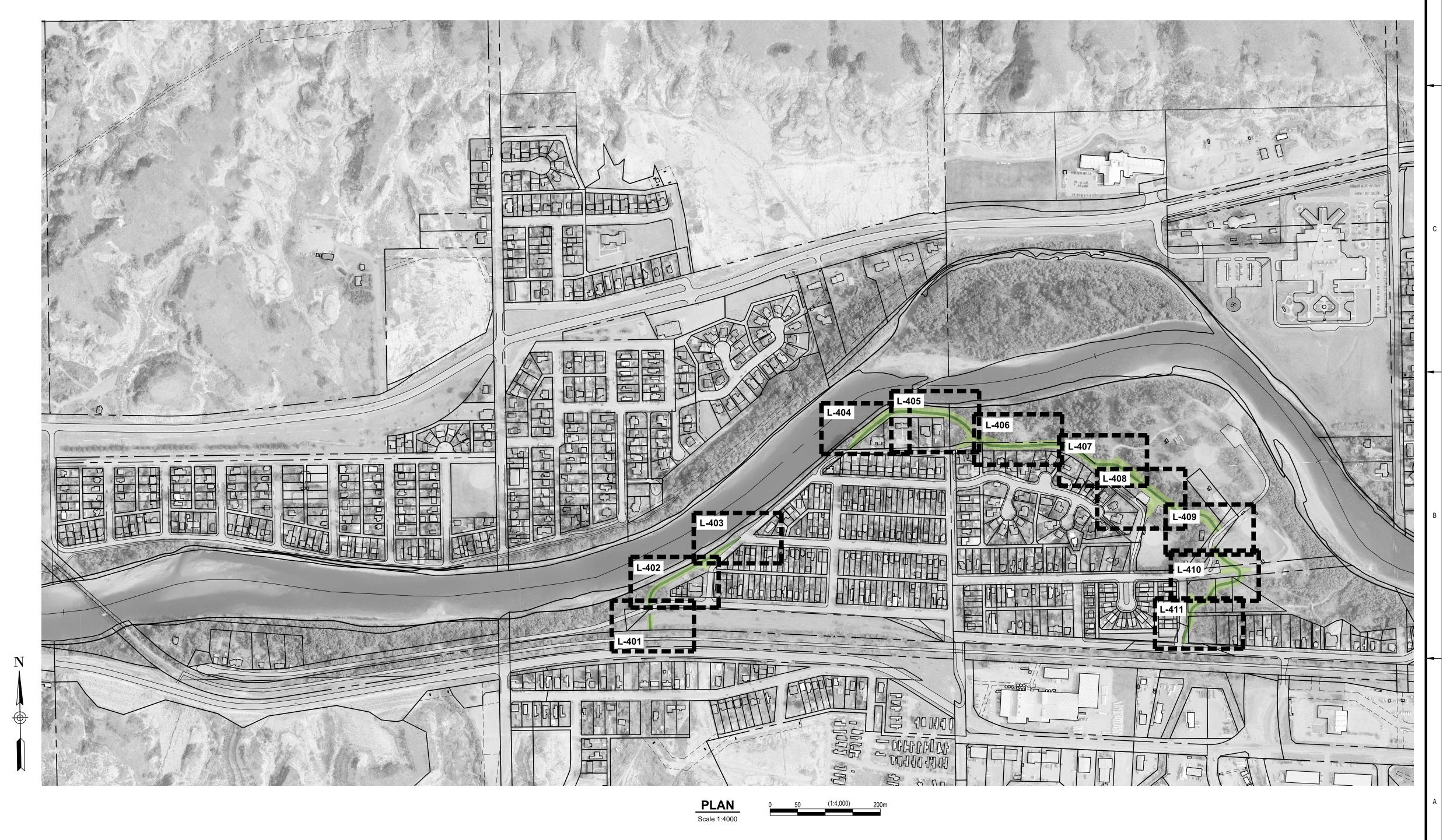
# TOWN OF DRUMHELLER

# NEWCASTLE DIKE LANDSCAPE PLANTING TENDER PACKAGE

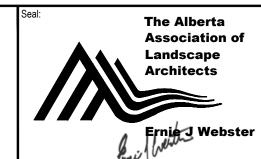
# **DRAWING LIST**

Sheet Number	Sheet Title
L-100	LANDSCAPE COVER SHEET & KEY PLAN
L-401	PLANTING PLAN
L-402	PLANTING PLAN
L-403	PLANTING PLAN
L-404	PLANTING PLAN
L-405	PLANTING PLAN
L-406	PLANTING PLAN
L-407	PLANTING PLAN
L-408	PLANTING PLAN
L-409	PLANTING PLAN
L-410	PLANTING PLAN
L-411	PLANTING PLAN
L-412	PLANTING PLAN

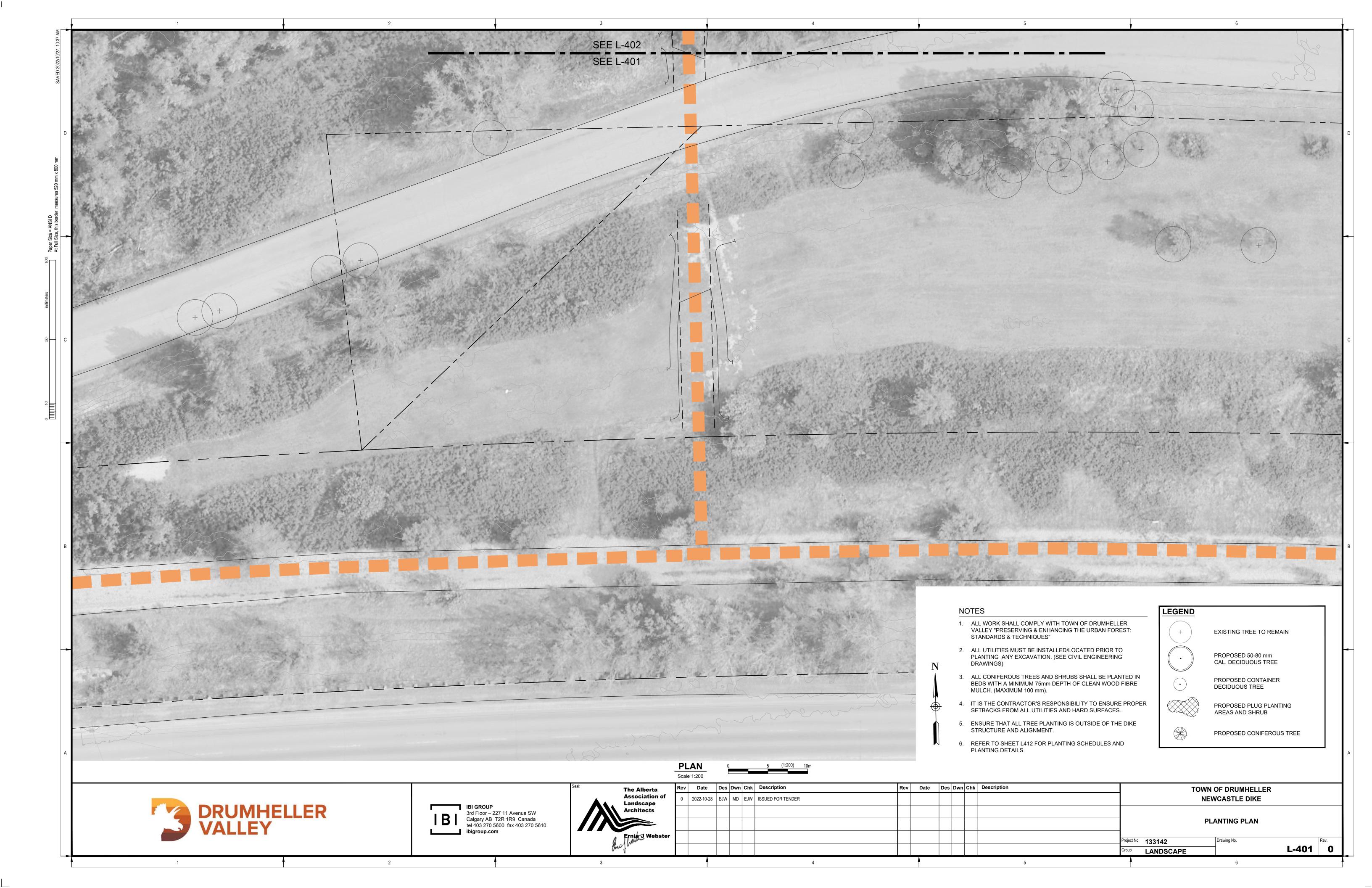


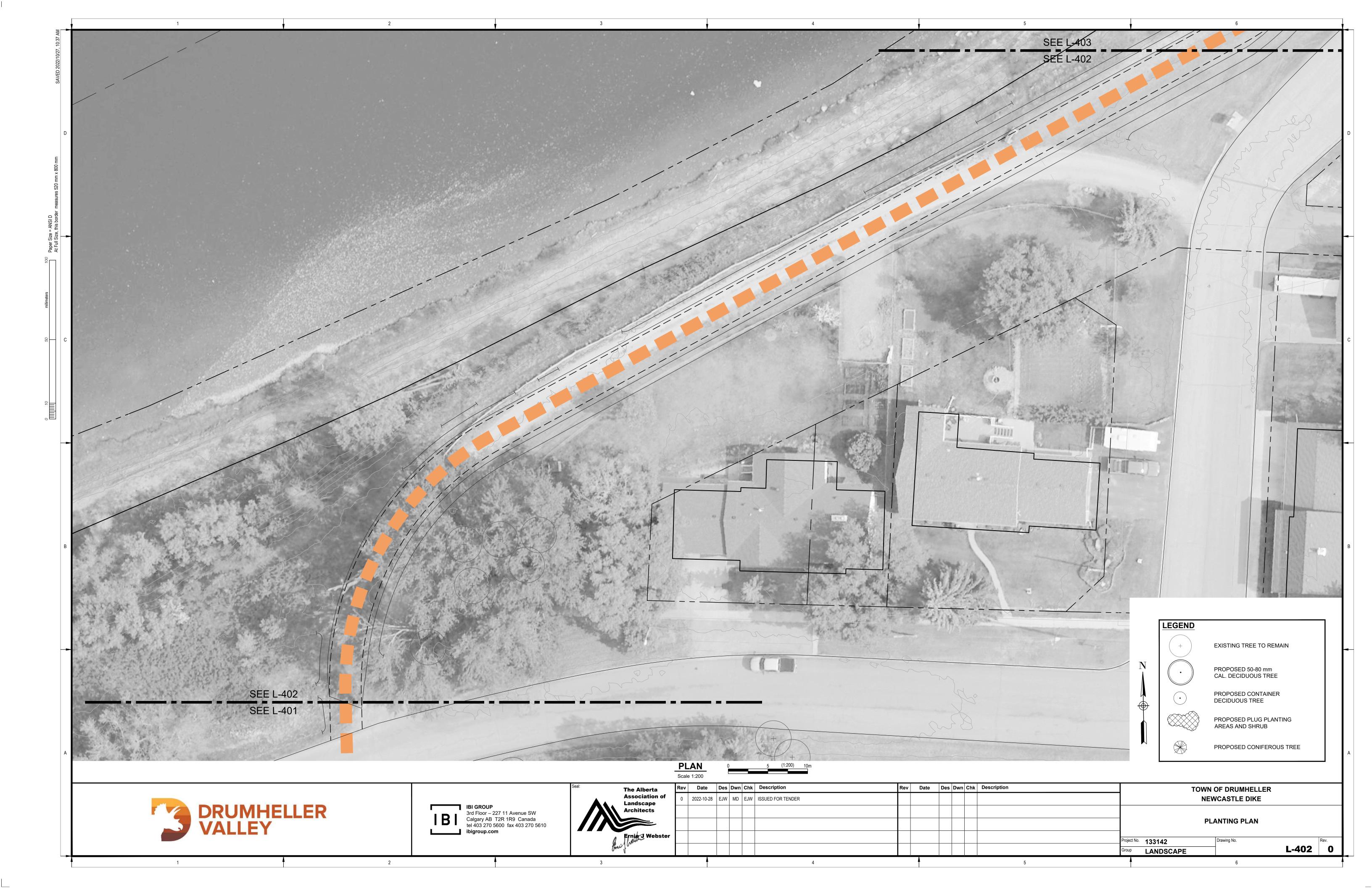


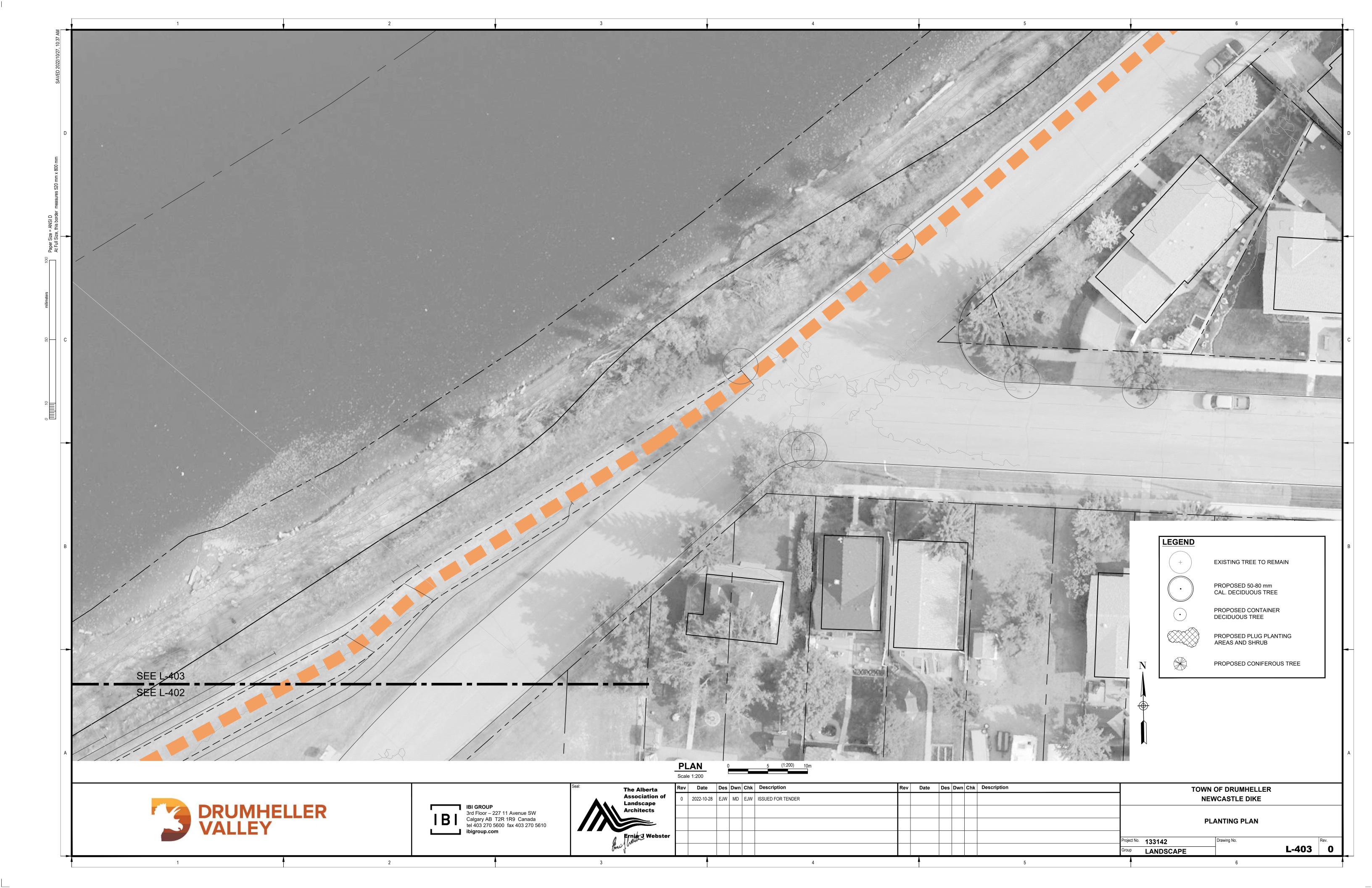


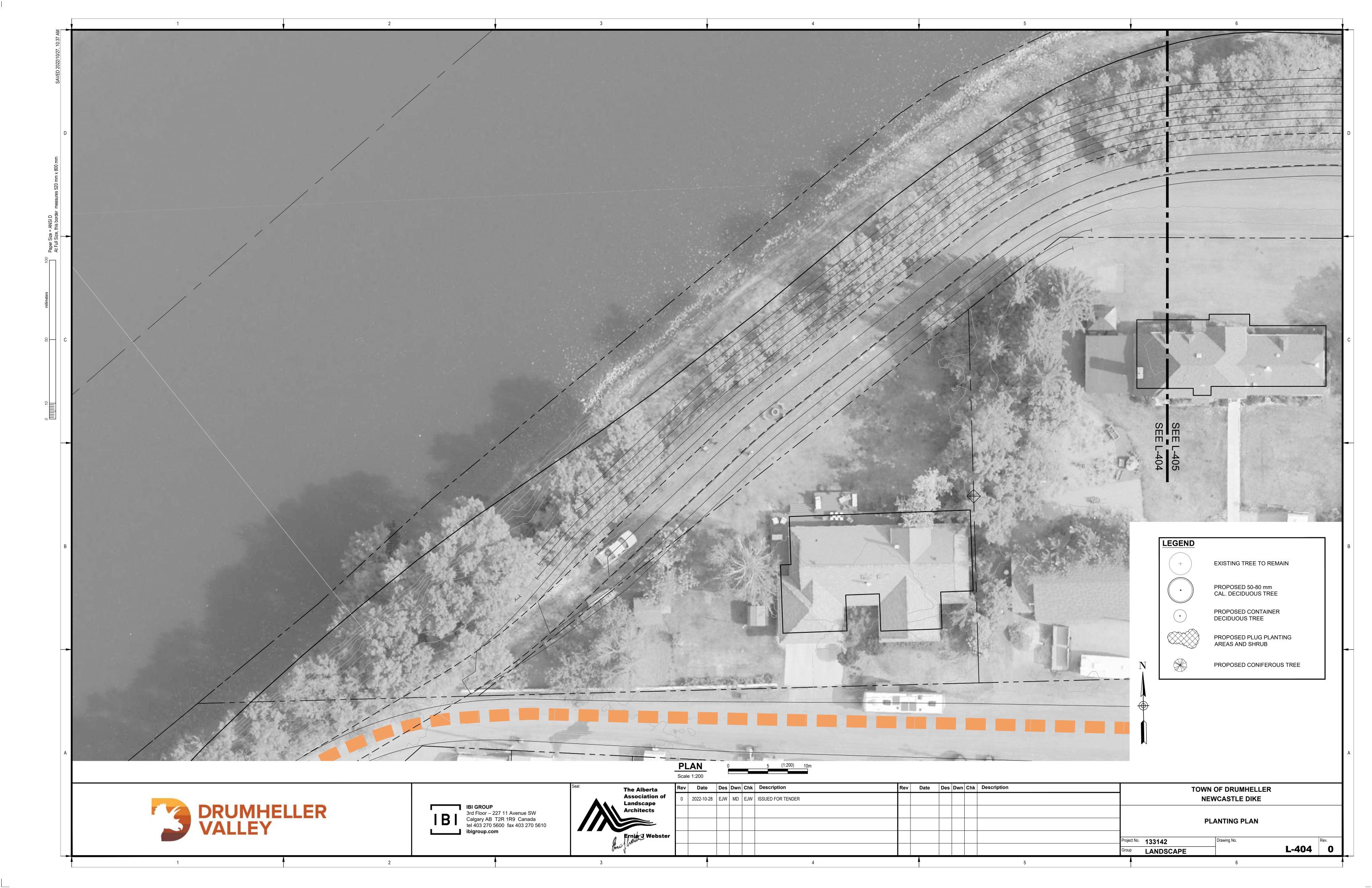


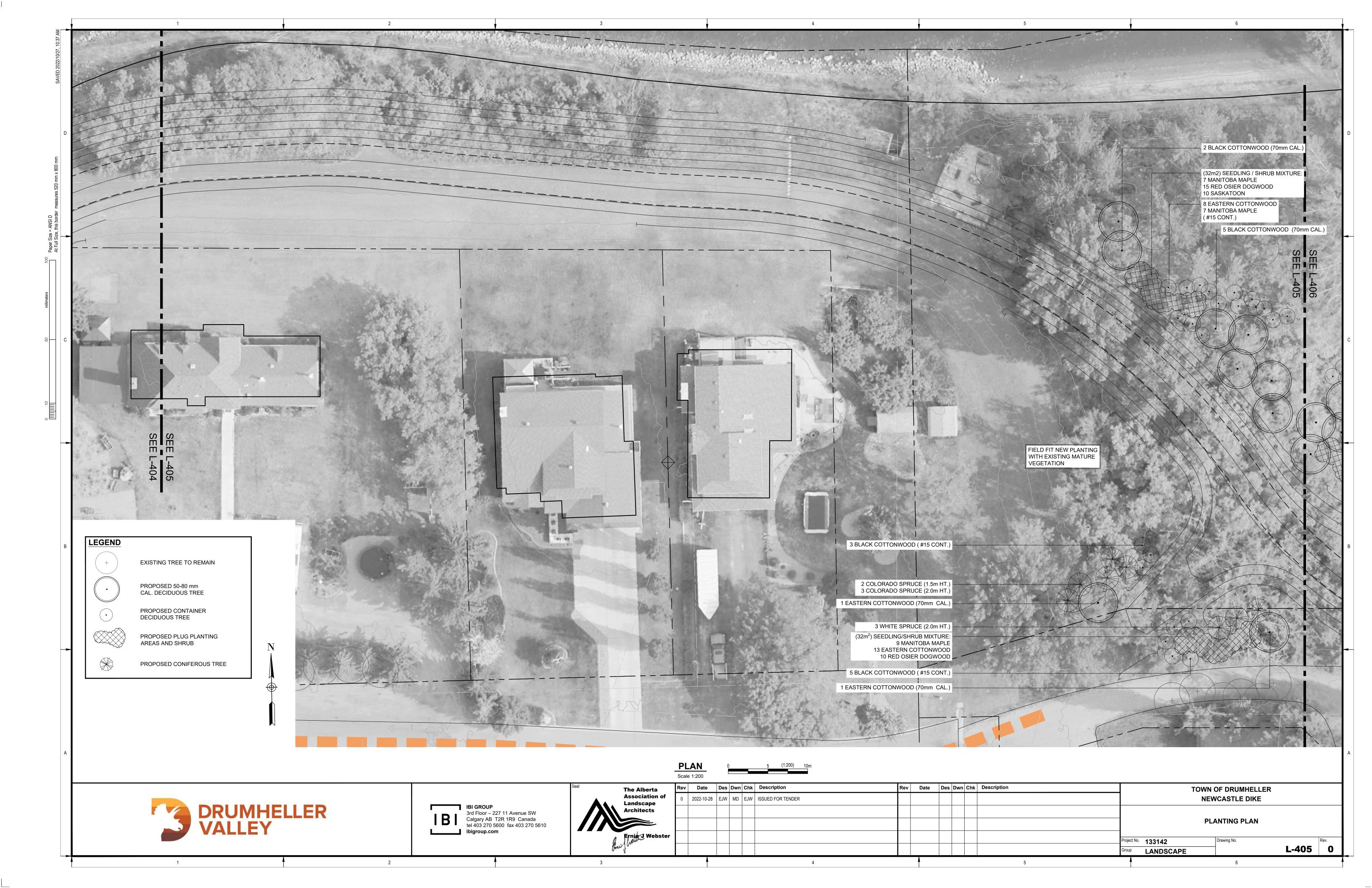
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F	0	2022-10-28	EJW	MD EJ	W ISSUED FOR TENDER									NEWCASTLE DIKE			
													LANDSCAPE PLANTING COVER SHEET				
er											1			8	KEY PLAN		
													Project No.	133142	3	Rev.	
													Group	LANDSCAPE	L-100		
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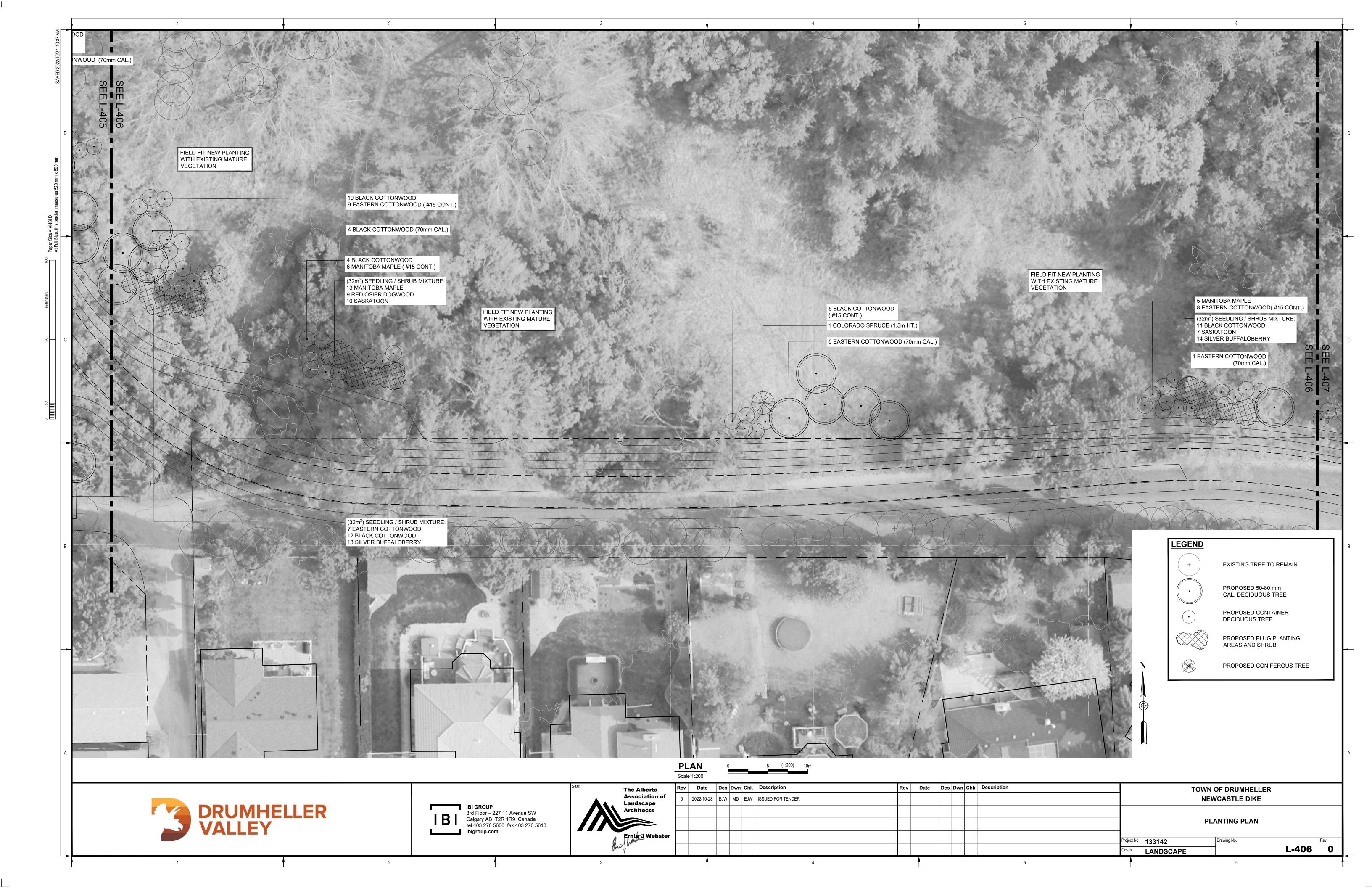




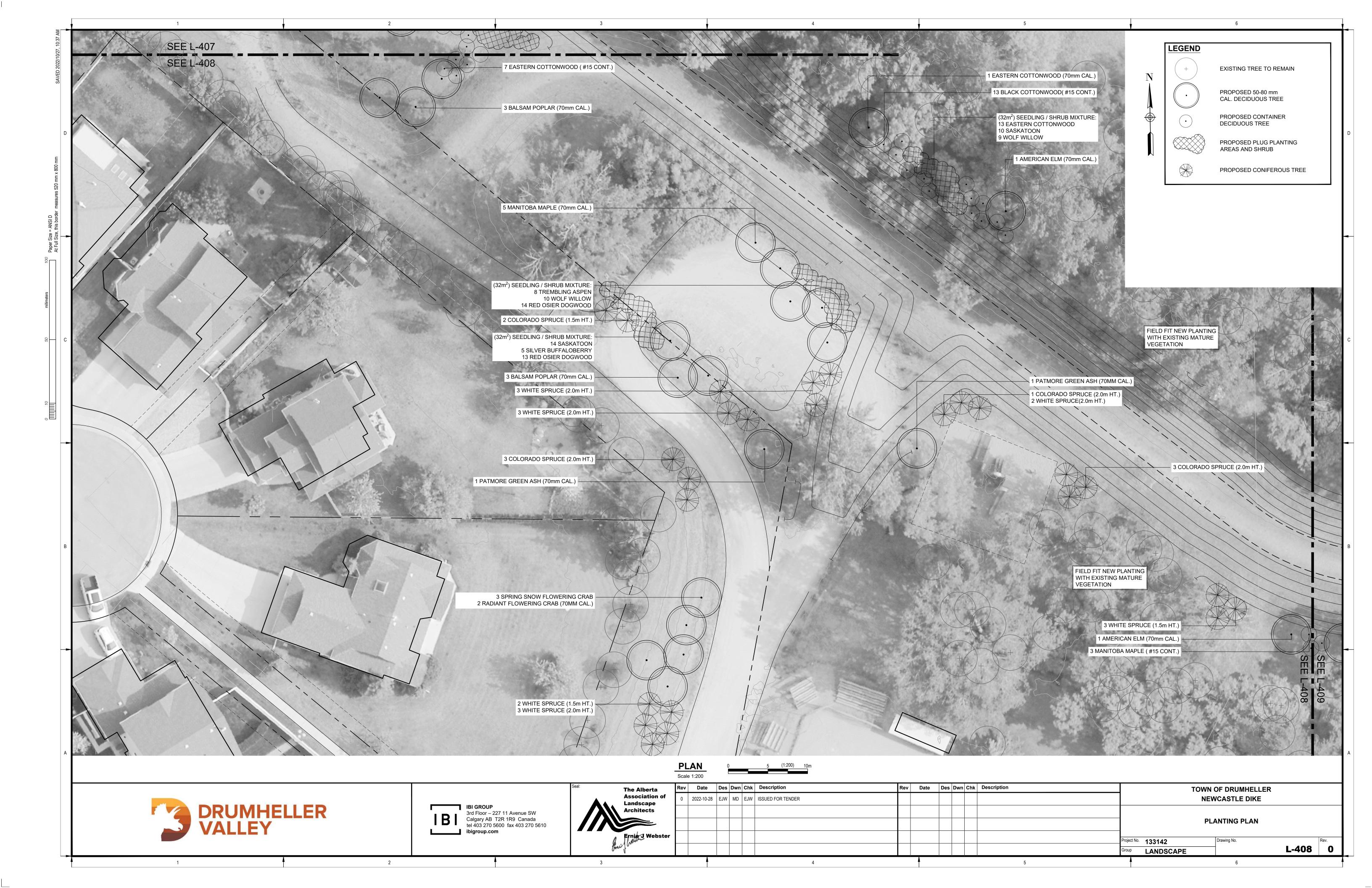


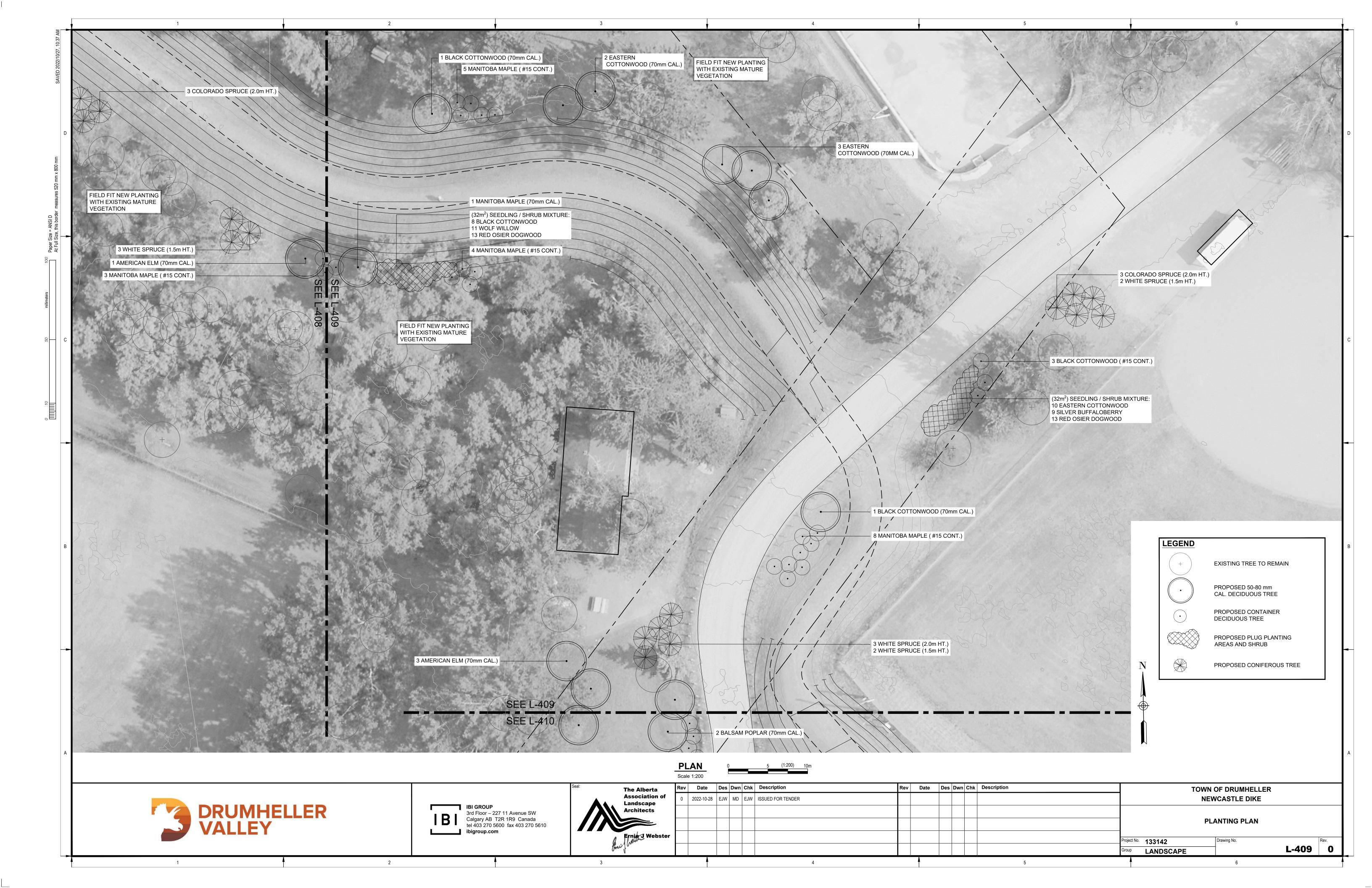


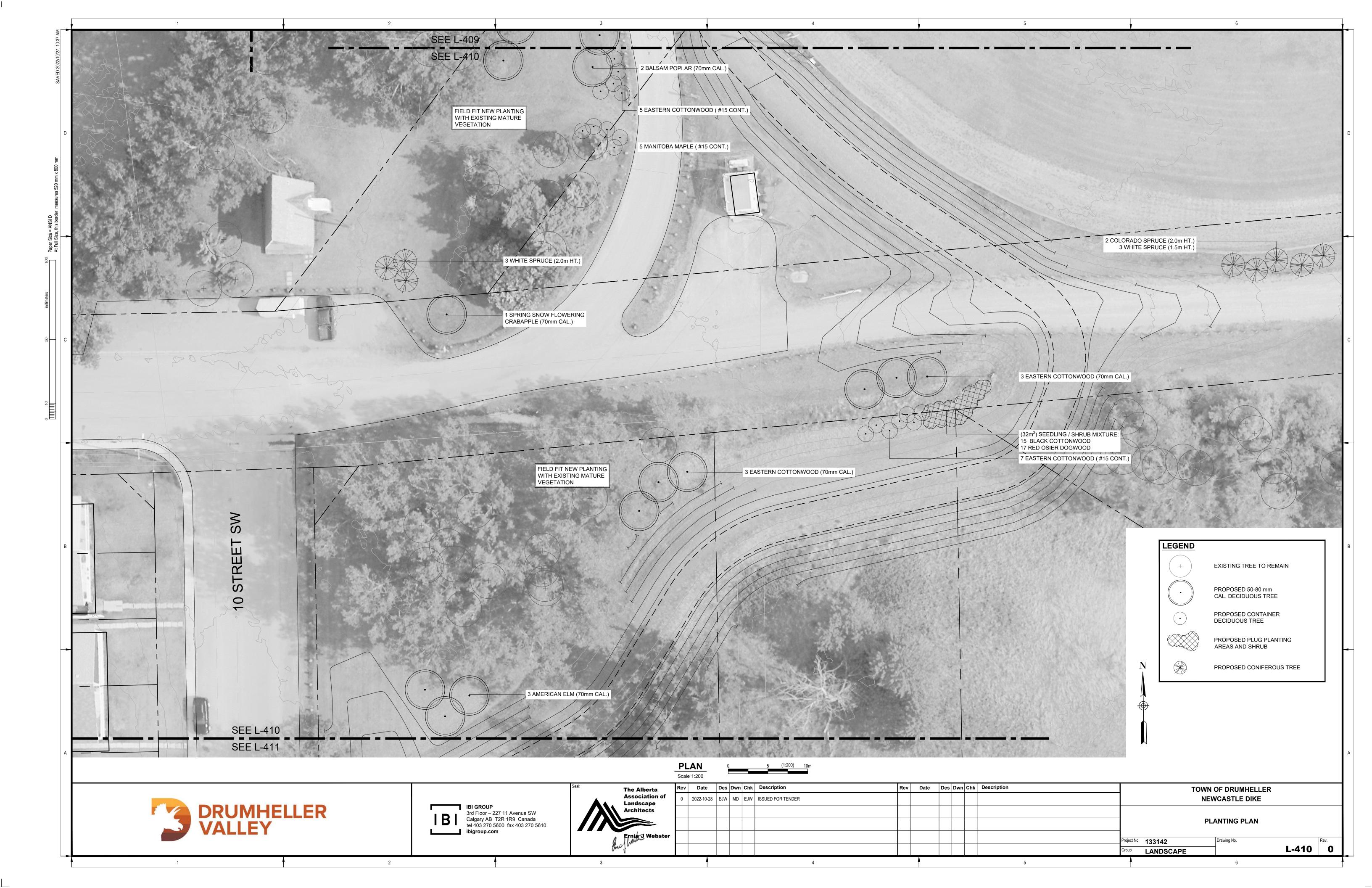














TREE	PLANTING SCHEDULE			
QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
CONIFI	EROUS TREES	·	<u>'</u>	
12	PICEA GLAUCA	WHITE SPRUCE	1500mm HT.	B&B
19	PICEA GLAUCA	WHITE SPRUCE	2000mm HT.	B&B
5	PICEA PUNGENS	COLORADO SPRUCE	1500mm HT.	B&B
15	PICEA PUNGENS	COLORADO SPRUCE	2000mm HT.	B&B
DECID	JOUS TREES			
7	ACER NEGUNDO	MANITOBA MAPLE	70mm CAL.	B&B
48	ACER NEGUNDO	MANITOBA MAPLE	#15 CONT.	B&B
6	FRAXINUS PENNSYLVANICA	GREEN ASH	#15 CONT.	B&B
2	FRAXINUS PENNSYLVANICA 'PATMORE'	PATMORE GREEN ASH	50mm CAL.	B&B
2	MALUS x 'RADIANT'	RADIANT FLOWERING CRABAPPLE	70mm CAL.	B&B
4	MALUS x 'SPRING SNOW'	SPRING SNOW FLOWERING CRABAPPLE	70mm CAL.	B&B
13	POPULUS BALSAMIFERA	BALSAM POPLAR	70mm CAL.	B&B
20	POPULUS DELTOIDES	EASTERN COTTONWOOD	70mm CAL.	B&B
65	POPULUS DELTOIDES	EASTERN COTTONWOOD	#15 CONT.	B&B
16	POPULUS TRICHOCARPA	BLACK COTTONWOOD	70mm CAL.	B&B

**BLACK COTTONWOOD** 

AMERICAN ELM

### SHRUB AND TREE SEEDLING SCHEDULE

60 POPULUS TRICHOCARPA

13 ULMUS AMERICANA

QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING	
SEEDLI	NGS					
56	ACER NEGUNDO	MANITOBA MAPLE		SEEDLING	1.0m O.C.	
46	POPULUS TRICHOCARPA	BLACK COTTONWOOD		SEEDLING	1.0m O.C.	
71	POPULUS DELTOIDES	EASTERN COTTONWOOD		SEEDLING	1.0m O.C.	
22	POPULUS TREMULOIDES	TREMBLING ASPEN	SEEDLING	1.0m O.C.		
DECIDUOUS SHRUBS						
74	AMELANCHIER ALNIFOLIA	SASKATOON	600mm HT.	#2 CONT.	1.5-2.0m O.C.	
104	CORNUS SERICEA	RED OSIER DOGWOOD	600mm HT.	#2 CONT.	2.5-3.0m O.C.	
30	ELAEAGNUS COMMUTATA	WOLF WILLOW	600mm HT.	#2 CONT.	1.5-2.0m O.C.	
18	SALIX LUTEA	YELLOW TWIG WILLOW	600mm HT.	#2 CONT.	1.5-2.0m O.C.	
50	SHEPHERDIA ARGENTEA	SILVER BUFFALOBERRY	600mm HT.	#2 CONT.	2.5-3.0m O.C.	
50	SHEPHERDIA ARGENTEA	SILVER BUFFALUBERRY	600mm HT.	#2 CONT.	2.5-3.0m O.0	

### TREE PLANTING STRATEGY

TOTAL NUMBER OF FAIR, GOOD AND VERY GOOD TREES TO BE REMOVED = 89 TOTAL NUMBER OF NEW TREES AND SHRUBS REQUIRED IN LIEU OF REMOVALS = 445

(AS PER THE TOWN OF DRUMHELLER "PRESERVING AND ENHANCING THE URBAN FOREST STANDARDS AND TECHNIQUES", WHERE A 5:1 RATIO OF PLANTING REPLACEMENT IS SPECIFIED, FOR EVERY 1 FAIR, GOOD, OR VERY GOOD TREE THAT IS REMOVED, 5 TREES/SHRUBS WILL BE PLANTED)

### TOTAL REPLACEMENT PLANTS =778 (333 ADDITIONAL PLANTS COMPENSATE FOR MIDLAND SHORTFALL)

### **BREAKDOWN:**

MED-LARGE TREES (50-70mm CAL.) = 128 (16%) SMALL CONTAINER GROWN TREES = 179 (23%)

USE RUBBER STRAPS AT END OF GUY

12 mm (<sup>1</sup>/<sub>2</sub>") BRAIDED NYLON STRAP OR

USE THREE (3) 50X50X2500 LNG. STUDDED

HEAVYWEIGHT T-POSTS (7.5 POUND). ALL

FREE OF RUST AND PRIMED. TREE STAKE

UNDISTURBED SOIL WITH TWO ON SIDE OF

REMOVED AFTER ONE GROWING SEASON

PREVAILING WINDS. STAKES ARE TO BE

SET MINIMUM OF 900 mm INTO

EXPOSED PORTIONS OF TREE STAKE TO BE

WIRES TO PROTECT THE TREE AT

POINT OF CONTACT

11 GAUGE WIRE

450 mm MINIMUM OR 2 (x)WIDTH OF ROOT BALL Ø

IF LESS THAN 300mm ADJACENT LOAM USED

STANDARD TREE PLANTING

\L-412 | SCALE 1:40

**SEEDLING TREES = 195 (25%)** 

SHRUBS = 276 (36%)

## **EXISTING TREE REMOVALS - NEWCASTLE** EXISTING TREE TO BE REMOVED

- VERY GOOD HEALTH QTY: 11 EXISTING TREE TO BE REMOVED



- GOOD HEALTH QTY: 36 EXISTING TREE TO BE REMOVED

- FAIR HEALTH QTY: 42 EXISTING TREE TO BE REMOVED

- POOR HEALTH

QTY: 44

QTY: 57 EXISTING TREE TO BE REMOVED - VERY POOR HEALTH

#15 CONT.

70mm CAL.

SINGLE LEADER ONLY UNLESS

CONTRACTOR TO ENSURE NO

DAMAGE OR PRUNING IS

MAINTENANCE

PREVAILING

MINIMUM 50 mm

WIND

MULTI STEM SPECIES SPECIFIED,

PERFORMED TO LEADER DURING

INSTALLATION AND/OR FOLLOW-UP

WIDTH VARIES - REFER TO PLANTING SHEETS

50MM FROM TREE FLARE, TYPICAL

WATER RETENTION - 25mm DEPTH

SCREENED TOPSOIL MINIMUM DEPTH OF 600MM FOR

SHRUB AND TREE PLANTINGS, SIDES TO TAPER INTO

AS NECESSARY TO SUPPORT ROOT BALL OF TREES

PLANTING SOIL AT BOTTOM OF BED TO BE HAND TAMPED

ROOT BALL PLANTED SO THAT CROWN / ROOT FLARE IS NOT BURIED - ROOT BALL SHOULD SIT PROUD OF FINISH GRADE

CREATE INDIVIDUAL TREE SAUCERS TO AID IN

NOTE: SOIL VOLUME EXTENDS BEYOND BED

EDGE IN SOFT LANDSCAPE CONDITIONS

UNDISTURBED SOIL

CENTER AT 1:1 SLOPE MAXIMUM

TREE

WITH TREE

EXTENT OF ROOTBALL

B&B

- 1. ALL SHRUB AND TREE BEDS ARE TO BE LAID OUT IN THE FIELD AFTER COMPLETION OF THE DIKE GRADING. PLANTING BED LOCATIONS TO BE VERIFIED CORRECT BY THE LANDSCAPE ARCHITECT IN THE FIELD, PRIOR TO EXCAVATION OF BEDS. ADJUSTMENTS MAY BE REQUIRED DEPENDING ON THE LOCATION OF ADJACENT EXISTING MATURE TREES AND VEGETATION
- 2. ANY PROPOSED ALTERNATE PLANT MATERIALS SHOULD COME FROM THE LIST ABOVE AND BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ORDERING.

### Wet Tolerant Seed Mix 1 - Below 1:2-year high water mark - Application rate of 58 kg / ha.

BOTANICAL NAME	COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Deschampsia ceaspitosa	Tufted Hairgrass	25%	3%	1.97
Pascopyrum smithii / Agropyron smithii	Western Wheatgrass	20%	32%	18.60
Bromus carinatus	Mountain Brome	5%	10%	5.68
Elymus trachycaulus / Agropyron trachycaulum var.	Slender Wheatgrass	10%	11%	6.39
Elymus canadensis	Canada Wildrye	15%	23%	13.34
Spartina pectinata	Alkali Cordgrass	25%	21%	11.66

Cover crop for Wet Tolerant Seed Mix 1: Add a cover crop of Beckmannia Syzigachne (Slough Grass) at 5 kg / ha in areas of highwater erosion prone areas.

# Upland Seed Mix 2A - Upland Areas - Application rate of 58 kg / ha.

COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Northern Wheatgrass	15%	16%	9.30
Western Wheatgrass	20%	30%	17.36
Slender Wheatgrass	10%	10%	5.97
Blue Grama	10%	2%	0.88
Canada Wildrye	10%	14%	8.30
Green Needlegrass	25%	27%	15.82
Junegrass	10%	1%	0.58
	Northern Wheatgrass Western Wheatgrass Slender Wheatgrass Blue Grama Canada Wildrye Green Needlegrass	COMMON NAME COVER  Northern Wheatgrass 15%  Western Wheatgrass 20%  Slender Wheatgrass 10%  Blue Grama 10%  Canada Wildrye 10%  Green Needlegrass 25%	COMMON NAME COVER MIX (PLS)  Northern Wheatgrass 15% 16%  Western Wheatgrass 20% 30%  Slender Wheatgrass 10% 10%  Blue Grama 10% 2%  Canada Wildrye 10% 14%  Green Needlegrass 25% 27%

Cover Crop for Upland Seed Mix 2: Add a cover crop of Lolium multiflorum (Annual Ryegrass) at 5 kg / ha for entirety of Upland Seed Mix areas.

### Seed Mix 3 – Top of Berm - Application rate of 50 kg / ha.

BOTANICAL NAME	COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Elymus lanceolatus / Agropyron dasystachyum	Northern Wheatgrass	23%	46%	22.91
Pascopyrum smithii / Agropyron smithii	Western Wheatgrass	10%	23%	11.16
Bouteloua gracilis	Blue Grama	20%	6%	2.83
Hesperostipa comata / Stipa comata	Needle and Thread	2%	4%	2.13
Poa sandbergii	Sandberg Bluegrass	15%	6%	3.07
Nassella viridula / Stipa viridula	Green Needlegrass	5%	9%	4.24
Koeleria macrantha	Junegrass	23%	4%	2.13
Dalea purpurea	Purple Prairie Clover	2%	2%	1.02

Cover crop for Top of Berm Seed Mix 3: Add a cover crop of Lolium multiflorum (Annual Ryegrass) at 5 kg / ha for entirety of Top of Berm Seed Mix areas

WIDTH VARIES

NOTE: SOIL VOLUME EXTENDS BEYOND BED EDGE

IN SOFT LANDSCAPE CONDITIONS

SPACING AS PER PLANTING SHEETS

# **SEEDING NOTES**

HARROWING-IN.

- ENSURE SEED MIXTURE IS FREE OF ANY WEED SEEDS LISTED AS "PROHIBITED NOXIOUS" OR "NOXIOUS" UNDER THE WEED CONTROL ACT AND SEEDS OF OTHER SPECIES THAT WILL INTERFERE WITH THE GROWTH OF THE SPECIFIED SEED MIXTURE.
- 2. SOW AT THE RATE INDICATED WITH SEED MIXES, DURING CALM WEATHER AND WHEN SOIL MOISTURE CONTENT IS ADEQUATE FOR
- 3. FOR SLOPES 2:1 OR FLATTER AREAS TO BE SEEDED THAT ARE EASILY ACCESSIBLE APPLY SEED USING A MECHANICAL DRY SPREAD "BRILLION" SEEDER THAT PLACES SEED AT SPECIFIED DEPTH AND RATE AND ROLLS IN A SINGLE OPERATION.
- 4. FOR STEEPER THAN 2:1 SLOPES OR SLOPES THAT ARE NOT EASILY ACCESSIBLE USE MANUALLY OPERATED BROADCAST SEEDER.
- SOW SEED IN TWO DIRECTIONS, 50% OF SEED IN ONE DIRECTION AND REMAINING 50% OF SEED AT RIGHT ANGLES TO FIRST SEEDING PATTERN, USING SAME METHOD OF SEEDING.
- 6. COVER BROADCASTED SEED BY HAND RAKING AND ATV
- 7. OPTIMAL SEEDING PERIODS FOR NATIVE GRASSES:
- 7.1. MID TO LATE MAY, EARLY JUNE NO LATER THAN JUNE 15TH.
- 7.2. LATE SEPTEMBER AFTER FIRST HARD FROST WHEN PLANTS GO DORMANT. DO NOT SEED NEAR END OF SEASON UNTIL THE RISK OF SEED GERMINATION IS LOW. SEED THAT GERMINATES AND DOES NOT FULLY ESTABLISH PRIOR TO END OF GROWING SEASON WILL LIKELY NOT OVERWINTER.
- 8. WATER THE SEEDED AREAS AFTER SEEDING TO ACHIEVE GERMINATION AND A UNIFORM STAND OF GRASS. THE OWNER WILL DETERMINE THE WATERING SCHEDULE AND WILL PROVIDE THE CONTRACTOR WITH AT LEAST 24 HOURS ADVANCE NOTICE TO COMMENCE WATERING SEEDED AREAS.
- 9. APPLY WATER UNIFORMLY TO SEEDED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS AND TOPSOIL.
- 10. MINIMIZE TRAVEL ON SEEDED SURFACES.
- 11. USE WATERING EQUIPMENT AND TECHNIQUES AUTHORIZED BY THE

Site Characteristics							
Seeding Method	Broadcast or manual						
Habitat Type	Deciduous forest						
Natural Subregion	Dry Mixedgrass						
Incorporation Method	ATV Harrow or hand rake						
Depth of Incorporation	5cm to 10cm						

**Site Characteristics** 

**Site Characteristics** 

Depth of Incorporation | 5cm to 10cm

Broadcast

Broadcast

Incorporation Method | ATV Harrow or hand rake

Depth of Incorporation | 5cm to 10cm

Deciduous forest

Dry Mixedgrass

Incorporation Method | ATV Harrow or hand rake

Dry Mixedgrass

Seeding Method

Natural Subregion

Habitat Type

Habitat Type

Natural Subregion

- 3 X 1800 mm (6') HT. PAINTED STEEL

2 PLY REINFORCED RUBBER GARDEN HOSE

TOP OF ROOT BALL TO BE 50 mm ABOVE

BACK FILL EXCAVATION WITH RAW LOAM

75MM DEPTH SHREDDED BARK MULCH,

MULCH PULLED BACK 50mm FROM TREE

COMPACTED SUBGRADE

REST ROOTBALL ON COMPACTED

SUBGRADE OR COMPACTED FILL

FLARE, TYPICAL

TOP OF SOIL MIX. DO NOT MOUND UP

SOIL MIX AROUND TOP OF ROOT BALL

U &/OR T BAR SUNK 300 mm (12")

BELOW COMPACTED SUBGRADE

SEED MIX SCHEDULES AND SEEDING NOTES PROVIDED FOR REFERENCE ONLY, FOR AREAS REQUIRING REPAIR AND REHABILITATION AS PART OF THIS SCOPE OF WORK. REFER TO SPECIFICATIONS IN CONTRACT 1 - BERM CONSTRUCTION + SODDING/SEEDING.

### PLANTING NOTES

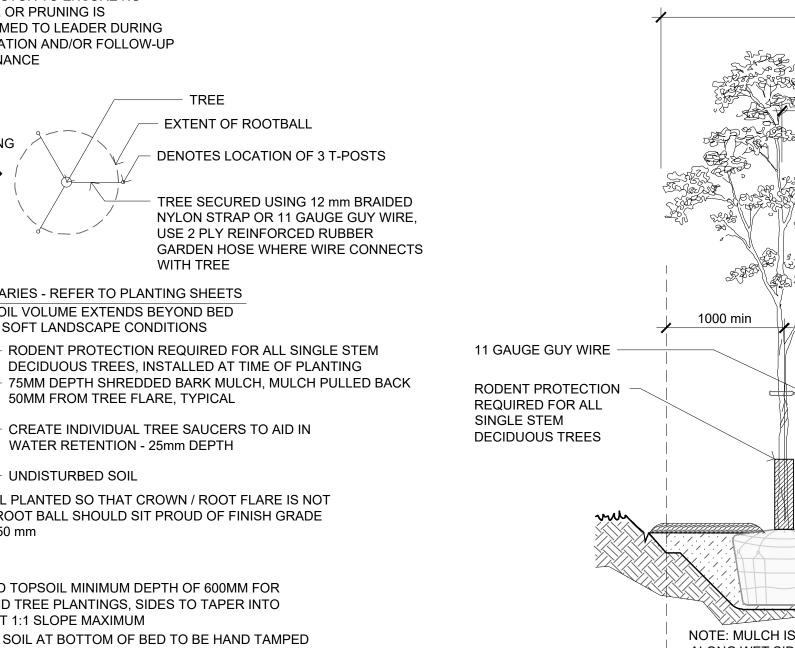
- 1. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE GUIDELINES AND SPECIFICATIONS OF DRUMHELLER VALLEY, THE DRUMHELLER VALLEY DOCUMENT, PRESERVING & ENHANCING THE URBAN
- FOREST: STANDARDS & TECHNIQUES AND AS PER PROJECT SPECIFIC PLANTING DETAILS LOCATED AT END OF DRAWING SET. 2. PLANT MATERIAL LIST WAS PREPARED FOR ESTIMATING PURPOSES ONLY. CONTRACTOR
- SHALL MAKE THEIR OWN QUANTITY TAKE-OFFS USING DRAWINGS TO DETERMINE QUANTITIES, REPORTING PROMPTLY AND DISCREPANCIES WHICH MAY AFFECT BIDDING
- 3. THE OWNER'S REPRESENTATIVE WILL INSPECT PLANTS AT THE FOLLOWING STAGES; AT TIME OF DELIVERY PRIOR TO INSTALLATION, INSTALLED PLANTS BEFORE COMMENCEMENT OF MAINTENANCE PERIOD AND AT THE END OF MAINTENANCE PERIOD. NOTIFY OWNER'S REPRESENTATIVE 72 HOURS IN ADVANCE OF EACH REQUIRED INSPECTION. CONTRACTOR SHALL ENSURE REQUIRED PLANTS WILL BE AVAILABLE OR MEET SPECIFICATIONS BEFORE ARRANGING INSPECTION FOR SELECTION AND TAGGING OF PLANTS.
- 4. ALL PLANT MATERIAL TO BE DISEASE FREE AND TRUE TO FORM, SPECIMEN GRADE SINGLE STEM STOCK - UNLESS NOTED OTHERWISE, PLANTS WILL BE REJECTED IF: SOIL BALLS HAVE BEEN CRACKED OR BROKEN BEFORE OR DURING PLANTING OR WHEN BURLAP ROPES REQUIRED IN CONNECTION WITH THEIR TRANSPLANTING HAVE BEEN REMOVED. DO NOT USE PLANTS DAMAGED DURING CONTACT WITH EQUIPMENT, OR PLANTS THAT ARE WILTED, WIND BURNED OR STRESSED. CONTRACTOR TO REPLACE DAMAGED OR REJECTED PLANTS AT NO ADDITIONAL COST TO OWNER.
- STAKE OUT LOCATIONS OF TREES, SHRUBS AND PLANTING BEDS. LOCATIONS OF ALL PLANTS SHALL BE REVIEWED AND APPROVED BY OWNER'S REPRESENTATIVE ON SITE BEFORE PLANTING. PLANTS INSTALLED WITHOUT REVIEW AND APPROVAL MAY REQUIRE TRANSPLANTING OR RELOCATION AS DIRECTED BY OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
- 6. ENSURE ALL TREES AND SHRUBS ARE INSTALLED OUTSIDE OF DIKE EXTENTS REFER TO CIVIL DRAWINGS, TYP.
- 7. CONTRACTOR SHALL VERIFY THAT ALL MINIMUM CLEARANCES ARE PROVIDED BETWEEN PROPOSED TREES AND UNDERGROUND AND/OR OVERHEAD UTILITIES AS DEFINED BY THE LOCAL PARKS AND PLANNING DEPARTMENT.
- 8. PART OF PLANT MATERIAL INSTALLATION SHALL INCLUDE SUFFICIENT PROTECTION TO PREVENT BARK AND TREE DAMAGE DUE TO FORAGING ANIMALS AND ANCHORING SYSTEM TO PREVENT ROOT BREAKAGE DUE TO STRONG WINDS. LANDSCAPE ARCHITECT NOT RESPONSIBLE FOR ANY DAMAGES THAT INCUR DUE TO IMPROPER INSTALLATION.
- 9. DISTURBANCES TO ADJACENT AREAS SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
- 10. EROSION CONTROL MATTING REQUIRED ON ALL SLOPES GREATER THAN 3:1 THAT ARE INDICATED TO BE SEEDED.
- 11. SLOPES > 3:1 AND < 2:1
- 12. S150 STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
- 13. SLOPES > 2:1
- 14. SC150 COCONUT AND STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
- 15. ALL DEVELOPMENT AND CONSTRUCTION ACTIVITIES WITHIN 6 METERS OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST.
- 16. ALL PRUNING OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA CERTIFIED



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0	2022-10-28	EJW MD EJW	ISSUED FOR TENDER							NEWCASTLE DIKE			
										PLANTING PLAN			
										Desirat No. 4 0 0 4 4 0	Deswine No.	Rev	
										Project No. 133142  Group LANDSCAPE	Drawing No. <b>L-412</b>	Rev.	
									_	LANDSCAPE			



NOTE: MULCH IS NOT TO BE USED

ALONG WET SIDE OF DIKE OR IN NATURALIZED AREAS.

MIXED PLANTING BED WITH MULCH SCALE 1:40 L-412 /

The Alberta **Association of**