

GEOTECHNICAL ASSESSMENT

Extension Community Park: Sport Court Area

2120 Ryder Street
Extension, BC, V9X 1G3

Legal Address:

Lot 1-7, Block 1, Section 12, Range 2,
Cranberry District, Plan 716

Prepared For:

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File No.: E4757.01
Revision No.: 00
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Permit to Practice Number: 1001802



DISCLAIMER, ACKNOWLEDGMENTS, AND LIMITATIONS

1. Lewkowich Engineering Associates Ltd. (LEA) acknowledges that this Report, from this point forward referred to as “the Report,” may be used by the Regional District of Nanaimo (RDN) as a precondition to the issuance of a development and/or building permit. Notwithstanding any other statement in this Report, this Report may be relied upon by the RDN in considering a development permit application under the Local Government Act and/or in considering a building permit application under Section 56 of the Community Charter. It is acknowledged that this Report and any conditions contained in the Report may be included in a restrictive covenant and registered against the title of the property at the discretion of the RDN.
2. This Report has been prepared in accordance with standard geotechnical engineering practice solely for and at the expense of the RDN.
3. The conclusions and recommendations submitted in this Report are based upon the data obtained from a limited number of widely spaced subsurface explorations. Subgrade conditions are known only at the exploration locations and have been used to infer conditions throughout the site in preparation of this Report. The nature and extent of variations between these explorations may not become evident until construction or further investigation.
4. The conclusions and recommendations submitted in this Report are based upon information from relevant publications, a visual site assessment of the Property, encountered and inferred subsurface conditions, current construction techniques, and generally accepted engineering practices. No other warrantee, expressed or implied, is made. If unanticipated conditions become known during construction or other information pertinent to the development becomes available, the recommendations may be altered or modified in writing by the undersigned.
5. This Report was authored, to the best of our knowledge at the time of issuance, with considerations for local requirements specific to the Authority Having Jurisdiction (AHJ) and their standards for the preparation of such Reports, the 2024 British Columbia Building Code (BCBC), and current engineering standards. Updates to bylaws, policies, or requirements of the AHJ, and updates to the BCBC or professional practice guidelines, may impact on the validity of this Report.
6. This Report has been prepared by Knut Lokken, EIT, GIT, and reviewed by Chris Hudec, M.A.Sc., P.Eng. Mr. Lokken and Mr. Hudec are both adequately experienced and are also members in good standing with the Engineers and Geoscientists of British Columbia (EGBC).

EXECUTIVE SUMMARY

1. The following is a brief synopsis of the Property, assessment methods, and findings presented in the Report. The reader must read the Report in its entirety; the reader shall not rely solely on the information provided in this summary.
2. The subject property, 2120 Ryder Street, Extension, BC, from this point forward referred to as “the Property,” is located on eastern Vancouver Island within the jurisdictional boundaries of the RDN and consists of seven lots. The proposed development for the Property at the time of this Report is a sport court area with an asphalt basketball/hockey court, retaining wall, and parkland.
3. A site-specific assessment was conducted to identify any potential geotechnical hazards for the Property and proposed development. Our assessment determined that there are no geotechnical hazards that may impact the proposed development.
4. Based on subsurface investigation results, unsuitable materials for the proposed development were encountered from surface to depths ranging from 0.2m to 1.0m across the site and should be removed prior to the placement of structural fill and concrete footings for development.
5. The findings confirm the development is considered safe as proposed, and the land is considered safe for the use intended, provided the recommendations in this Report are followed.

List of Abbreviations and Acronyms Used in the Report

Abbreviation	Title
AHJ	Authority Having Jurisdiction
BCBC	British Columbia Building Code
DPA	Development Permit Area
EGBC	Engineers and Geoscientists of British Columbia
LEA	Lewkowich Engineering Associates Ltd.
RDN	Regional District of Nanaimo
SLS	Service Limit State
TP	Test Pit
ULS	Ultimate Limit State

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1.0 INTRODUCTION

1.1 General

- a. As requested, LEA has carried out a geotechnical assessment of the subject Property with respect to the proposed development. This Report provides a summary of our findings and recommendations.

1.2 Background

- a. We understand the proposed development consists of a new sport court area with an asphalt basketball/hockey court, retaining wall, and parkland. A site survey with the proposed development location is attached to the Report.

1.3 Assessment Methodology

- a. This assessment included a desktop review of relevant background information, including applicable RDN bylaws, registered covenants on title, aerial photographs, geology, topography, and coal mine mapping. Please refer to the list of references at the end of this Report.
- b. LEA completed a subsurface investigation on August 12th, 2025, to characterize subsurface conditions across the Property and development area. The investigation involved excavation of eight test pits to approximate depths ranging from 0.8m to 1.3m utilizing a Bobcat E60 excavator. The test pits provided information regarding soil stratigraphy, groundwater levels, and potential issues such as the presence of unsuitable fill.
- c. A site plan showing the locations of the test pits, along with the test pit logs, are provided in the appendices at the end of this Report.

1.4 Covenant Review

- a. As part of our assessment, we have reviewed the documents registered on the legal title of the Property, specifically, any restrictive covenants registered against the Property that may relate to the conclusions and recommendations provided in this Report.
- b. Current to the date of this Report, there are no restrictive covenants registered against the Property.

2.0 SITE CONDITIONS

2.1 Physical Setting

- a. The Property is comprised of seven lots and is located in the community of Extension within the jurisdictional limits of the RDN Electoral Area C . The Property is identified with the following legal and civic addresses:

- i. Lot 1 to 7, Block 1, Section 12, Range 2, Cranberry District, Plan 716;
 - ii. 2120 Ryder Street, Extension, BC.
- b. The Property is located within the Institutional 1 (I1) zoning area. The Property is bound by Extension Road to the north, Godfrey Road to the northeast, Ryder Street to the west, and similar I1 zoned properties to the south and east, including a playground, community hall, and parkland. See Figure 2.1 below.
- c. The Property is located within the Farmland Protection and Extension Village Center – Commercial DPAs. These DPAs do not relate to geotechnical hazards and are therefore not discussed as part of this Report.

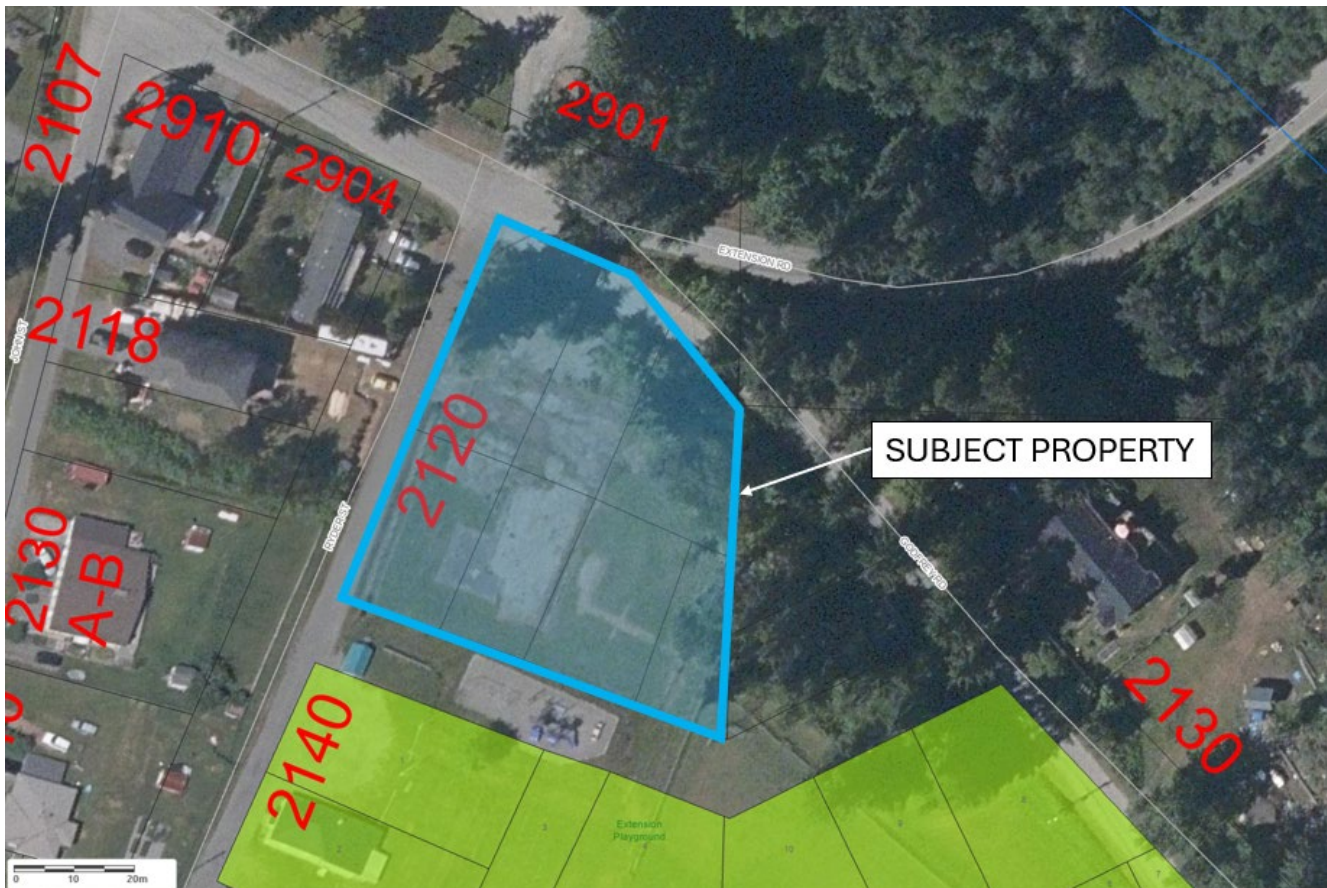


Figure 2.1 – Location of Subject Property¹

2.2 Terrain and Features

- a. The Property is generally flat, with an overall average slope of less than 5 degrees from the southwest to northeast. Elevations within the Property range from approximately 127m along the north side, up to 131m in the southwest corner, for a total vertical relief of approximately 4m.¹
- b. The Property is vegetated with a typical residential lawn cover over the eastern half, southern edge, and southwestern corner. Fill material and irregular asphalt pads are present within historic development locations in the center of the Property. A mixed wood forest of medium to tall trees with shrub understory is present along the northern border of the Property. Refer to photos 2.2.1 and 2.2.2 below.



Photo 2.2.1 – Southern area of the Property, looking southwest.



Photo 2.2.2 – Full extents of the Property, looking north.

2.3 Regional Geology

- a. Surficial geology mapping indicates the Property falls within an area with a veneer (up to 1.5m in thickness) of glaciomarine stony, loamy, and clayey soils, underlain by ground moraine deposits of till with lenses of gravel, sand, and silt with bedrock at shallow depths.²
- b. Bedrock geology mapping indicates the Property falls within an area identified as the Nanaimo Group, comprised of undivided sedimentary rock from the Upper Cretaceous period, generally consisting of boulder, cobble, and pebble conglomerate, coarse to fine sandstone, siltstone, shale, and/or coal.^{3,4} Additional bedrock geology mapping indicates the Property is underlain by the Haslam Formation, comprised of siltstone with sandstone interbeds at the top and grading to black silty shale at the base.⁵

2.4 Soil Conditions

- a. Soil conditions varied across the site, where both historic fills and natural soils were encountered during subsurface investigation. The natural soils were generally consistent with the published surficial geology mapping.
- b. All eight TPs terminated in very dense silty gravelly sand till at depths ranging from 0.8m to 1.3m. The depth to till ranged from 0.7m to 1.2m.
- c. Silty sand and organic topsoil was encountered in all test pits but TP25-03, TP25-06, and TP25-07, ranging from surface to a depth of 0.15m. An original topsoil layer was encountered below fill in TP25-05 at a depth of 0.5m to 0.6m.
- d. Historic fills were observed in all TPs but TP25-02. Loose to compact gravel and sand fills were encountered in TP25-03, TP25-06, and TP25-07 from surface to depths ranging from 0.1m to 1.0m. Loose silty sand fills were observed in all TPs but TP25-02, TP25-06, and TP25-07, ranging from 0.1m to 0.5m depth.
- e. Compact to dense sand with varying amounts of gravel and silt was encountered in all TPs but TP25-05, TP25-06, and TP25-07, ranging in depth from 0.15m to 0.8m.
- f. Orangy brown weathered till was encountered in TP25-02 and TP24-05 to TP25-08, ranging in depth from 0.5m to 1.2m.
- g. The main strata are summarized below in Table 2.1. Detailed descriptions of the subsurface conditions are provided on the attached TP logs (TP25-01 to TP25-08).

Table 2.1 – Summary of Encountered Soil Strata

Soil Stratum No.	Soil Description	Depth Range (m)	
		From	To
1	Silty SAND and ORGANICS (sod, rootlets, roots, matter), loose, brown to black, dry (TOPSOIL)	0.0	0.6
2	GRAVEL and SAND, some sand, some silt, loose to compact, grey, dry to moist (FILL)	0.0	1.0
3	Silty SAND, some gravel, trace organics (rootlets), trace cobble, loose, brown, dry (FILL)	0.1	0.5
4	SAND some gravel to gravelly, some silt, trace cobble, compact to dense, light brown, dry	0.15	0.8
5	Silty, gravelly, SAND, trace cobble, compact to dense, orangey brown, dry to wet (WEATHERED TILL)	0.5	1.2
6	Silty, gravelly, SAND, trace cobble, very dense, grey brown, moist (TILL)	0.7	1.3

2.5 Groundwater Conditions

- No groundwater or seepage was encountered during excavation of the test pits and there was no ponding water observed on the Property.
- The nearest groundwater wells to the Property are located approximately 400m north and 500m southeast; they were installed within bedrock and recorded static groundwater levels of 7.6m and 31.1m below ground surface.⁴ We expect similar groundwater conditions on the Property, where the static groundwater level is below the bedrock elevation.
- Considering the shallow till encountered, we expect a perched groundwater level may be present seasonally during winter months.
- Groundwater levels can be expected to fluctuate seasonally with cycles of precipitation. Groundwater conditions at other times and locations can differ from those observed at the at the time of our assessment.

3.0 MINE HAZARD ASSESSMENT

- There are documented underground coal mine workings within the Extension area. Therefore, as part of our assessment, we have reviewed available coal mine abandonment plans as referenced at the end of this Report^{6,7}. In addition to the referenced materials, a series of untitled/unsigned hand drawn maps were reviewed as part of our assessment.

- b. Based on the available mine abandonment plans and the attached Site Plan, the Property is not undermined. The main slope entrance to the Extension Mine is located approximately 150m northwest of the Property, extending further southwest to the mine workings. This is adequate horizontal separation to negate any potential impact to the development from the nearest documented surface opening. Please note there is a margin for error with transcription details from abandonment plans to current imagery and Property lines. The extents of the Extension Mine main entrance in relation to the approximate Property location is shown in Figure 3.1 below.

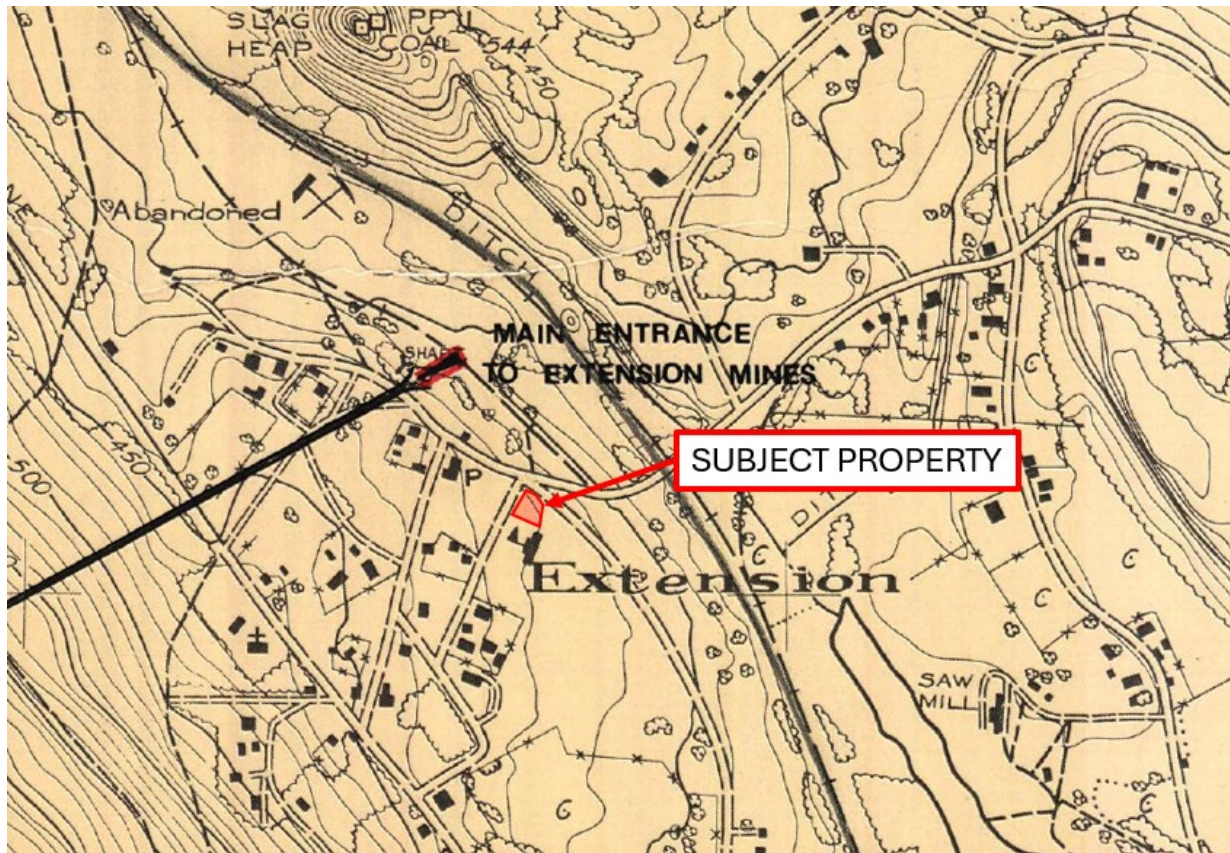


Figure 3.1: Approximate location of the Extension Mine main entrance in relation to the Property.

4.0 DESIGN PHASE

4.1 Foundation Design

- a. Prior to construction, the foundation areas should be stripped to remove all unsuitable materials to provide an undisturbed natural subgrade for footing support.
- b. Foundation loads should be supported on natural undisturbed material or structural fill, approved for use as a bearing stratum by our office, and may be designed using the following values:
- i. For foundations constructed on compact to dense naturally deposited inorganic subgrade, or structural fill as outlined in Section 4.2 of this Report, an SLS bearing pressure of 150 kPa and a ULS of

225 kPa may be used for design purposes. These values assume a minimum 0.45m footing embedment depth.

- ii. For foundations constructed on very dense glacial till, an SLS bearing pressure of 250 kPa and a ULS of 375 kPa may be used for design purposes. These values assume a minimum 0.45m footing embedment depth.
- c. Exterior footings should be provided with a minimum 0.45m depth of ground cover for frost protection.
- d. The Geotechnical Engineer should evaluate the subgrade conditions at the time of construction to confirm that soil and/or groundwater conditions do not materially differ to those encountered during the subsurface investigation and that footings are based on appropriate and properly prepared founding material.

4.2 Seismic Criteria

- a. Based on the 2024 BCBC (Division B, Part 4, Section 4.1.8.4.), the encountered and inferred subgrade conditions would be designated as “Site Class C” (very dense soil or soft rock).
- b. Refer to the attached 2020 NBC Seismic Hazard Values.

4.3 Lateral Earth Pressures

- a. Any future retaining wall construction within the Property shall be reviewed by the Structural and/or Geotechnical Engineer(s).
- b. Lateral earth pressure coefficients (K) for the design of the cast-in-place retaining walls are outlined in Table 4.3.1. It is assumed that there will be a level (0° from horizontal) backslope and no additional surcharge on the wall. It is noted that the methods employed are estimates and further analysis may be required after dimensions of the proposed structure have been determined.
- c. An average soil friction angle of 30° has been used to calculate the lateral earth pressure coefficients. It is assumed that retained soils are free-draining, well compacted, cohesionless sands and gravels, with a unit weight of 21 kN/m³.
- d. The 2020 National Building Code of Canada Seismic Hazard Tool was used for this Property to interpret a seismic force value of 0.593g PGA (2% in 50-year probability) (attached).
- e. The Mononobe-Okabe Method has been used to calculate the seismic active lateral earth pressure coefficient (K_{aE}). The static active lateral earth pressure coefficient (K_a) has been calculated using Coulomb’s theory. The static passive lateral earth pressure coefficient (K_p) has been calculated using Rankine’s theory. See the following Table 4.3.1 for design values.

Table 4.3.1 – Lateral Earth Pressure Coefficients

Lateral Earth Pressure Condition	Earth Pressure Coefficient (K)	
Static Active	K_a	0.29
Static Passive	K_p	3.00
Seismic Active	K_{aE}	0.56

- f. The thrust resulting from lateral earth pressures under each of the conditions outlined in Table 4.3.1 may be calculated using the relationship in Table 4.3.2. A minimum uniform static load of 20 kPa shall be considered for compaction forces during construction.

Table 4.3.2 – Thrust from Lateral Earth Pressure Relationship

$P = 0.5 * K * \gamma * H^2$
P = Thrust (kN/m length of wall)
K = Lateral Earth Pressure Coefficient
γ = Soil Unit Weight (kN/m ³)
H = Height of Wall (m)

- g. The seismic active coefficient provides a value that combines both static and dynamic forces to determine total active thrust (P_{aE}). The static component (P_a) acts through a point that is approximately $H/3$ above the toe of the wall. The dynamic component (ΔP_{aE}) acts through a point at approximately $0.6H$ above the toe of the wall. The total active thrust may then be considered to act at a height from the base of the wall using the following relationship in Table 4.3.3.

Table 4.3.3 – Height from Base of Wall for Total Active Thrust

$h = \frac{P_a * \left(\frac{H}{3}\right) + \Delta P_{aE} * (0.6H)}{P_{aE}}$
h = Height from Base of Wall for Total Active Thrust (m)
P_a = Static Active Thrust (kN/m)
P_{aE} = Total Active Thrust (kN/m)
$\Delta P_{aE} = P_{aE} - P_a$ = Dynamic Active Thrust (kN/m)
H = Height of Wall (m)

- H. The presented earth pressure coefficients are based on fully drained backfill conditions, through the use of free draining granular backfill and foundation drainage.

5.0 CONSTRUCTION PHASE

5.1 General Excavation – Future Building Sites

- a. Prior to construction, all unsuitable materials should be removed to provide a suitable base of support. Unsuitable materials include any non-mineral material such as vegetation, topsoil, peat, fill, or other materials containing organic matter, as well as any soft, loose, or disturbed soils.
- b. Based on the test pit investigation, unsuitable materials were encountered to depths ranging from 0.2m to 1.0m below ground surface, with an average depth of approximately 0.5m.
- c. Groundwater ingressing into any excavations should be controlled with a perimeter ditch located just outside of the building area, connected to positive drainage and/or discharged using conventional sumps and pumps.
- d. Prior to placement of concrete footings, any bearing soil that has been softened, loosened, or otherwise disturbed during the course of construction, should be removed or else compacted following our recommendations for structural fill. Compaction will only be feasible if the soil has suitable moisture content and if there is access to heavy compaction equipment. If no structural fill is placed, a smooth-bladed clean up bucket should be used to finish the excavation.
- e. The Geotechnical Engineer is to confirm the removal of unsuitable materials and approve the exposed competent inorganic subgrade, prior to placement of any structural fill.

5.2 Structural Fill

- a. Where fill is required to raise areas that will support foundations, slabs, or pavements, structural fill should be used. The Geotechnical Engineer should first approve the exposed subgrade in fill areas, to confirm the removal of all unsuitable materials.
- b. Structural fill should be inorganic sand and gravel. If structural fill placement is to be carried out in the wet season, material with a fines content limited to 5% passing the 75µm sieve should be used, as such a material will not be overly sensitive to moisture, allowing compaction during rainy periods of weather.
- c. Structural fill should be compacted to a minimum of 95% of Modified Proctor maximum dry density (ASTM D1557) in foundation and slab areas, as well as in pavement areas.
- d. Structural fill under foundations, slabs, and pavements should include the zone defined by a plane extending down and outward a minimum 0.5m from the outer edge of the foundation at an angle of 45 degrees from horizontal to ensure adequate subjacent support. This support zone is shown below in Figure 5.2.

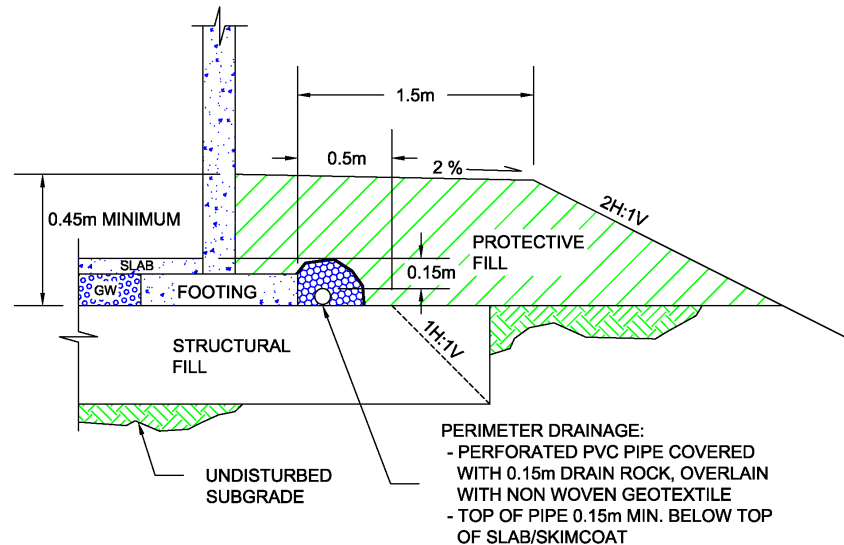


Figure 5.2 – Typical Section, Structural Fill

- e. Compaction of fill should include moisture conditioning as needed to bring the soil to the optimum moisture content and compacted using vibratory compaction equipment in lift thicknesses appropriate for the size and type of compaction equipment used.
- f. A general guideline for maximum lift thickness is no more than 100mm for light hand equipment such as a “jumping-jack,” 200mm for a small roller, and 300mm for a large roller or heavy (>500 kg) vibratory plate compactor or a backhoe mounted hoe-pac or a large excavator mounted hoe-pac, as measured loose.
- g. It should be emphasized that the long-term performance of foundations, slabs, and pavements is highly dependent on the correct placement and compaction of underlying structural fill. Consequently, we recommend that structural fill be observed and approved by the Geotechnical Engineer. This would include approval of the proposed fill materials and performing a suitable program of compaction testing during construction.

5.3 Pavement Design – Private Works

- a. Any organic or deleterious material should be removed from beneath the designated basketball/hockey court area prior to subgrade preparation. If fill is required to bring the subgrade up to the desired elevation, structural fill should be used.
- b. The subgrade should be proof rolled after final compaction and any areas showing visible deflections should be inspected and repaired. The Geotechnical Engineer shall review the pavement subgrade conditions during the course of excavation.
- c. All subgrade and pavement structures should be sloped to provide adequate drainage as per the design and direction of the Civil Consultant.

- d. An estimated soaked California Bearing Ratio of 30% and a 20-year design life have been used in calculating pavement designs. See Tables 5.5.1 below.

Table 5.5.1 – Pavement Design Recommendations

Areas Subject to Light Traffic	
Estimated Equivalent Single-Axle Load: 2×10^4	
Asphaltic Concrete Pavement	50mm
19mm Well-Graded Granular Base Course	100mm
75mm Select Granular Subbase (SGSB)	250mm

- e. The above recommendations for subgrade and pavement structure are in accordance with current best practices. If the recommendations provided here prove cost-prohibitive or restrictive, alternative options may be considered, through a balance of reduced preparation efforts with a corresponding reduction in pavement design life.

5.4 Stormwater Management

- As part of the geotechnical investigation, field observations of the subgrade conditions with respect to the on-site infiltration and disposal of stormwater were carried out.
- Subgrade conditions consist of thin surficial fill/soil (0.7m to 1.2m thickness) overlying dense till-like soil at shallow depth. No groundwater table was encountered during test pitting.
- Based on the subgrade conditions encountered during the geotechnical investigation, it is the opinion of LEA that site conditions are not conducive to the installation of on-site stormwater infiltration measures.
- Site conditions may be conducive to the installation of storm water detention measures. Any proposed detention measures shall be reviewed by the Geotechnical Engineer to determine if the design methods and/or locations pose a hazard to the development, the Property, or any adjacent or adjoining properties.
- We assume all site drainage systems will be designed, inspected, and approved by Others (i.e., the project Civil or Mechanical Consultant).

6.0 CONCLUSIONS

6.1 Local Government Conformance Statement

- From a geotechnical point of view, and provided the recommendations in this Report are followed, the land is considered safe for the use intended (defined for the purposes of this Report as a new sport court area with an asphalt basketball/hockey court, retaining wall, and parkland), with the probability of a geotechnical failure resulting in Property damage of less than:

- i. 2% in 50 years for geotechnical hazards due to seismic events, including slope stability; and,
- ii. 10% in 50 years for all other geotechnical hazards.

6.2 Geotechnical and Quality Assurance Statement

- a. The 2024 BCBC requires that a Geotechnical Engineer be retained to provide Geotechnical Assurance services for the construction of buildings that are outside of Part 9 of the BCBC. Geotechnical Assurance services include review of the geotechnical components of the plans and supporting documents, and responsibility for field reviews of these components during construction.

7.0 CLOSURE

- a. LEA appreciates the opportunity to be of service on this project. If you have any comments, or additional requirements at this time, please contact us at your convenience.

Respectfully Submitted,
Lewkovich Engineering Associates Ltd.



Prepared by:
Knut Lokken, EIT, GIT
Geotechnical Engineer-in-Training
Geoscientist-in-Training

Reviewed by:
Chris Hudec, M.A.Sc., P.Eng.
Senior Project Engineer

8.0 ATTACHMENTS

1. LANARC Consultants, Extension Community Park: Sport Court Area, Project 24559, Dwg No. L0.0 to L4.2, dated April 25, 2025.
2. LEA, Test Pit Location Plan, Dwg No. E4767-01, dated August 13, 2025.
3. LEA, Test Pit Logs, TP25-01 to TP25-08, dated August 12, 2025.
4. 2020 NBC Seismic Hazard Values.

9.0 REFERENCES

1. Regional District of Nanaimo, RDN Public Viewer, accessed August 2025.
2. Geological Survey of Canada, Surficial Geology Nanaimo, British Columbia, Map 27-1963, Sheet 92 G/4 and 92 F/1 East, 1963.
3. British Columbia Geological Survey, Geology of British Columbia, South Sheet, Geoscience Map 2005-3, Massey, N.W.D, MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T., 2005.
4. Province of BC, Interactive Web-Map, iMapBC, accessed July 2025.
5. British Columbia Geological Survey, Geology of the Wellington Area, Nanaimo Coalfield, British Columbia, Open File No. 1998-07, Sheet 3 of 6, n.d.
6. Island Geotechnical Services, Coal Workings – Nanaimo Field composite Plan, Sheet 9, Prepared for the Ministry of Mines and Petroleum Resources and the City of Nanaimo, Dated July 1979.
7. Island Spatial Systems Ltd., Coal Mine Underground Workings Atlas, dated August 2004.

DRAWING INDEX		
Sheet Number	Drawing Number	Sheet Title
1	L0.0	Cover Sheet
2	L0.1	Demolition Plan
3	L1.0	Landscape Plan
4	L1.1	Layout Plan
5	L2.0	Grading Plan
6	L3.0	Planting Plan
7	L4.0	Details
8	L4.1	Details
9	L4.2	Details

ABBREVIATIONS:

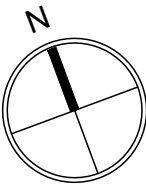
APPROX	Approximate	FFE	Finished Floor Elevation
ARCH	Architect	HT	Height
AVG	Average	HSS	Hollow Structural Steel
BLDG	Building	MIN	Minimum
BS	Bottom of Stair	MAX	Maximum
BW	Bottom of Wall	NIC	Not in Contract
C/W	Complete With	OC	On Centre
CIP	Cast-in-place	OD	Outside Diameter
CL	Center Line	PL	Property Line
CRZ	Critical Root Zone	PG	Proposed Grade
CONC	Concrete	SPECS	Specifications
DIA	Diameter	SS	Stainless Steel
DIM	Dimension	TBC	To be Coordinated
DWG	Drawing	TS	Top of Stair
EJ	Expansion Joint	THK	Thick
EQ	Equal	TYP	Typical
EX	Existing	TW	Top of Wall
EG	Existing Grade	WWM	Welded Wire Mesh
FG	Finished Grade		

GENERAL NOTES

1. PRIMARY REFERENCE: CITY OF NANAIMO MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS LATEST EDITION.
2. ALL MEASUREMENTS IN METRES UNLESS OTHERWISE NOTED.
3. INFORM THE PROJECT LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN PLAN DETAILS AND IN-FIELD MEASUREMENTS. COMPLETION OF UNAUTHORIZED CHANGES MAY BE SUBJECT TO REJECTION.
4. REFER TO ENGINEERING DRAWINGS FOR U/G SERVICES LOCATIONS AND INFORMATION PRIOR TO LANDSCAPE IMPROVEMENTS. ALL EXISTING UTILITIES TO BE IDENTIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
5. REFER TO CIVIL FOR ALL ROADWAY GRADING, CIVIL WORKS AND DETAILS. REFER TO ELECTRICAL FOR ALL ELECTRICAL WORKS.
6. CONTRACTOR TO TEST AND CONFIRM NEW PLANTING AREAS HAVE POSITIVE AND FREE DRAINAGE. IF DRAINAGE PROBLEMS EXIST, ADDITIONAL MEASURES WILL BE REQUIRED PRIOR TO GROWING MEDIUM PLACEMENT AND PLANTING.
7. CONTRACTOR TO MAKE GOOD ALL CONSTRUCTION RELATED DAMAGE OUTSIDE THE LIMIT OF WORK.
8. START OF MAINTENANCE AND GUARANTEE PERIOD: SHALL BE FROM THE TIME OF INSTALLATION UNTIL ONE (1) YEAR FROM THE DATE OF NOTICE OF ACCEPTANCE (SUBSTANTIAL PERFORMANCE) ISSUED BY THE LANDSCAPE ARCHITECT.
9. END OF MAINTENANCE PERIOD: NOTIFY THE LANDSCAPE ARCHITECT 30 DAYS IN ADVANCE OF THE END OF THE MAINTENANCE PERIOD TO SCHEDULE FINAL INSPECTION REVIEW. ONCE ALL DEFICIENCIES ARE RESOLVED AND THE NOTICE OF FINAL ACCEPTANCE (FINAL PERFORMANCE) HAS BEEN ISSUED BY THE LANDSCAPE ARCHITECT, MAINTENANCE RESPONSIBILITIES WILL BE ASSUMED BY THE OWNER.



1 KEY PLAN
1:500



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Permit-Seal

Extension Community
Park: Sport Court Area

Project

Cover Sheet

Title

24559 0 1:500 25

Project No. Scale

L0.0 A

Drawing No. Permit No. Revision


DEMOLITION NOTES

1. CALL BC1 BEFORE YOU DIG: 1-800-474-6886
2. PROTECT ALL FACILITIES NOT IDENTIFIED FOR DEMOLITION INCLUDING, BUT NOT LIMITED TO: BURIED ELECTRICAL LINES, STORM SEWER LINES, TELEPHONE LINES, CATCH BASINS, TREES, FENCING, FURNITURE, ETC.
3. PROTECTION AND PRESERVATION OF EXISTING TREES INCLUDES, TRUNK, BRANCHES, CANOPY, AND SUBSURFACE ROOT ZONE. CONSTRUCTION WORK, INCLUDING ALL EQUIPMENT STORAGE, TO BE CLEAR OF ZONE OFFSET 1m FROM EXISTING DRIPLINES. EXISTING ROOTS ABOVE 25mm DIA. DISCOVERED WITHIN THE LIMIT OF WORK TO BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR. APPROVED ROOT PRUNING TO BE CUT CLEANLY AS PER ISA STANDARDS.
4. THE REMOVAL OF THE FOLLOWING ITEMS WITHIN THE LIMIT OF WORK WILL BE COMPLETED BY THE REGIONAL DISTRICT PRIOR TO CONTRACTOR MOBILIZATION:
 - ALL BENCHES
 - ALL GARBAGE CANSCONTRACTOR RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL FOOTINGS ASSOCIATED WITH THE ABOVE ITEMS.
5. CONTRACTOR RESPONSIBLE FOR REMOVING ALL REMAINING STRUCTURES NOT REMOVED BY THE REGIONAL DISTRICT WITHIN THE LIMIT OF WORK
6. KEEP ALL WALKWAYS CLEAR AND FREE OF DEBRIS. ANY DAMAGE DURING CONSTRUCTION TO VEGETATED OR PAVED SURFACES TO REMAIN ARE TO BE REPAIRED TO THE SATISFACTION OF THE OWNER AT NO COST.
7. UNLESS STATED OTHERWISE, ALL ITEMS IDENTIFIED FOR DEMOLITION ARE TO BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF. RECYCLE ALL MATERIALS TO EXTENT POSSIBLE.



1 DEMOLITION PLAN
1:150

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Park: Sport Court Area

Project

Demolition Plan

Title

24559	0 1:150 5
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LEGEND

	PROPERTY LINE
	PROPOSED TREE, SEE PLANTING PLAN
	SEEDED GRASS, SEE PLANTING PLAN
	PLANTING AREA, SEE PLANTING PLAN

PAVING/SURFACING SCHEDULE

SYMBOL	TYPE	FINISH/COLOUR/NOTES	DETAIL
	ASPHALT SURFACING	60mm MIN. THICKNESS	REF. CIVIL
	CRUSHED STONE PATHWAY	9mm MINUS STABILIZED CRUSHED STONE, 75mm DEPTH	1 / L4.0

WALL SCHEDULE

SYMBOL	TYPE	FINISH/COLOUR/NOTES	DETAIL
	COURT WALL	1200mm TALL, CIP CONCRETE	REF. CIVIL

SITE FURNISHINGS SCHEDULE

SYMBOL	ITEM	DESCRIPTION/NOTES	DETAIL
	BENCH	MAGLIN 970 BACKED BENCH; THERMALLY MODIFIED ASH, SILVER POWDER COAT FINISH	5 / L4.0
	REGULATION BASKETBALL HOOP	SPORT SYSTEMS CANADA SE-PSSGP BASKETBALL HOOP; BLACK POWDER COAT FINISH	6 / L4.0
	YOUTH BASKETBALL HOOP	SPORT SYSTEMS CANADA BB-IG-01B BASKETBALL HOOP; BLACK POWDER COAT FINISH	7 / L4.0
	BIKE RACK	MAGLIN 500 SERIES INVERTED U STEEL BIKE RACK	9 / L4.0
	CHAIN LINK FENCE	2" DIAMOND 6 GAUGE MESH, BLACK POWDER COAT FINISH	1 / L4.1
	CHAIN LINK FENCE GATE	5' OPENING SINGLE GATE, BLACK POWDER COAT FINISH	2 / L4.1
	REMOVABLE BOLLARD	WISHBONE DENMAN TWIST LOCK REMOVABLE BOLLARD; ALUMINUM	8 / L4.1

NOTES

1. REFER TO GENERAL NOTES ON L0.0



1 LANDSCAPE PLAN
1:150

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Extension Community Park: Sport Court Area

Project
Landscape Plan

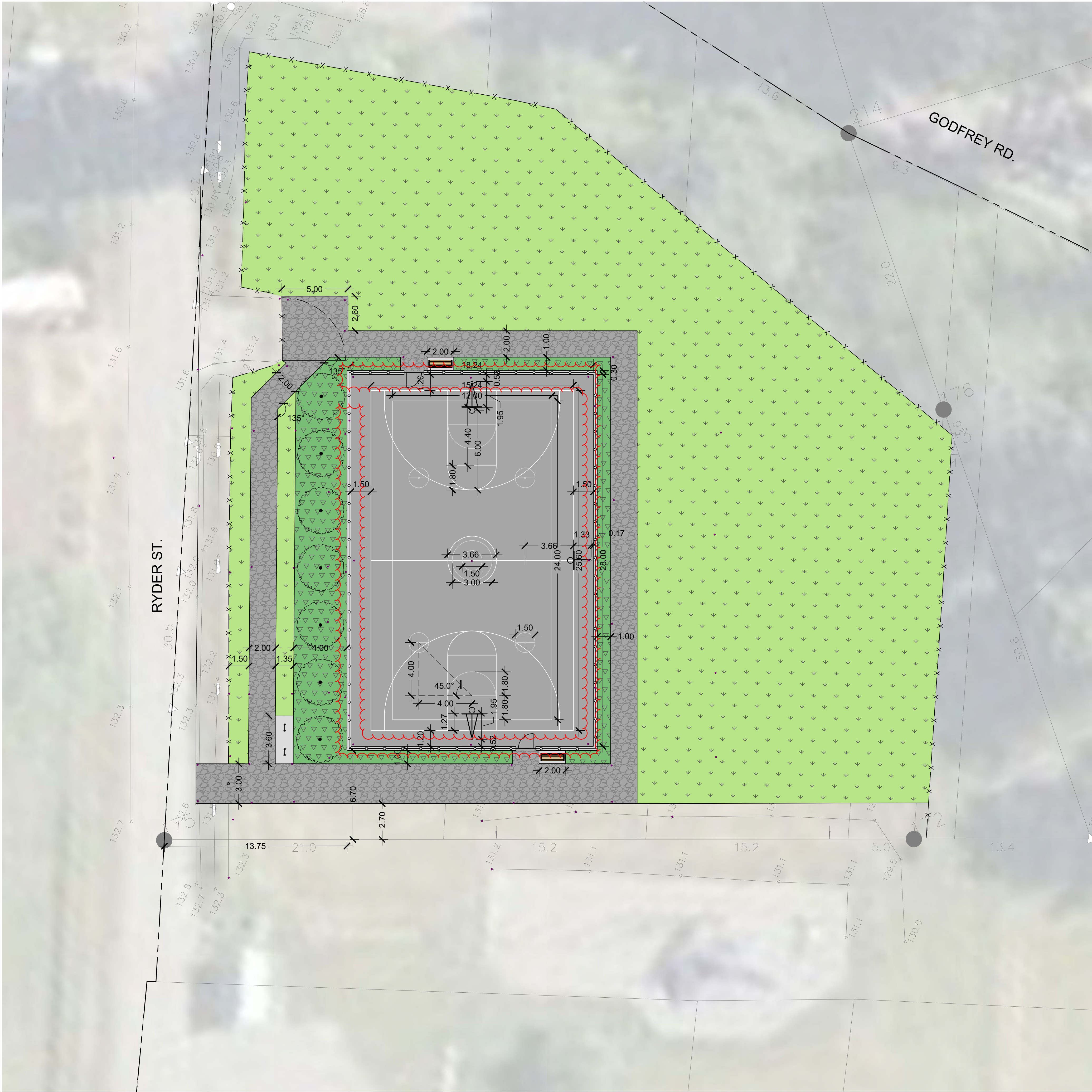
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24559	0 1:150 5
Project No.	Scale
L1.0	A
Drawing No.	Permit No. Revision

LEGEND

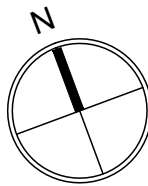
----- PROPERTY LINE

NOTES

1. REFER TO GENERAL NOTES ON L0.0



1 LAYOUT PLAN
1:150



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Extension Community
Park: Sport Court Area

Project

Layout Plan

Title

24559
Project No. Scale

L1.1
Drawing No. Permit No. Revision A

LEGEND

PROPERTY LINE

GRADING LEGEND

- BS BOTTOM OF STAIR
- BW BOTTOM OF WALL
- EG EXISTING GRADE
- FFE FINISHED FLOOR ELEVATION
- PG PROPOSED GRADE
- TB TOP OF BENCH
- TS TOP OF STAIR
- TW TOP OF WALL
- LP LOW POINT
- 2% PROPOSED SLOPE

GRADING NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL GRADES AND INFORM THE LANDSCAPE ARCHITECT OF ANY DISCREPANCY BETWEEN GRADES SHOWN ON THE PLANS AND GRADES IN THE FIELD.
- CONFIRM ALL DRAIN LOCATIONS WITH CIVIL TO ENSURE CONNECTION TO STORM. SEE CIVIL.
- REFER TO CIVIL GRADING PLANS FOR ALL ROAD GRADING.
- REFER TO CIVIL FOR FILL REQUIREMENTS.



1 GRADING PLAN
1:150

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Park: Sport Court Area**

Project
Grading Plan

Title	
24559	Scale
Project No.	Scale
L2.0	A
Drawing No.	Permit No.
	Revision

SEEDED GRASS SCHEDULE

HYDROSEED COASTAL POLLINATOR
WILDFLOWER SEED MIX BY PREMIER PACIFIC
SEEDS, OR APPROVED EQUAL.

PLACEHOLDER

PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
TREES					
	CF	7	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	6cm Cal.
SHRUBS					
	EP	60	Echinacea purpurea	Coneflower	#1 Pot
	MC	24	Mahonia aquifolium 'Compacta'	Compact Oregon Grape	#2 Pot
	NT	30	Nassella tenuissima	Mexican Feather Grass	#1 Pot
	PS	15	Pinus mugo 'Slowmound'	Slowmound Mugo Pine	#2 Pot
	PM	34	Polystichum munitum	Western Sword Fern	#1 Pot
	RB	30	Rudbeckia fulgida	Coneflower	#1 Pot
	SA	142	Sesleria autumnalis	Autumn Moor Grass	#1 Pot
	VO	10	Vaccinium ovatum	Evergreen Huckleberry	#2 Pot

SHRUB SPACING CAN BE SHOWN
- CLIPPED OUT OF VIEWPORT

PLANTING NOTES

GENERAL PLANTING NOTES:

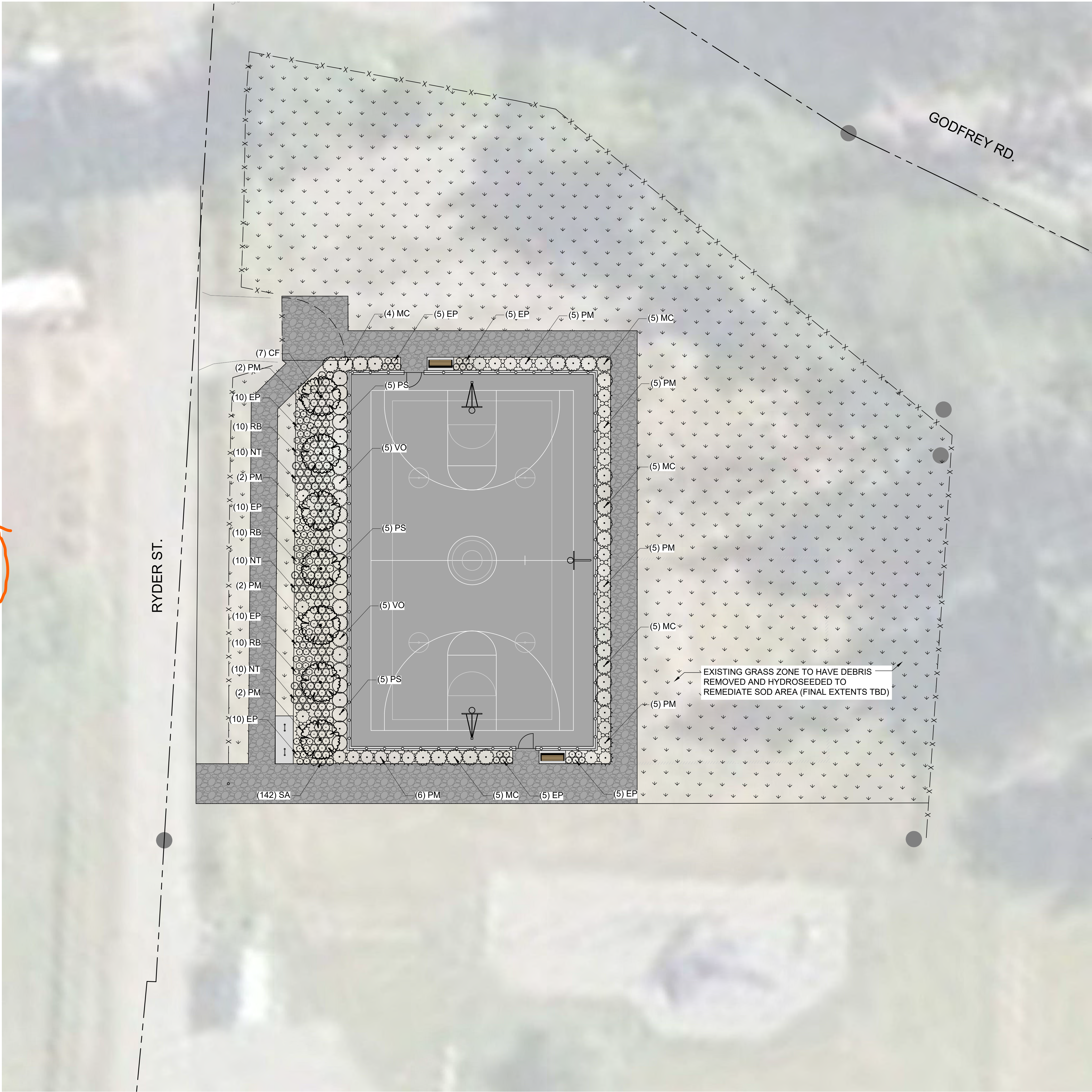
- CHECK FOR LOCATIONS OF WATER LINES AND ANY OTHER U/G SERVICES PRIOR TO DIGGING.
- TRANSPORT AND HANDLING OF PLANT MATERIALS TO CSLA LANDSCAPE STANDARDS.
- ENSURE AVAILABILITY AND SOURCE OF PLANT LIST MATERIALS AT LEAST 2 WEEKS PRIOR TO ANTICIPATED PLANTING TIME.
- INSPECT ALL ASSEMBLED PLANT MATERIAL UPON ARRIVAL ON SITE, PRIOR TO INSTALLATION.
- NO PLANTS REQUIRING PRUNING OF MAJOR BRANCHES DUE TO DISEASE, DAMAGE OR POOR FORM WILL BE ACCEPTED.
- ALL CALIPRE-STOCK TREES SHALL BE B&B IN WIRE BASKETS OR IN CONTAINERS. BAG-GROWN TREES WILL NOT BE ACCEPTED.
- THE LAYOUT OF ALL APPROVED PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE CONTRACT DRAWINGS. FINAL LAYOUT IS TO BE VERIFIED BY THE CONTRACT ADMINISTRATOR.
- FOR SEEDING REQUIREMENTS, REFER TO SPECIFICATIONS.
- PLANTING TECHNIQUES AS PER SPECIFICATIONS.

GROWING MEDIUM NOTES:

- GROWING MEDIUM TO MEET THE PHYSICAL AND CHEMICAL PROPERTIES DEFINED IN THE PROJECT SPECIFICATIONS FOR LEVEL 2 "GROOMED" AREAS.
- PRIOR TO PROCUREMENT, INFORM CONTRACT ADMINISTRATOR OF NAME OF GROWING MEDIUM SUPPLIER AND LOCATION OF STOCKPILE FOR INSPECTION.
- (2) ROUNDS OF SOIL TESTING WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE: (1) PRIOR TO INSTALLATION OF GROWING MEDIUM TO IDENTIFY SUITABILITY AND AMENDMENT REQUIREMENTS; AND (1) AT SUBSTANTIAL PERFORMANCE TO CONFIRM QUALITY OF INSTALLED GROWING MEDIUM.
- FOR SOIL TEST(S): SUBMIT 4 LITRE SAMPLE(S) OF PROPOSED GROWING MEDIUM TO PACIFIC SOILS ANALYSIS INC. LABORATORY IN BURNABY (604) 273-8226. INDICATE TO LAB THAT THE PURPOSE OF ANALYSIS AND AMENDMENT RECOMMENDATIONS ARE FOR 1) TREE AND SHRUB PLANTING; AND 2) SEEDED LAWN AREAS. ANALYSIS SHOULD INCLUDE ALL PROPERTIES LISTED IN THE PROJECT SPECIFICATIONS.
- THE SOIL SAMPLES AT SUBSTANTIAL PERFORMANCE, ALONG WITH THE AMENDMENT RECOMMENDATIONS FROM THE SOILS LAB, SHALL BE THE BASIS FOR ACCEPTANCE OF THE GROWING MEDIUM.
- MINIMUM GROWING MEDIUM DEPTHS: GRASS AREAS 150mm; SHRUB BEDS 450mm; TREE PLANTING / CONTINUOUS SOIL TRENCHES 1200mm.

MULCH NOTES:

- BARK MULCH DEPTH SHALL BE 75mm (3") AFTER SETTLING.
- PROVIDE MULCH OVER ALL PLANTING AREAS EXCEPT SEEDED AREAS.
- TO BE NATURALLY DARK BROWN BARK MULCH AND FREE OF WOOD STICKS, STONES, ROOTS, AND OTHER DELETERIOUS MATERIAL.
- SAMPLE TO BE PROVIDED TO THE CONTRACT ADMINISTRATOR FOR APPROVAL PRIOR TO INSTALLATION.



1 PLANTING PLAN
1:150

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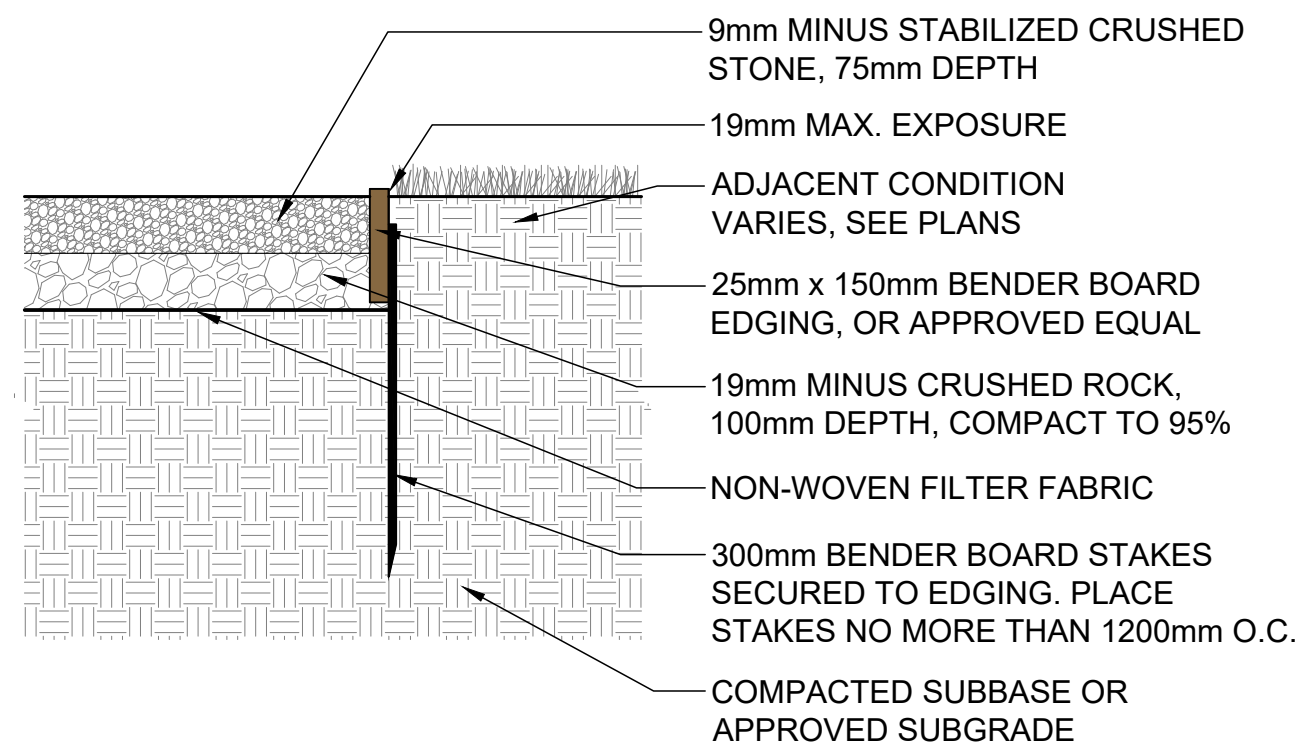
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Extension Community
Park: Sport Court Area

Project

Planting Plan

Title	
24559	0 1:150 5
Project No.	Scale
L3.0	A
Drawing No.	Permit No. Revision



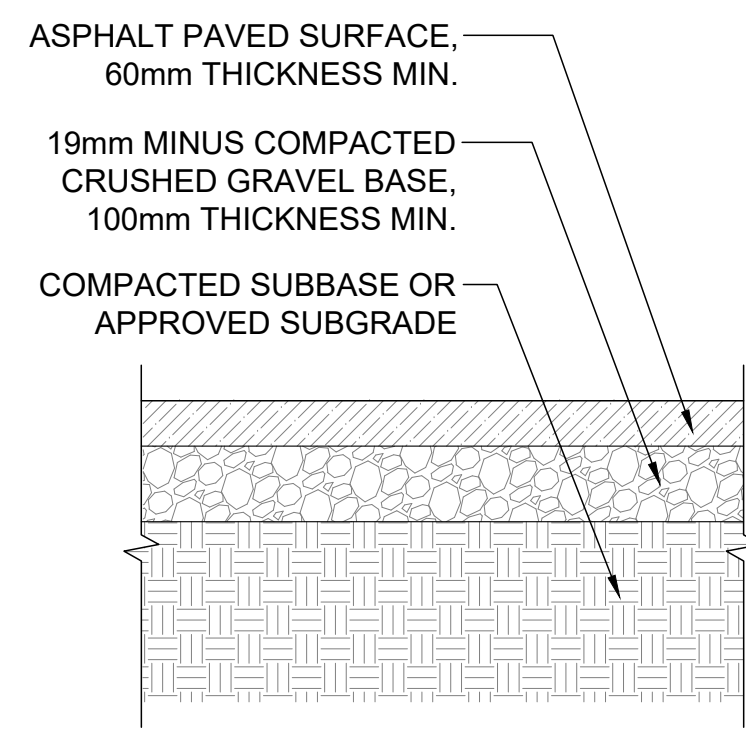
1 CRUSHED STONE PATHWAY

SCALE: 1:10



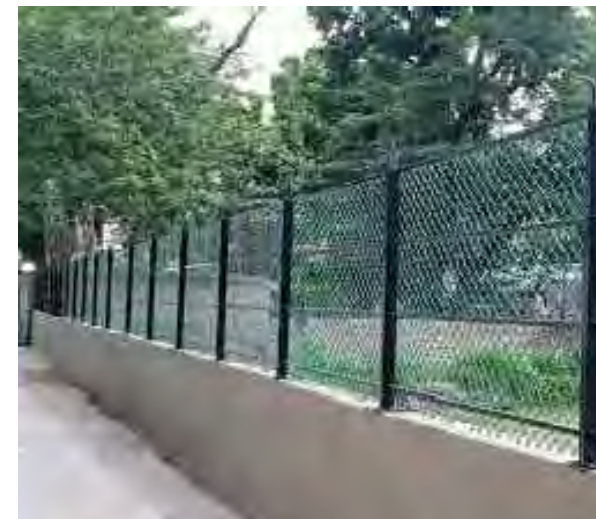
NOTES:

1. COURT PAINTING TO BE STREETBOND120 BY HUB SURFACING SYSTEMS OR APPROVED EQUAL.
2. SUPPLIER: HUB SURFACING SYSTEMS CONTACT: CLEVE STORDY CLEVE.STORDY@HUBSS.COM 604.309.8212
3. COURT PAINTING COLOUR: WHITE
4. SHOP DRAWING TO BE PROVIDED FOR REVIEW AND APPROVAL.
5. MATERIAL SAMPLE TO BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO PRODUCTION OR INSTALLATION.
6. REFER TO MANUFACTURER SPECIFICATIONS FOR REQUIREMENTS AND INSTALLATION.



2 ASPHALT SURFACING

SCALE: 1:10

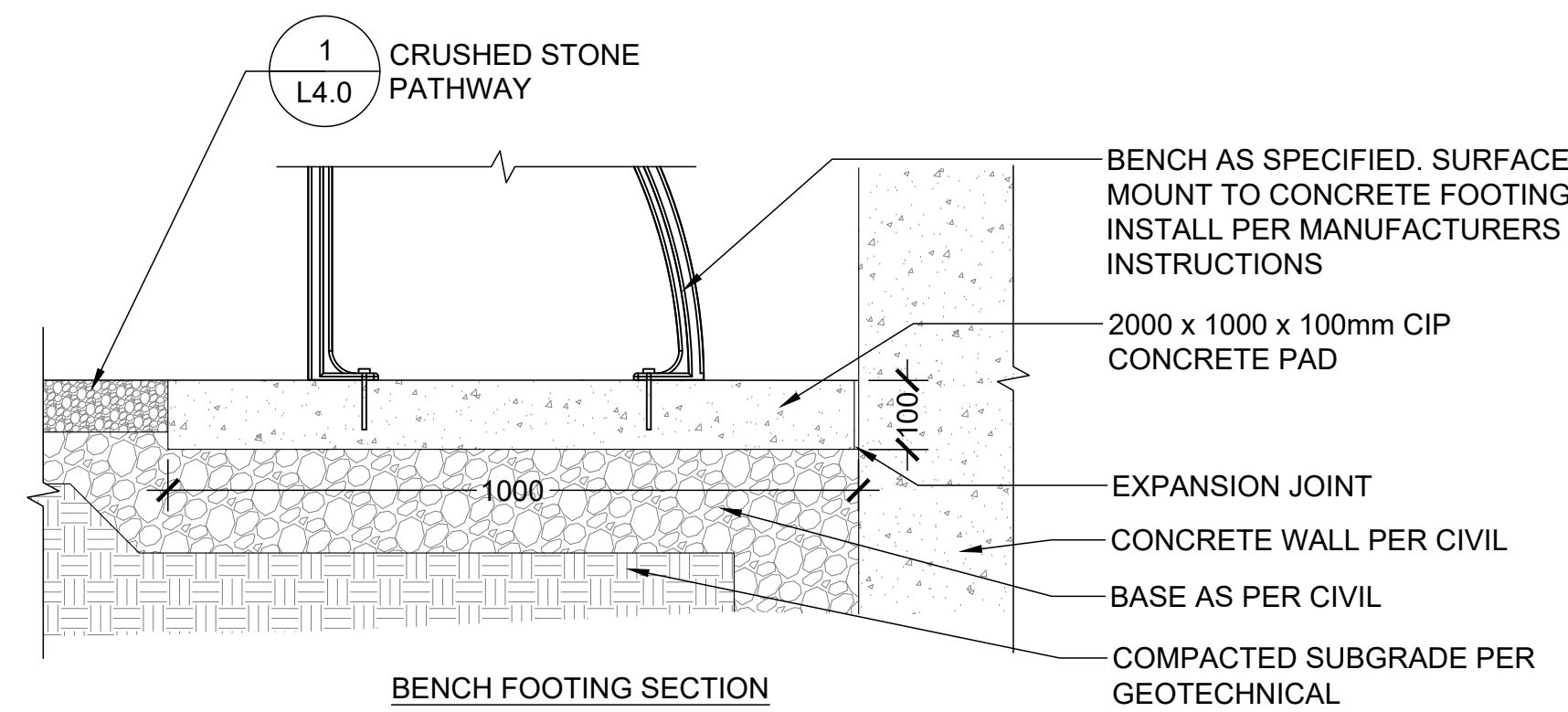


NOTES:

1. WALL: CIP CONCRETE WALL (300mm WIDE, 1200mm TALL, LIGHT SANDBLAST FINISH)
2. FENCE: CHAIN LINK FENCE (3300mm TALL, GALVANIZED / POWDER COAT BLACK)

4 CONCRETE WALL WITH FENCE

SCALE: NTS



BENCH FOOTING SECTION

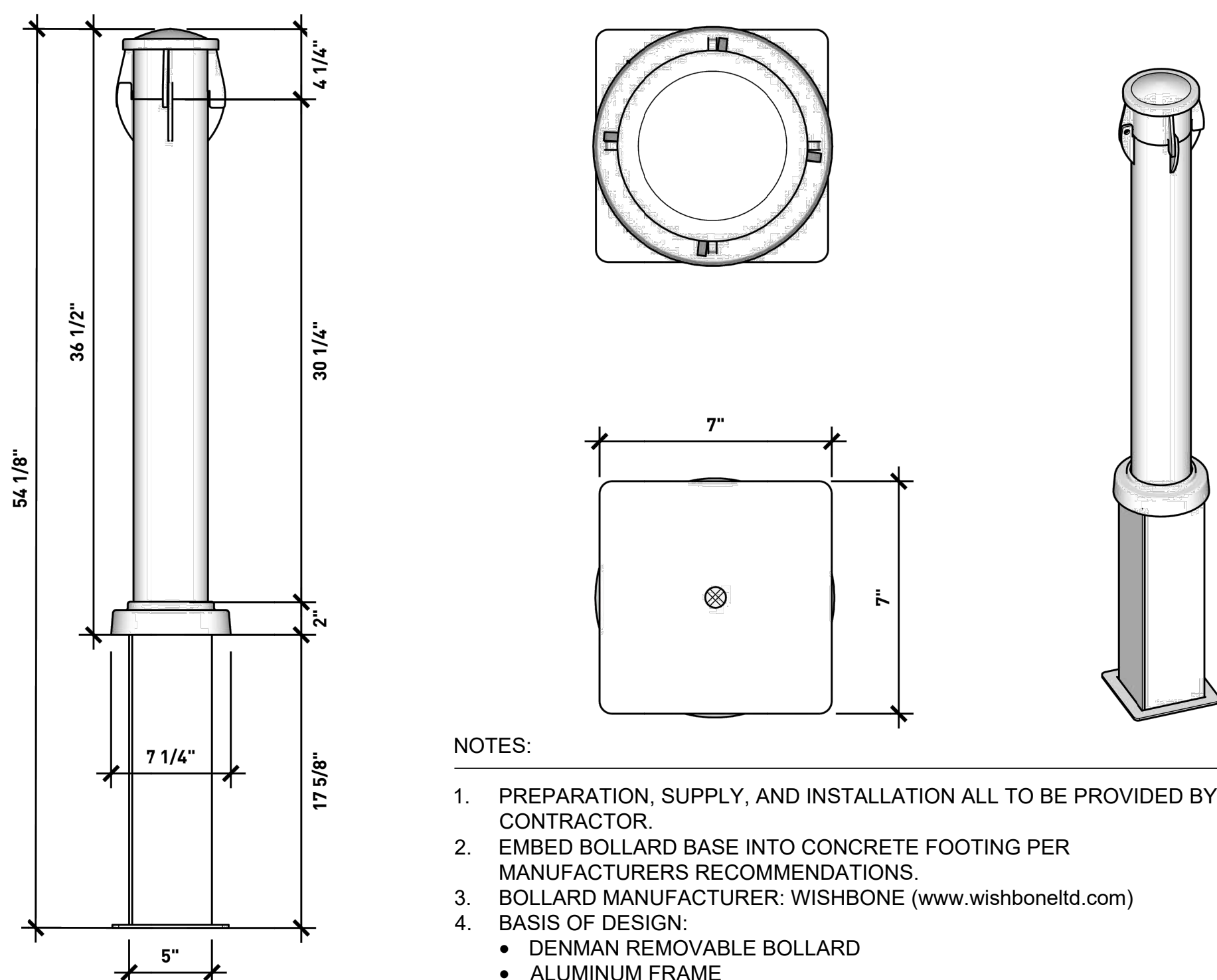


NOTES:

1. **BASIS OF DESIGN:** 970 BACKED BENCH (MAGLIN).
2. **MATERIAL:** ALUMINUM FRAME WITH THERMALLY MODIFIED ASH WOOD SEAT AND BACK.
3. **ALUMINUM FINISH:** FRAME TO BE POWDERCOATED SILVER 14 COLOUR.
4. **WOOD FINISH:** NATURAL, UNFINISHED.
5. REFER TO MANUFACTURER FOR DIMENSIONS, DETAILS, AND MORE INFORMATION.
6. SURFACE MOUNT WITH TAMPERPROOF BOLTS.

5 BENCH

SCALE: 1:10



NOTES:

1. PREPARATION, SUPPLY, AND INSTALLATION ALL TO BE PROVIDED BY CONTRACTOR.
2. EMBED BOLLARD BASE INTO CONCRETE FOOTING PER MANUFACTURERS RECOMMENDATIONS.
3. BOLLARD MANUFACTURER: WISHBONE (www.wishboneltd.com)
4. BASIS OF DESIGN:
 - DENMAN REMOVABLE BOLLARD
 - ALUMINUM FRAME

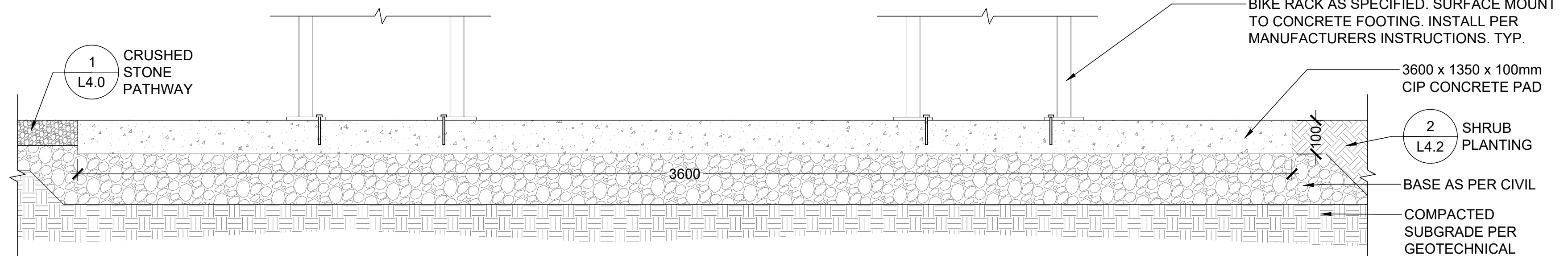
8 REMOVABLE BOLLARD

SCALE: NTS



NOTES:

1. PREPARATION, SUPPLY, AND INSTALLATION ALL TO BE PROVIDED BY CONTRACTOR.
2. SURFACE MOUNT PER MANUFACTURERS RECOMMENDATIONS WITH TAMPERPROOF BOLTS.
3. BIKE RACK MANUFACTURER: MAGLIN (www.maglin.com)
4. BASIS OF DESIGN:
 - 500 BIKE RACK
 - H.S. STEEL TUBE



BIKE RACK FOOTING SECTION

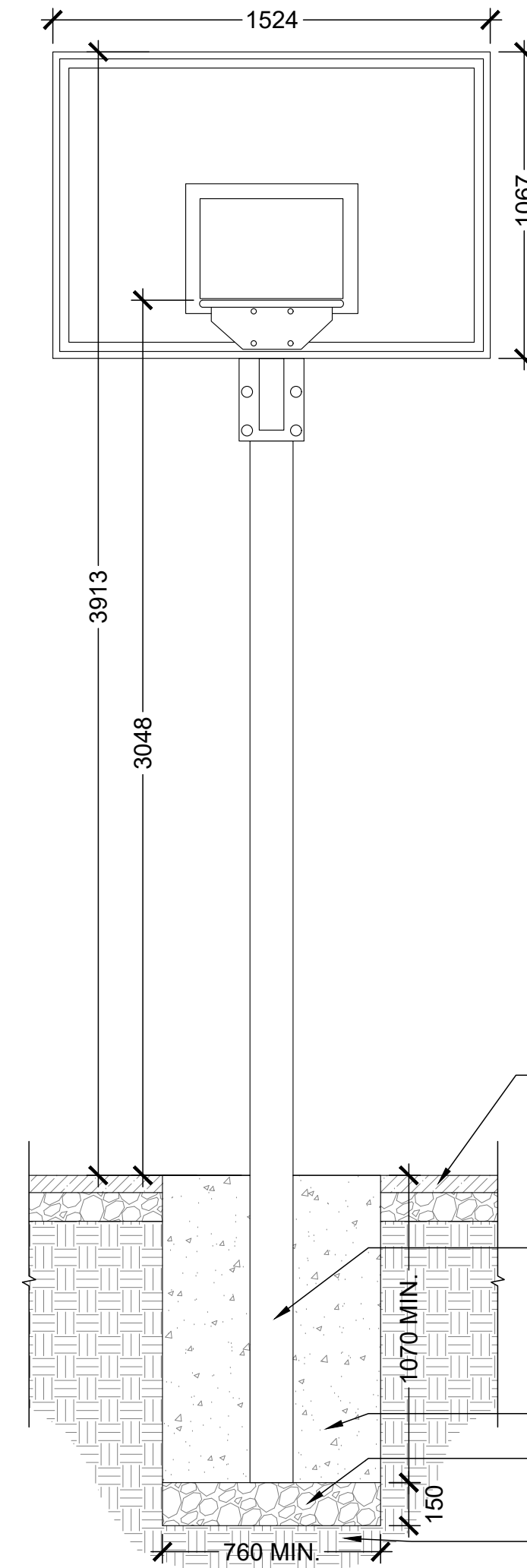
9 BIKE RACK

SCALE: 1:10



NOTES:

1. PREPARATION, SUPPLY, AND INSTALLATION ALL TO BE PROVIDED BY CONTRACTOR.
2. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
3. BASKETBALL HOOP MANUFACTURER: SPORTSYSTEMSCANADA (www.sportsystemscanada.com)
5. BASIS OF DESIGN:
 - SE-PSS-GP BASKETBALL HOOP
 - GALVANIZED / POWDER COAT BLACK STEEL POLE WITH CAST STEEL BACKBOARD
 - 6' EXTENSION



BASKETBALL HOOP FOOTING SECTION

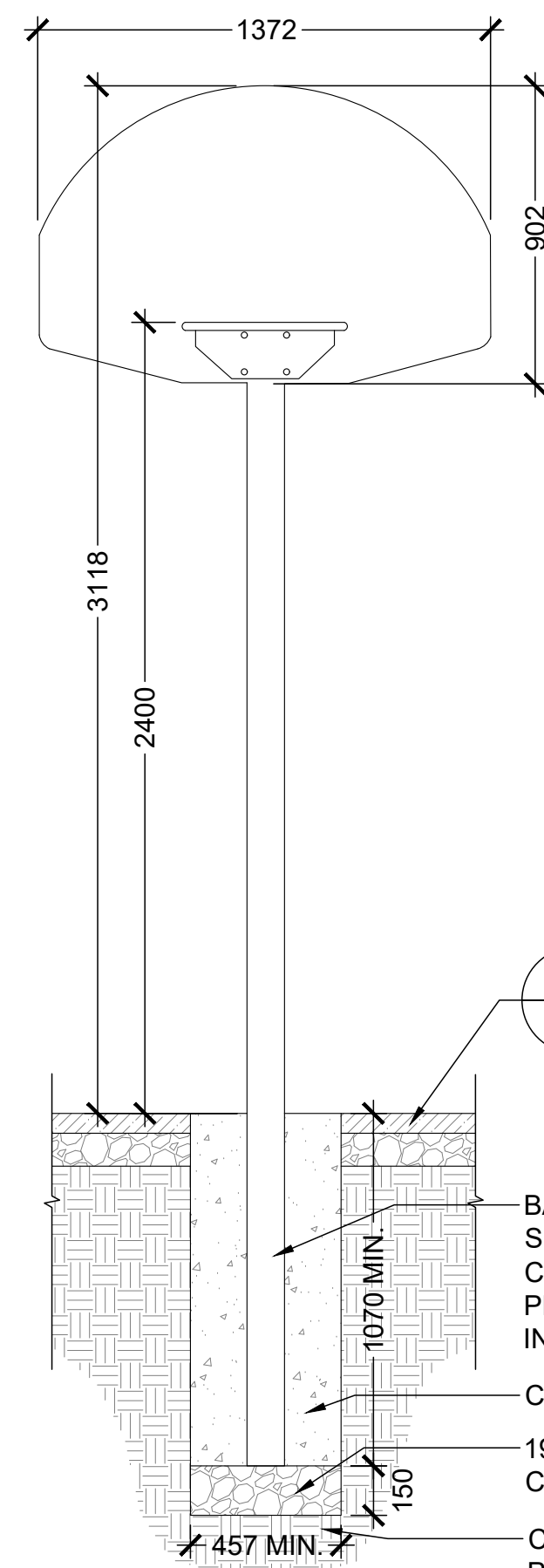
6 REGULATION BASKETBALL HOOP

SCALE: 1:20



NOTES:

1. PREPARATION, SUPPLY, AND INSTALLATION ALL TO BE PROVIDED BY CONTRACTOR.
2. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
3. SET POST HEIGHT SO THAT TOP OF MOUNTING PLATE SITS 2400mm ABOVE THE FINISHED PLAYING SURFACE.
4. BASKETBALL HOOP MANUFACTURER: SPORTSYSTEMSCANADA (www.sportsystemscanada.com)
5. BASIS OF DESIGN:
 - BB-IG-01B BASKETBALL HOOP
 - GALVANIZED / POWDER COAT BLACK STEEL POLE WITH CAST ALUMINUM BACKBOARD



BASKETBALL HOOP FOOTING SECTION

7 YOUTH BASKETBALL HOOP

SCALE: 1:20

NOTE ABOUT POLE TRIMMED BY 2 FEET?

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Extension Community Park: Sport Court Area

Project

Details

Title

24559

Project No.

Scale

L4.0

Drawing No.

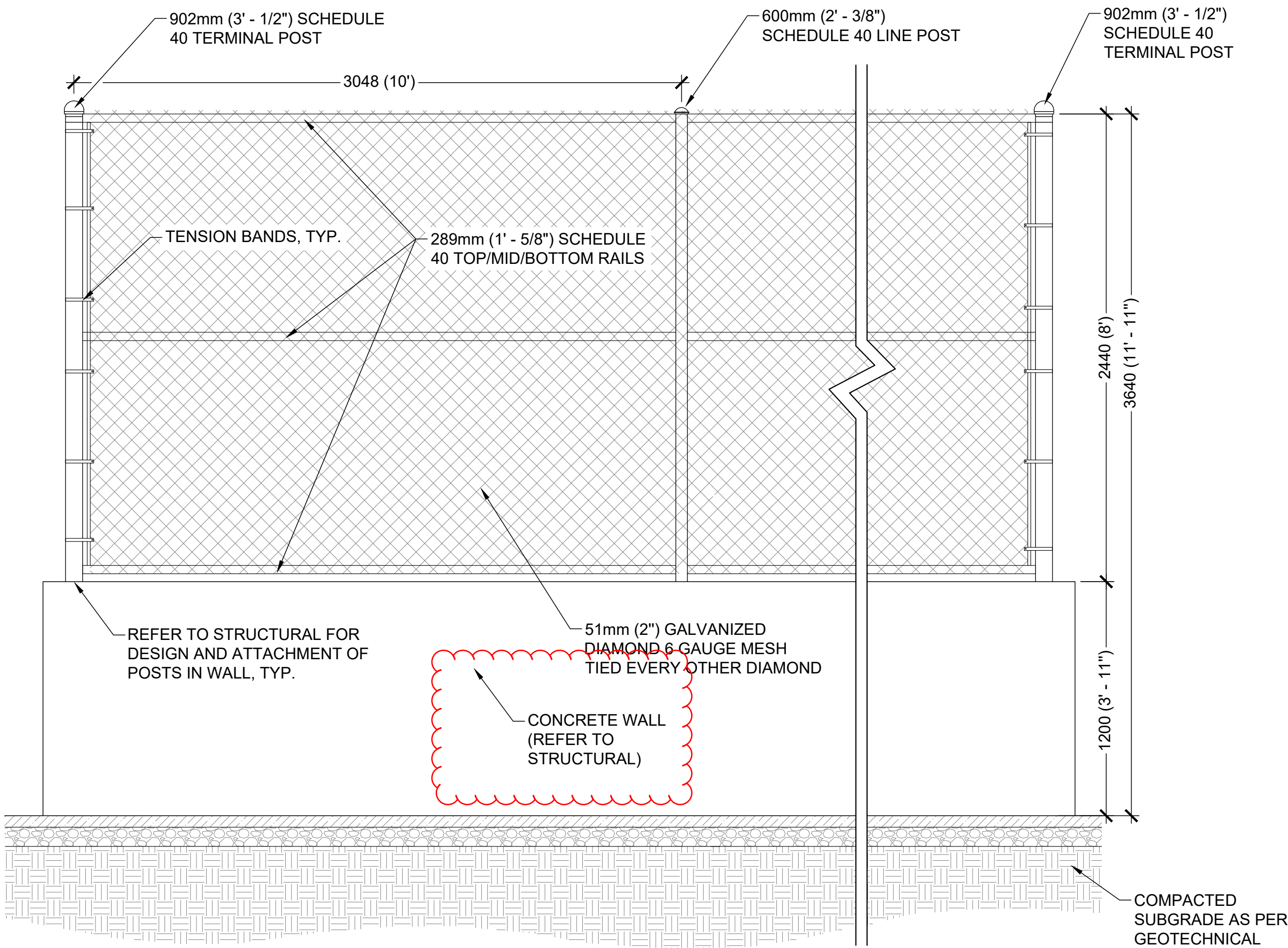
Permit No.

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Revision

NOTES:

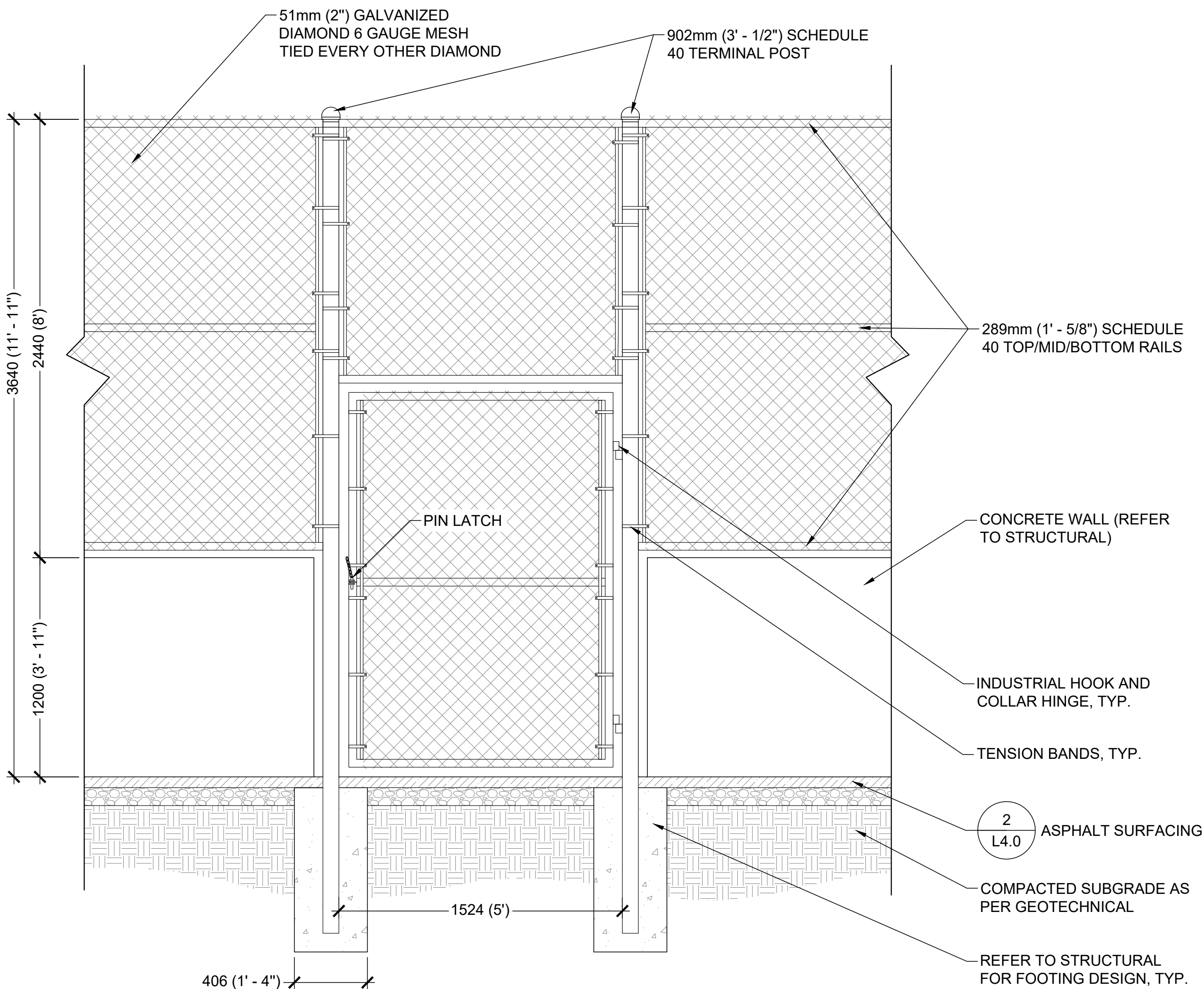
1. FENCE POSTS AND HARDWARE TO BE GALVANIZED AND POWDER COATED BLACK.
2. FENCE CONNECTIONS TO BE ALL WELDED CONSTRUCTION AND COVED FITTED.
3. ALL CAPS ARE TO BE POWDER COATED BLACK AND WELDED IN PLACE.
5. GALVICON PAINT IS TO BE APPLIED TO ALL JOINTS, WELDS, AND DAMAGED AREAS. TWO (2) COATS REQUIRED. PAINT TO BE BLACK AND MATCH POWDER COAT FINISH.
6. WIRE BRUSH, CLEAN AND PAINT ALL WELDS WITH TWO (2) COATS, ALLOWING ONE (1) DAY DRYING TIME BETWEEN COATS.
7. POST SPACING SHALL BE EQUIDISTANT TO A MAXIMUM OF 3048mm O.C. UNLESS OTHERWISE NOTED ON LAYOUT PLAN.
8. CONCRETE FOOTING AS PER STAMPED ENGINEERING DRAWINGS.



1 CHAIN LINK FENCE
SCALE: 1:20

NOTES:

1. FENCE POSTS AND HARDWARE TO BE GALVANIZED AND POWDER COATED BLACK.
2. FENCE CONNECTIONS TO BE ALL WELDED CONSTRUCTION AND COVED FITTED.
3. ALL CAPS ARE TO BE POWDER COATED BLACK AND WELDED IN PLACE.
5. GALVICON PAINT IS TO BE APPLIED TO ALL JOINTS, WELDS, AND DAMAGED AREAS. TWO (2) COATS REQUIRED. PAINT TO BE BLACK AND MATCH POWDER COAT FINISH.
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7. POST SPACING SHALL BE EQUIDISTANT TO A MAXIMUM OF 3048mm O.C. UNLESS OTHERWISE NOTED ON LAYOUT PLAN.
8. CONCRETE FOOTING AS PER STAMPED ENGINEERING DRAWINGS.
9. POST FOOTINGS IN GROUND TO BE AUGURED A MINIMUM 915mm INTO NATURAL FIRM BEARING.



2 CHAIN LINK FENCE GATE
SCALE: 1:20

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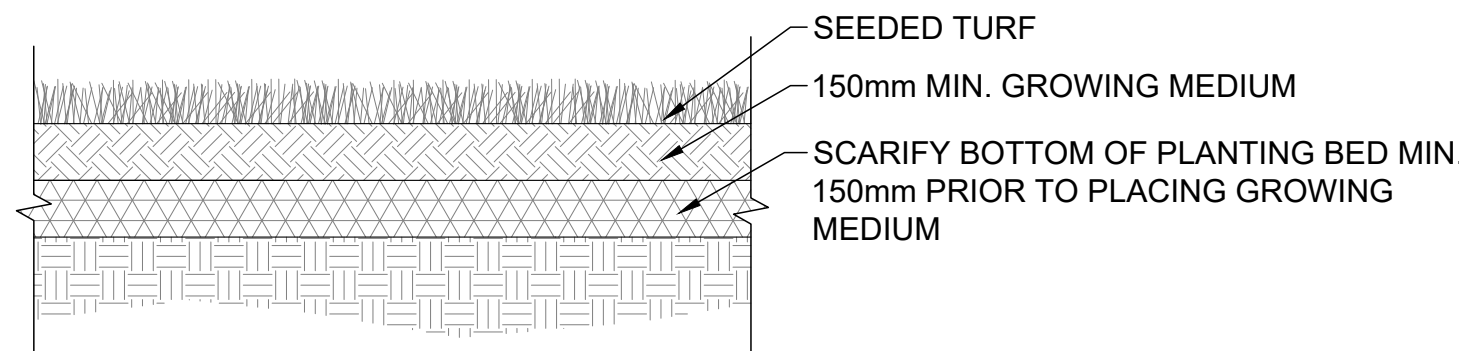
Scale

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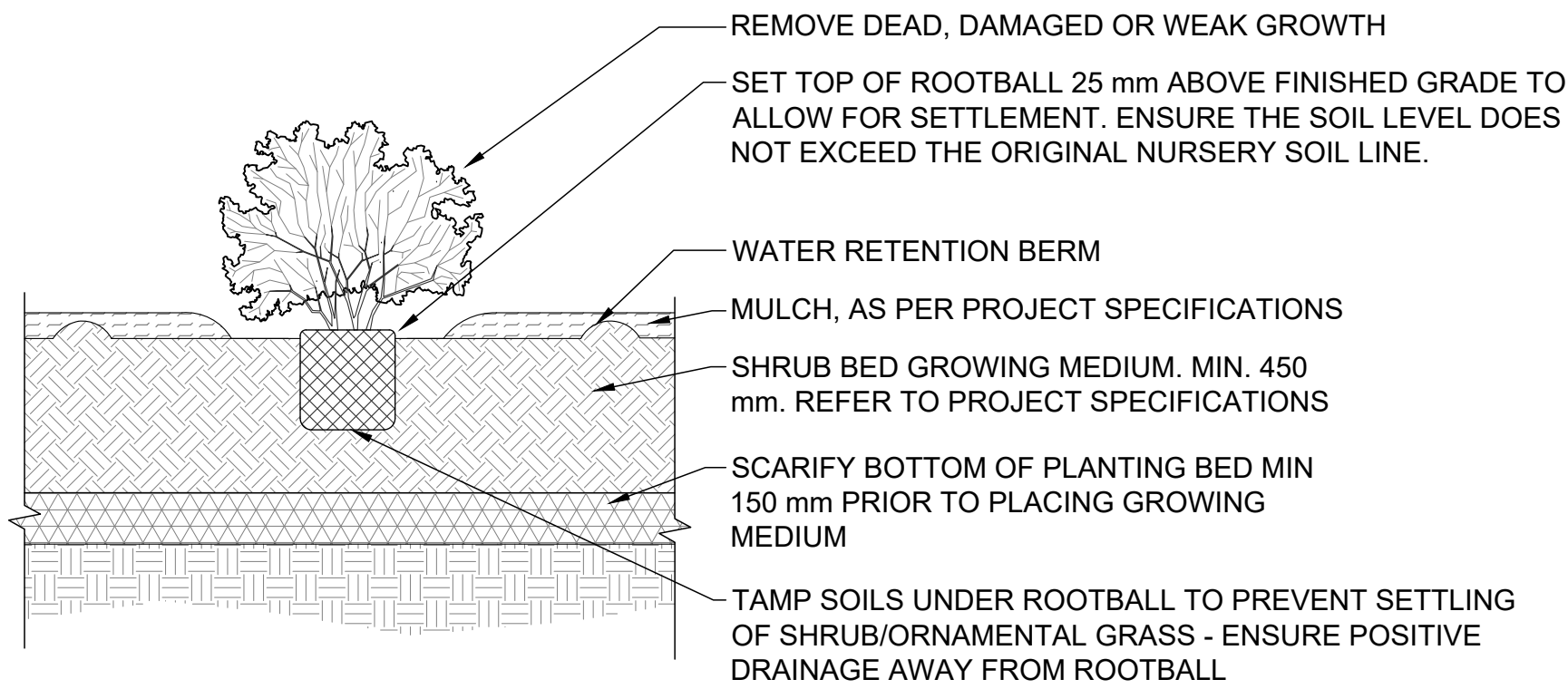
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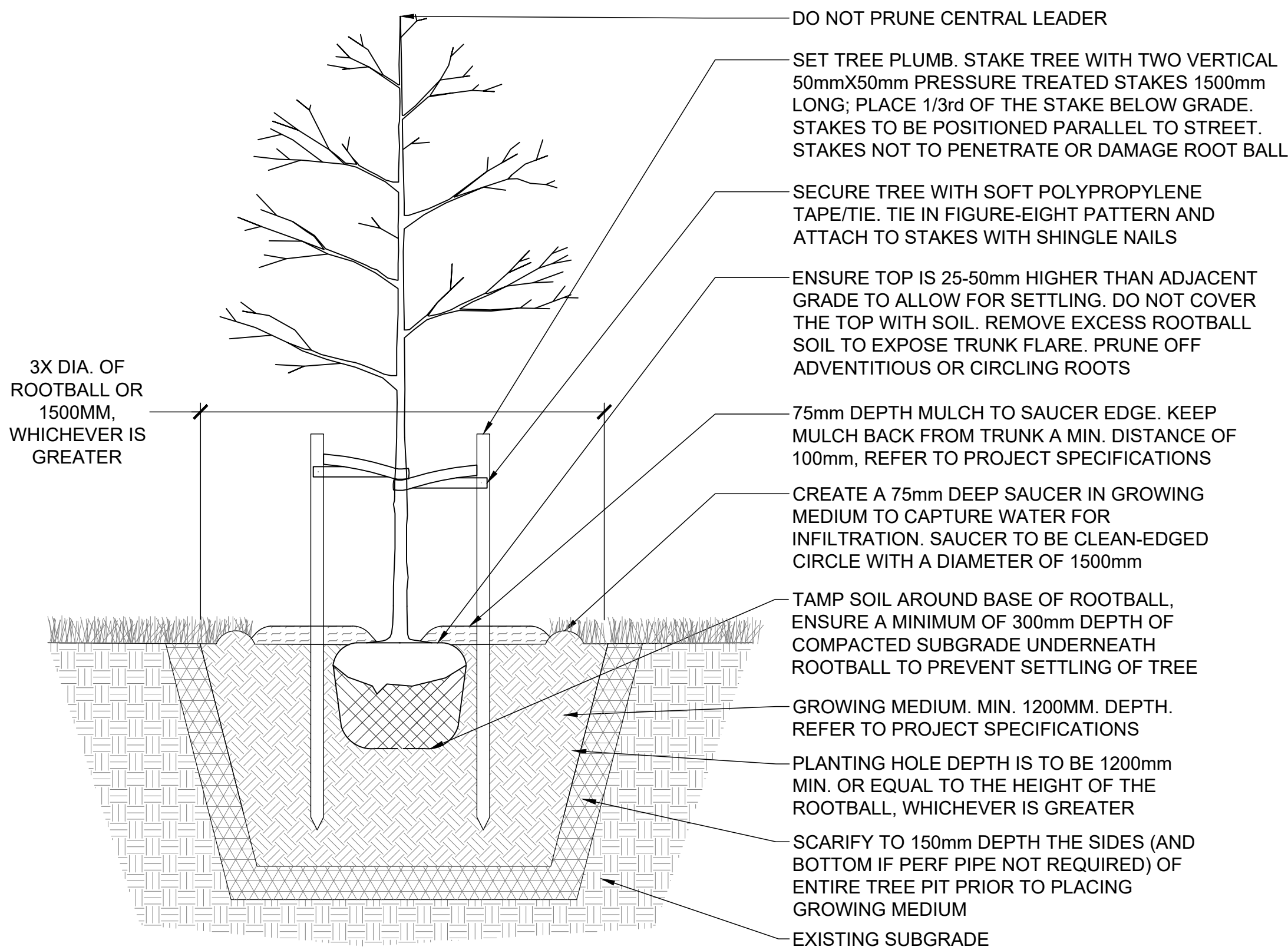
1 TURF
SCALE: 1:20



2 SHRUB PLANTING
SCALE: 1:20

- NOTES:
1. TREE MUST BE DENSE AND FULL WITH COMPLETE BRANCH DEVELOPMENT, VIGOROUS FOLIAGE AND A FORM WHICH IS SATISFACTORY TO THE LANDSCAPE ARCHITECT. CANOPY DENSITY AND LEAF COLOUR MUST BE CHARACTERISTIC OF SPECIES.
 2. PLANT TREE PLUMB AND MAINTAIN PLUMB THROUGHOUT WARRANTY PERIOD.
 3. CUT ALL BINDING MATERIAL AND REMOVE STRAPPING OF TREE ROOTBALL PRIOR TO BACKFILL, FOLD BACK BURLAP INTO HOLE AND REMOVE ANY MATERIAL FROM THE TREE PIT THAT WOULD IMPEDE TREE GROWTH.
 4. DO NOT DISTURB THE ROOTBALL OR PLANTING PIT OF THE TREE WITH THOSE OF OTHER TREES OR SHRUBS PLANTED IN THE PLANTING BED.
 5. CROWN PRUNING RESTRICTED TO INTERFERING BRANCHES IN ACCORDANCE TO INTERNATIONAL SOCIETY OF ARBORICULTURE STANDARDS.
 6. REMOVE BROKEN, DEAD AND OR DISEASED BRANCHES ACCORDING TO STANDARD HORTICULTURAL PRACTICES & DO NOT CUT LEADER.
 7. CONTRACTOR TO TEST AND CONFIRM NEW TREE PITS HAVE POSITIVE AND FREE DRAINAGE. IF DRAINAGE PROBLEMS EXIST, ADDITIONAL MEASURES WILL BE REQUIRED PRIOR TO GROWING MEDIUM PLACEMENT AND PLANTING.

3 TREE PLANTING
SCALE: 1:20



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Extension Community
Park: Sport Court Area

Project

Details

Title

24559

Project No. Scale

L4.2 A

Drawing No. Permit No. Revision



<div>Legend</div> <div><div>Development Area</div><div>Test Pit</div></div>	PROJECT NAME 2120 Ryder Street, Extension, BC		Drawing No. E4767-01		<div><div>LEA</div><div>Lewkowich Engineering Associates Ltd.</div></div>
	DRAWING TITLE Test Pit Site Plan		Date: 2025-08-13	Drawn By: KL	
	LEGAL DESCRIPTION Lot 1-7, Block 1, Section 12, Range 2, Cranberry District, Plan 716				



TEST PIT

File Number: E4767

TP25-01

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100290°N, -123.956061°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
		0.0-0.1m Silty SAND and ORGANICS (sod, rootlets, matter), loose, brown, dry (TOPSOIL)
		0.1-0.3m Silty SAND, some gravel, loose, brown, dry (FILL)
0.5		0.3-0.8m SAND, some gravel to gravelly, some silt, compact to dense, light brown, dry
1.0		0.8-1.2m Silty gravelly SAND, trace cobble, very dense, grey brown, moist (TILL)
1.5		Fill materials to 0.3m. No observed groundwater seepage. End of test pit at 1.2m (refusal on inferred till).

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

1900 Boxwood Road
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Email: geotech@lewkovich.com



TEST PIT

File Number: E4767

TP25-02

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100382°N, -123.955920°W

Depth (m)	Soil Symbol	Description	Sample Type	Sample No.
0.0		Ground Surface		
0.0-0.15m		Silty SAND and ORGANICS (sod, rootlets, matter), loose, brown, dry (TOPSOIL)		
0.15-0.5m		SAND, some gravel to gravelly, some silt, compact to dense, light brown, dry		
0.5				
0.5-1.0m		Silty, gravelly, SAND, dense, orangey brown, moist (WEATHERED TILL)		
1.0				
1.0-1.1m		Silty gravelly SAND, trace cobble, very dense, grey brown, moist (TILL)		
		No observed groundwater seepage. End of test pit at 1.1m (refusal on inferred till).		
1.5				

Sample Type: ☒ SPT ☒ Grab ☐ Bulk ☐ Shelby Tube ☐ Core ☐ No Recovery

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-03

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100436°N, -123.955909°W

Depth (m)	Soil Symbol	Description	Sample Type	Sample No.
0.0		Ground Surface		
0.0-0.1m		Gravel (fine), some sand, trace organics (rootlets, matter), loose, grey, dry (FILL)		
0.1-0.4m		Silty SAND, some gravel, loose, brown, dry (FILL)		
0.4-0.7m		SAND, some gravel to gravelly, some silt, dense, light brown, dry		
0.7-1.1m		Silty gravelly SAND, trace cobble, very dense, grey brown, moist (TILL)	GS-02	
1.0		Fill materials to 0.4m. No observed groundwater seepage. End of test pit at 1.1m (refusal on inferred till).		
1.5				

Sample Type: ☒ SPT

☐ Grab

☐ Bulk

☐ Shelby Tube

☐ Core

☐ No Recovery

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-04

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100499°N, -123.955960°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
0.0-0.1m		Silty SAND and ORGANICS (sod, rootlets, matter), loose, brown, dry (TOPSOIL)
0.1-0.5m		Silty SAND, trace gravel, trace organics (rootlets) loose, brown, dry (FILL)
0.5		
0.5-0.8m		SAND, some gravel to gravelly, some silt, dense, light brown, dry
0.8-0.9m		Silty gravelly SAND, trace cobble, very dense, grey brown, moist (TILL)
1.0		Fill materials to 0.5m. No observed groundwater seepage. End of test pit at 0.9m (refusal on inferred till).
1.5		

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-05

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100433°N, -123.955570°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
0.0-0.15m		Silty SAND and ORGANICS (sod, rootlets, matter), loose, brown, dry (TOPSOIL)
0.15-0.5m		Silty SAND, some gravel, trace organics, trace cobble, loose, brown, dry (FILL)
0.5-0.6m		Sandy SILT and ORGANICS (rootlets, roots, matter), loose, brown to black, dry (ORIGINAL TOPSOIL)
0.6-1.0m		Silty gravelly SAND, trace cobble, compact to dense, orangey brown, dry (WEATHERED TILL)
1.0-1.2m		Silty gravelly SAND, very dense, grey brown, moist (TILL)
1.5		Fill materials to 0.5m. No observed groundwater seepage. End of test pit at 1.2m (refusal on inferred till).

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-06

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100395°N, -123.955749°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
0.0-0.7m		0.0-0.7m GRAVEL and SAND, some silt, compact, grey, dry to moist (FILL)
0.7-0.9m		0.7-0.9m Silty SAND, some gravel to gravelly, compact, orangey brown, moist to wet (WEATHERED TILL)
0.9-1.0m		0.9-1.0m Silty gravelly SAND, very dense, grey brown, moist (TILL)
1.0		Fill materials to 0.7m. No observed groundwater seepage. End of test pit at 1.0m (refusal on inferred till).
1.5		

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-07

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100304°N, -123.955808°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
0.0-1.0m		0.0-1.0m GRAVEL and SAND, some silt, compact, grey, dry to moist (FILL)
1.0-1.2m		1.0-1.2m Silty SAND, some gravel to gravelly, compact to dense, orangey brown, moist to wet (WEATHERED TILL)
1.2-1.3m		1.2-1.3m Silty gravelly SAND, very dense, grey brown, moist (TILL)
1.5		Fill materials to 1.0m. No observed groundwater seepage. End of test pit at 1.3m (refusal on inferred till).

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

Reviewed By: Chris Hudec, M.A.Sc., P.Eng.

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Digging Method: Bobcat E60 Excavator

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TEST PIT

File Number: E4767

TP25-08

Client: RDN Recreation and Parks

Project: 2120 Ryder Street - Extension Community Park Sport Courts

Location: Extension, BC

Elevation: 136m

Coordinates: 49.100212°N, -123.955751°W

Depth (m)	Soil Symbol	Description
0.0		Ground Surface
0.0-0.1m		Silty SAND and ORGANICS (sod, rootlets, matter), loose, brown, dry (TOPSOIL)
0.1-0.3m		Silty SAND, some gravel, loose, brown, dry (FILL)
0.3-0.5m		Silty, SAND, some gravel, trace cobble, compact to dense, light brown, dry
0.5-0.7m		Silty gravelly SAND, dense, orangey brown, moist (WEATHERED TILL)
0.7-0.8m		Silty gravelly SAND, very dense, grey brown, moist (TILL)
1.0		Fill materials to 0.3m. No observed groundwater seepage. End of test pit at 0.8m (refusal on inferred till).
1.5		

Logged By: Knut Lokken, EIT, GIT

Date: August 12, 2025

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2020 National Building Code of Canada Seismic Hazard Tool

i This application provides seismic values for the design of buildings in Canada under Part 4 of the National Building Code of Canada (NBC) 2020 as prescribed in Article 1.1.3.1. of Division B of the NBC 2020.

Seismic Hazard Values

User requested values

Code edition	NBC 2020
Site designation X_s	X_c
Latitude (°)	49.101
Longitude (°)	-123.956

Please select one of the tabs below.

[NBC 2020](#)
[Additional Values](#)
[Plots](#)
[API](#)
[Background Information](#)

The NBC 5% damped spectral acceleration values can be viewed in the NBC tab. Additional hazard values for your site can be found below.

The 5%-damped spectral acceleration ($S_a(T)$, where T is the period, in s) and peak ground acceleration (PGA) values are given in units of acceleration due to gravity (g , 9.81 m/s^2). Peak ground velocity (PGV) is given in m/s. Probability is expressed in terms of percent (%) exceedance in 50 years.

By default, all probabilities for the user-specified site designation are shown. Other site designations can be selected from the respective drop-down menu in the table. In low hazard regions, a minimum value of $0.001g$ for $T \leq 2.0s$ and of $0.0001g$ for $T > 2.0s$ is assigned. Further information on the calculation of seismic hazard is provided in the *Background Information* tab.

Site Designation	Probability	$S_a(0.05)$	$S_a(0.1)$	$S_a(0.2)$	$S_a(0.3)$	$S_a(0.5)$	$S_a(1.0)$	$S_a(2.0)$	$S_a(5.0)$	$S_a(10.0)$	PGA	PGV
XC ▼	All ▼											
X_c	2	0.811	1.17	1.38	1.45	1.22	0.72	0.45	0.119	0.0472	0.593	0.715
X_c	2.5	0.745	1.08	1.28	1.33	1.11	0.652	0.401	0.103	0.0394	0.548	0.645
X_c	3.5	0.654	0.947	1.12	1.16	0.961	0.557	0.331	0.0817	0.0301	0.483	0.549
X_c	5	0.563	0.819	0.968	0.996	0.815	0.464	0.264	0.0631	0.0229	0.419	0.456
X_c	7	0.485	0.704	0.834	0.849	0.686	0.384	0.208	0.0487	0.0176	0.361	0.38
X_c	10	0.409	0.593	0.702	0.707	0.562	0.307	0.157	0.0364	0.0132	0.305	0.306
X_c	14	0.341	0.497	0.587	0.584	0.456	0.243	0.118	0.027	0.0098	0.256	0.244
X_c	20	0.275	0.402	0.475	0.466	0.356	0.184	0.085	0.0194	0.00691	0.207	0.188
X_c	30	0.207	0.302	0.358	0.347	0.258	0.13	0.0576	0.013	0.00447	0.155	0.134
X_c	40	0.161	0.236	0.282	0.27	0.198	0.0979	0.0428	0.00956	0.00318	0.121	0.102

Download CSV

← Go back to the [seismic hazard calculator form](#)

Date modified: 2021-04-06