



GYE + ASSOCIATES
Consultants in Urban Forestry and Arboriculture

Arborist Report

**2440/2448 Richmond Road
Victoria, B.C.**

Date of Report: June 24, 2020

Date of Field Work: January 23, 2020

Prepared by Jeremy Gye
ISA Certified Arborist & Municipal Specialist # PN-0144AM
On behalf of Gye and Associates, Urban Forestry Consultants Ltd.

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EXECUTIVE SUMMARY

The proposed site is currently made up of two residential lots located in a mature residential neighbourhood. The majority of the surface of the lot is either constructed or landscaped with introduced plant species.

Two three-storey multi-family buildings are proposed for construction on the site. Site works with associated tree impacts include the following:

- Removal of the existing houses and driveways;
- Construction of new building foundations;
- Construction of a new access road/driveway and on-street parking;
- Upgrades to the road infrastructure along Richmond Road and Adanac Street (including new sidewalks that will transit the protected root zones of several boulevard trees);
- New underground services and utilities

Eight trees are identified on the two subject lots, three of which are protected under the City's current Tree Preservation Bylaw. The highest value on-site tree is a 64cm dbh Black pine (*Pinus nigra*), located on the front of 2440. The remaining trees on site are fruit and flowering trees and are proposed for removal due to building and infrastructure conflicts.

Four boulevard trees are identified, including a large Garry oak, located at the corner of Adanac Street and Richmond Road and a newly planted maple to the west of the oak. One of the mature boulevard maples is proposed for removal to make way for the main site entrance.

While no private off-site specimen trees are identified, the tree plan does indicate an off-site cedar hedge at the south-west corner of 2440 Richmond Rd.

Care in the layout and design of the site has been taken in order to preserve the large pine in the front yard of 2440 and four of the five boulevard trees, including the large Garry oak at the north-east corner of the site. Special tree preservation measures include modified sidewalk infill designed to bridge over tree root systems, vertical shoring of building excavations to limit encroachment into protected root zones and soil-armouring to conserve soils in areas that cannot be fenced off due to site access requirements.



Figure – 1 Context site photo

ASSIGNMENT

Gye and Associates (G&A) have been retained to prepare a Tree Protection Plan drawing and report as part of the rezoning application and development permit for this site. This report conforms with the City's published Terms of Reference for Tree Preservation Plans.

METHODOLOGY

- A site visit was made to identify, measure and visually assess the health and condition of relevant trees. As a development permit application is being made, all trees on site and off-site, including boulevard trees, with root systems extending into the subject lots were included. Biometric and assessment data was recorded and is presented in table-format below (Table-1) and on the referenced tree plan.
- Protected Root Zone (PRZ) radii were calculated for the subject trees. The PRZ was calculated using the method recommended by Nelda Methany and James Clark, which considers the relative tolerance of the tree species to disturbance, the biological age of the tree and its stem diameter at chest height.¹ Soil depth and texture and the health and condition of the tree were also considered. Multipliers of 12 – 18x the stem diameter have been derived using this method on a tree-by-tree basis.

¹ Nelda Matheny and James R. Clark, Tree and Development, A Technical Guide to Preservation of Trees During Land Development (International Society of Arboriculture, Champaign IL, USA. 1998 P. 74)



- A copy of the legal topographic survey, architectural and civil site servicing plans were provided to the arborist. Relevant line-work and data from these referenced drawings are incorporated into the tree plan for analysis and illustration.
- The canopy and protected root zone (PRZ) of each tree are plotted to scale on the tree plan. Trees clearly located within the built areas indicated on the architectural site plan were identified for removal.
- Limits of disturbance associated with the architectural and civil site plans were evaluated and conflicts with viable trees noted. Built elements have been adjusted where possible to optimize the preservation of viable trees.
- Tree protection measures--including fencing, soil armouring and on-site supervision by the arborist for activities within or adjacent to protected tree areas--have been indicated on the tree plan.
- Replacement tree numbers and proposed planting locations have been indicated on the tree plan.

OBSERVATIONS

SITE DESCRIPTION

The proposed site is currently made up of two residential lots located in a mature residential neighbourhood. The terrain of the site is relatively flat. The majority of the surface of the lot is either constructed or landscaped with introduced plant species.

TREE RESOURCE

Eight trees are identified on the two subject lots, three of which are protected under the City's current Tree Preservation Bylaw (see Table-1 for details). The highest value on-site tree is a 64cm dbh Black pine (*Pinus nigra*), located on the front of 2440. Six of the remaining on-site trees are mature fruit trees in poor – fair health. The seventh tree is a flowering plum located at the north-east corner of 2448.

Four boulevard trees are identified, including a large Garry oak, located at the corner of Adanac Street and Richmond Road and a newly planted maple to the west of the oak.

While no private off-site specimen trees are identified, the tree plan does indicate an off-site cedar hedge at the south-west corner of 2440 Richmond Rd.

Tag #	Common Name	DBH (cm)	Protected Root Zone radius (m)	Canopy Spread (m)	Health	Structural Condition	Bylaw Protected Tree?	Notes	Recommendations
732	Fruiting apple	25	3.0	3	Poor-Fair	Fair	No	Conflicts with building and parking area	Remove
733	Fruiting cherry	53	6.4	5	Poor-Fair	Fair	Yes	Conflicts with building	Remove
734	Fruiting apple	22	2.5	3	Poor-Fair	Fair	No	Conflicts with drive aisle	Remove
735	Fruiting apple	10	2.5	2	Poor-Fair	Fair	No	Conflicts with parking area	Remove
736	Fruiting apple	15	2.5	2	Poor-Fair	Fair	No	Conflicts with parking area	Remove
737	Fruiting apple	17	2.5	3	Poor-Fair	Fair	No	Conflicts with parking area	Remove
738	Maple sp.	34	5.1	4	Good	Good	Yes	Boulevard tree	Retain & Protect
739	Maple sp.	37	5.6	5	Good	Good	Yes	Boulevard tree conflicts with entranceway	Remove
740	Maple sp.	4	2.0	1	Fair-Good	Good	Yes	Boulevard tree	Retain & Protect
741	Garry oak	101	15.2	11	Good	Good	Yes	Boulevard tree	Retain & Protect
742	Flowering plum	50+/-	6.0	5	Fair-Good	Fair	Yes	Private tree	Remove
743	Black pine	64	8.0	7	Good	Good	Yes		Retain & Protect

Table-1 Tree inventory

SITE PLAN

Two three-storey multi-family buildings are proposed for construction on the site. The architectural and civil site plans also include the following site preparation, building and infrastructure elements:

- Removal of the existing houses and driveways;
- Construction of new building foundations;
- Construction of a new access road/driveway and on-street parking;
- Upgrades to the road infrastructure along Richmond Road and Adanac Street (including new sidewalks that will transit the protected root zones of several boulevard trees);
- New underground services and utilities

DISCUSSION

Care in the layout and design of the site has been taken in order to preserve the large pine in the front yard of 2440 and four of the five boulevard trees. The remaining seven trees within the site and one boulevard maple are proposed for removal to make way for the main drive-aisle into the site and off-street parking (See Table-2 below).

SUMMARY TREE STATISTICS	
CATEGORY	# OF TREES
Total number of trees Inventoried	12
On site trees	8
(Bylaw protected trees)	(3)
Off site or boundary trees	0
Boulevard (municipal) trees	4
Total number of trees to be retained	4
On site bylaw-protected trees to be retained	1
Off site & boundary trees to be retained	0
Boulevard (municipal) trees to be retained	3
Total number of trees to be removed	8
On site bylaw-protected trees to be removed	2
On site non-bylaw protected trees to be removed	5
Boulevard (municipal) trees to be removed	1
Total number of replacement trees required	4
Number of replacement trees proposed:	4
Number of boulevard trees required and proposed:	4

Table-2 Summary tree statistics

TREE PROTECTION MEASURES

Tree protection measures to limit impacts from demolition, site preparation, construction, site servicing, landscaping and road frontage improvements include the following.

- The tree protection areas (TPA) indicated on the plan shall be fenced. All-weather signage shall be attached on all visible aspects of the fencing that identify the area within as a *Tree Protection Area—Keep Out*.
- Residual portions of the PRZ that remain outside the fenced area in order to facilitate necessary construction access shall be armoured with 150mm thick of crushed screenings on top of geotextile until landscape stage.
 - All excavation within or adjacent to TPAs shall be supervised by the project arborist;
 - Any damaged tree roots or branches shall be pruned back to undamaged tissue by the project arborist;
 - The arborist shall securely attach a non-porous membrane to the exposed face of all excavated cuts within or adjacent to TPAs, the purpose of which is to prevent soil erosion and desiccation during construction;
 - The grades of the boulevard sidewalks indicated on the tree plan shall be constructed so that the excavated bed of the sidewalk remains above the root horizon of the protected boulevard trees. The only exception to this will be where the grade of the sidewalk must descend to meet the road crossing.

Additional detail is provided on the attached tree plan. If diligently implemented, the tree protection measures specified in the Tree Management Plan and this report will effectively preserve those trees designated for retention on this site and the surrounding boulevard for the long-term benefit of future homeowners and the community.

ROLE OF THE PROJECT ARBORIST

In addition to assisting with tree preservation planning during the rezoning and permit application phases of the project, the arborist shall be present during the construction and landscape phases of the project to supervise work within or immediately adjacent to the tree protection areas and to monitor the site for ongoing compliance with the protection measures and conditions required by the tree permit.

The following is a summary of the key interventions required by the arborist (G&A). **The owner's building contractor is responsible for coordinating with the arborist for the required on-site work.**

- A mandatory site meeting is required with the owner and General Contractor to review the tree preservation plan prior to work commencing on site. The purpose of the meeting is to systematically review the objectives of the plan and the specific measures required to protect the relevant trees during the site preparation, construction and landscape phases of the redevelopment. The meeting provides an opportunity to address any building constraints or conflicts and answer questions.
- The arborist shall inspect the prescribed tree protection fencing and any soil armouring prior to work commencing on site.
- The use of explosive for rock removal can kill or injure trees if not managed carefully. If rock removal is required as part of the site preparation phase, the building and blasting contractor shall meet on site with the arborist to develop the rock removal work plan together, prior to an estimate of costs being provided by the blasting contractor.
- The arborist shall be present to oversee the following site work within or immediately adjacent to the Tree Protection Areas identified on the attached plan:
 - demolition and renovation of existing buildings or other site elements,
 - site grading
 - excavation for the new building foundation and perimeter drains;
 - rock removal or blasting;
 - trenching for both municipal service connections and extension of these underground services to the house;
 - periodic site inspections to ensure effective compliance with required tree preservation measures;
 - meetings as required to resolve any emergent conflicts between building or landscape construction requirements and tree protection.
- Landscaping activities--such as trenching for irrigation or lighting, grubbing of vegetation, distribution of soils and other landscape materials—are another potential source of damage to the sensitive soils and root systems of protected trees.

- The arborist shall coordinate with the landscape consultant to ensure that relevant aspects of the tree protection plan are considered in the development of the landscape plan.
 - The arborist shall review a draft of the proposed landscape plan prior to the plan being finalized.
 - The landscape consultant and landscape contractor shall meet on site with the project arborist to review all aspects of the landscaping work plan within the TPAs..
 - The arborist shall supervise landscape activity within the tree protection areas as necessary.
- At the completion of the redevelopment, the arborist shall ensure that any tree protection or restoration deficiencies are addressed by the owner and building contractor. Once all deficiencies have been repaired, the arborist shall prepare a letter to the City of Victoria confirming successful completion of the project, including resolution of any deficiencies.

End report.

CERTIFICATION:

This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant.

Submitted on behalf of Gye and Associates, Urban Forestry Consultants Ltd,



Jeremy Gye – Senior Consultant

Consulting Arborist (Diploma, American Society of Consulting Arborists, 1997)

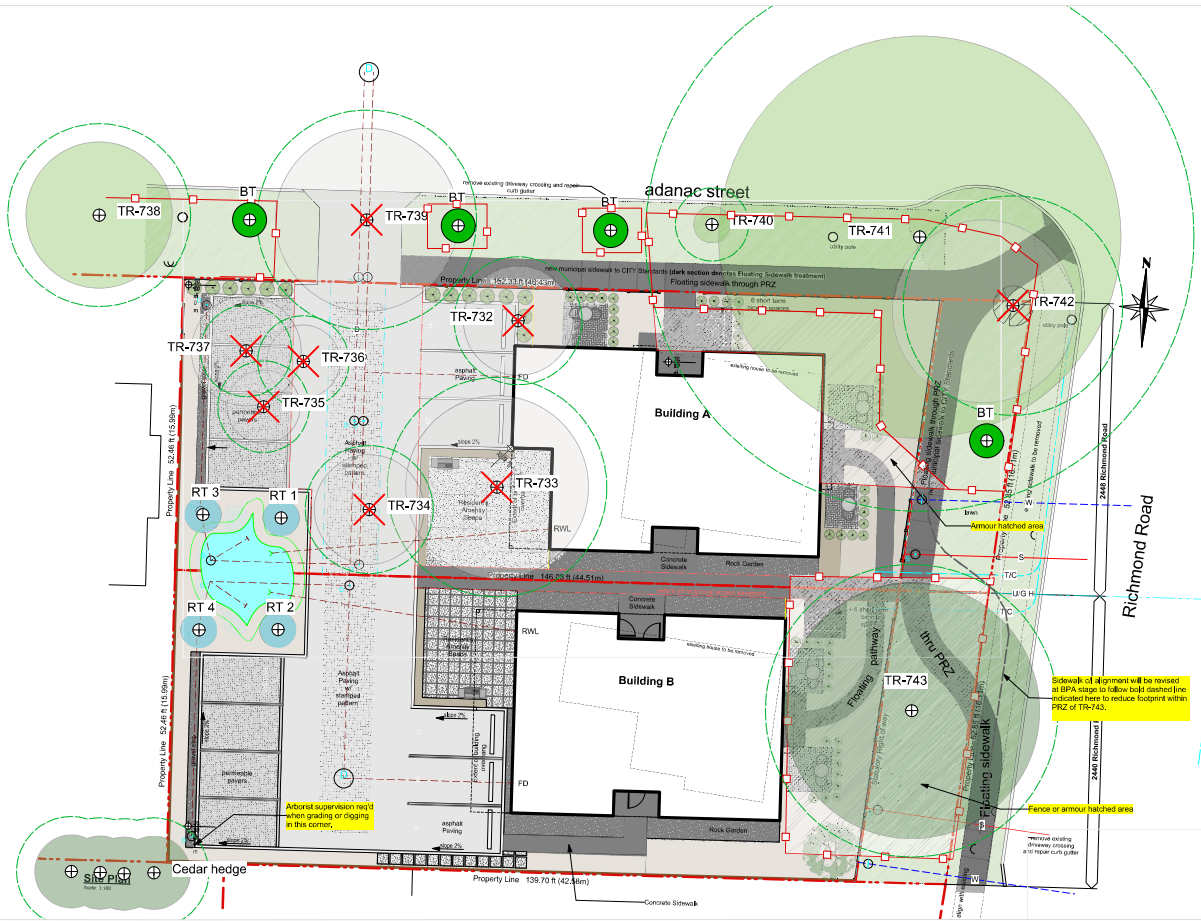
ISA Certified Arborist (Certification No. PN-0144A)

ISA Certified Municipal Specialist (Certification No. PN-0144AM)

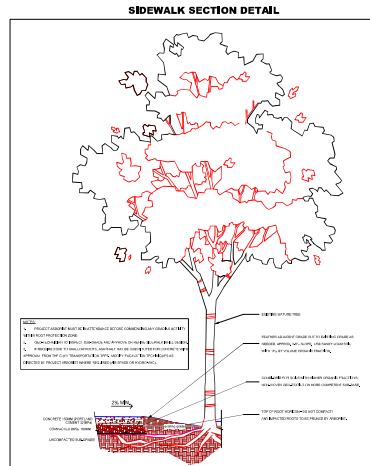
ISA Tree Risk Assessment Qualified

APPENDICES

Tree Management Plan drawing (see attached).



- ### TREE PRESERVATION MEASURES
- 1. Start-up meeting:** Before demolition, site servicing or other site work commences, the owner and contractor shall meet with the arborist to review the Tree Protection Plan and lay out the tree protection fencing.
 - 2. Tree and stump removal:** Trees identified for removal will be removed during the construction phase of the project and not a demolition phase. The stumps associated with the on-site tree removals can be mechanically excavated without supervision of the arborist.
 - 3. Tree protection fencing:** Tree fencing and signage shall be inspected by the project arborist, approved by the City of Victoria and remain in good condition throughout the duration of the project. *All fencing must be replaced prior to release of building permits for demolition and construction.*
 - 4. Prohibition of disturbance:** All forms of disturbance to the protected trees or their habitat within the fenced protection areas (TPAs) is prohibited.
 - 5. Temporary access to TPAs:** Requests for temporary construction access to a Tree Protection Area (TPA) must be reviewed by the project arborist and approved if approved. This includes landscaping activity.
 - 6. Soil armoring:** If it should prove necessary to reduce the tree fencing, the exposed TPA outside the fencing shall be armoured with 3/4" plywood or a temporary cover of geo-textile and 200mm of road-base, moderately compacted with a plate compactor.
 - 7. Prohibition of material storage within TPAs:** No equipment, materials, waste products or excavated soil shall be placed or stored within the TPA. THIS PARTICULARLY INCLUDES DISTURBANCE OF EXCAVATED SOILS NEEDED FOR BACKFILLING OF THE FOUNDATION.
 - 8. Arborist supervision of site works:** The arborist shall be present to oversee excavation, sub-grading, lane or pathway base preparation, service trenching, blasting or any other form of disturbance within, or adjacent to, the tree protection areas (TPAs). Any tree roots or branches damaged shall be pruned back to undamaged tissue by the arborist.
 - 9. Covering excavated cuts:** Any excavated cut within or adjacent to a TPA shall be securely covered with heavy-gauge plastic to prevent soil desiccation and erosion.
 - 10. Site monitoring:** The Project Arborist shall monitor the site on a regular basis during the site preparation, construction and landscaping phases to ensure ongoing and effective compliance with the tree protection measures specified in this tree plan and in-site meetings with the General Contractor and relevant consultants and sub-contractors.
 - 11. Pre-blasting meeting:** If rock blasting is required, the General Contractor and blasting sub-contractor shall meet with the arborist to review the blasting plan prior to drilling. Modified blasting practices or rock removal techniques shall be utilized where considered necessary by the arborist to minimize blasting impacts to protected trees.
 - 12. Procedure for blasting near tree root zones:**
 - When blasting is required immediately adjacent to a Tree Protection Area, the blasting contractor shall work with the arborist to develop a blasting plan and develop best practices that minimize impacts to protected trees.
 - Blasting vibrations in the vicinity of the Tree Protection Areas are not to exceed a peak particle velocity of 25 mm/sec.
 - Use DYNAMITE as the explosive product. No fertilizer-based explosive is permitted, due to its toxicity to tree roots.
 - The contractor shall prevent rock debris from the blast site from entering the TPA.
 - 13. Irrigation of TPAs:** TPAs shall be irrigated once every two weeks during the dry summer period (May 1 - Sept 31) to a minimum effective depth of 30cm. The General Contractor shall ensure that a temporary water source for irrigation purposes is enclosed on site.
 - 14. Pre-landscaping meeting:** The General Landscaper and Irrigation Contractors and the Landscape Architect shall meet with the arborist to review the landscaping work plan to landscape construction or site preparation commencing. Potential impacts to sensitive tree habitat will be identified and measures provided to eliminate or mitigate the impacts.
 - 15. Replacement tree requirements:** Four (4) replacement trees are proposed to mitigate the removal of two (2) bylaw-protected trees, as indicated on the Tree Plan. All replacement trees shall meet or exceed the minimum size requirements set forth in Section 44 of the City's tree bylaw (3.0m in height or 4cm calliper diameter).
 - 16. New Boulevard Trees:** 4 new boulevard trees are required. New boulevard trees shall be supplied and planted by the applicant, but tree species shall be determined by the City of Victoria. The City of Victoria requires a security deposit for both replacement and new boulevard tree plantings. New boulevard tree plantings are subject to a three-week inspection process by the City. 1. Inspection of plant stock prior to planting. 2. Inspection of planting site and stock post-planting. 3. Inspection of plant condition at end of warranty period (1 year). Planting sites for new boulevard trees shall be fenced prior to site works commencing, as indicated on the tree plan. Planting sites that cannot be fenced shall be remediated to City standards prior to planting.
 - 17. Plan posting:** A full-size weather copy of the Tree Plan shall be posted in the site construction office in plain site.
 - 18. Post-construction inspection and sign-off:** A post-construction inspection and assessment of the site and protected trees shall be conducted by the Project Arborist in the company of the General Contractor. Any deficiencies will be identified. Once all deficiencies have been addressed to the satisfaction of the Project Arborist and the City of Victoria, a post-construction letter of completion will be prepared by the arborist and submitted to the City.

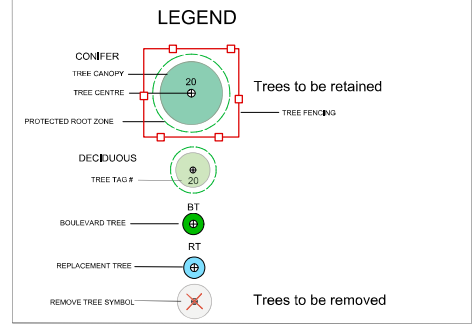


Tree Protection Fencing Detail

Modular steel panel fencing is recommended in order to reduce land-fill waste post-construction. Fencing panels shall be secured to the ground with rebar wired to panel frame.

All-weather signage will be attached, clearly designating the area within as a TREE PROTECTION AREA - NO TRESPASSING.

In cases where steel-panel fencing is not practical or available, fencing shall be constructed with a wooden 2x4 frame (side, top and bottom rails) and back-bracing supports as required to ensure robust placement. Snow-fencing will then be affixed to the frame using battens, zip-ties, staples, wire or nails.



TREE TABLE

CAA Tree ID	Common Name	DBH (cm)	PRZ (m)	Crown Radius (m)	Health	Structural Condition	Bylaw Protected Tree?	Comments	Recommendations
PRIVATE ON-SITE TREES									
732	Fraxino ash	25	3	3	Good/Fair	Fair	No	Conflicts with building and parking area	Remove
733	Fraxino ash	25	3	3	Good/Fair	Fair	Yes	Conflicts with building	Remove
734	Fraxino ash	25	3	3	Good/Fair	Fair	No	Conflicts with drive aisle	Remove
735	Fraxino ash	16	2.5	2	Good/Fair	Fair	No	Conflicts with parking area	Remove
736	Fraxino ash	15	2.5	2	Good/Fair	Fair	No	Conflicts with parking area	Remove
737	Fraxino ash	17	2.5	3	Good/Fair	Fair	No	Conflicts with parking area	Remove
742	Quercus	50	8	5	Good	Fair	Yes	See notes	Remove
743	Black oak	64	8	7	Good	Fair	Yes		Retain & Protect
BOULEVARD TREES									
738	Mistle no.	34	5.1	4	Good	Good	Yes	Bylaw tree	Retain & Protect
739	Mistle no.	37	5.8	5	Good	Good	Yes	Bylaw tree	Retain & Protect
740	Mistle no.	4	2	1	Good	Good	Yes	Bylaw tree	Retain & Protect
741	Canary oak	103	13.2	11	Good	Good	Yes	Bylaw tree	Retain & Protect

SUMMARY TREE STATISTICS

CATEGORY	# OF TREES
Total number of trees inventoried	12
On site trees	12
Bylaw protected trees	6
On site or boundary trees	6
Boulevard (municipal) trees	4
Total number of trees to be retained	4
On site bylaw-protected trees to be retained	1
Bylaw protected trees	3
On site & boundary trees to be retained	4
Boulevard (municipal) trees to be retained	4
Total number of trees to be removed	8
On site bylaw-protected trees to be removed	2
On site non-bylaw protected trees to be removed	5
Boulevard (municipal) trees to be removed	1
Total number of replacement trees required	4
Number of replacement trees proposed:	4
Number of boulevard trees required and proposed:	4

Gye and Associates.ca

PROJECT: 2440 + 2448 Richmond Rd, Victoria, BC

SHEET TITLE: Tree Management Plan for Rezoning and DPA

REV NO	DESCRIPTION	DATE
3	FOR IZ APPLICATION	JUNE 21, 2020
2	FOR IZ APPLICATION	JUNE 12, 2020
1	FOR IZ APPLICATION	JUNE 21, 2020

PROJECT NO.: 19-103
DATE: February 21, 2020
SCALE: 1:125
DRAWN BY: JG
SHEET NO.: T - 1