction Contract that the Contractor enter into a Novation Agreement with Supplier so that Supplier becomes a subcontractor to the Contractor;

NOW THEREFORE in consideration of the premises and of the mutual agreements hereinafter contained the parties agree as follows;

- 1. The Contractor and Supplier agree to be bound by the terms of the Supply Contract, annexed hereto as Appendix "B", with the Contractor assuming all the rights and obligations of the City as set out therein.
- 2. Supplier retains all the rights and obligations set out in the Supply Contract and henceforth accepts the Contractor in place of the City.

3. Supplier agrees that henceforth it is a subcontractor to the Contractor in respect of the Construction Contract.
4. Supplier hereby releases the City from all of the City's obligations under the Supply Contract and from all claims of every nature whatsoever arising therefrom, excepting only those claims, if any, already notified to the City in writing, and acknowledges that it will henceforth look only to the Contractor for the discharge of the City's obligations thereunder and that only the Contractor may exercise the rights of the City thereunder.
5. Henceforth, the terms and conditions of the Construction Contract insofar as they can apply to a subcontract shall govern the relations between the Contractor and the Supplier; provided nevertheless, that if any term of the Construction Contract is inconsistent with any payment provision or Special Condition or Special Provision in the Supply Contract such payment provision, Special Condition or Special Provision of the Supply Contract shall prevail.
6. The City and Supplier agree that the Supply Contract between them has been terminated.
7. The Contractor shall accept the pipe in a continuous basis once the shipment begins.
8. It is agreed that as of the date hereof [**\$ \_\_\_\_\_**] is owing to the Supplier under the Supply Contract.

**CITY OF CAMPBELL RIVER  
REQUEST FOR TENDER 16-20  
WATER TREATMENT BUILDING  
NOVATION AGREEMENT**

IN WITNESS WHEREOF the parties hereto have executed this Agreement as follows:

**CITY OF CAMPBELL RIVER** by its authorized signatory on \_\_\_\_\_ day of , 2016:

SIGNED on behalf of the City by:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

**CONTRACTOR** by its authorized signatory on \_\_\_\_\_ day of , 2016:

SIGNED on behalf of the Contractor by:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

**SUPPLIER** by its authorized signatory on \_\_\_\_\_ day of , 2016:

SIGNED on behalf of the Supply Contractor by:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_