

City of Surrey
PLANNING & DEVELOPMENT REPORT

Application No.: 7921-0152-00

Planning Report Date: January 17, 2022

PROPOSAL:

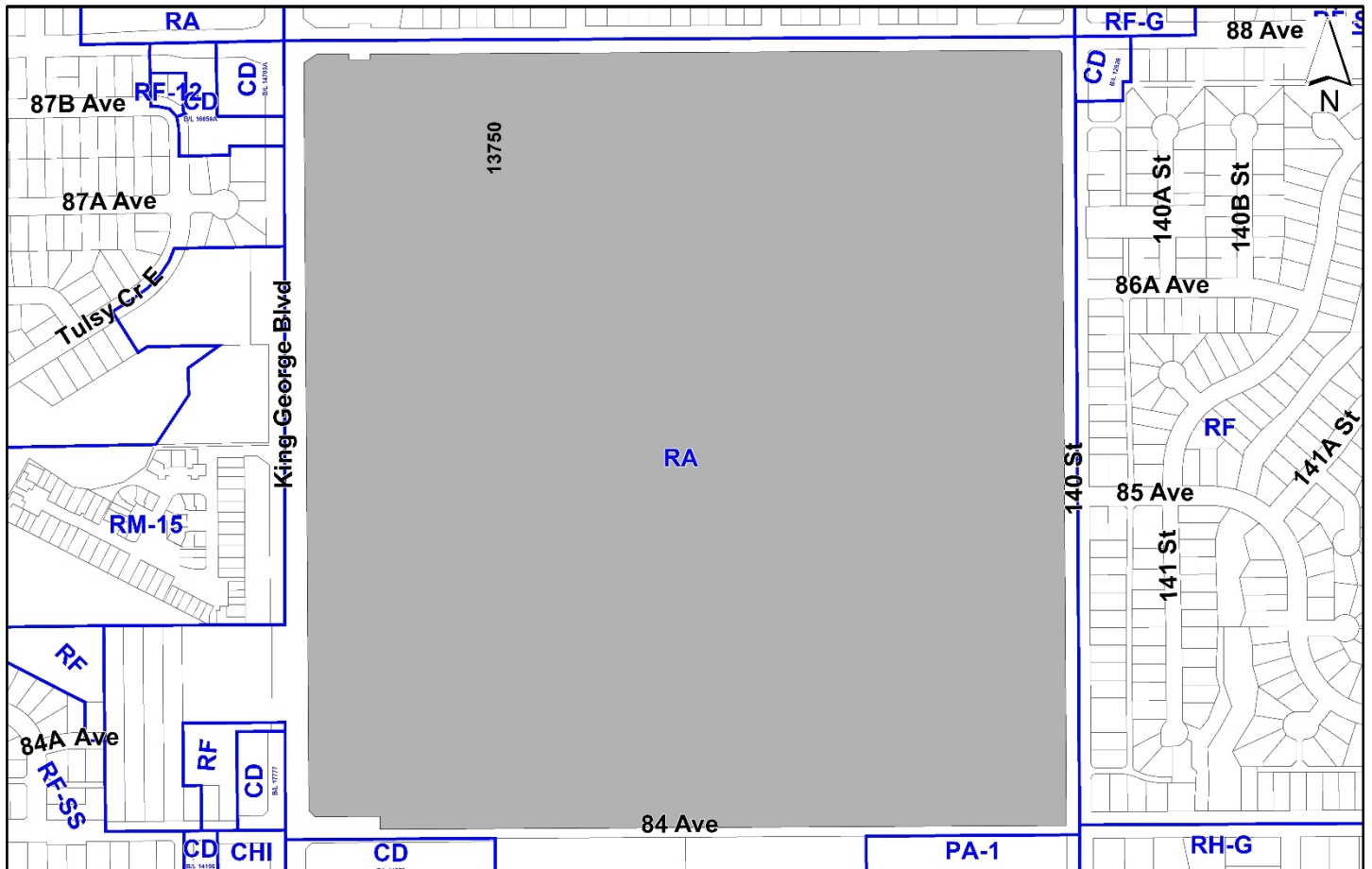
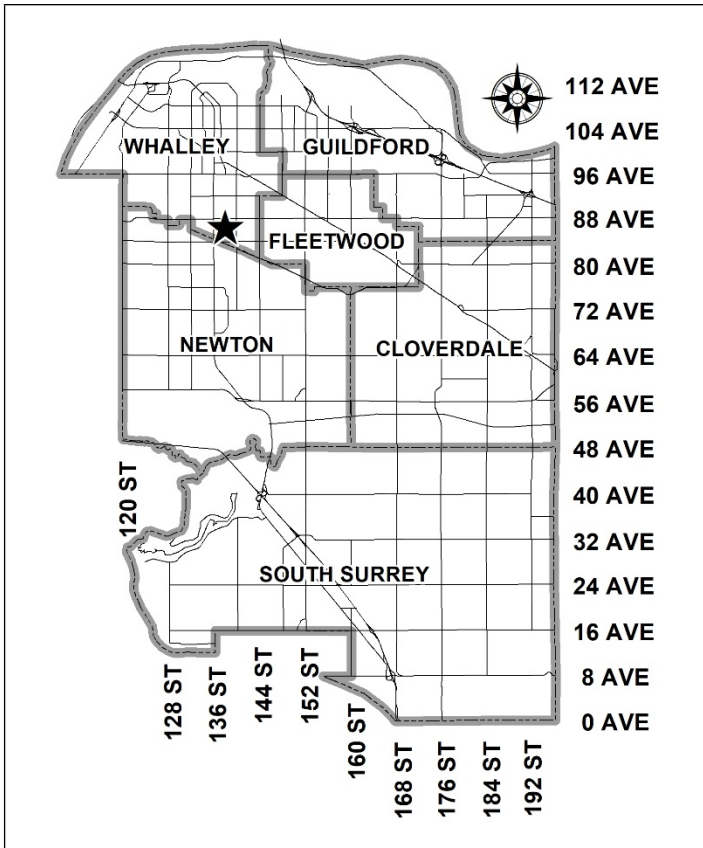
- **Development Permit**

to permit the development of a grandstand with seating for approximately 2,200 people and includes change rooms, washrooms, ticketing spaces, and an upgraded track, in Bear Creek Park.

LOCATION: 13750 - 88 Avenue

ZONING: RA

OCP DESIGNATION: Conservation and Recreation



RECOMMENDATION SUMMARY

- Approval to draft Development Permit for Form and Character.

DEVIATION FROM PLANS, POLICIES OR REGULATIONS

- None.

RATIONALE OF RECOMMENDATION

- The proposal complies with the Conservation and Recreation designation in the Official Community Plan (OCP).
- The proposal complies with the Conservation and Recreation designation in the Metro Vancouver Regional Growth Strategy (RGS).
- All of the proposed improvements, including the grandstand and associated athletic upgrades, are all proposed to be within the existing development footprint of Bear Creek Park.
- The proposal complies with the Development Permit requirements in the OCP for Sensitive Ecosystems (DP₃), Streamside Areas, as municipal works are exempt from DP₃ guidelines. Notwithstanding this, the existing and proposed improvements comply with DP₃ guidelines, except for a small portion of the existing track that encroaches into the required riparian setbacks, as outlined in Park 7A of the Zoning Bylaw. No additional encroachments are proposed, and habitat improvements are planned as part of the project.
- The proposal complies with the Development Permit requirements in the OCP for Form and Character.
- The project is intended to deliver a world-class athletic destination that will contribute both to the community and vibrancy in Surrey.

RECOMMENDATION

The Planning & Development Department recommends that Council authorize staff to draft Development Permit No. 7921-0152-00 generally in accordance with the attached drawings (Appendix I).

SITE CONTEXT & BACKGROUND

Direction	Existing Use	OCP Designation	Existing Zone
Subject Site	Bear Creek Park	Conservation and Recreation	RA
North (Across 88 Avenue):	Single family homes	Urban	RF
East (Across 140 Street):	Neighborhood commercial and single family residential	Urban	CD Bylaw No. 12526, RF and RA
South (Across 84 Avenue):	Bear Creek Park, townhouses, and public assembly	Multiple Residential, Conservation and Recreation & Suburban	CD Bylaw No. 11073, RA, A1 and PA-1
West (Across King George Boulevard):	Single family homes, townhouses, commercial uses and gas station.	Urban	CD Bylaw No. 17777, RA, RM-15, RF CD Bylaw 16659A, CD Bylaw No. 14703A

Context & Background

- Bear Creek Park is a large City-owned property located at 13750 88 Avenue and is bounded by 88 Avenue along the north, King George Boulevard along the west, 140 Street along the east and 84 Avenue along the south.
- The City-owned park site is designated Conservation and Recreation in the Official Community Plan (OCP) and is zoned One-Acre Residential (RA).
- The subject site encompasses an area of approximately 62 hectares, is substantially treed and has Class A watercourses, including Bear Creek, Quibble Creek, King Creek, and associated tributaries that run north to south through the site.
- Bear Creek Park is home to the Surrey Arts Centre, the existing track and sports field areas and bleachers, the Off-Leash Dog Park, a playground, and a waterpark.
- The existing bleachers and athletic fields and tracks are located in the center of the Park, and south of the Surrey Arts Centre, between Bear and King Creeks.

- The proposed grandstand and athletic centre improvements are all proposed within the existing developed footprint of the Park and outside of existing riparian and natural areas.

BACKGROUND

- Following from Council's capital budget planning process, a feasibility study for the Bear Creek Athletic Centre that included research, stakeholder engagement and technical reviews was completed by HCMA Architecture in June 2020. The feasibility study resulted in a proposed Athletics Centre at Bear Creek Park that proposes to deliver:
 - A grandstand with partially covered spectator seating for 2,200 people (with possible expansion of another 1,000 temporary seats);
 - New changerooms, public washrooms, temporary concession, announcing booth and timer's booth;
 - A running track built to international standards; and
 - Updated spaces for field events (long jump / triple jump, javelin, discus / hammer throw, and shot put).
- At the Regular Council meeting on November 30, 2020, Council approved the detailed design and construction of Bear Creek Athletics Centre as one of several proposed major capital projects, part of Corporate Report No. Foo2, 2021 Five-Year (2021-2025) Financial Plan – Capital Program.
- At the Regular Council meeting on May 31, 2021, Council approved awarding of the detailed design and construction management services contract to Stantec Consulting for the Bear Creek Athletics Centre.

PARKS RECREATION AND CULTURE PUBLIC ENGAGEMENT

- On August 18, 2021, Parks Recreation and Culture staff hosted an in-person public open house attended by approximately 35 participants. Parks staff shared information on a refined design concept and responded to questions from community members. The open house was promoted through direct mail-outs, on-site signs, bus shelter ads, the City's website, and the City's social media channels. As part of the public engagement, an online survey was included through City Speaks to solicit feedback between August 12 to 29, 2021.
- In total, the survey received 1,742 responses with 78% of respondents rating the overall design of Bear Creek Park Athletic Centre as positive. The feedback gathered at this meeting was used to guide the detailed design for the proposed athletics centre and is reflected in the currently proposed Development Permit application.

DEVELOPMENT PROPOSAL

Planning Considerations

- The applicant (the City of Surrey) is proposing athletic centre upgrades in Bear Creek Park that consist of the following:
 - A grandstand with partially covered spectator seating for 2,200 people (with possible expansion of another 1,000 temporary seats);
 - New changerooms, public washrooms, temporary concession, announcing booth and timer's booth;
 - A running track built to international standards; and
 - Updated spaces for field events (long jump/triple jump, javelin, discus, hammer throw, shot put).
- A Development Permit for Form and Character is proposed to allow for the proposed grandstand and athletic centre upgrades.
- The proposed grandstand and athletic centre improvements are all proposed within the existing developed footprint of the Park and outside of existing riparian and natural areas.
- The existing parking area, accessed off of 88 Avenue, is intended to continue to serve as the primary parking area for the site. No new on-site parking is proposed.

Referrals

Engineering:	The Engineering Department has no objection to the project subject to the completion of Engineering servicing requirements as outlined in Appendix II.
Parks, Recreation & Culture:	No concerns
Surrey Fire Department:	No concerns
Advisory Design Panel:	The application was not referred to the ADP but was reviewed by staff and found satisfactory.

Road Network & Infrastructure

- No changes to existing transportation network are planned as part of this project.
- The 84 Avenue King George Boulevard to 140 Street Capital Project is under construction adjacent to the south end of the Park and will improve access for all modes, circulation, and road safety in the area.

- Bear Creek Park is well-served by a number of bus routes and transit stops, including the following:
 - R1 RapidBus (at 88 Avenue), No. 321 and No. 394 along King George Boulevard;
 - No. 388 along 88 Avenue; and
 - No. 325 along 140 Street.

Access

- The primary vehicle access will remain off of 88 Avenue. Walking and Bike access will be from both 88 Avenue and 84 Avenue as well as through the trail system connections to King George Boulevard and 140 Street, including any transit stops located on these roads.

Parking

- There are approximately 765 spaces for all park visitors at Bear Creek Park with 586 stalls at the Arts Centre and Main Park lots, and 160 stalls off auxiliary lots on 140 Street.
- Based on previous observations, existing peak parking demand for a typical special event of 870 attendees is approximately 245 stalls. The base weekend parking demand is estimated at 255 stalls. This results in an overall peak parking lot demand of 80% maximum occupancy during special events.
- The 84 Avenue Project between King George Boulevard and 140 Street includes Bear Creek Park Amenity Enhancements consisting of approximately 200 additional parking stalls for park users for larger events. The new parking stalls will be accommodated along 84 Avenue and with an expansion of the parking lot off 140 Street south of 84 Avenue.
- The resulting total number of stalls will be approximately 965 stalls. Based on an active transportation (transit, walk, bike) mode share of 20% and vehicle occupancy rates of 3 attendees per vehicle the estimated vehicle parking demand range will range from 585 stalls to 800 stalls depending on the size and scale of the event.
- The 20% active transportation (transit, walk, bike) mode share is considered to be conservative considering the superior access to the R1 King George RapidBus and improved Walk Bike connections to the Park. However, should parking demand exceed supply it is anticipated that some on-street parking may occur on nearby adjacent local roads. There are approximately 130 on-street parking stalls located within 800 metres of the Athletic Centre. As Special Events are infrequent in nature, sufficient notice can be provided to nearby residents informing them of the event and to anticipate

Parkland and Natural Area Considerations

- Bear Creek Parks falls within identified Development Permit areas for Sensitive Ecosystems (Streamside Protection) and Hazard Lands (Steep Slopes).
- There are two Class A, watercourses, Bear Creek and King Creek located on the site.

- In accordance with City processes with respect to Sensitive Ecosystem Development Permit Areas (Streamside Protection) the applicant engaged Bluelines Environmental, and appropriate Qualified Environmental Professionals (QEP), to prepare the required environmental assessments and reports.
- The QEP has confirmed that the proposed project and associated works will not require the submission of formal notifications to the Province of BC pursuant to Section 38 notification requirements of the Water Sustainability Regulation nor will formal referrals to Fisheries and Oceans Canada be required.
- A Sensitive Ecosystem Development Permit is not required for this City project. Specifically, Part II(d) exemptions for the DP3 permit areas noted in the OCP confirm that construction, maintenance, or operation of municipal or public utility works and services are exempt from the Sensitive Ecosystem Development Permit Area requirements.
- Notwithstanding these exemptions, the management of riparian ecosystem values remains an important and defining variable in forming the development of the athletic centre.
- The Streamside Setback requirements, as outlined in Part 7A of the Zoning Bylaw are generally satisfied, except for a small portion of the existing track. The majority of the existing athletic fields, track, and play areas are reflective of required streamside setbacks. No additional riparian area encroachments are proposed.
- The athletic track is proposed to remain in its current location with no additional encroachments into the streamside setbacks. A replacement track is proposed in its existing location.
- As this is a City-owned park site, the riparian protection area is already owned by the City and no additional riparian protection area is required to be conveyed to the City.
- As part of the proposed athletic centre upgrades, riparian and habitat enhancements are proposed. These details will be further developed in advance of construction and include:
 - A small habitat compensation area, just under 200 sq.m in area, is proposed adjacent to the west of the existing track. The existing lawn in this area will be replaced with a riparian planting area.
 - Parks will be identifying specific enhancements during the detailed design phase and Building Permit process.
 - Approximately 30 new trees will be planted within the riparian areas.
- A finalized geotechnical report will be required as part of the building permit process.

Sustainability Considerations

- The applicant has met all the typical sustainable development criteria, as indicated in the Sustainable Development Checklist.
- In addition, the applicant has highlighted the following additional sustainable features:
 - Siting the proposed new grandstand facility away from tree areas reduces tree removal and fire risk.
 - The roof covering provides shelter to as many seats as possible to reduce sun exposure for participants.
 - Embodied carbon reduction is achieved primarily through the re-use of heavy timber reclaimed from a deconstruction of a commercial building last year in Surrey. This material forms the majority of roof material for the new building. Additionally, new digital sports and occupant lighting, as well as minimal use of heat in the facility reduce its on-going carbon impact.
 - Reductions in water use is achieved through the use of low-flow fixtures and the capture of storm water to a common outfall point for future integration into an irrigation system.
 - Riparian areas are protected by location of the facility out of the riparian zones along King, Quibble and Bear Creeks.
 - Provisions are made for people of all ages, mobilities and abilities. All walkways and paths to meet and exceed code standards so that access points and transition areas are free of cross-slope.

Zoning Bylaw

- A Rezoning is not required to accommodate the proposed grandstand and improvements, as the Zoning Bylaw allows for any municipally owned and operated building to be located in any Zone.

PUBLIC ENGAGEMENT

- Three Development Proposal Signs were installed on the site on November 19, 2021. Staff did not receive any comments as a result of the proposed Development Permit.

DEVELOPMENT PERMITS

Form and Character Development Permit Requirement

- The proposed development is subject to a Development Permit for Form and Character.
- The proposed development complies with the Form and Character Development Permit guidelines in the OCP.
- Primary vehicle access to the site is anticipated to be located along 88 Avenue via the existing access to the Bear Creek Arts Centre parking lot.
- Pedestrian access to the grandstand, ticketing booth, and athletic fields is intended to be from the existing parking area, southeast of the Bear Creek Arts building.
- The walkway that connects the parking area to the grandstand and athletic area is proposed to be widened to 6.0 metres to accommodate pedestrian movements at peak periods, as well as to accommodate Fire Services movements.
- The ticketing booth is situated in the entry plaza and is a separate building that frames the entrance to the grandstand area and track and fields.
- The grandstand is designed to accommodate 2,200 people, and incorporates change rooms, washrooms, and temporary concession spaces underneath the seating area.
- An elevator is located near the entry plaza in the grandstand to facilitate ease of access to the upper seating area for accessibility.
- Sustainable practices are being used throughout the design, construction, and operation of the facility.
- Reclaimed glulam is proposed to be used for the canted and upturned roof of the grandstand, with two-thirds of the seating proposed to be covered.
- The grandstand building form is both dynamic and simple, using materials in their elemental form to reflect the building's Park setting.
- The location of the change rooms and washrooms, underneath the grandstand, are also adjacent to the play and waterpark areas to allow for ease of use by other park users.
- Mechanical and service uses are discretely screened from view below the stands.
- The grandstand has incorporated City of Surrey branding colours where possible, including in the seating area and flags on light poles.
- Opportunities to incorporate public art into exterior wall design is being explored.

Landscaping

- The footprint of the entry plaza is minimized while at the same time creating a sense of arrival. Its adjacent low retaining walls serve as additional seating and gathering for the public.
- The landscape design retains and incorporates the majority of existing, healthy, trees into the design.
- The plant species proposed are low maintenance and drought tolerant. These groundcover and shrubs proposed include Orange Honeysuckle, Kelsy Dwarf Red Dogwood and Japanese Pachysandra.
- The hardscaping materials includes asphalt and some cast-in-place concrete. These are incorporated in the walkways, plaza, and play areas.
- There are a limited number of Urban Design items that remain outstanding, and which do not affect the overall character or quality of the project. These generally include:
 - Design development to the detailed form of structural elements to enhance the overall design character;
 - Design enhancement to the ticketing booth and concession to improve wayfinding and comfort for users; and
 - Refinement and enhancement of proposed material finishes and colours at public interfaces.

TREES

- Cody Laschowski, ISA Certified Arborist of Diamond Head Consulting prepared an Arborist Assessment for the subject site, which consists of the area around the athletic track in Bear Creek Park, Surrey.
- There are multiple playgrounds, a waterpark, sports fields, and green spaces around the athletic centre area with asphalt pathways and planted park trees throughout. The table below provides a summary of the tree retention and removal by tree species in this area:

Table 1: Summary of Tree Preservation by Tree Species:

Tree Species	Existing	Remove	Retain
Alder and Cottonwood Trees			
Populus balsamifera ssp. Trichocarpa (Black Cottonwood)	2	0	2
Deciduous Trees (excluding Alder and Cottonwood)			
Zelkova serrata (Japanese Zelkova)	5	1	4
Liquidambar styraciflua (Sweetgum)	4	0	4
Aesculus hippocastanum (Horsechestnut)	13	1	13
Acer rubrum (Red Maple)	16	1	15

Tree Species	Existing	Remove	Retain
<i>Quercus rubra</i> (Northern Red Oak)	3	0	3
<i>Acer platanoides</i> (Norway Maple)	16	3	13
<i>Acer negundo</i> (Manitoba Maple)	2	0	2
<i>Platanus x acerifolia</i> (London Plane)	8	0	8
<i>Quercus bicolor</i> (Swamp Oak)	3	0	3
<i>Liriodendron tulipifera</i> (Tulip Tree)	1	1	0
<i>Sorbus aucuparia</i> (Rowan/Mountain-Ash)	1	1	0
<i>Parrotia persica</i> (Persian Ironwood)	2	0	2
<i>Quercus palustris</i> (Pin Oak)	5	0	5
<i>Cercidiphyllum japonicum</i> (Katsura)	1	1	0
<i>Fagus sylvatica</i> (European Beech)	7	1	6
<i>Ulmus</i> spp. (Elm spp.)	1	0	1
<i>Quercus phellos</i> (Willow Leaf Oak)	3	0	3
<i>Nyssa sylvatica</i> (Black Tupelo)	1	0	1
<i>Salix babylonica</i> (Weeping Willow)	1	0	1
<i>Cornus florida</i> (Flowering Dogwood)	1	0	1
<i>Tilia</i> spp. (Linden)	3	0	3
<i>Quercus robur</i> (English Oak)	1	0	1
<i>Quercus coccinea</i> (Scarlet Oak)	1	0	1
<i>Magnolia</i> spp. (Magnolia)	2	0	2
<i>Catalpa bignonioides</i> (Southern Catalpa)	1	0	1
<i>Acer palmatum</i> (Japanese Maple)	2	0	2
<i>Prunus x yedoensis</i> (Yoshino Cherry)	1	0	1
Coniferous Trees			
<i>Pseudotsuga menziesii</i> (Douglas-Fir)	1	0	1
<i>Sequoiadendron giganteum</i> (Giant Sequoia)	2	0	2
<i>Cedrus atlantica</i> (Atlas Cedar)	1	0	1
<i>Cupressus nootkatensis</i> (Yellow Cedar)	1	0	1
<i>Thuja plicata</i> (Western Red Cedar)	5	1	4
<i>Pinus nigra</i> (Black Pine)	1	0	1
Cypress (Unknown species)	1	0	1
Total (excluding Alder and Cottonwood Trees)	117	11	107
Additional Trees in the proposed Open Space/ Riparian Area	-	-	-
Total Replacement Trees Proposed (Excluding Boulevard/Riparian Area)		22	
Total Retained and Replacement Trees		128	

- The Arborist Assessment states that there are a total of 117 mature trees in the site area, excluding Alder and Cottonwood trees. Of the existing trees, 2 of the total trees on the site are Alder and Cottonwood trees. It was determined that 108 trees can be retained as part of this development proposal. The proposed tree retention was assessed taking into consideration the location of services, building footprints, walkways, and proposed lot grading.

- Trees within the riparian area will be retained, except where removal is required due to hazardous conditions. This will be determined at a later time, in consultation with the Parks, Recreation and Culture Department.
- For those trees that cannot be retained, the applicant will be required to plant trees on a 1 to 1 replacement ratio for Alder and Cottonwood trees, and a 2 to 1 replacement ratio for all other trees. This will require a total of 22 replacement trees on the site. The applicant is proposing 22 replacement trees, meeting City requirements.
- In summary, a total of 128 trees are proposed to be retained or replaced on the site.

INFORMATION ATTACHED TO THIS REPORT

The following information is attached to this Report:

Appendix I.	Site Plan, Building Elevations, Landscape Plans and Perspective
Appendix II.	Engineering Summary
Appendix II.	Tree Summary

approved by Ron Gill

Ron Gill
Acting General Manager
Planning and Development

IM/cm

BEAR CREEK ATHLETICS CENTRE

13750 - 88 AVE | BEAR CREEK PARK

CITY OF SURREY



RE-ISSUED FOR DEVELOPMENT PERMIT NOVEMBER 19, 2021



DRAWING LIST	
DWG NO.	DRAWING NAME
ARCHITECTURE	
A-001	CONTEXT PLAN
A-002	CIRCULATION DIAGRAM
A-004	3D PERSPECTIVES
A-005	3D PERSPECTIVES
A-006	3D PERSPECTIVES
A-010	SITE PLAN
A-100	FLOOR PLANS - OVERALL
A-201	GRANDSTAND SECTION - WASHROOMS - TYP.
A-202	GRANDSTAND SECTION - ANNOUNCER'S BOOTH - TYP.
A-203	GRANDSTAND SECTION - VOMITORY - TYP.
A-204	GRANDSTAND SECTION - SHEAR WALL - TYP.
A-300	OVERALL BUILDING ELEVATIONS
A-301	EXTERIOR ELEVATIONS - EAST
A-302	EXTERIOR ELEVATIONS - WEST
A-303	EXTERIOR ELEVATIONS - NORTH & SOUTH

DRAWING LIST	
DWG NO.	DRAWING NAME
LANDSCAPE	
L2.01	TREE MANAGEMENT PLAN
L2.02	TREE MANAGEMENT PLAN
L3.01	MATERIAL AND GRADING PLAN
L3.02	MATERIAL AND GRADING PLAN
L3.03	MATERIAL AND GRADING PLAN
L4.01	LAYOUT PLAN
L4.02	LAYOUT PLAN
L5.01	PLANTING PLAN
L5.02	PLANTING PLAN
L8.01	SECTIONS
L8.02	SECTIONS
L8.03	SECTIONS
L9.01	DETAILS - PLANTING
L9.02	DETAILS - PAVING
L9.03	DETAILS - STAIRS & RAMP
L9.04	DETAILS - WALL & BENCH

DRAWING LIST	
DWG NO.	DRAWING NAME
ELECTRICAL	
E-250	EXTERIOR LIGHTING - MAIN FLOOR
E-251	EXTERIOR LIGHTING - MAIN FLOOR
E-252	EXTERIOR LIGHTING - SECOND FLOOR
E-253	EXTERIOR LIGHTING - SECOND FLOOR



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The Story

As one of the City of Surrey's most treasured public asset, Bear Creek Park has become a destination for residents, athletes, and the overall Surrey community. Through an identified need of redeveloping the existing sport precinct in the park to a world-class athletic and community destination, came the birth of the Bear Creek Athletics Centre. It's goal? **To be a world-class athletic destination that will contribute to the cultural character of Bear Creek Park.**

The Project

Building on the extensive casual community use and formal athletic use of the track and field, the new Grandstand will be a well-integrated facility for athletes and park users. This new facility will include a partially covered grandstand seating for 2,200 spectators. The design features permeable access with multiple wide entrance ways to offer views onto the track and field, and allow athletes to easily access the change-rooms and the balance of the park. This facility will be inclusive of players and spectators of all abilities by implementing measures like ramps to access seating, and universal washroom(s).

The Bear Creek Athletics Centre will deliver:

- A grandstand with permanent seating for 2,200 people (2/3 covered) with possible expansion of another 1,000 temporary seats.
- An upgraded track aligned with national and international sport standards.
- Team change rooms and public washrooms located underneath the grandstand.
- Upgraded plaza areas for fixed and temporary concession and ticketing spaces.

The Experience

Equally important as achieving the operational and functional requirements of the Athletics Centre is the user experience. The understanding of the holistic journey the individual will experience as they enter the Park, come upon the Grandstand, and their interaction with the facility in the context of Bear Creek. As such, engraved in our design process to date is to perceive a community and competition sports venue as more than a place where one might finish in first place. It is an atmosphere, a context with an energy that instills in us the revitalization that we are together in a "place of firsts": a carefully crafted community gathering place.

Thus, to capture this authentic guest experience, it is imperative that we consider how the Athletics Centre will be seamlessly integrated into the fabric of its surroundings; and design it so it becomes a place where community members of every description will experience many of their most memorable moments and first experiences in sports.

From that of athletes, where, having trained for months, come together for their first event as a team, imagining the first time she could post her personal best or the first time the soccer player delivers a new strategy to his team.

To the day-to-day adult, who looks forward to their daytime run as their child splashes around the waterpark, and the occasional picnic gatherings with family friends.

And that of the child, who experiences for the first time, the breathtaking speed of a world class 100 metre sprint.

Each "first" made all the more memorable by the character and the presence, and the atmosphere inherent in the design of every detail instilled in a re-imagined, world-class sports facility.



Site Integration

In the context of the guest experience of this park as a “place of firsts”, at the project onset, the City and the Design Team conducted a robust site and orientation study, which explored the different ways we could orient both the Grandstand and the Track in the spirit of choosing the most optimized solution that would benefit park users, athletes, and the overall spatial experience with environmental considerations and budget in mind.

The Options we explored included:

- **Option 1:** Stadium in current bleacher location with the track location unchanged.
- **Option 2:** Stadium opposite the current bleacher location.
- **Option 3:** Stadium and track re-oriented in a South-West angle to align with the park edge. This would require a new track, new field, and a new sub-base for each.

These options were then evaluated against the following Decision Criteria:

- Guest access from park entryway (from 88th Avenue)
- Guest connectivity between Park Amenities and Sports Features
- Service access from park entryway (from 88th Avenue)
- Guest experience in and around the Grandstand
- Spectator view / orientation
- Guest safety in and around the Grandstand
- Integration of Sport Areas with general public areas
- Soil conditions considerations on Track & Field construction
- Soil conditions considerations on Grandstand construction
- Environmental impacts such as riparian buffers
- Potential impact on construction budget

Each option was also assessed by our Cost Consultant, who provided an Order of Magnitude cost estimate for each option, which helped inform the construction budget impacts. As a result of this analysis, the City and the Design Team collectively agreed to proceed with Option 1 given its minimal impact to the existing soil conditions, the existing riparian zones, and its feasibility with the current budget and schedule parameters.

The Rendered Site Plan on the right illustrates the chosen Option 1, laid out relative to the basic context of the site and its surrounding perimeter. Important landscape considerations include creating a seamless integration between the Grandstand’s concourse and the public park amenities, such as the Spray Park, weaving the edge conditions / hard surfaces with the natural landscape.

Rendered Site Plan of Option 1





Architectural Drawings & Design Intent

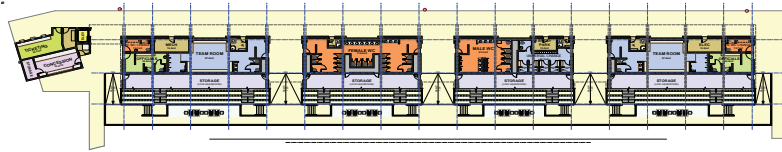
Architectural Design, Form, and Character

Bear Creek park is part of the **story** of Surrey and key to its aspirations to continue to assert its place among lower mainland municipalities as a place where one can **experience** true community, where one's needs and the needs of one's family are provided for. Specifically in the park those needs include the ability to "re-create" ones self in a natural setting that encourages interaction, new connection and new "First" Experiences.

Being consistent with the city mandates for its facilities, and learning from the exercise to test the location of the facility in various places in the park, the design of the grandstand facility embodies the following characteristics:

PROGRAM

Meet the sports and community use program requirements for the athletic precinct within the park. The design includes seating for 2200 people, team rooms, public washrooms, officiating requirements, service space, etc. Attention is paid to integration of facility elements into the overall park, for example, public washrooms are placed adjacent to spay park and playground areas existing in the park, and an elevator is located in the entry plaza to facilitate ease of access to the upper seating areas, especially for people-with-disability or those with mobility constraints.



EXPERIENCE

The Grandstand is intended to add to the community experience of the park including opportunity for personal firsts. The design provides a site layout which encourages interaction, viewing and participation in formal and casual sports, recreation, and community events. An entry plaza provides a multi-functional space overlooking the track and field areas so that park users can experience sporting events as part of their casual use of the park. The plaza area is equipped with service rough ins so that it can scale with major events to provide enhanced food services and ticketing functions in the plaza area. Generous, over-sized vomitories are placed at three points in the building facilitating views through the building to the sports event spaces from adjacent public areas and paths.



SITE

Integration into the physical and spatial layout of the existing amenities of the park. The hard and soft landscape around the new building is knit into the existing by an edge ribbon which formally and materially morphs along its path in response to adjacent plantings, elevation shifts and various needs for access.

SUSTAINABILITY

Adopt sustainable practices throughout design, construction, and operation of the facility

- **Goal 1:** Resilience is achieved through upgrades to water collection and drainage systems throughout the build area as well as siting of the building away from stream edges, respecting their long-term inclination to modify their path. Additionally, situating it away from tree areas reduces its fire risk, and provides roof covering over as many seats as possible to reduce sun exposure for participants.
- **Goal 2:** Embodied carbon reduction is achieved primarily through the re-use of heavy timber, reclaimed from a deconstruction of a commercial building last year in Surrey. This material forms the majority of structural material for this new building. Additionally, new digital sports and occupant lighting, as well as minimal use of heat in the facility reduce its on-going carbon impact.
- **Goal 3:** Potable water reduction includes the use of low-flow fixtures and the capture of storm water to a common outfall point for future integration into an irrigation system.
- **Goal 4:** Biodiversity is protected by location of the facility out of the riparian zones along both King and Bear Creeks.
- **Goal 5:** Waste reduction is achieved in the project to the greatest extent by re-using existing building materials for the project, most notably the heavy timber from a demolished commercial building in Surrey. Operational waste management is integrated into the over-all Surrey waste management plan including city wide recycling.

ACCESS FOR ALL

Provisions are made for people of all ages, mobilities and abilities. All walkways and paths are designed to meet code standards but more significantly so that access points and transitions to entries, vomitories, seating areas are free of cross-slope. Acoustics and sound systems are design for clarity verses volume. Elevator access to the upper seating levels as well as ramp access to lower seating positions provide view points for the mobility impaired at a variety of locations in the facility. Universal washrooms, and change rooms are provided on both the sports side and the community side of the facility to ensure access is provided in every facility event configuration.

Building Volume

With its placement near center of Bear Creek Park the new grandstand structure provides opportunity to serve the whole park with centrally located washrooms, food services, change rooms and technical equipment space for the operation of, for example, the spray park. To mitigate its potential to divide the park into community verses sports uses, the building is broken into four segments at grade through the provision of three over-sized vomitories connecting the east and west of the park. As well, a multi-use community plaza is placed at its north, the central access point to the sports precinct.

Wood

Respecting the extent of wood being used in the facility, we take a moment to reflect on the rational of this choice:

- **Sustainability:** The Grandstand Canopy and lower roof will utilize wood material, specifically salvaged and reclaimed glulam beams from a local Surrey building that has been demolished.
- **Carbon:** Wood is a form of sequestered carbon. Furthermore, the use of re-claimed wood is consistent with the fundamental tenant of sustainability to "re-use" where ever possible. At both of these levels (sequestered carbon and material re-use) the employment of re-claimed timber in

a wood roof structural system is consistent with both the spirit and the practical requirements of Surrey's sustainability aspirations. As a public building, the Grandstand has the opportunity to become a model for deployment of these aspirations in practical applications.

- **Aesthetics:** Wood is consistent with the natural ecological setting of Bear Creek Park, and consistent with the non-institutional quality / vibe of the park as a social setting.
- **Acoustics:** When considering constructability and materials with respect to acoustic performance, especially when it comes to roof acoustics and its impact to the hearing impaired, wood is a natural choice.
- **Cost effectiveness:** Deployed as best suited in light of, for example, its form factor and strength to weight ratio, wood is an economical means of providing a substrate for horizontal rain shedding materials.
- **Operations:** Wood performs well in built environments when it is kept out of the elements, especially rain, and to some extent, direct sun. The project is detailed such that wood is used only on the underside of the roof surface, protected from rain and direct sun. The water-proofing of the roof projects beyond the upper face of the glue-lams at the roof edge and the exposed face of the glue-lam at the edge will be clad in aluminum, complete with appropriate drip edges.





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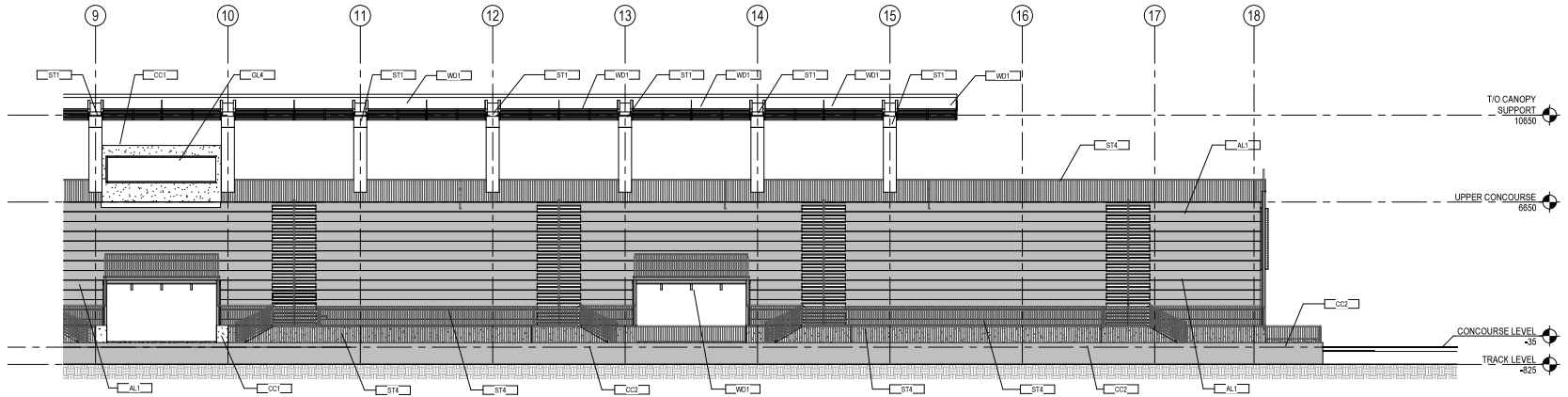
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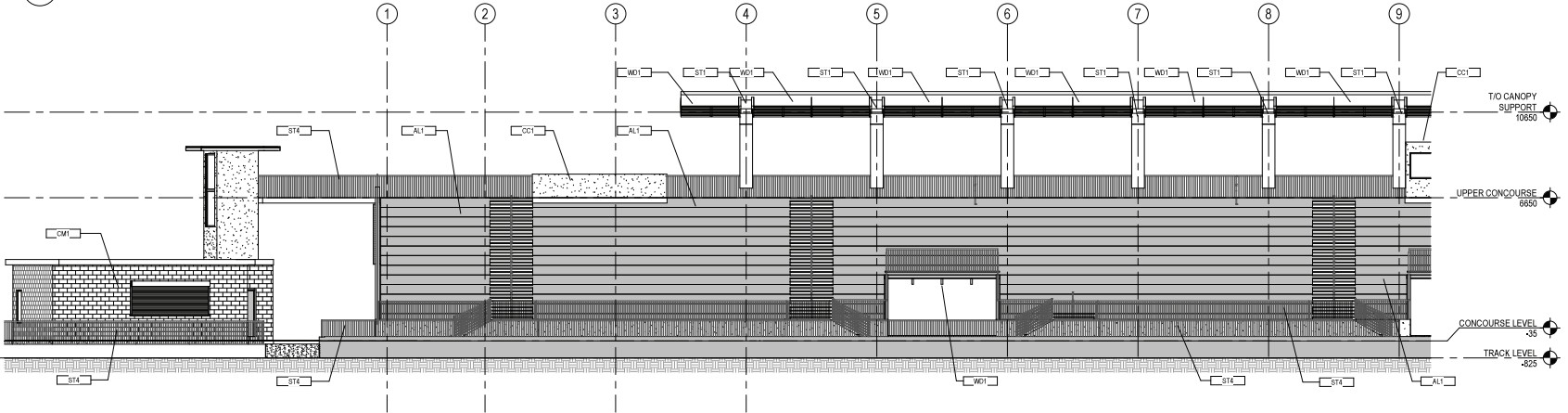
Notes

MATERIALS LEGEND	
KEYNOTE	MATERIAL
AL1	ALUMINIUM GRANDSTAND SYSTEM (SEATS SURREY GREEN PMS 377)
CC1	EXPOSED ARCHITECTURAL CONCRETE
CC2	PAINTED ARCHITECTURAL CONCRETE (SURREY GREEN PMS 371)
CM1	CONCRETE MASONRY UNIT WALL
GL1	CLERESTORY GLAZING
GL3	GLASS BLOCK
GL4	FIXED WINDOWS - CLEAR
GL5	CURTAIN WALL GLAZING
MT1	ARCHITECTURAL METAL SCREEN (SURREY GREEN PMS 371)
ST1	STRUCTURAL STEEL CANOPY SUPPORT
ST3	STEEL DOOR (SURREY GREEN PMS382 W/ WHITE GRAPHICS)
ST4	GALVANIZED STEEL
WD1	RECLAIMED MASS TIMBER CANOPY



2 EXTERIOR ELEVATION - WEST - AREA B

1:100



1 EXTERIOR ELEVATION - WEST - AREA A

1:100

ISSUED FOR /	DATE	BY	APP'D
Issued/Revision			

Author	Designer	Checker	DATE
			10/21/21

Permit/Seal

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Client/Project Logo



Client/Project
City of Surrey

Bear Creek Athletics Centre
13750 - 86 Ave | Bear Creek Park

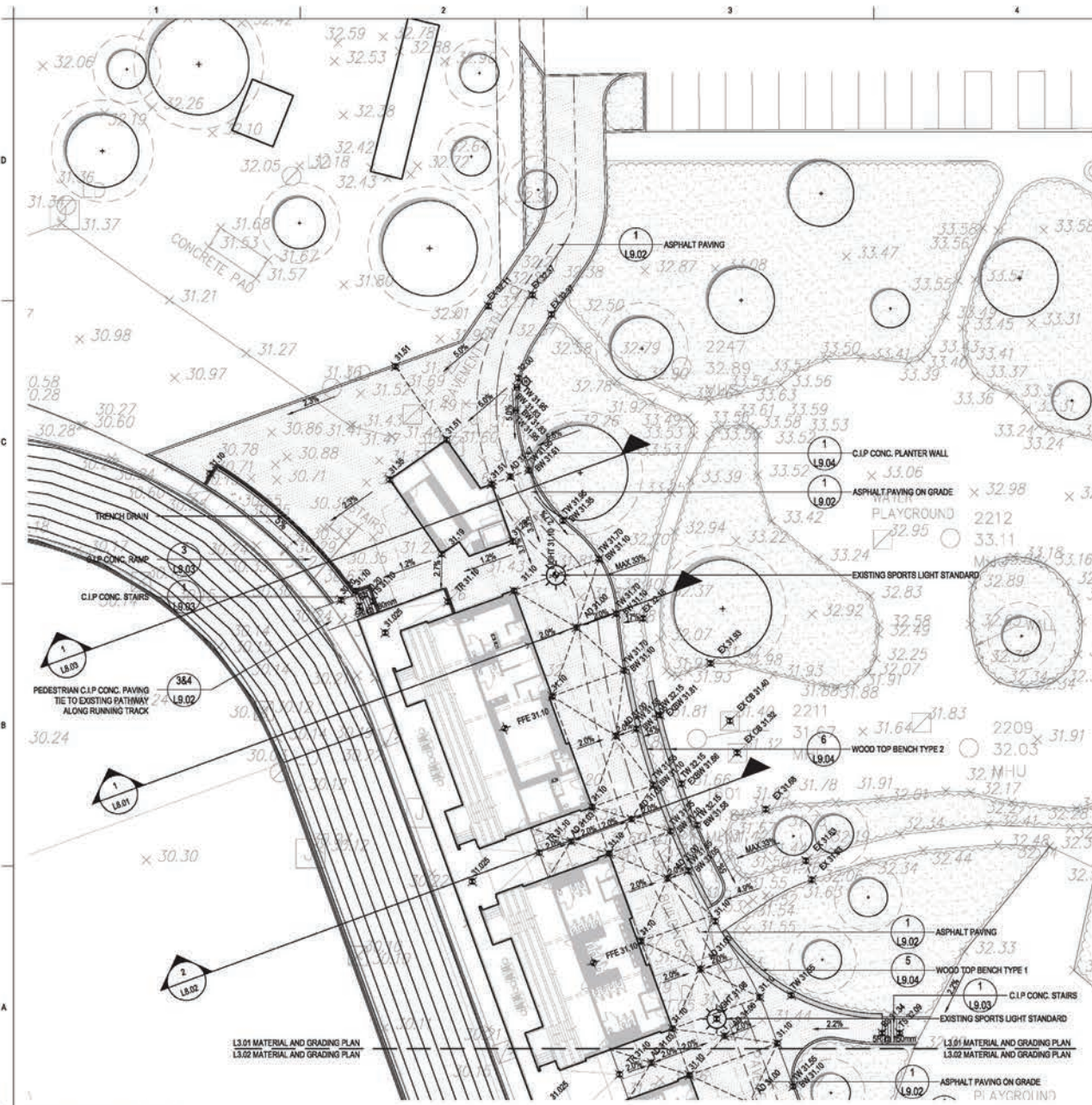
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EXTERIOR ELEVATIONS - WEST

Project No.	Scale
	1:100

Revision	Drawing No.
1	A-302



LANDSCAPE PLANS



GENERAL LEGEND

- EXISTING SPORTS LIGHT STANDARD
- FIRE HYDRANT
- HARDWOOD SEAT
- EXISTING TREE TO RETAIN
- PROPOSED SHRUB AND GROUNDCOVER
- EXISTING SHRUB AND GROUNDCOVER

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- TS TOP OF STAIR
- TW TOP OF WALL
- NEW SPOT ELEVATION
- FINISH FLOOR ELEVATION
- EXISTING GRADE
- SLOPE
- SUB-DRAIN

MATERIAL NOTE

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1	ISSUED FOR BIP	2022-10-22		
2	REVISED FOR CP	2023-09-26		
3	ISSUED/REVISION	19/10/2020		

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Client/Project
City of Surrey

Bear Creek Athletics Centre

13750 - 88 Ave | Bear Creek Park

Title
MATERIAL & GRADING PLAN

Project No. 21028
Revision
Scale 1:200
Drawing No. L3.01

1 MATERIAL PLAN
SCALE: 1:100

Notes

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Rev	Description	By	Date
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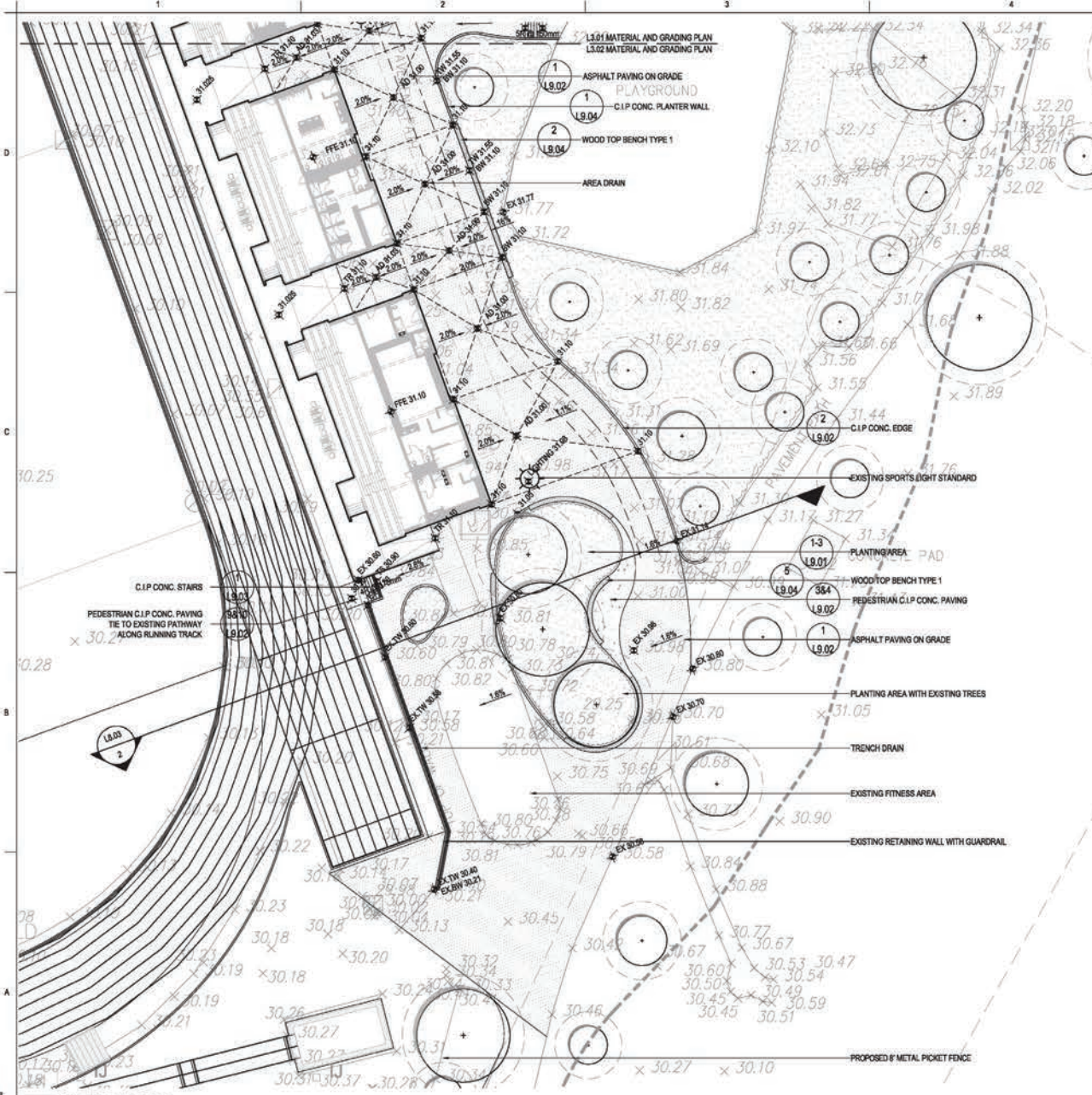
Bear Creek Athletics Centre

13750 - 88 Ave | Bear Creek Park

Title
MATERIAL & GRADING PLAN

Project No.
21028
Revision

Scale
1:200
Drawing No.
L3.02



GENERAL LEGEND

- EXISTING SPORTS LIGHT STANDARD
- FIRE HYDRANT
- HARDWOOD SEAT
- EXISTING TREE TO RETAIN
- PROPOSED SHRUB AND GROUND COVER
- EXISTING SHRUB AND GROUND COVER

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- FPE 31.80 FINISH FLOOR ELEVATION
- EX 31.81 EXISTING GRADE
- 2% SLOPE
- SUB-DRAIN

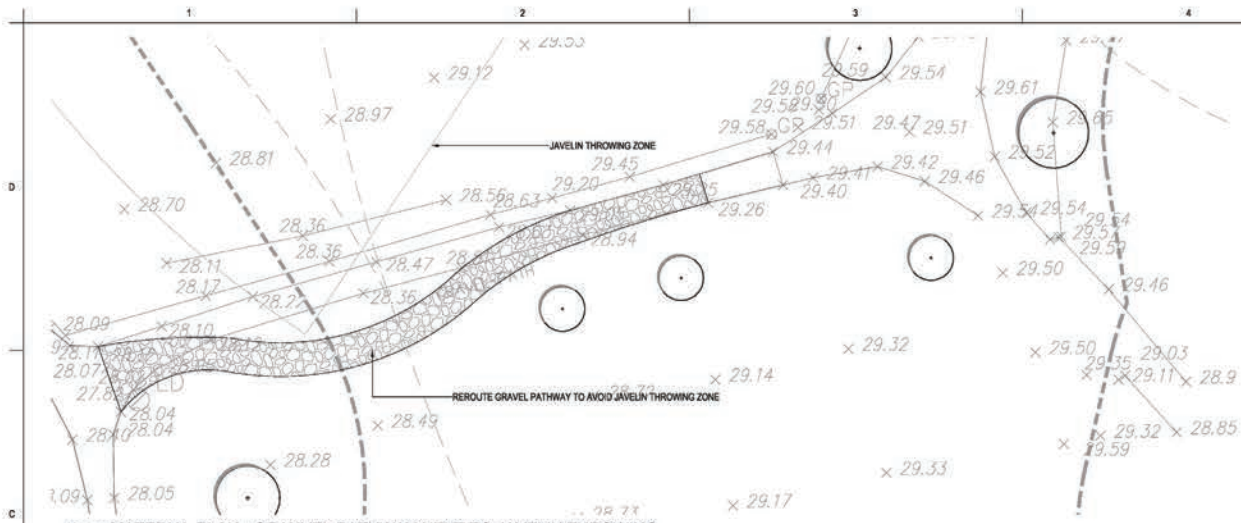
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MATERIAL PLAN
SCALE: 1:200



MATERIAL PLAN - GRANVEL PATHWAY NEXT TO JAVELIN THROWING
SCALE: 1:200

GENERAL LEGEND

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No	Revised	By	App'd	Date

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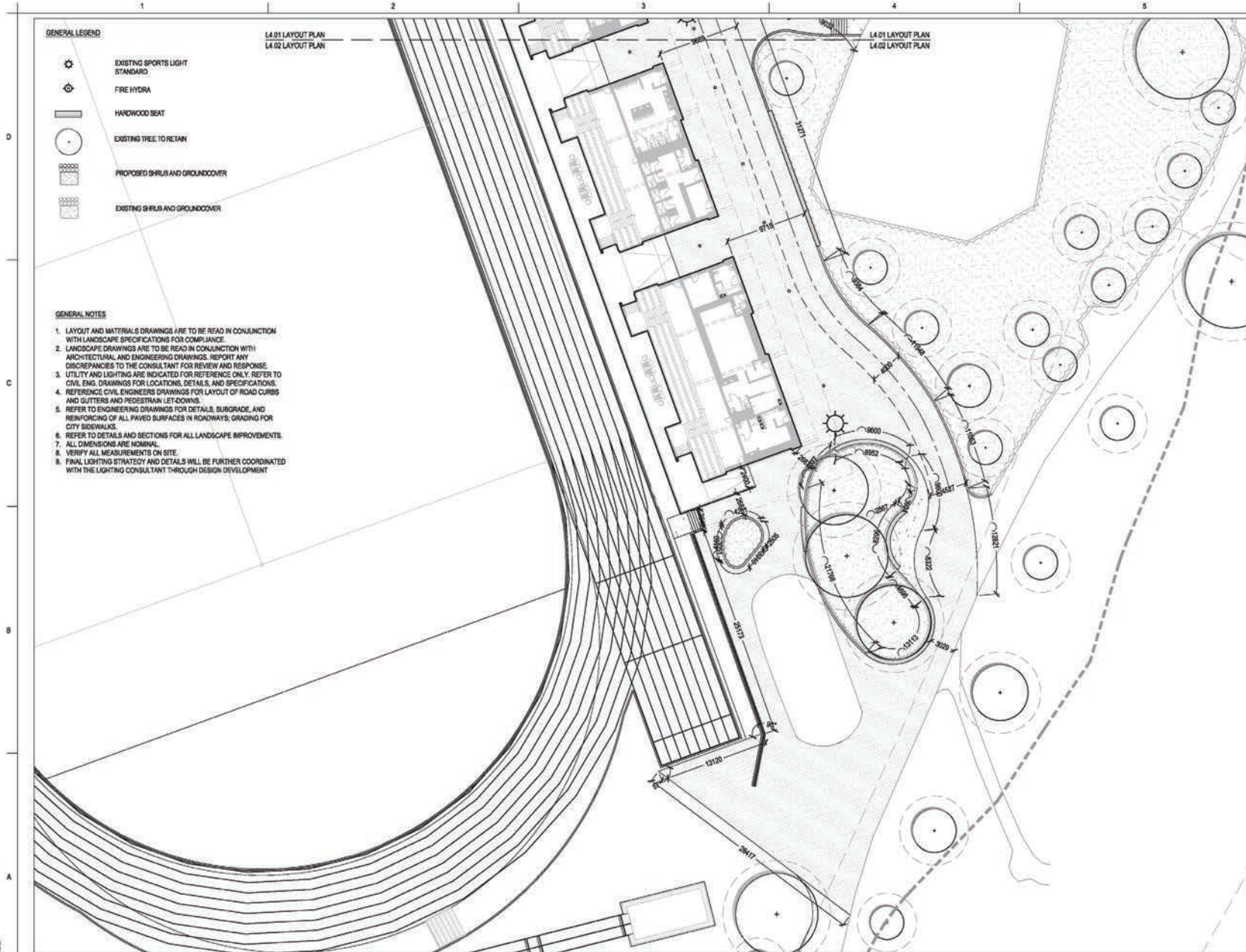
Client/Project
City of Surrey

Bear Creek Athletics Centre
13750 - 88 Ave | Bear Creek Park

MATERIAL & GRADING PLAN

Project No. 21028
Revision
Scale 1:200
Drawing No. L3.03

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED
 DATE: 2024-07-10



GENERAL LEGEND

- EXISTING SPORTS LIGHT STANDARD
- FIRE HYDRANT
- HARDWOOD SEAT
- EXISTING TREE TO RETAIN
- PROPOSED SHRUB AND GROUND COVER
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5. REFER TO ENGINEERING DRAWINGS FOR DETAILS, SUBGRADE, AND REINFORCING OF ALL PAVED SURFACES IN ROADWAYS, GRADING FOR CITY SIDEWALKS.
6. REFER TO DETAILS AND SECTIONS FOR ALL LANDSCAPE IMPROVEMENTS.
7. ALL DIMENSIONS ARE NOMINAL.
8. VERIFY ALL MEASUREMENTS ON SITE.
9. FINAL LIGHTING STRATEGY AND DETAILS WILL BE FURTHER COORDINATED WITH THE LIGHTING CONSULTANT THROUGH DESIGN DEVELOPMENT.

L4.01 LAYOUT PLAN
L4.02 LAYOUT PLAN

L4.01 LAYOUT PLAN
L4.02 LAYOUT PLAN

LAYOUT PLAN
SCALE: 1:200



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Consultant
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P. F. S. STUDIO ARCHITECTURE
P. F. S. STUDIO ARCHITECTURE

Notes

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3.	ISSUED FOR PERMIT	2023.08.22		
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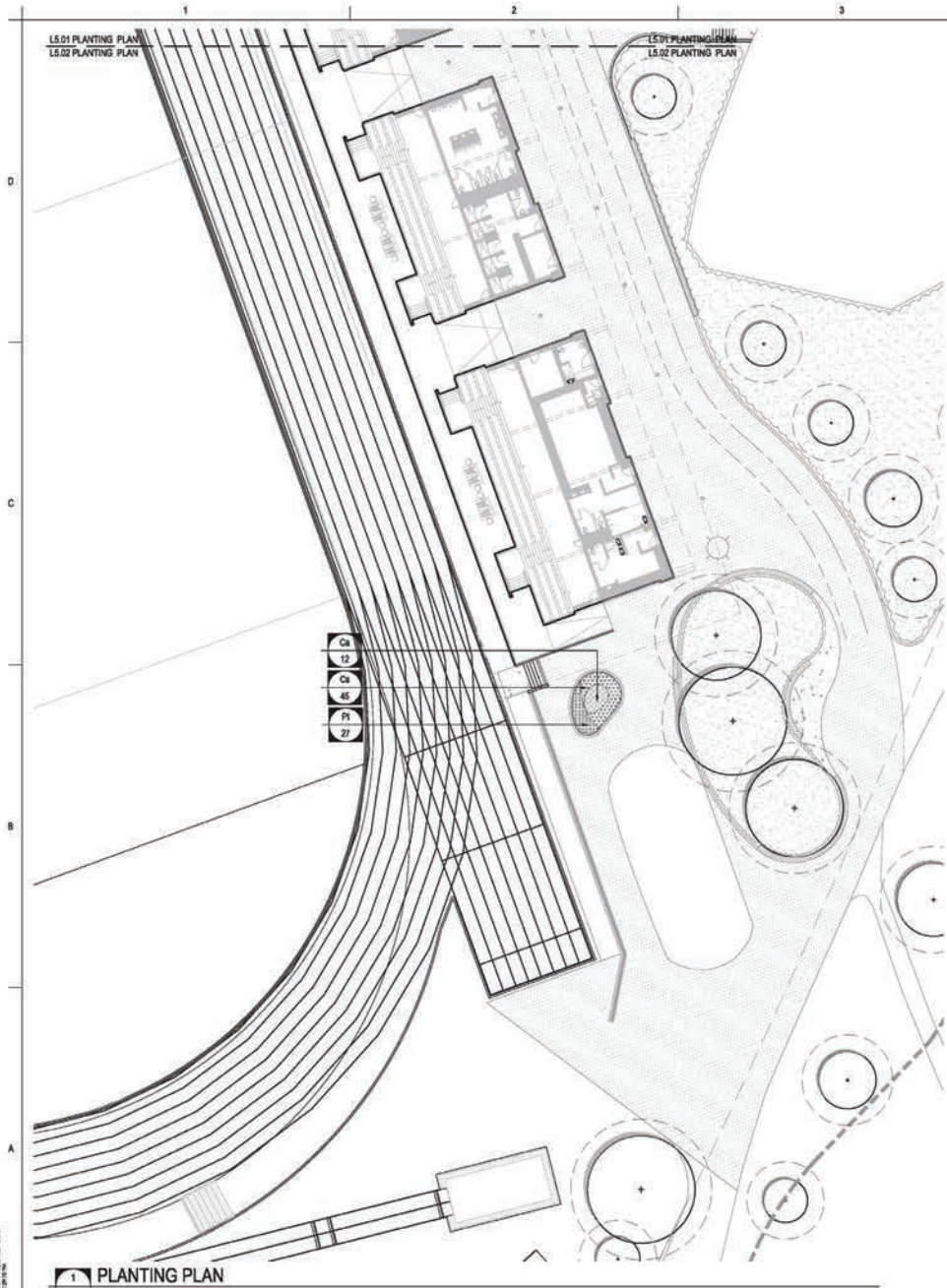
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Client/Project
City of Surrey
Bear Creek Athletics Centre
13750 - 88 Ave | Bear Creek Park

Title
LAYOUT PLAN

Project No. 21028
Revision
Scale 1:200
Drawing No. L4.02



L5.01 PLANTING PLAN
L5.02 PLANTING PLAN

GENERAL NOTES

- LAYOUT AND MATERIALS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH LANDSCAPE SPECIFICATIONS FOR COMPLIANCE.
- LANDSCAPE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND ENGINEERING DRAWINGS. REPORT ANY DISCREPANCIES TO THE CONSULTANT FOR REVIEW AND RESPONSE.
- UTILITY AND LIGHTING ARE INDICATED FOR REFERENCE ONLY. REFER TO CIVIL ENG. DRAWINGS FOR LOCATIONS, DETAILS, AND SPECIFICATIONS.
- REFERENCE CIVIL ENGINEERS DRAWINGS FOR LAYOUT OF ROAD CURBS AND GUTTERS AND PEDESTRIAN LED-GOWNS.
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- REFER TO DETAILS AND SECTIONS FOR ALL LANDSCAPE IMPROVEMENTS.
- ALL DIMENSIONS ARE NOMINAL.
- VERIFY ALL MEASUREMENTS ON SITE.
- FINAL LIGHTING STRATEGY AND DETAILS WILL BE FURTHER COORDINATED WITH THE LIGHTING CONSULTANT THROUGH DESIGN DEVELOPMENT.

GENERAL LEGEND

- EXISTING SPORTS LIGHT STANDARD
- FIRE HYDRA
- HARDWOOD SEAT
- EXISTING TREE TO RETAIN
- PROPOSED SHRUB AND GROUND COVER
- EXISTING SHRUB AND GROUND COVER

PLANT SCHEDULE

KEY	QTY	SPECIES NAME	COMMON NAME	SIZE / COMMENTS	COMMENTS
SHRUBS/GROUNDCOVERS					
	Lp 104	Lonicera pileata	Orange Honey suckle	#3 Pot	750mm O.C.
	Cs 45	Cornus sericea 'Kelsey'	Kelsey Dwarf Red-twig Dogwood	#3 Pot	450mm O.C.
	Pt 27	Pachysandra terminalis	Japanese pachysandra	#3 Pot	450mm O.C.
PERENNIALS AND GRASSES					
	Ca 12	Calamagrostis x acutiflora 'Karl Foerster'	Karl Foerster Reed Grass	#2 Pot	600mm O.C.

PLANTING NOTES

- ALL PLANT MATERIAL SHALL CONFORM TO BCNA AND BCCLA STANDARDS. NURSERIES SHALL BE S.O.D. CERTIFIED.
- ALL PRUNING OF EXISTING TREES & SHRUBS TO BE UNDERTAKEN WITH APPROVAL OF THE PROJECT ARBORIST.
- FINAL LOCATION OF PLANT ALL TO BE APPROVED BY LANDSCAPE CONSULTANT ON SITE.
- ALL PLANT MATERIAL SIZES SPECIFIED ARE THE MINIMUM ACCEPTABLE SIZES TO BE SUPPLIED TO THIS PROJECT.
- ALL PLANT MATERIAL SHALL BE WELL ESTABLISHED AND UNIFORM IN SHAPE AND SIZE.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS OTHERWISE NOTED.
- ALLOW 2" DIA. NO PLANTING ZONE/CLEAR OPENING AROUND ALL TREE BASES.
- ANY DISCREPANCIES ARE TO BE VERIFIED BY THE CONSULTANT FOR REVIEW AND RESPONSE.
- PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL CONFIRM THE AVAILABILITY AND QUANTITY OF PLANT MATERIAL SPECIFIED, ALLOWING FOR ANY AND ALL REQUIRED APPROVALS. PLANTS SUBSTITUTIONS NOT CONFIRMED AND APPROVED BY THE CONSULTANTS WILL BE REJECTED.
- UTILITY LOSSCOVERS TO BE PROTECTED DURING DEMOLITION AND ADJUSTED TO THE FINISHED GRADE FOR FUTURE MAINTENANCE ACCESS. REFER TO CIVIL.

IRRIGATION LEGEND

- MAIN CONNECTION: 25.0 L/S @ 70 PSI, 1/2" SCHEDULE CHECK VALVE ASSEMBLY & BARRIERS & 1" QUICK COUPLER
- TIME CLOCK: RAINBIRD RSP-4 LINE & STATIONS-GROUND
- AUTO VALVE: RAINBIRD 180-POA
- AUTO VALVE: RAINBIRD KCF-100-FPS-B-1-0
- AUTO VALVE: RAINBIRD KCF-100-FPS-B-1-0-F
- STAB-OUT
- RAINBIRD 180-FPS SPRINKLER CW 12" NOZZLE
- RAINBIRD 180-FPS SPRINKLER CW 8" NOZZLE
- RAINBIRD 180-FPS SPRINKLER CW 6" NOZZLE
- RAINBIRD 180-FPS SPRINKLER CW 4" NOZZLE
- RAINBIRD 180-FPS SPRINKLER CW 1.588" NOZZLES
- RAINBIRD 180-FPS SPRINKLER CW TRACE OF LOR-NOZZLE
- RAINBIRD 180 SPRINKLER CW 1.588" NOZZLE (4" WELLS)
- RAINBIRD 180 SPRINKLER CW 1.588" NOZZLE
- RAINBIRD 180 SPRINKLER CW 1.588" NOZZLE
- RAINBIRD 180 SPRINKLER CW 12" NOZZLE (PER TREE)
- RAINBIRD 180-28 12" DRIPLINE
- VALVE SIZE

IRRIGATION NOTES

- ALL LANDSCAPE PLANTING AREA TO BE IRRIGATED BY AUTOMATIC IRRIGATION SYSTEM EXCEPT THE STREET TREES WITHIN THE CITY'S PROPERTY.
- USE HE-VAN NOZZLES FOR SPRAY PATTERNS LESS THAN 90 DEGREES
- FLOW THRU ALL PIPING NOT TO EXCEED 5 FT/SEC
- RAINBIRD 180° SPRINKLERS AWAY FROM A HARD SURFACE EDGE OR ON A GREEN ROOF MAY BE ON A SHRUB RIDGE SET AT A HEIGHT TO SUIT PLANT MATERIAL.
- ALLOW FOR 20% OF 180° SPRINKLERS TO BE 12" POP-UPS
- ALL DRIPLINE TO BE LOOPED, INSTALL AIRVACUUM RELIEF VALVE AT HIGH POINT OF EACH ZONE
- INSTALL STAB-OUT AND AUTO VALVE WITHIN PLANTERS TO ACCESS

1 PLANTING PLAN
SCALE: 1:200



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Notes

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City of Surrey

Beac Creek Athletics Centre
13750 - 88 Ave | Beac Creek Park

Title
PLANTING PLAN

Project No. 21028
Revision
Scale 1:200
Drawing No. L5.02

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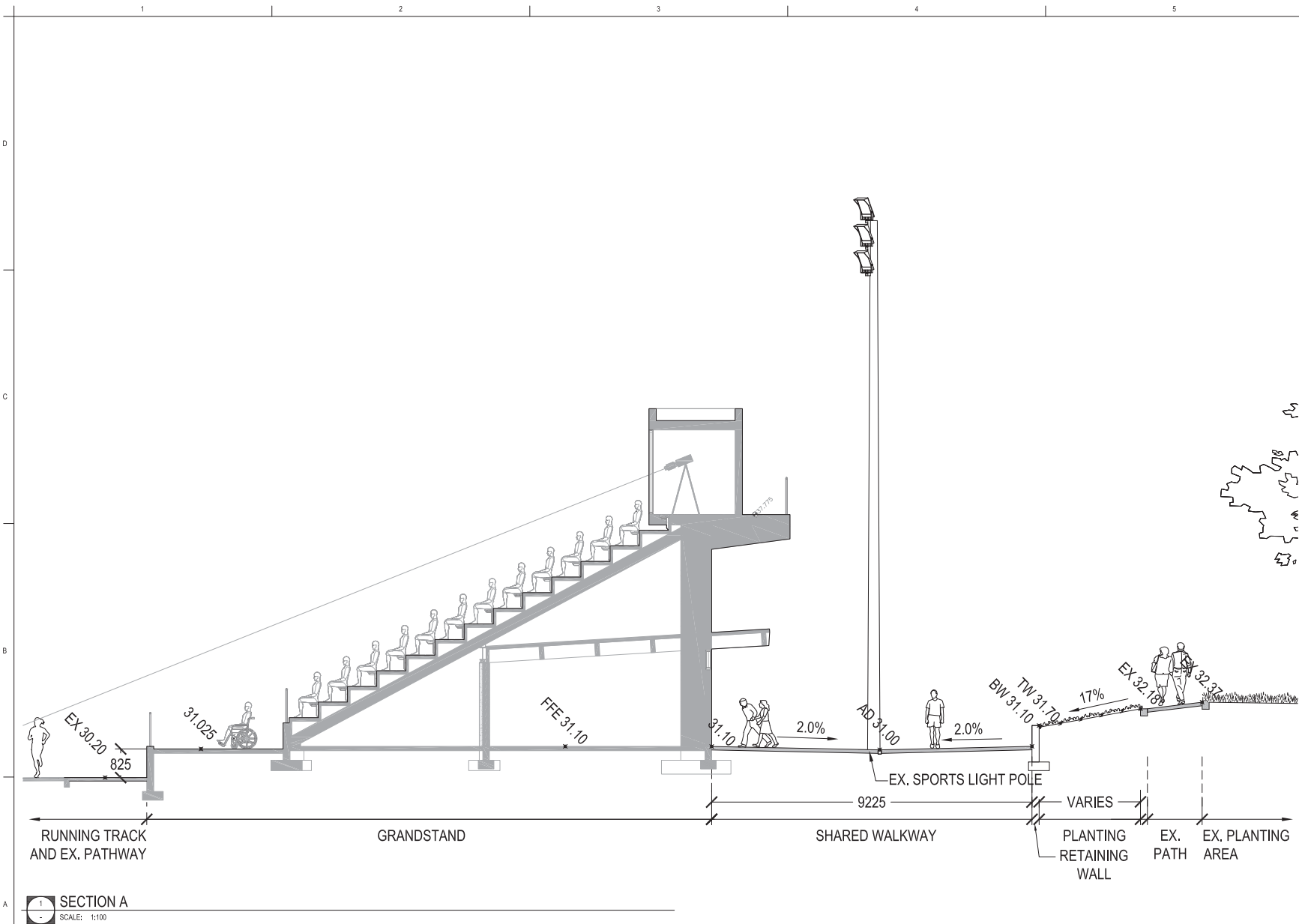
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Issued/Revision	By	Checked	Date
1. Name: N/A	Author	Designer	10/15/21
	Dwn.	Dgn.	CHKZ

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Client/Project
City of Surrey
Bear Creek Athletics Centre
13750 - 88 Ave | Bear Creek Park
Title
SECTIONS

Project No. 21028 Scale 1:100
Revision Drawing No. **L8.01**



SECTION A
SCALE: 1:100

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NO.	DESCRIPTION	DATE	BY	CHECKED
1	RELEASED FOR CP	2021.10.22	YFY	YFY
2	ISSUED FOR CP	2022.08.30	YFY	YFY
Issued/Revision				
Author	Designer	Checker	10/15/21	
Dwn.	Dgn.	Chk.	YFY/MAL/CO	

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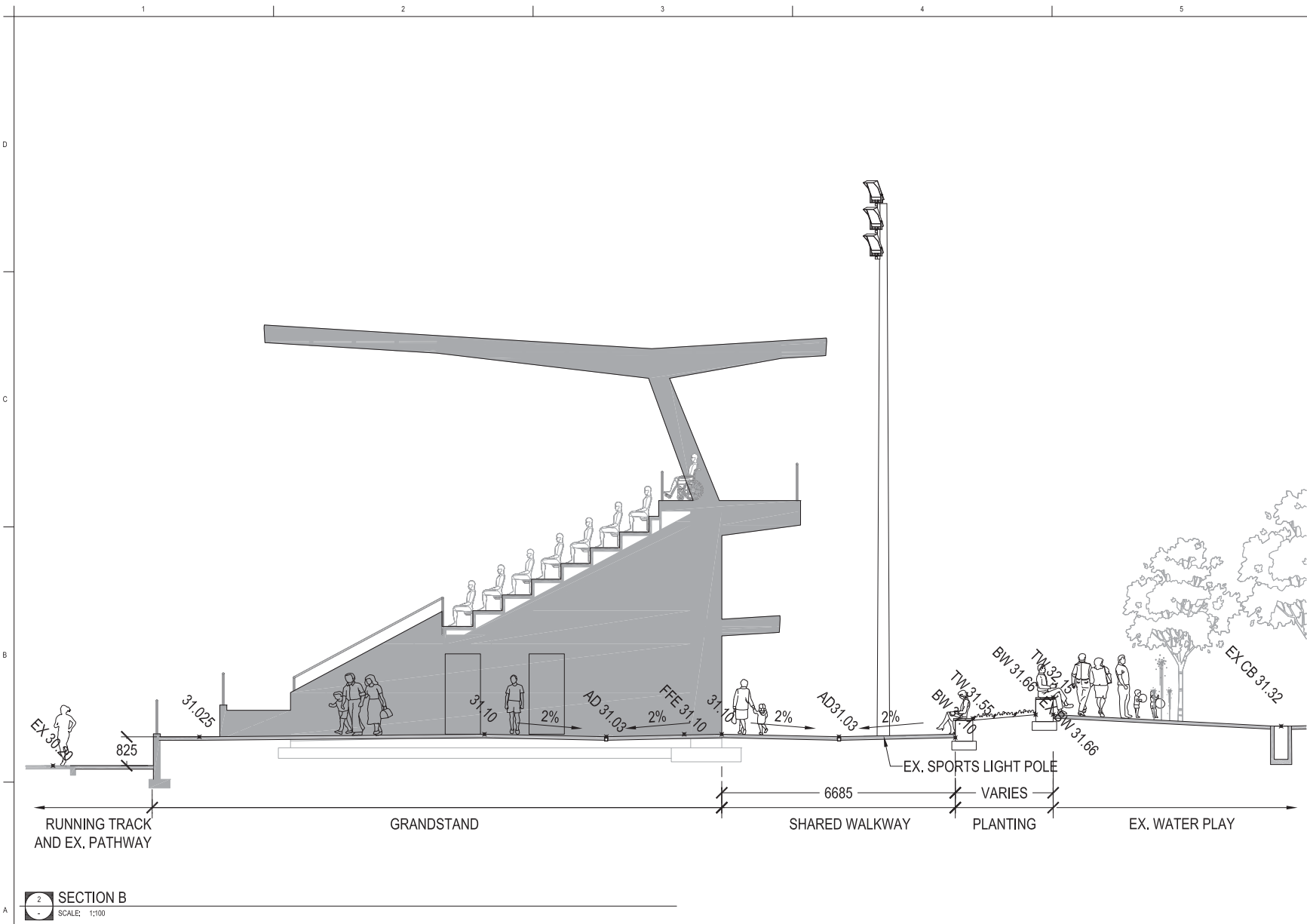


Client/Project
City of Surrey
Bear Creek Athletics Centre

13750 - 88 Ave | Bear Creek Park

Title
SECTIONS

Project No. 21028 Scale 1:100
Revision Drawing No. L8.02



SECTION B
SCALE: 1:100

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Issued/Revision	By	Checked	Date
1. RELEASED FOR CIP	YYY	YYY	2021.10.22
2. RELEASED FOR CIP	YYY	YYY	2021.09.30

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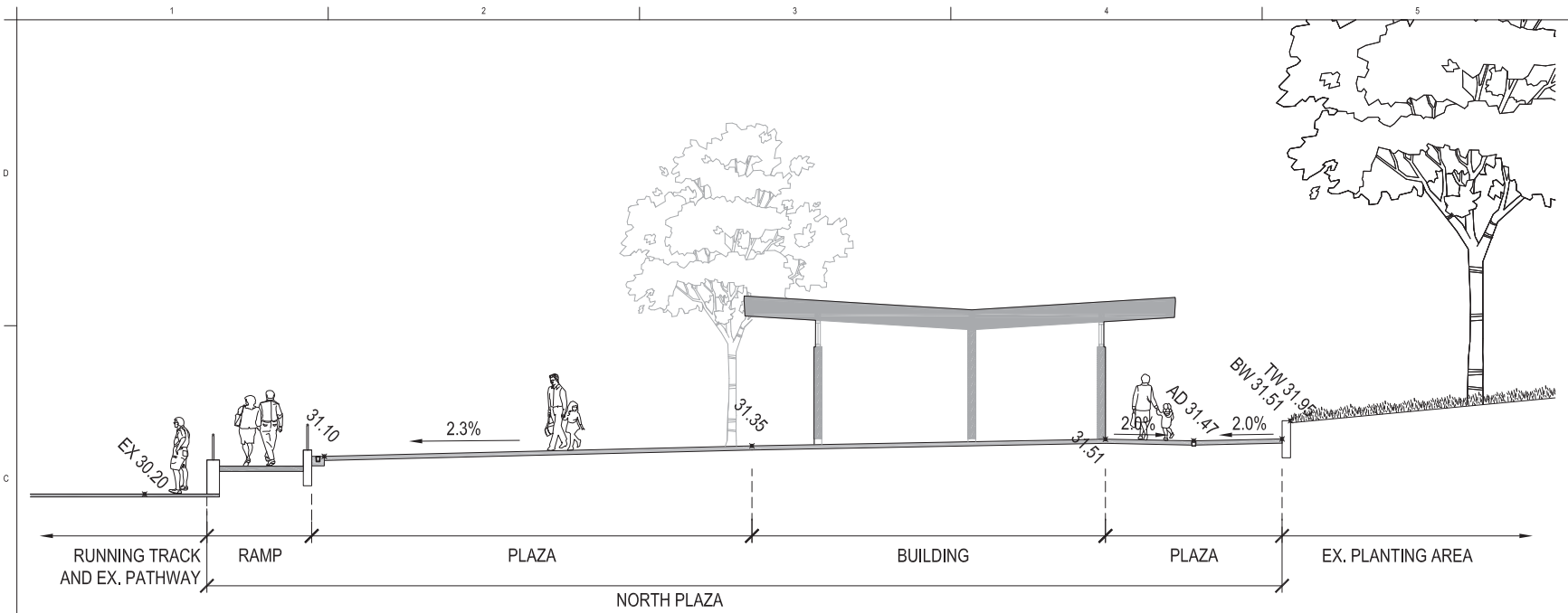


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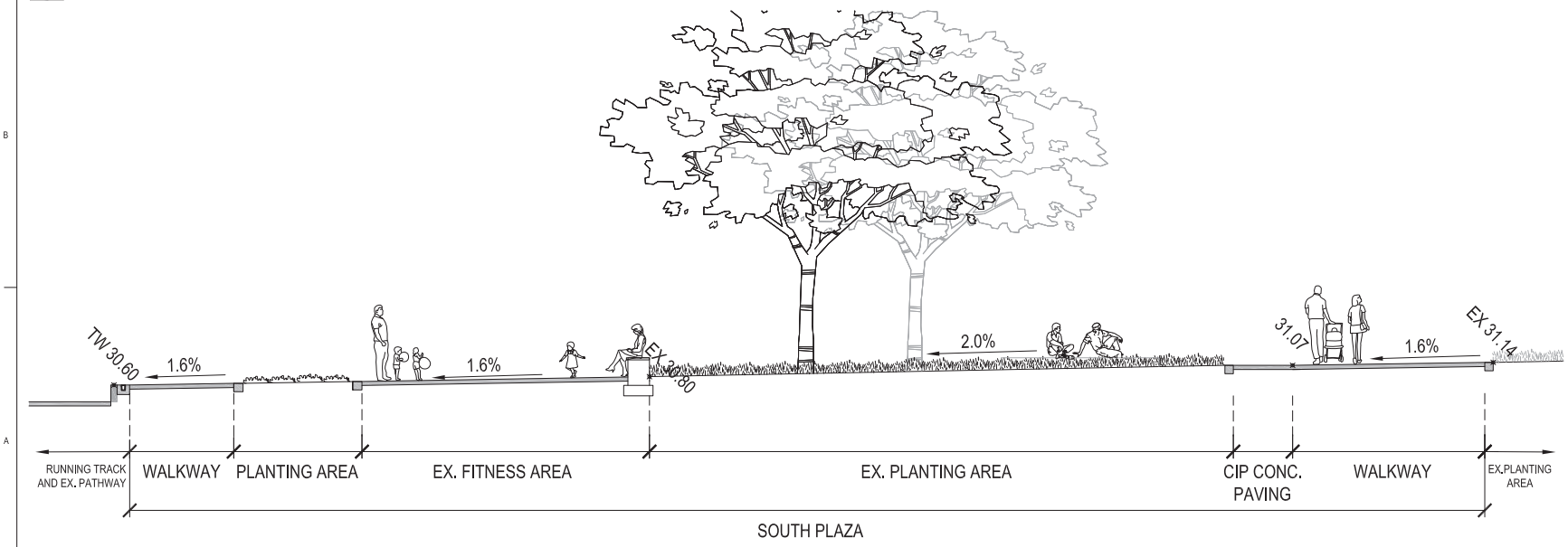
Bear Creek Athletics Centre
13750 - 88 Ave | Bear Creek Park

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Project No. 21028 Scale 1:100
Revision Drawing No. **L8.03**



SECTION C
SCALE: 1:100



SECTION D
SCALE: 1:100

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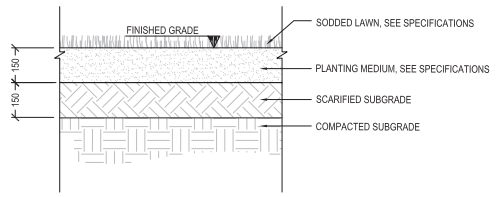
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CITY OF SURREY
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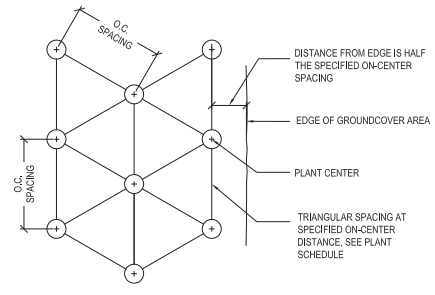
Bear Creek Athletics Centre
13750 - 88 Ave | Bear Creek Park

Title
DETAILS PLANTING

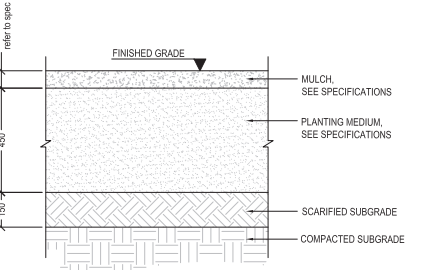
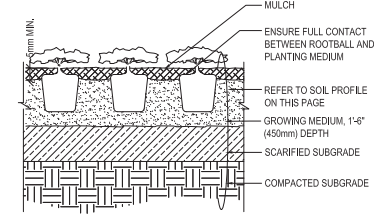
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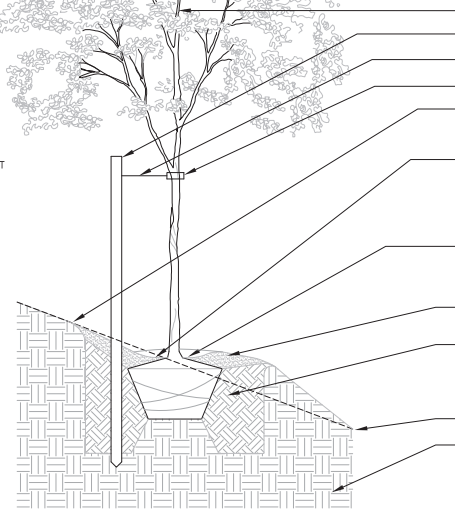
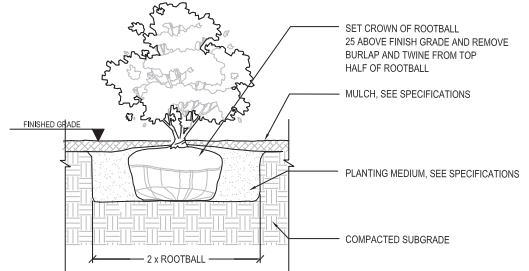
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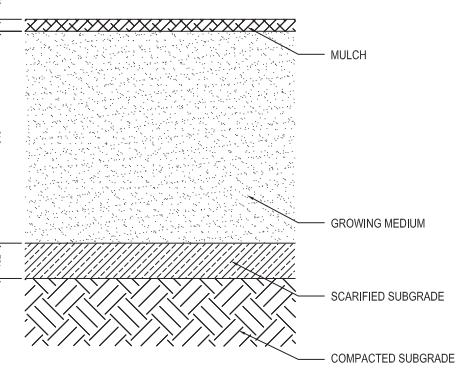
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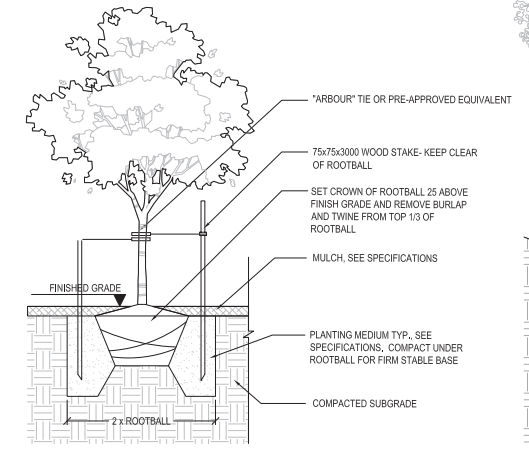
3 SOIL PROFILE SHRUBS
SCALE: 1:10



5 TREE ON SLOPE
SCALE: 1:10



4 TREE PLANTING ON GRADE
SCALE: 1:10



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Notes

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1	PREPARED FOR DP	2021.10.22	MM	MM
2	ISSUED FOR DP	2021.08.20	MM	MM
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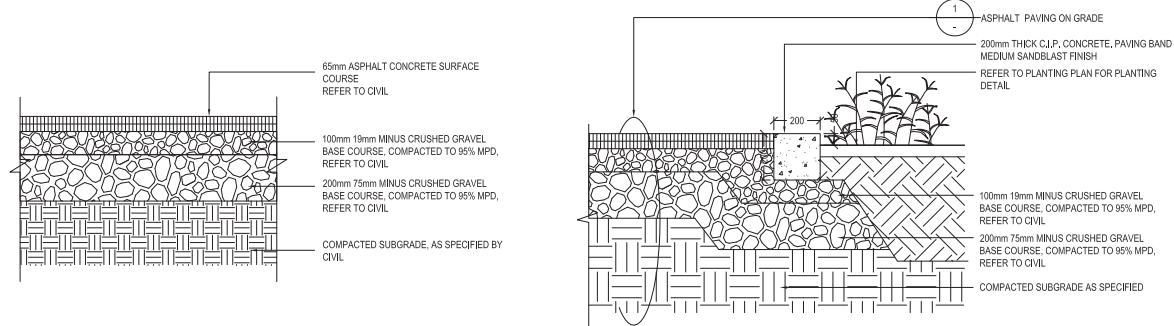
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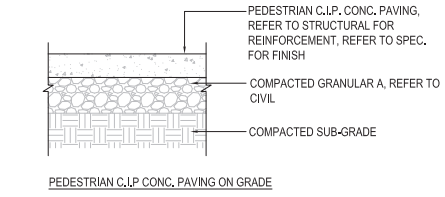
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Project No. 21028 Scale AS SHOWN
Revision Drawing No. L9.02

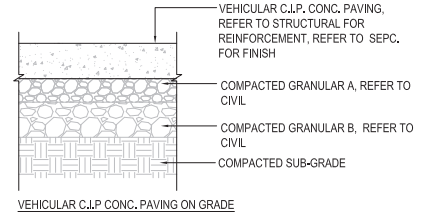


1 ASPHALT PAVING ON GRADE
SCALE: 1:10

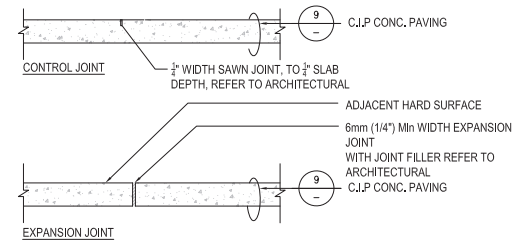
2 PAVING AT PLANTER EDGE
SCALE: 1:10



3 C.I.P. CONC. PAVING ON GRADE
SCALE: 1:10



VEHICULAR C.I.P. CONC. PAVING ON GRADE



NOTE:
1. CONSTRUCT ALL CONTROL JOINTS AT CONSISTENT WIDTH
2. CUT JOINTS BEFORE RANDOM CRACKING OCCURS
3. CONFIRM ALL CONSTRUCTION JOINTS & SAW CUTS WITH PFS PRIOR TO COMMENCING RELATED WORK. SPACE AT 10' MAX, REFER TO LAYOUT PLAN.

4 C.I.P. CONC. JOINTS TYP.
SCALE: 1:10



Appendix A- Sustainability Framework



Sustainability Framework

Designing and constructing the project in a way that is both sustainable and resilient is important to the City of Surrey and aligns with the city-wide Sustainability Charter which outlines a 40-year vision for sustainability in Surrey. With the goal of creating a thriving, green, inclusive city, the Charter guides all City decisions and outlines what the community aspires to. In addition to the Sustainability Charter, several other City plans provide direction to the Bear Creek Athletic Centre's project team, including the:

- Climate Adaptation Strategy
- Climate Action Plan
- Corporate Energy and Emissions Plan
- Zero Waste Strategy
- Biodiversity and Conservation Strategy

These reference documents helped to inform a sustainability framework for the Bear Creek Athletics Centre. The development of a sustainability framework allows the project team to define the sustainability and resiliency topics which are relevant to the project and identification of potential design measures which would help the project to achieve its sustainability aspirations. The framework defines the Goals, Objectives, and Design Considerations.

Sustainability Goals and Objectives

GOAL 1. DESIGN FOR RESILIENCE TO CHANGING CLIMATE CONDITIONS

The impacts of human-induced climate change are increasing in both the frequency and intensity of weather events that are being experienced. The City of Surrey has taken steps to create a more

resilient city in the face of climate change. The project will be exposed to these changing future conditions, including increased precipitation that leads to floodplain increases, stream bank erosion and greater peak runoff on site, warmer and prolonged heat that increases demands for cooling and shade, and drier conditions with increased fire risks. The project will work to consider these increased risks, and work towards achieving greater resilience through the following design objectives:



- **Objective 1.1:** Increase resilience to higher peak temperatures and prolonged heatwaves by using surface materials with a Solar Reflectance Index of 29 or higher; designing for natural ventilation; and future allowances for water reuse systems.
- **Objective 1.2:** Increase resilience to higher rates of precipitation in the watershed by considering options for low-impact public activities within setbacks from floodplain and riparian embankments and increase onsite detention to manage future precipitation increases; and consider sizing of eaves and/or water shedding from roof structure under increased precipitation.
- **Objective 1.3:** Increase resilience to greater wildfire risk by considering flammability of and / or integrated fire suppression measures for the grandstand and roof structure to ensure high resistance to fire; and allow for generous grandstand setbacks (10+m) from forested areas and tree canopies.

GOAL 2. REDUCE ENERGY CONSUMPTION AND CARBON EMISSIONS

To moderate energy bills and reduce the corresponding carbon emissions that accelerate the pace of climate change, the City is committed to aggressively reducing its use of fossil fuels. The City has committed to reducing GHG emission by 33% before 2020 and 80% before 2050. The project will be designed to contribute to the City's carbon reduction targets through the incorporation of low embodied carbon materials, energy efficiency and renewables technologies through the following design objectives:



- **Objective 2.1:** Reduce energy consumption from building use and outdoor lighting through the use of LED lighting and smart controls; and incorporation Heat Recovery Ventilation (HRV) and high-efficiency equipment.
- **Objective 2.2:** Harvest onsite renewable energy potential by utilizing electric energy for heating and hot water.
- **Objective 2.3:** Reduce the embodied carbon from materials by identifying opportunities to reduce the amount of concrete and steel (e.g. wood); future-proof internal spaces to reduce future retrofitting works; and balance earthworks on-site.

GOAL 3. REDUCE POTABLE WATER CONSUMPTION

Metro Vancouver's summers are predicted to become hotter, drier, and longer. This coupled with predicted reductions in snowpack during the winter months will result in reductions in potable water availability. Water conservation will be an increasingly important consideration to newly constructed buildings to ensure their ongoing resilience. Potable water will be used both inside and outside of the building for



different functions. The project will be designed to reduce water by following the water conservation hierarchy, which prioritizes demand reduction, water reuse and recycling through the following design objectives:



- **Objective 3.1:** Reduce potable water use in building washrooms and concession through exploring the use of low-flow fixtures for washrooms and concessions.
- **Objective 3.2:** Reduce and take steps to eliminate potable water use for irrigation through utilizing drought tolerant planting, and exploring future allowances for rainwater.

GOAL 4. PROTECT AND ENHANCE BIODIVERSITY

The City's 'Biodiversity and Conservation Strategy' recognizes that biodiversity is a key foundation of a healthy, livable and sustainable city. This is not just important for species preservation, but also forms an integral part of the community's green infrastructure assets for sustainable service delivery, including water management, air quality management, temperature regulation etc. Bear Creek Park is an integral part of the broader community's green infrastructure and biodiversity networks. The project will work towards sensitive design that minimizes its impacts on and enhances biodiversity through the following design objectives:

- **Objective 4.1:** Create micro-habitats and natural stormwater systems
- **Objective 4.2:** Protect and enhance riparian habitats and site tree cover

GOAL 5. CREATE NO WASTE

Surrey's current waste management programs have resulted in a 70% waste diversion and a decrease in landfill disposal tonnage by 30% in their residential collection services. Looking forward, the City is looking to become Canada's first community to achieve zero waste to landfill. The project will consider its construction waste as well as its ongoing operational contribution to waste diversion through the implementation of the waste hierarchy: Reduction, Repair, Recycling, Recovery and Disposal. The project will work towards this goal through the following design objectives:



- **Objective 5.1:** Reduce demolition and construction waste through utilizing salvaged materials, and repurposing / adaption of existing assets.
- **Objective 5.2:** Proactively design for landscape organics and event waste separation and collection by installing waste, recycling and organic waste receptacles in line with City of Surrey standards.





INTER-OFFICE MEMO

TO: **Manager, Area Planning & Development
- North Surrey Division
Planning and Development Department**

FROM: **Acting Development Services Manager, Engineering Department**

DATE: **November 30, 2021** PROJECT FILE: **7821-0152-00**

RE: **Engineering Requirements
Location: 13750 88 Ave**

DEVELOPMENT PERMIT

The following conditions are associated with the Development Permit but can be addressed through Building Permit Process prior to issuance of the Building Permit.

- Perform video inspections of on-site storm and sanitary mains and connections to confirm pipe diameter, material, and condition. Subject to review video inspections, new infrastructure may be required.
- Construct on-site stormwater mitigation features per the Lower Bear Creek ISMP watershed as well as the Cruikshank Grenville Mahood ISMP watershed.
- Confirm that water quality/sediment control facility is installed and associated restrictive covenant registered.
- Confirm backflow preventer for each active water service connection.

A Servicing Agreement is not required.

Jeff Pang, P.Eng.
Acting Development Services Manager

4.0 Tree Preservation Summary

Table 2: City of Surrey tree preservation summary table for on-site and off-site trees, including the number of replacement trees proposed.

Surrey Project Number

Site Address Bear Creek Athletic Centre (at 13750 88 Avenue) Surrey, BC

Registered Arborist Cody Laschowski

On-Site Trees	Number of Trees
Protected Trees Identified (On-site and shared trees, including trees within boulevards and proposed streets and lanes, but excluding trees in proposed open space or riparian areas)	119
Protected Trees to be Removed	11
Protected Trees to be Retained (excluding trees within proposed open space or riparian areas)	108
Total Replacement Trees Required: - Alder & Cottonwood Trees Requiring 1 to 1 Replacement Ratio X one (1) = 0 - All other Trees Requiring 2 to 1 Replacement Ratio 11 X two (2) = 22	22
Replacement Trees Proposed	22
Replacement Trees in Deficit	0
Protected Trees to be Retained in Proposed Open Space / Riparian Areas	

Off-Site Trees	Number of Trees
Protected Off-Site Trees to be Removed	0
Total Replacement Trees Required: - Alder & Cottonwood Trees Requiring 1 to 1 Replacement Ratio X one (1) = 0 - All other Trees Requiring 2 to 1 Replacement Ratio X two (2) = 0	0
Replacement Trees Proposed	0
Replacement Trees in Deficit	0

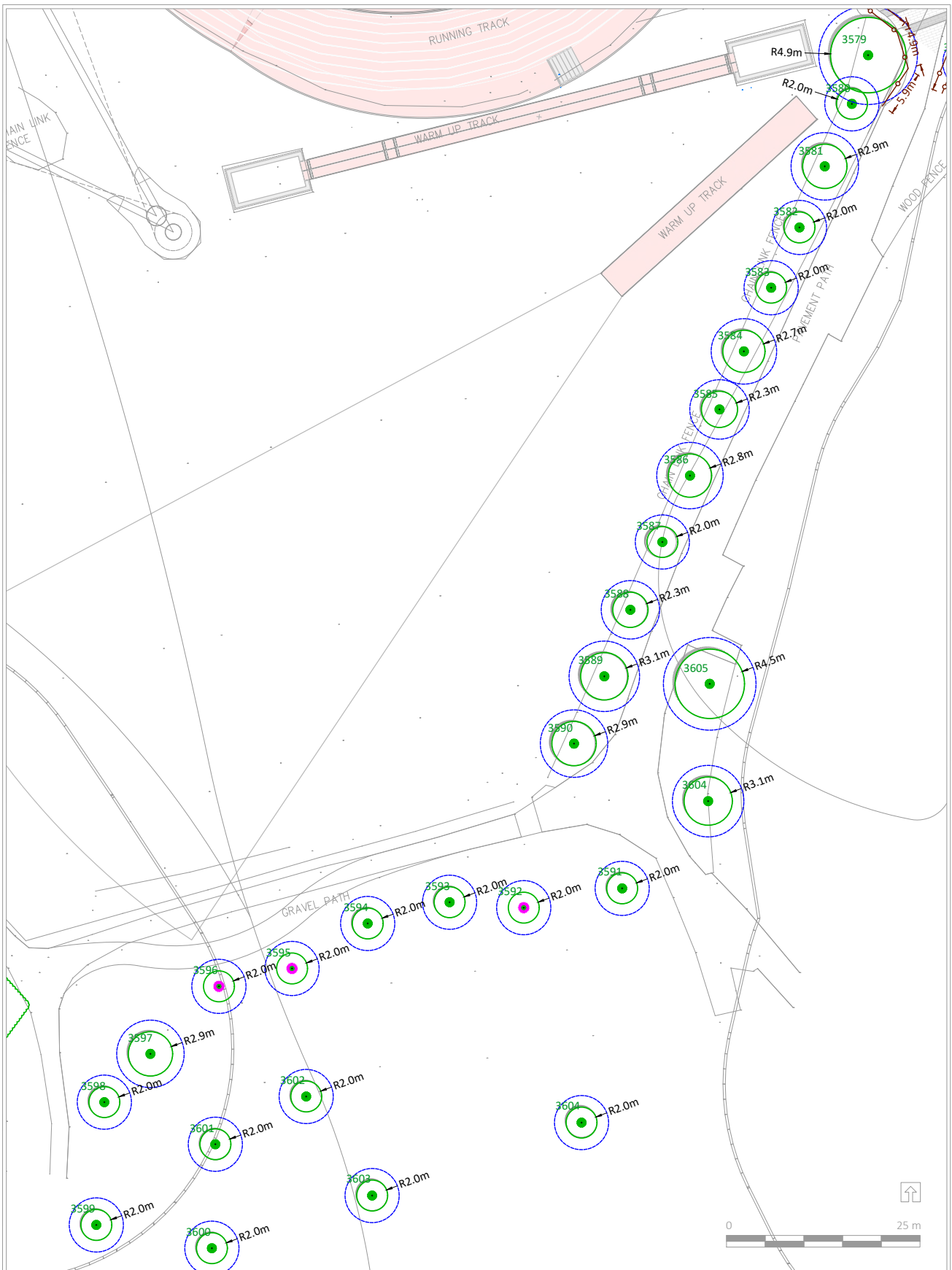
Summary, report and plan prepared and submitted by



Signature of Arborist

August 4, 2021

Date



LEGEND	TREE PROTECTION ZONE	TREE PROTECTION FENCE	UN-SURVEYED TREE
	NO-BUILD ZONE	TREE TO BE RETAINED	TREE TO BE REMOVED

REFERENCE DRAWINGS

1. Base Survey by: [Redacted] Base Survey by: Binnie Land Surveying Ltd. dated March 22, 2021

NOTES

1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications. The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. (If the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

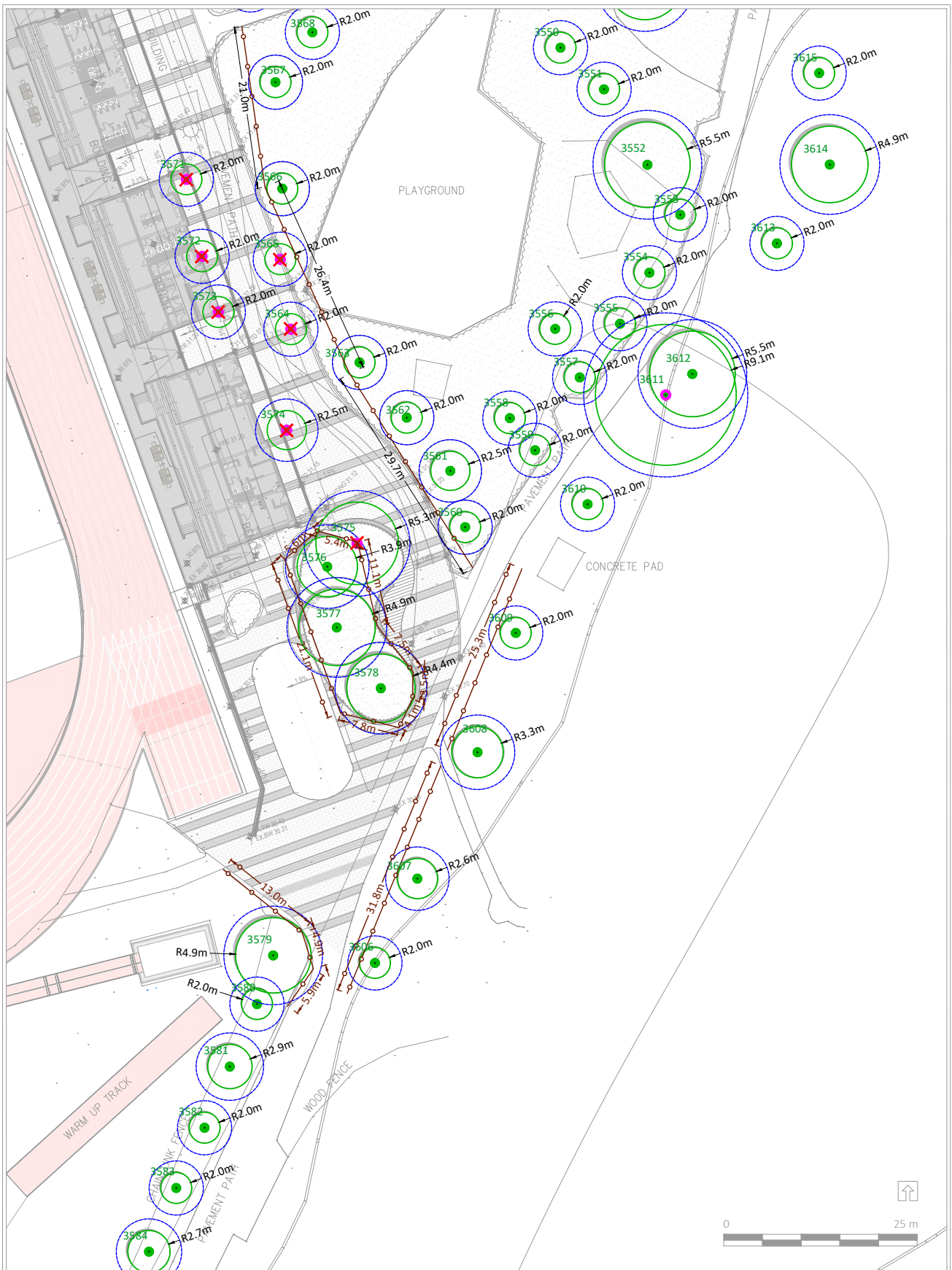


3539 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Retention and Removal Plan
Project address: Bear Creek Athletic Centre (at 13750 88 Avenue) Surrey, BC
Client: City of Surrey

Drawing No: 001
Date: 2021/10/01
Drawn by: CL
Page Size: TABLOID 11"x17"

Page #
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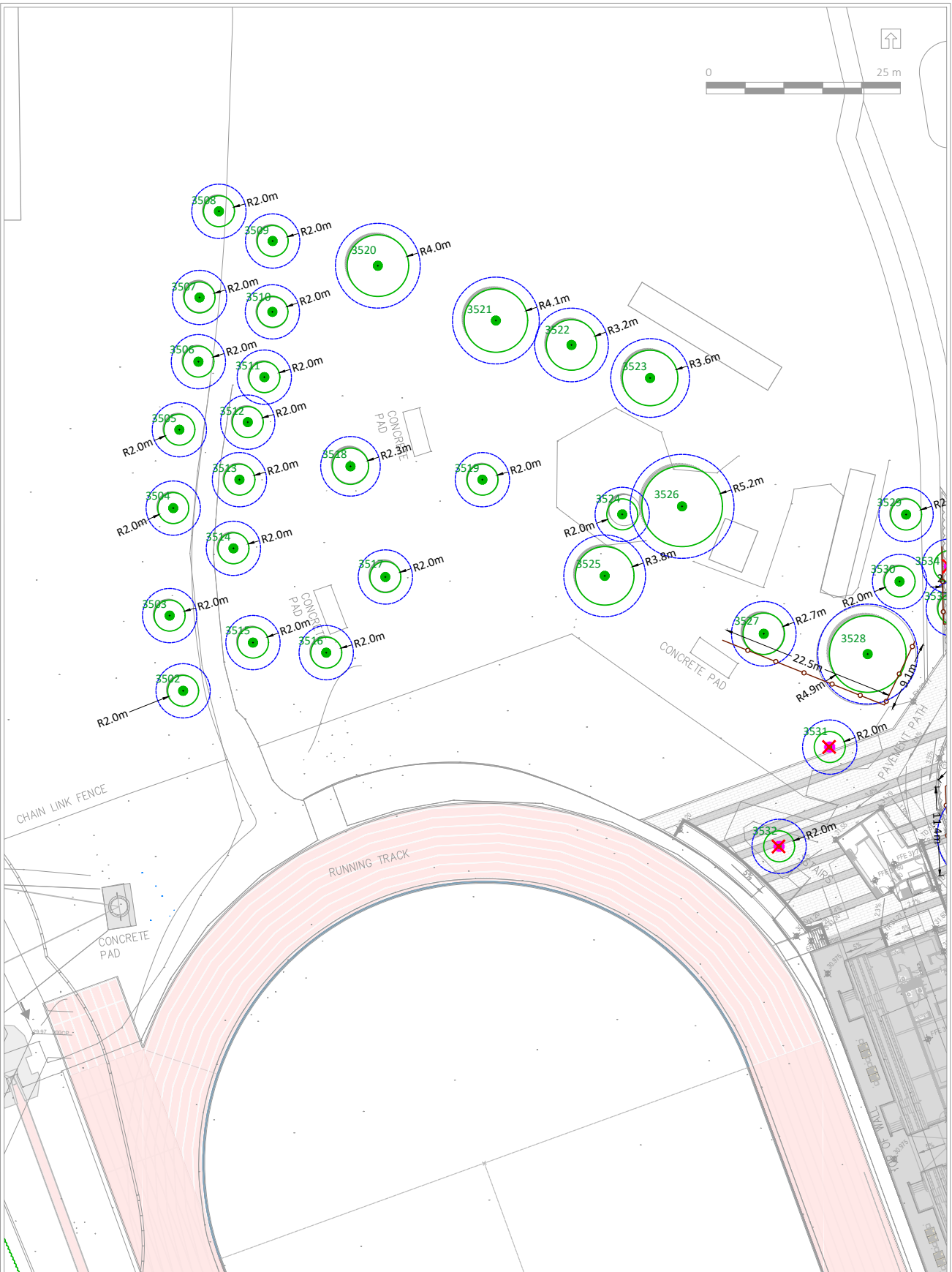


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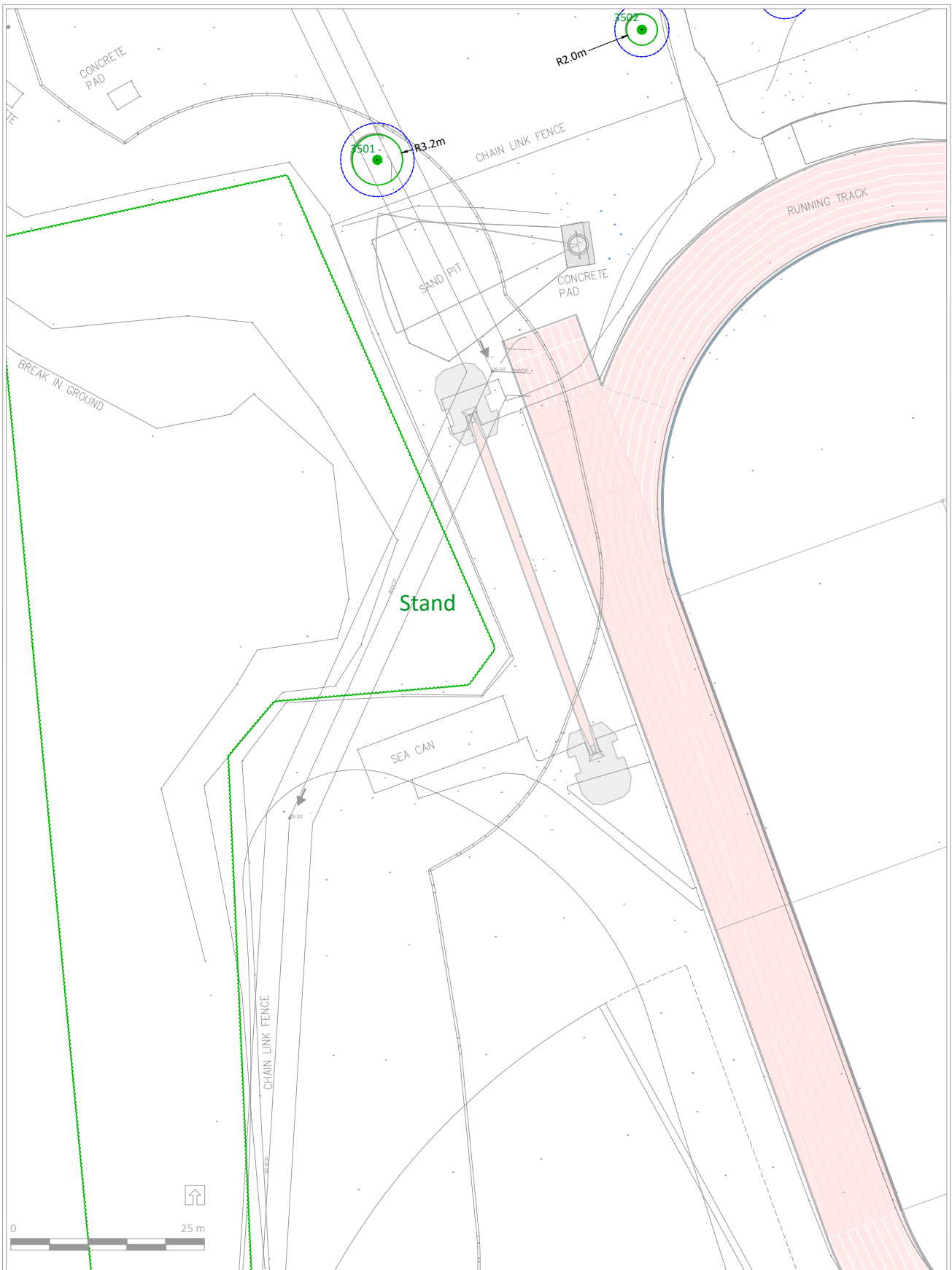


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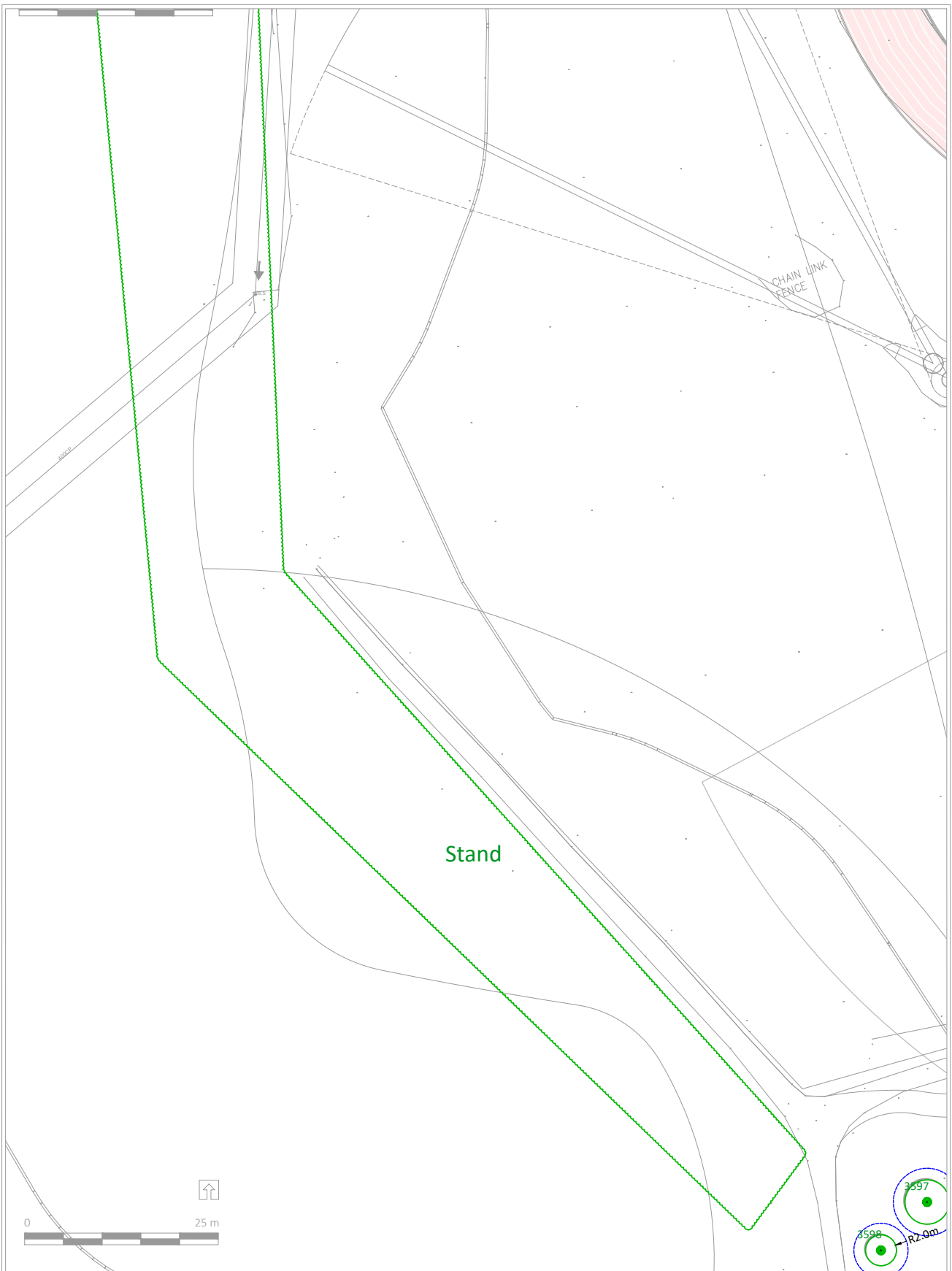


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LEGEND

- TREE PROTECTION ZONE
- NO-BUILD ZONE

- TREE PROTECTION FENCE
- TREE TO BE RETAINED

- UN-SURVEYED TREE
- TREE TO BE REMOVED

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