Date: May 19, 2026

Submit To: Islands Trust
200-1627 Fort Street
Victoria, BC, V8R 1H8
information@islandstrust.bc.ca

Attn: Brad Smith

Prepared By: MSR Solutions Inc.

Subject: 3334 Port Washington Road – Industrial Wastewater/Stormwater Management Plan

1. Introduction

A rezoning application has been submitted for the property at 3334 Port Washington Road, on Pender Island, BC. The legal description of the property is Lot 7, Plan, VIP6294, Section 18&22, Cowichan Land District, Portion Pender Island, with the PID: 005-837-693. The file number for the rezoning application is: PLRZ20240110. The North Pender Island Local Trust Committee had received a preliminary report and passed a resolution to proceed with the application on November 29, 2024. With the issuance of a Terms of Reference it is required that an Industrial Wastewater/Stormwater Management Plan is submitted, as the intent of the landowner is to construct a new shop on the property among current uses.

2. Background

MSR Solutions Inc. (MSR) has been retained to develop an Industrial Wastewater/Stormwater Management Plan for the rezoning application. The property is currently zoned as rural "R" for rural uses and is seeking to rezone to a Light Industrial Zone (GI) which allows for the property to used as a contractor yard, storage, handling of goods and vehicles, and one accessory dwelling.

It is requested in a letter from Islands Trust, regarding the "Terms of Reference for Rezoning Application PLRZ20240110 (Bigham) - 3334 Port Washington Road, North Pender Island (PID 005-837-693)" and dated December 18, 2024, that an Industrial Wastewater/Stormwater Management Plan addresses requirements to minimize impacts on the environment and adjacent properties. The stormwater management plan will be based on the site conditions and proposed industrial uses for:

a. The safe storage and disposal of all industrial wastewater produced on the site.
b. Effective management of all stormwater.
c. Compliance monitoring and reporting.

Applicable bylaws include the North Pender Land Use Bylaw No. 224 (2022) and North Pender Island Official Community Plan Bylaw No. 171 (2007). Section 8.14 in the Land Use Bylaw No. 224 outlines drainage standards, with the OCP Bylaw No. 171 suggesting a preference for porous or permeable surfaces while minimizing impervious surfaces, with swales and open ditches rather than curb and gutter systems.

Stormwater works and onsite drainage requirements must be capable of conveying the peak rate of runoff from a 10-year storm for the entire drainage basin, per Land Use Bylaw No. 224. Additionally, a stormwater management design references the BC Building Code (BC Ministry of Housing, 2024), and the Climate Projections for the Capital Region (CRD, 2024) for climate change considerations.

3. Site Conditions

MSR conducted a site visit on June 24, 2025, to assess the proposed works and investigate the site properties. The lot currently consists of aggregate storage, modular storage shelters, and some work vehicle parking, all in a gravel area. The site has an overall south-facing slope at an approximated 30% average grade, with a level area along Port Washington Road used for the current site activity. Natural drainage on site travels towards the south and is collected and conveyed by a roadside ditch along Port Washington Road sloping slightly towards the west. Beyond the current site uses (refer to Figures 1 and 2), the property is primarily forested and has one water well located approximately midway up the hill. Drainage swales exist along the east and west property lines which channels runoff from the subject property and neighboring sites to the roadside ditch along Port Washington Road.

Figure 1: Site Photo Looking Northeast

Figure 2: Site Photo Looking North

A new shop and an office are proposed, which will be the contributing factors to stormwater runoff, with the introduction of impermeable area on site. Machine and vehicle washing activities will be offsite, so no industrial wastewater will be produced and introduced into the stormwater conveyance system. Aggregates stored on site

are primarily rock and sand products, which will not introduce silts or industrial waste. Topsoil stored on site with the potential for sediment runoff downstream will remain covered.

The currently developed area of the lot is a gravel space and shall remain as such aligning with the General Commercial Policies, Section 2.4.10 of the OCP Bylaw No. 171, favouring porous and permeable surfaces for parking areas and minimizing the impervious surfaces on site. Should this area be paved at any time, it is noted that Section 5(e) in the OCP Bylaw No. 171 requires that paved areas shall include oil/water separator(s).

4. Industrial Wastewater

There are no industrial activities proposed for the current site that will produce industrial wastewater. Staff washrooms located in the proposed building will discharge to an onsite sewage treatment system registered under the Sewerage System Regulation in accordance to best practices outlined in the Sewerage System Standard Practice Manual.

5. Effective Management of Stormwater

The proposed onsite stormwater management system will collect stormwater from roof leaders and discharge to a catch basin for overflow and equalization into a form of stormwater storage. The storage allows for the attenuation of stormwater during peak events with gradual infiltration overtime. The catch basin and storage mechanism will be equipped with a restricting outlet and overflow, discharging to the south end of the property.

5.1. Design Criteria

Post-development flows must be equal to pre-development flows for developments. Stormwater storage offers infiltration and stormwater attenuation to displace the increased stormwater runoff generated by impermeable areas. The release rate of the attenuation storage will be controlled to no more than the equivalent pre-development flow rate.

A local Intensity-Duration-Frequency (IDF) curve for the site was generated to determine a locally relevant amount of rainfall and attenuation storage required. Ungauged location IDFs are determined by IDF_CC Web-based Tool for Updating Intensity-Duration-Frequency Curves to Changing Climate – ver 8.0 (Simonovic et. Al., 2015). The design storm considered is a 15-minute storm duration at a 10-year return period, with a time of concentration of 10 minutes. This design storm meets the requirements in Appendix C of the BC Building Code and the North Pender Land Use Bylaw No. 224 stormwater management requirements.

5.2. Climate Change Considerations

Based on the Climate Projections for the Capital Region (2024), the annual average increase in precipitation is expected to rise by 15% by the 2050's and 25% by the 2080's. The largest seasonal increase is expected in the winter at 25% by the 2050's and 34% by the 2080's. Comparable to the anticipated design life of storm and wastewater infrastructure, a 50-year forecast is applied based on the largest projected increase being in the winter, adding a factor of 34% to the intensity of post-development design flows.

5.3. Hydrology Analysis Method

The design 15-minute, 10-year storm per the IDF curve is 31.5 mm/hr, and when considering climate change, indicates an intensity of 42.3 mm/hr. Applying the rational equation, the pre- and post- development design flows are calculated.

$$Q = \frac{CIA}{360} \quad \text{(Equation 1)}$$

Where 'Q' is the discharge of watershed (m^3/s), 'C' is the surface water runoff coefficient (unitless), 'I' is the rainfall intensity (mm/hr) according to the IDF curve and with respect to the time of concentration 'Tc', and 'A' is the tributary area (ha).

The runoff coefficient is derived by the weighted average of the sub-coefficients and their respective areas as provided in Tables 1 and 2. A pre-development coefficient of 0.5 is selected for gravel roads and parking areas, which is a conservative equivalent to light industrial areas. In addition to a runoff coefficient of 0.5 being representative of light industrial areas, it strikes a balance between coefficients used in standard engineering practice for asphalt or brick paved surfaces which are less permeable, and heavier soils which are more permeable. Runoff coefficients are determined by InfoSWMM (2021), the industry-leading software program used to model complex stormwater networks, and Engineering Hydrology Principles and Practices (Ponce, 2014) which cites peer reviewed reference material from the Design and Construction of Sanitary and Storm Sewers, ASCE Manual of Engineering Practice No. 37, 1960.

A post-development coefficient of 0.9 is used as a typical design value for impermeable areas, obtained from the same resources.

The runoff coefficients are therefore considered appropriate for design purposes and consistent with standard engineering practice, to represent conditions over the design storm in both dry and wet seasons. The design storm criteria are based on a 10-year return period event representing a statistically independent occurrence, with no requirements within the governing regulations to account for consecutive storm events or varying antecedent moisture conditions beyond this basis.

5.3.1. Pre-Development & Post Development Flows

Pre-development and post-development flows are calculated based on the estimated surface area of the proposed shop and office. Pre-development flows were calculated based on a storm intensity of 31.5 mm/hr, and the area and coefficients seen in Table 1.

Table 1: Pre-Development Runoff Coefficients

Surface	Area (m^2)	Runoff Coefficient
Shop	149	0.50
Office	9	0.50
Total	**158**	**0.50**

Applying Equation 1, the resulting pre-development flow equates to 0.69 L/s. Post-development flows were calculated based on a storm intensity of 42.3 mm/hr, and the area and coefficients seen in Table 2.

Table 2: Post-Development Runoff Coefficients

Surface	Area (m^2)	Runoff Coefficient
Shop	149	0.90
Office	9	0.90
Total	**158**	**0.9**

Applying Equation 1, the resulting design flow equates to 1.67 L/s.

5.3.2. Attenuation Storage Requirements

The attenuation storage requirements are determined by the difference in pre- and post-development flows over the duration of the storm, shown by Equation 2.

$$Q_{storage} = Q_{post} - Q_{pre} = 0.98\ L/s \quad \text{(Equation 2)}$$

Multiplying $Q_{storage}$ by a 15-minute storm duration, the attenuation volume is 0.88 m^3.

5.4. BC Building Code Method

For stormwater retention sizing the BC Building Code, Appendix C – Climatic and Seismic Information for Building Design in Canada, can be used. The BC Building Code calculation uses the 15-minute design rainfall depth provided in Table C-2 for Climatic Design Data for Selected Locations in British Columbia, multiplied across the impervious area of the development.

A rainfall depth of 8 mm listed for the Victoria region is used, which, across 158 m^2 of impermeable area only (Table 2), requires 1.3 m^3 of storage.

6. Surface Water Quality Management

The gravel surface of the existing contractor yard has an estimated runoff coefficient of 0.5 as described in Section 5.3, suggesting that half of all rainwater that falls on the surface will infiltrate, while the remaining half has the potential to travel overland. Machinery used in the yard has the potential to release small drips of oil or other sources of hydrocarbons, which, if not captured, have the potential to travel over land and downstream through existing water courses. To mitigate any potential environmental impacts, two approaches are proposed – surface water capture and treatment through an Oil Interceptor (OI), and a comprehensive spill response plan.

6.1. Surface Water Capture and Treatment

A schematic sketch of the proposed surface water capture and treatment strategy can be seen in the drawings provided in Appendix A. The existing gravel yard will be graded to direct and capture overland flow through catch

basins positioned at low points. The catch basins will serve to capture sediment as surface water flows through and is discharged into a PVC stormwater collection pipe. The collection pipe will convey flows received from each of the catch basins into and OI. The OI is sized based on providing 0.25 m^2 of surface area for every 1 L/s 6-month storm design flow, in keeping with practices common to municipalities such as Saanich and Langford.

The proposed OI is a Langley Precast Type II Interceptor, installed with an upstream catch basin and overflow piping. As illustrated on the site plan in Appendix A, the Type II Interceptor satisfies the site conditions and design storm. The overflow will only be used in high-flow scenarios, where the design storm is exceeded. High-flow conditions will initially utilize the interceptor like a "first flush" concept, where the highest concentrations of sediments and contaminants are initially mobilized by a storm event and will be treated. High flows that develop as the time of concentration is realized will have significantly reduced contaminant concentrations. An overflow also mitigates risk against the re-suspension of captured contaminants with turbulent high flow conditions, hydraulic overloading of the interceptor, and surcharging and backing up of the system which could occur without an overflow installed.

6.2. Comprehensive Spill Response Plan

In the event of an oil spill, a Spill Response Plan, outlined in Appendix B, will be followed.

7. Gravel Basin Design and Construction Considerations

The greater of the attenuation volumes calculated by the Hydrology Analysis method and the BC Building Code is used for the stormwater storage design. The storage requirement is therefore 1.3 m^3.

A gravel detention basin is proposed to provide the site storage as gravel basins are simple, low maintenance, and flexible in depth and footprint allowing to best suit the site constraints. Stormwater is stored in the void spaces between the gravel, therefore, a void ratio of 40% is used for a pea gravel or drain rock.

The minimum required gravel volume of is approximately 3.3 m^3. Limiting the excavation and gravel basin depth to 0.9 m below grade and keeping a cover soil layer of 0.3 m, the footprint of the gravel basin is proposed at 2.3 m long and 2.3 m wide.

A standard 600 mm diameter concrete lawn basin with a depth of 1.2 m is proposed to collect the stormwater from the inlet leaders, equalizing with the gravel basin, and containing a restricting outlet and overflow. An allowable release rate equal to pre-development flows (Section 5.3.1.) requires a control orifice installed on the catch basin outlet. The orifice shall be 25 mm (1") in diameter to release a pre-development flow rate of 0.69 L/s. A 100 mm overflow and discharge pipe will convey the stormwater to the discharge point on the south side of the property and into the roadside ditch.

Actual underlying soil conditions at the point of discharge are unknown, so storage is provided assuming that no infiltration takes place. Realistically, some stormwater will infiltrate into the soils across the base area of the gravel basin. Using a baseline infiltration rate of 2 mm/hr suggested by the City of Victoria Professional Rainwater Management Standards (June 2015) as a conservative general value, it is expected that up to 0.26 m^3 may infiltrate away each day while the chambers are flooded.

Preliminary plan and detail drawings of the proposed system can also be seen on the design drawings in Appendix A.

8. Monitoring and Reporting

There are no monitoring or reporting requirements defined for the proposed stormwater management system.

For a new building under the BC Building Code, a Schedule B is required for the Assurance of Professional Design and Commitment for Field Review, and governs areas of plumbing such as roof drainage systems, and maintenance manuals for plumbing systems. A Schedule C-B after project completion Confirms the Registered Professional of Record fulfilled their obligations under Schedule B, including the issuance of a maintenance manual.

An O&M manual will therefore be issued by MSR in accordance with the BC Building Code, conditional to rezoning approvals the installation of the stormwater system as proposed. The O&M manual will address, but is not limited to the inspection frequency, sediment and hydrocarbon removal, clean-out triggers, record keeping, and responsibility for maintenance.

Any future onsite sewage system will have a separate operations and maintenance procedure defined following design of the system.

9. Conclusion

A rezoning application has been submitted for 3334 Port Washington Road, on Pender Island, BC, which is requiring an industrial stormwater management plan to address changing surface conditions on site. A site investigation and calculations in accordance with the BC Building Code and Islands Trust regulations prove that an on-site stormwater attenuation system is feasible. A gravel basin storage system offers an attenuation volume of 1.3 m^3, meeting the minimum storage volumes required by the hydrology analysis method and the BC Building Code.

The proposed stormwater infrastructure will accommodate stormwater generated by the proposed additional impermeable area on site. A 25 mm diameter orifice allows for a discharge flow equal to pre-development conditions through a 100 mm discharge system. Infiltration occurring through the footprint of the gravel basin offers an additional contingency factor to the storage volume.

Surface water flows are proposed to be captured through a series of catch basins, located at low points throughout the gravel yard. Flows captured in the basins will direct water through a Langley Precast Type II Interceptor equipped with an overflow, capturing hydrocarbons and any remaining silt and debris before the stormwater is discharged to ditch located on the west side of the property. Any oil spills that occur onsite will be managed by following a comprehensive Spill Response Plan.

Overall, the proposed stormwater management system provides effective management of all stormwater captured by impermeable and permeable surfaces surfaces on site. The proposed approach minimizes impacts on the environment and adjacent property and limits design storm flows to pre-development levels.

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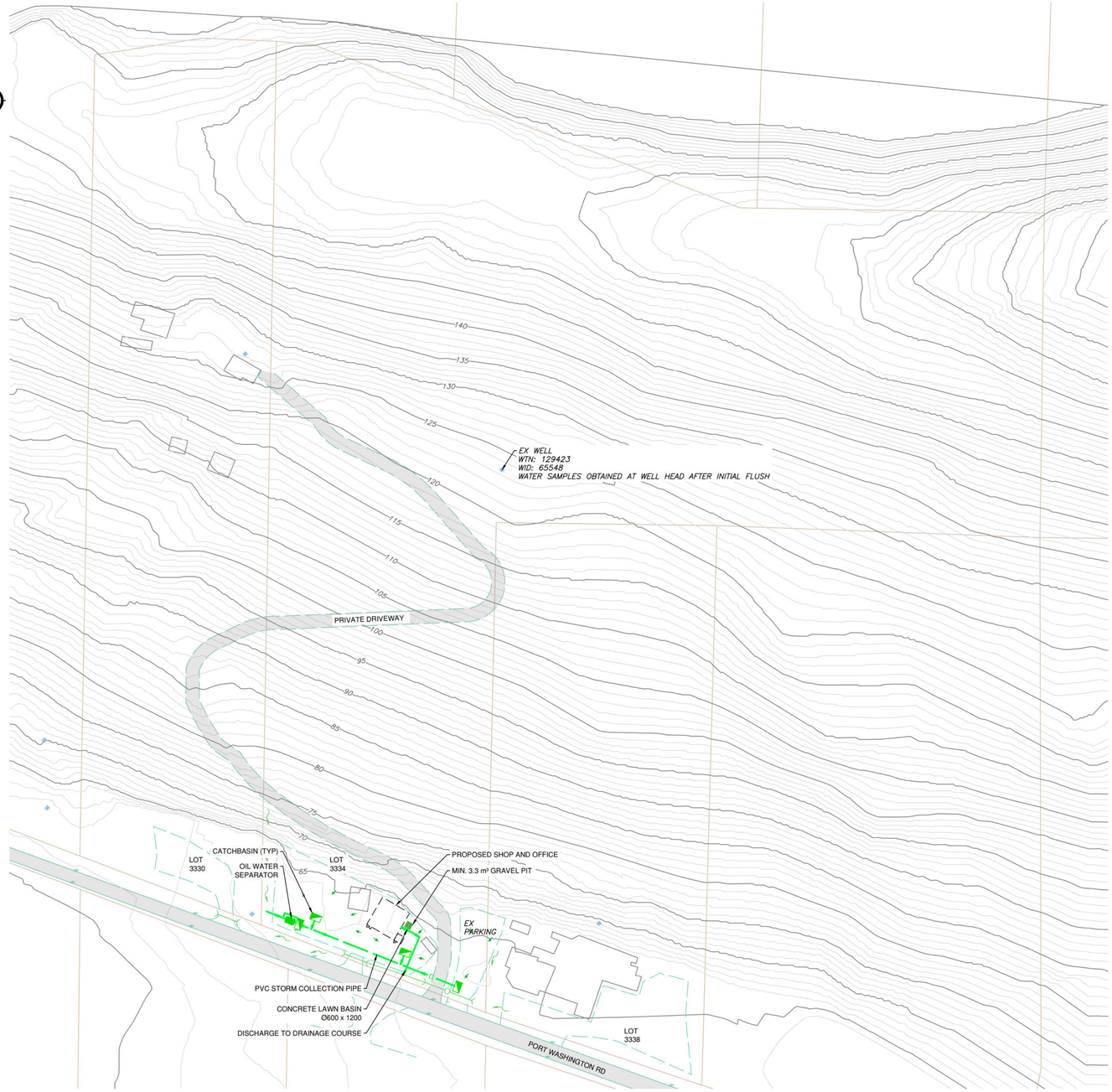
Appendix A: Preliminary Drawings



SITE PLAN
SCALE: 1:1000

LOCATION PLAN
SCALE: 1:10000

GENERAL NOTES

1. WORK TO BE COMPLETED DURING DRY WEATHER ONLY.
2. ALL WORKS TO BE COMPLETED AS PER CURRENT STANDARDS AND LATEST EDITION OF THE BC BUILDING CODE.
3. ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE LATEST REVISION OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), AND THE BC BUILDING CODE 2024, UNLESS OTHERWISE NOTED.
4. IF A CONFLICT BETWEEN THE SPECIFICATIONS ARISES, THE MOST STRINGENT SPECIFICATION SHALL APPLY.
5. ANY CONFLICTS BETWEEN THESE DRAWINGS AND SITE CONDITIONS TO BE REPORTED TO ENGINEER PRIOR TO CONSTRUCTION.
6. CONFIRM LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTACT BC1 CALL FOR UNDERGROUND UTILITY LOCATIONS.
7. LOCATE STORMWATER COLLECTION AND CONVEYANCE WORKS ACCORDINGLY WITH SITE GRADING TO CAPTURE SURFACE RUNOFF.
8. CONTRACTOR TO ENSURE ALL PERMITS AND APPROVALS ARE ACQUIRED PRIOR TO CONSTRUCTION.
9. CONTRACTOR NOT TO COMMENCE BACKFILL OPERATION UNTIL THE EXCAVATION AND WORKS HAVE BEEN APPROVED BY THE ENGINEER.
10. CONTRACTOR TO OBTAIN PERMIT FROM CRD PRIOR TO DEPOSIT OR REMOVAL OF SOILS ON THIS SITE.
11. EQUIPMENT TO BE IN ACCORDANCE WITH THE MANUFACTURER'S LITERATURE ON BACKFILL AND COMPACTION.
12. ALL PIPE BEDDING AND BACKFILL AS PER MMCD SPECIFICATIONS.
13. EXCAVATE TO LINES AND LEVELS NECESSARY TO COMPLETE THE WORKS. MINIMUM SIDE SLOPES OF EXCAVATIONS SHALL NOT EXCEED 1:1 IN SOIL AND 1:0.25 IN ROCK, UNLESS NOTED OTHERWISE BY GEOTECHNICAL CONSULTANT.
14. BACKFILL TO GRADES INDICATED IN LAYERS NOT TO EXCEED 300mm. ALL BACKFILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTEXT.
15. IF ARCHEOLOGICAL MATERIAL IS ENCOUNTERED, STOP ALL EXCAVATION AND CONSULT A QUALIFIED ARCHEOLOGIST PRIOR TO THE CONTINUATION OF WORKS.

DESIGN NOTES

16. LENGTH, WIDTH, AND DEPTH OF GRAVEL PIT TO BE CONFIRMED ON SITE. FIELD FIT AS REQUIRED, MAINTAIN A MINIMUM CUBIC VOLUME OF 3.3 m³ AND MINIMUM 0.3 m OF COVER SOIL OVER THE GRAVEL.
17. MAINTAIN A MINIMUM OF 0.3 m NATIVE SOIL FROM BOTTOM OF GRAVEL PIT TO BEDROCK.
18. DIRECT STORMWATER RESTRICTING OUTLET AND OVERFLOW DISCHARGE TO DRAINAGE COURSE.
19. LOCATE STORM WATER WORKS OUTSIDE OF DRIVEWAY AND PROTECT FROM VEHICULAR TRAFFIC.
20. YARD SITE TO BE GRADED TO COLLECT SURFACE WATER TO COMMON CATCH BASINS. ADDITIONAL BASINS TO BE ADDED AS REQUIRED. STORM COLLECTION PIPE TO CONVEY FLOW TO OIL INTERCEPTOR.
21. OIL INTERCEPTOR SIZED BASED ON ESTIMATED YARD AREA. NO UPSTREAM CATCH BASIN AND OVERFLOW PIPING REQUIRED IF USING LANGLEY PRECAST 3152 OIL INTERCEPTOR. UPSTREAM LANGLEY 600X1200 C478 CATCH BASIN AND OVERFLOW PIPING REQUIRED IF USING LANGLEY PRECAST TYPE II INTERCEPTOR.

EROSION AND SEDIMENT CONTROL

22. TO PROTECT THE SOIL, WATER, AND VEGETATIVE RESOURCES OF THE DEVELOPMENT, ONLY THOSE AREAS NECESSARY TO CONSTRUCT THE WORKS AND SERVICES CONTAINED IN THE ENGINEERING DRAWINGS ARE TO BE DISTURBED.
23. PRIOR TO AND DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR CONTROLLING EROSION AND SEDIMENT TRANSFER BY UTILIZING SUCH MEASURES AS CONSTRUCTION OF INTERCEPTOR DITCHES, SILT FENCES, HAY BALE STRUCTURES, SEDIMENT CONTROL PONDS, SEDIMENT TRAPS, STAGED GRAVEL FILTERS, OR OTHER METHODS HE MAY DEEM NECESSARY TO PREVENT DISCHARGE OF SEDIMENT TO WATERCOURSES.
24. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
25. PRIOR TO SUBSTANTIAL COMPLETION THE CONTRACTOR SHALL PREPARE AND REVIEW WITH THE OWNER A PLAN WHEREBY THE OWNER WILL UPON FINAL COMPLETION ASSUME RESPONSIBILITY FOR ONGOING EROSION AND SEDIMENT CONTROL MEASURES ON THIS SITE.

1:1000 0 20 60m

1:10,000 0 200 600m

ISSUED FOR APPROVAL
MAY 2026

ISLANDS TRUST

BC 1C
CALL BEFORE YOU DIG!
1-800-474-6886
THE CONTRACTOR IS TO CALL BC ONE CALL AND HAVE EXISTING U/G SERVICES STAKED PRIOR TO ANY CONSTRUCTION

REV.	DESCRIPTION	DATE	DRAWN	CHECKED	APPR
	ISSUED				
3	ISSUED FOR APPROVAL	2026.05.19.	LN	JA	MS
2	PRELIMINARY	2026.03.05.	TM	JA	MS
1	PRELIMINARY	2025.07.22.	AM	LN	MS

MSR SOLUTIONS INC.
INNOVATIVE ENGINEERING SOLUTIONS
125 - 662 GOLDSTREAM AVENUE, LANGFORD
B.C. V9B 0N8
OFFICE: (250) 479 - 5164
admin@msrsolutions.ca
PERMIT TO PRACTICE #1001876

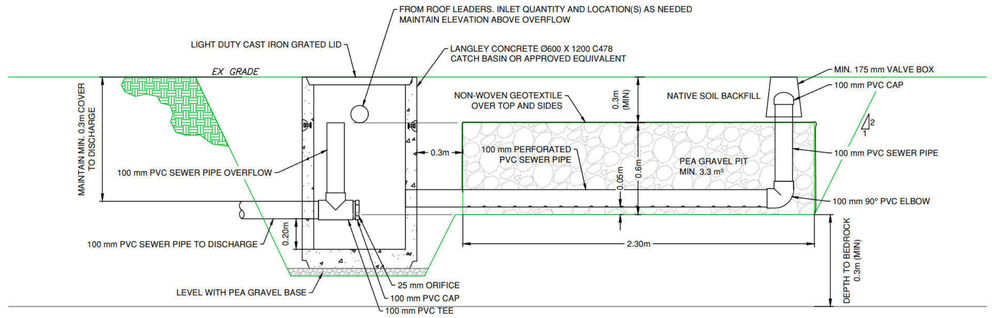
STAMP

SCALE:	AS SHOWN
DESIGN:	JA
DRAWN:	TM
CHECKED:	JA
APPROVED:	MS

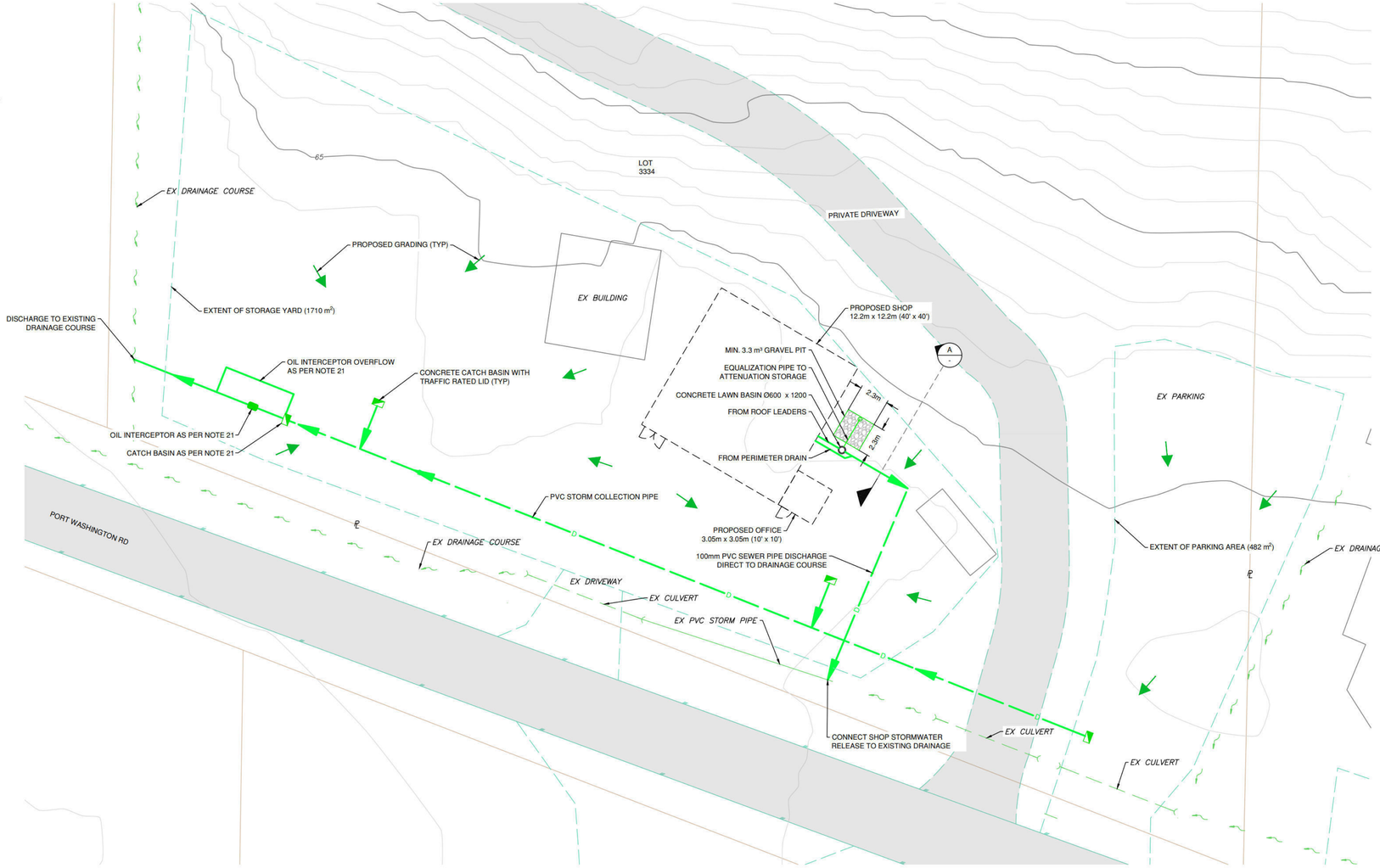
CLIENT
BIG DIG'EM EXCAVATING LTD

PROJECT
3334 PORT WASHINGTON RD
SITE PLAN

PROJECT NO.	SHEET NO.	DRAWING NO.	REVISION NO.
25-970	1 OF 2	C01	3



A
-
STORMWATER STORAGE
SCALE: 1:20



SITE PLAN
SCALE: 1:200

1:20 0 0.4 1.2m
1:200 0 4 12m

ISSUED FOR APPROVAL
MAY 2026

ISLANDS TRUST

BC 1C
CALL BEFORE YOU DIG!
1-800-474-6886
THE CONTRACTOR IS TO CALL BC ONE CALL AND HAVE EXISTING U/G SERVICES STAKED PRIOR TO ANY CONSTRUCTION

REV.	DESCRIPTION	DATE	DRAWN	CHECKED	APPR
	ISSUED				
3	ISSUED FOR APPROVAL	2026.05.19.	LN	JA	MS
2	PRELIMINARY	2026.03.05.	TM	JA	MS
1	PRELIMINARY	2025.07.22.	AM	LN	MS

MSR SOLUTIONS INC.
INNOVATIVE ENGINEERING SOLUTIONS
125 - 662 GOLDSTREAM AVENUE, LANGFORD
B.C. V9B 0N8
OFFICE: (250) 479 - 5164
admin@msrsolutions.ca
PERMIT TO PRACTICE #1001876

STAMP

SCALE:	AS SHOWN
DESIGN:	JA
DRAWN:	TM
CHECKED:	JA
APPROVED:	MS

CLIENT
BIG DIG'EM EXCAVATING LTD

PROJECT
3334 PORT WASHINGTON RD
STORMWATER SITE PLAN
AND DETAILS

PROJECT NO.	SHEET NO.	DRAWING NO.	REVISION NO.
25-970	2 OF 2	C02	3

Appendix B: Spill Response Plan

Emergency Response to Spills

Procedures for Initial Actions

TABLE 1 INITIAL ACTIONS PROCEDURE

Sequence	Action
1.	Ensure safety of all personnel.
2.	Evaluate hazards and risks.
3.	Notify all on-site contractors and bystanders of spill
4.	Remove all sources of ignition.
5.	Internal and external notification process.
6.	Stop the spill if safely possible. Use the contents of the spill kit to aid in stopping the spill if safe to do so.
7.	Contain the spill – use contents of spill kits to place sorbent materials on the spill and refer to typical containment methods below.
8.	Notify all required parties of the spill event and report the spill if the spill volume is above reportable amount.
9.	Take appropriate action to dispose of materials used to contain spill.
10.	Contact appropriate personnel for site remediation procedure.
11.	Post-Incident evaluation procedure.

Procedures for Containing and Controlling a Spill

The following provide key procedures to containing and controlling a spill.

- Identify and address the appropriate incident level;
- Initiate spill containment by first determining what will be affected by the spill;
- Assess speed and direction of spill and cause of movement (water, wind and slope);
- Remove all sources of ignition;
- Determine best location for containing spill, avoiding any water bodies;
- Have a contingency plan ready in case spill worsens beyond control or if the weather or topography impedes containment.

TABLE 2 CONTAINMENT METHODS

Spill Location	Containment Method
On Land Spill	**Dykes** – Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spill. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of spill that may reach it. A plastic tarp can be placed on and at the base such that the spilled material can pool up and subsequently be removed with sorbent material or by pump into barrels or bags. If the spill is migrating very slowly a dyke may not be necessary and sorbents can be used to soak up materials before they migrate away from the source of the spill. **Trenches** – Trenches can be dug out to contain spills as long as the top layer of soil is thawed. Shovels can be used to dig the trench.
Spill Entering Sanitary, Storm Drain or Ditch	**Dykes** – Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spill. A dyke can be created around the inflow location of a sanitary, storm drain or ditch. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of spill that may reach it. A plastic tarp can be placed on and at the base

Spill Location	Containment Method
	such that the spilled material can pool up and subsequently be removed with sorbent material or by pump into barrels or bags. If the spill is migrating very slowly a dyke may not be necessary and sorbents can be used to soak up materials before they migrate away from the source of the spill.

Procedures for Transferring, Storing, and Managing Spill Related Wastes

In most cases, spill cleanups are initiated at the far end of the spill and contained moving toward the centre of the spill. Sorbent socks and pads are generally used for small spill cleanup. Hand tools such as cans, shovels, and rakes are also very effective for small spills or hard to reach areas. Heavy equipment can be used if deemed necessary and given space and time constraints.

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located in the transportation vehicle. Following clean up, any tools or equipment used will be properly washed and decontaminated or replaced if this is not possible.

The following table lists the required disposal methods for contaminated material and contact information for external resources to be used for the transportation and disposal of spilled contaminants and debris.

TABLE 1 DISPOSAL METHODS

Material	Disposal Method
Contaminated Soils *Inorganic*	Disposed directly at an authorized receiver of hazardous waste
Contaminated Soils *Flammable Hydrocarbons*	Disposed directly at an authorized receiver of hazardous waste
Contaminated Soils *Non Flammable Hydrocarbons*	Disposed directly at an authorized receiver of hazardous waste

Procedures for Restoring Affected Areas

Once a spill of reportable size has been contained, with the governing authority or lead agency inspector assigned to the file to determine the level of cleanup required. The inspector may require a site specific study to ensure appropriate cleanup levels are met. Criteria that may be considered include natural biodegradation of substances, replacement of soil and vegetation among other aspects.

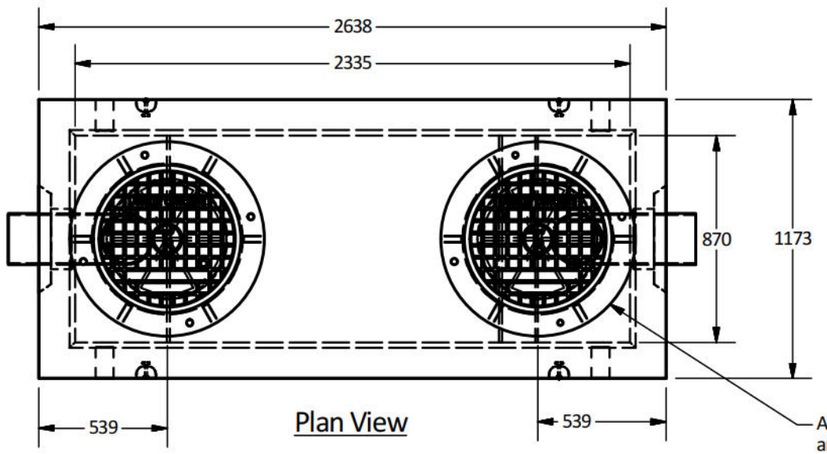
Post-Incident Evaluation

Once appropriate measures have been taken to address the spill event, engage in a post-incident evaluation. This process is in-place to identify from the spill response operation the weakness or strengths of the contingency plan and to make appropriate corrections to the plan. This process is done through verbal as well as written communication between the parties involved. The process and form will be filed for future reference and contingency plan adaptation. Refer to Appendix D for the written incident report form.

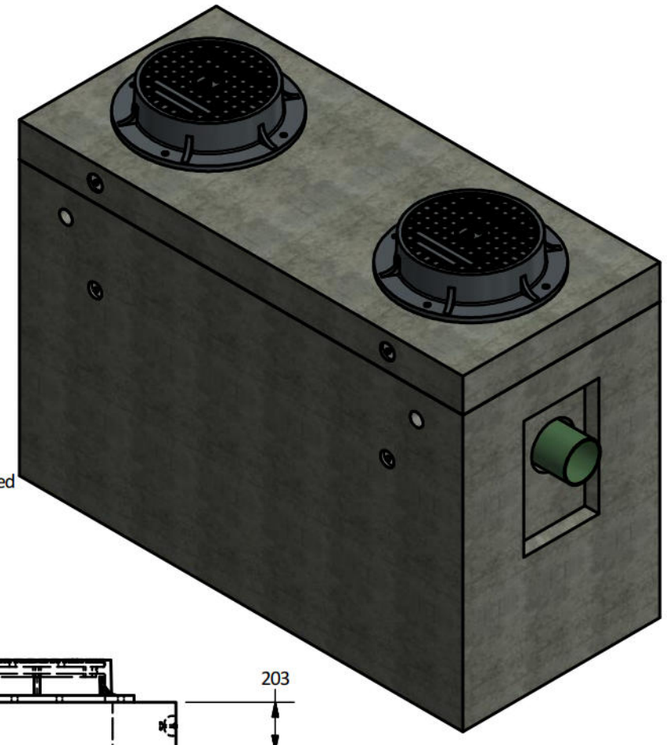
Appendix C: Precast Equipment

PART LIST			
ITEM	QTY	PART NUMBER	WEIGHT
1	1	Type II Vault	4,520 kg.
2	1	Type II Lid	1,450 kg.

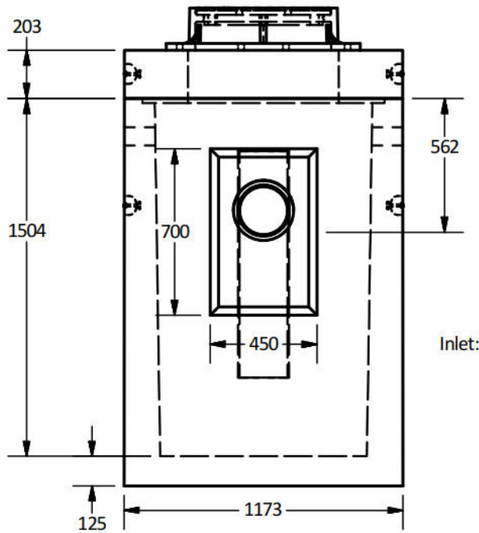
Notes:
1. Type II Oil interceptor manufactured to meet AASHTO HS20/BCL-625 live loading.
2. Lid designed to withstand AASHTO HS20 / BCL-625 live loading.
3. Concrete vault designed for the following earth covers:
   - Minimum: 0 m.
   - Maximum: 2.5 m.
4. Unit supplied with 700mm x 450mm square knockout for inlet/outlet as shown.
5. Unit supplied with lifting inserts as required.
6. Lid supplied with opening for access as required.
7. Unit supplied w/ 4-Ø76 mm vent holes as shown.
8. Oil interceptor c/w 12mm gauge galvanized baffles as shown.
9. Unit has a maximum 2,000 liter [2.0 m³] capacity.
10. Unit risers available in heights:
    305, 450 etc to 1500mm maximum.
11. Design can be modified for specific sites, please contact LCG sales office.
12. Minimum rebar yield strength: 414 MPa.
13. Minimum concrete strength: 35 MPa.
14. PVC T required by design, supplied and installed by others in field.
15. All dimensions are in millimeters.



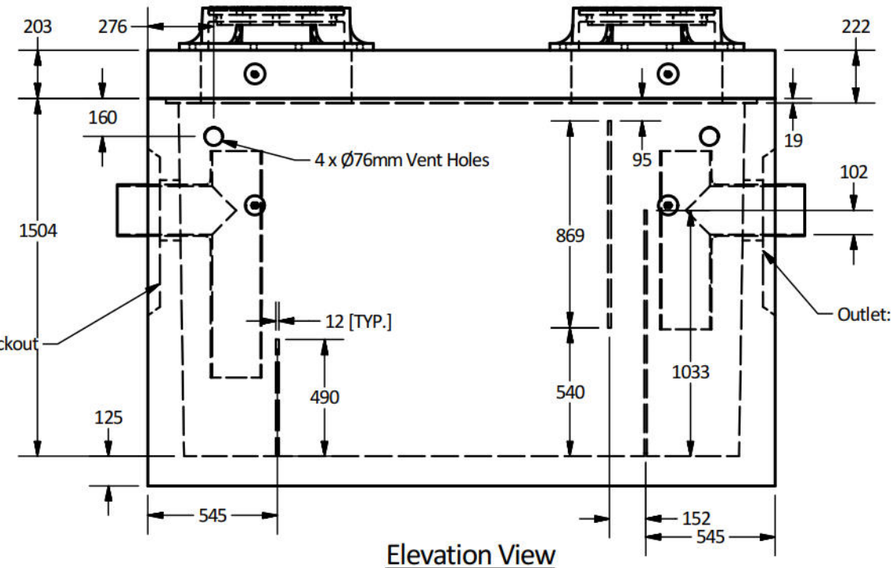
Plan View



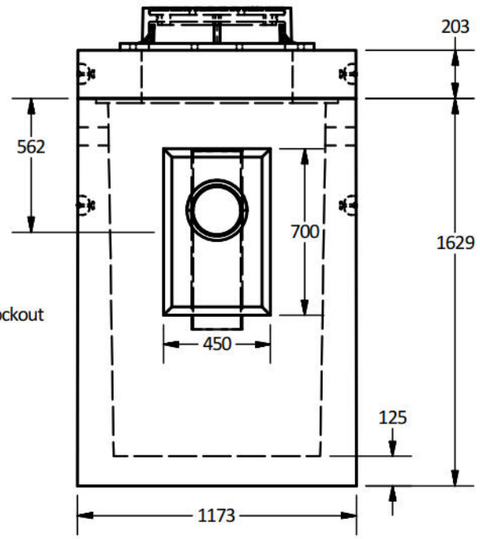
Isometric View



East View



Elevation View



West View

Langley Concrete Group is a certified Q-Cast Plant, an American Concrete Pipe Association Third Party Certificationfor the manufacture of Pipe, Manhole, Box Culvert & Precast Items.

ACPA CERTIFIED PLANT Q CAST

Quality Assurance of products manufactured by The Langley Concrete Group has been verified by the following third party certification programs

CSA® CWB

All Dimensions are in Millimeters.
Unless otherwise Stated

Projection Method:
THIRD ANGLE

THE Langley CONCRETE GROUP
www.langleyconcretegroup.com

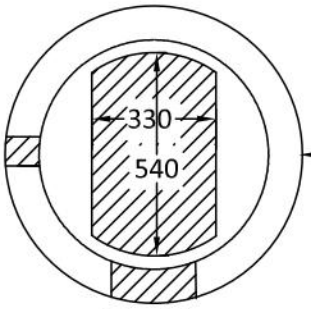
LANGLEY (604) 533-1656
VICTORIA (250) 478-9581
CHILLIWACK 1-800 667-9600

This drawing is the property of the Langley Concrete Group of Companies. All information contained herein is confidential and may not be used in whole or in part without written permission from the owner

DESCRIPTION:

Type II Oil Interceptor [API Style]

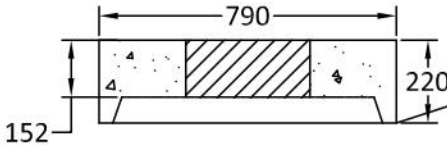
DRAWN BY: SR	JOB NO.
CHK BY: KS	DWG NO: TYPE II-API
DATE: Aug.14, 2018	
SCALE: 1:25	
SIZE: 11 x 17 / REV.	SHEET 1 OF 1



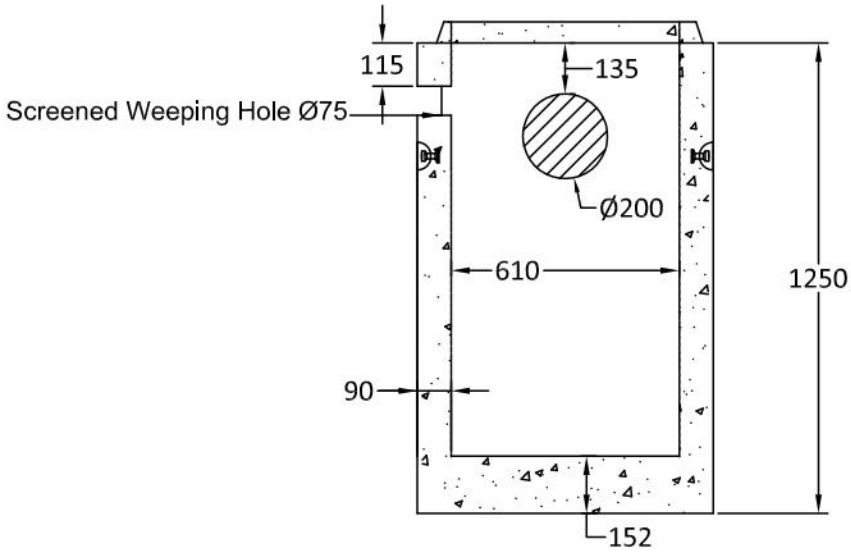
Standard curb lid to fit TR23/24

Catchbasin will accept TR26B frame & grate
No lid necessary with TR26B

Plan View



HS-20 highway loading lid, to accept TR 23/24
Effective height: 150mm
Lid weight: 123 KG



Elevation View

Notes:
1. Catchbasins manufactured to ASTM C478 standards.
2. Ø200mm Knock Out core for Outlet Pipe supplied as shown.
3. Ø75mm Galv. Screened Weep Hole provided as shown.
4. 150mm thick base cast in bottom as shown.
5. Adjustable hood on 23/24 frame shown for reference only.
6. Trapping hood recommended for outlet pipe, pins available on request.
7. Minimum concrete strength: 30 MPa.
8. Approx weight of Catchbasin: 580kgs.
9. All dimensions are in millimeters.

Quality Assurance of products manufactured by The Langley Concrete Group has been verified by the following third party certification programs:

The Langley Concrete Group
The LANGLEY CONCRETE Group of Companies
www.langleyconcretegroup.com

LANGLEY (604) 533-1656 VICTORIA (250) 478-9581 CHILLIWACK 1-800 667-9600

DESCRIPTION:

Ø600x1200
C478 Catch Basin

DRAWN BY: JAO	JOB NO.: N/A
CHK BY:	DWG NO: CB-1
DATE: May 3, 2010	REV. BY: CC Aug. 15, 2018
SCALE: 1:20	

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LCG Products are held to the governing ASTM, and CSA specification & tolerances.