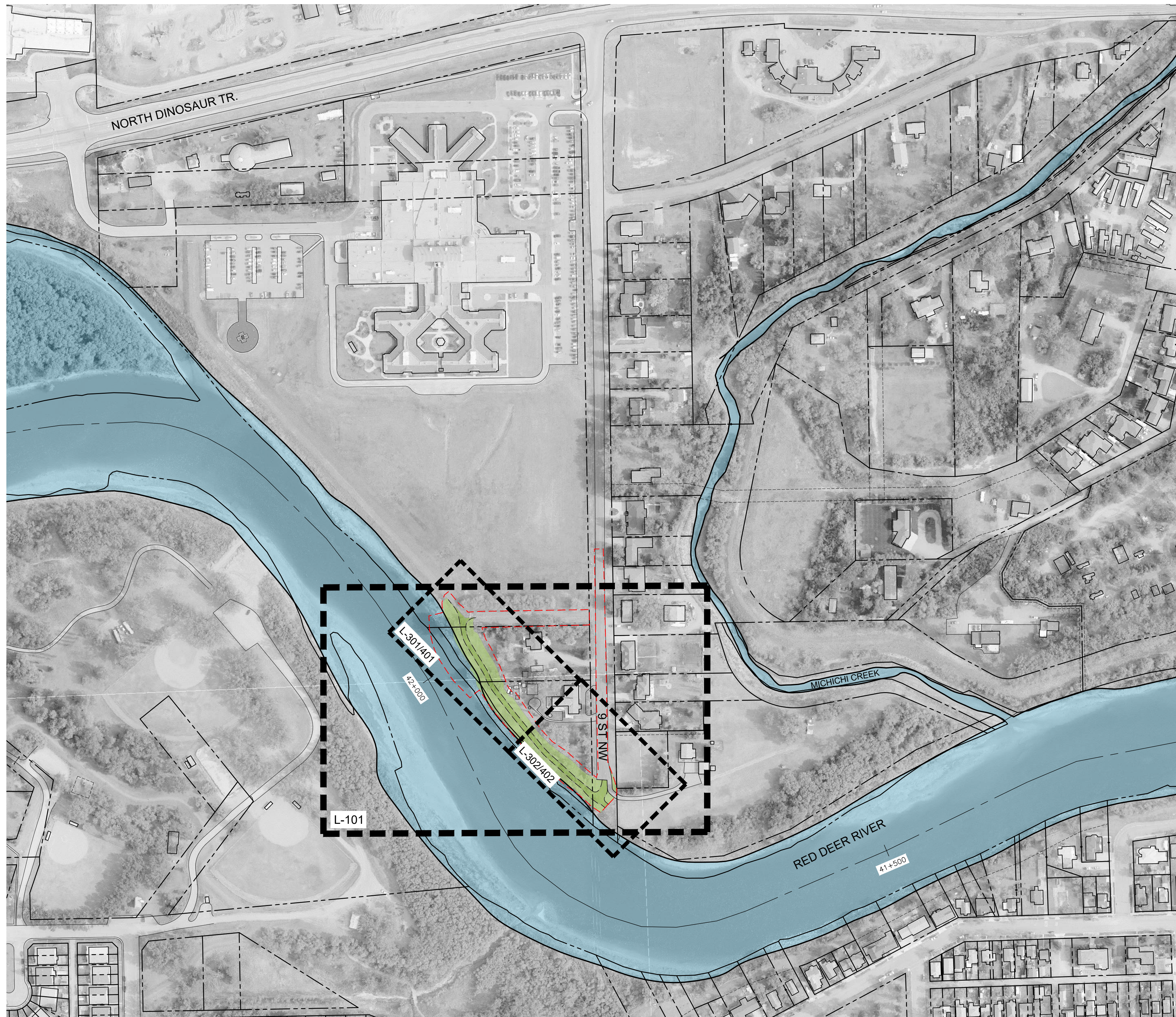


DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE

NORTH DRUMHELLER FLOOD IMPROVEMENTS DIVISION 10 - HOSPITAL BERM EXTENSION LANDSCAPE TENDER PACKAGE

DRAWING LIST

DRAWING NO.	DRAWING TITLE
L-100	LANDSCAPE COVER SHEET & KEY PLAN
L-101	LANDSCAPE MASTER PLAN
L-201	TREE CLEARING PLAN
L-301	LAYOUT & GRADING PLAN
L-302	LAYOUT & GRADING PLAN
L-401	PLANTING PLAN
L-402	PLANTING PLAN
L-403	PLANTING SCHEDULES & NOTES
L-901	LANDSCAPE DETAILS



PLAN
Scale 1:2000
0 25 (1:2,000) 100m



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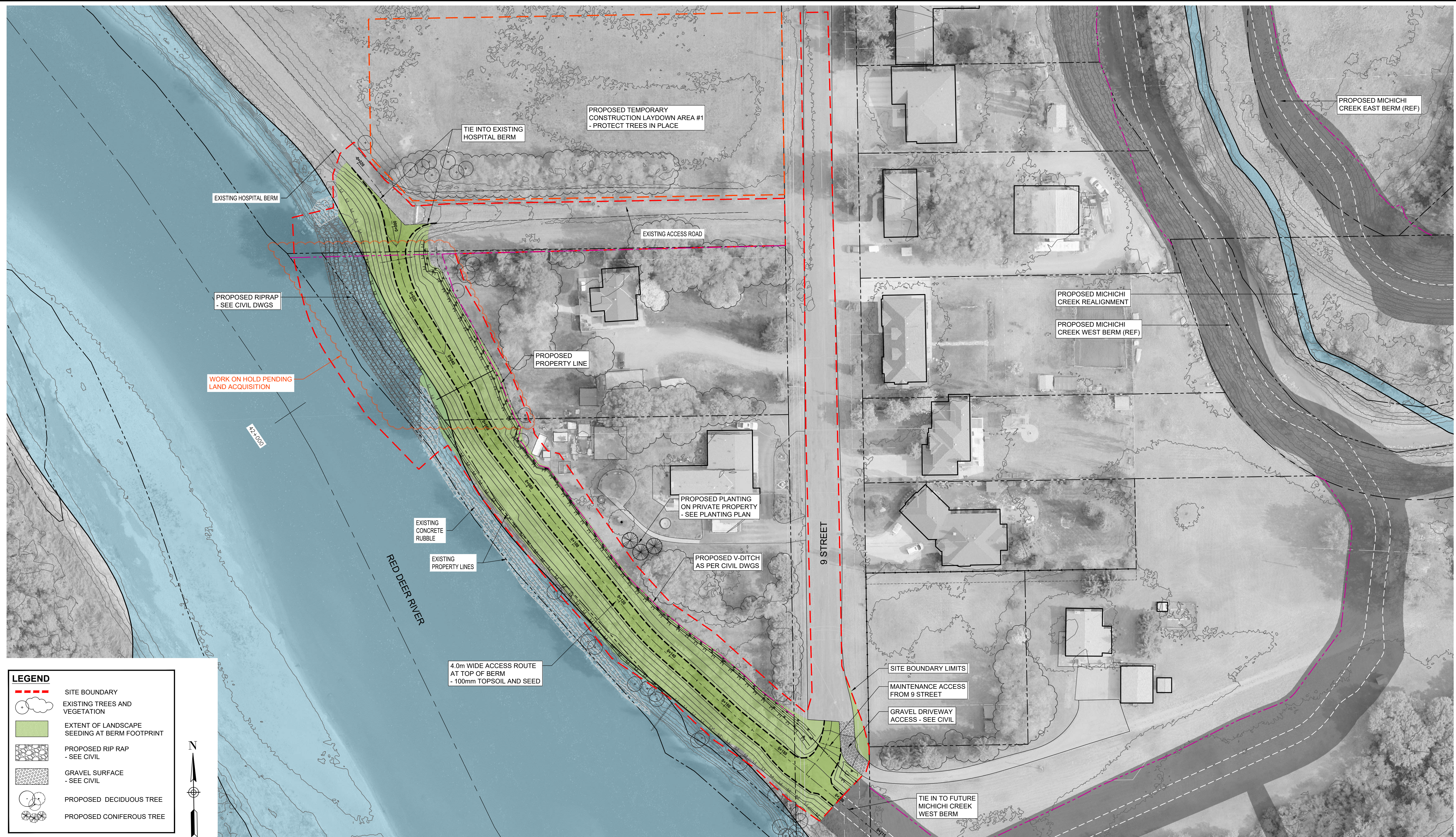
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Ernie J Webster

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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
LANDSCAPE COVER SHEET & KEY PLAN

Project No. **133142** Drawing No. **L-100** Rev. **0**
Group **LANDSCAPE**



LEGEND

	SITE BOUNDARY
	EXISTING TREES AND VEGETATION
	EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
	PROPOSED RIP RAP - SEE CIVIL
	GRAVEL SURFACE - SEE CIVIL
	PROPOSED DECIDUOUS TREE
	PROPOSED CONIFEROUS TREE



PLAN
Scale 1:500
0 5 (1:500) 25m



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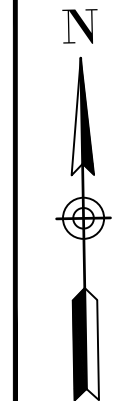
DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
LANDSCAPE MASTER PLAN

Project No. **133142** Drawing No. **L-101** Rev. **0**
Group **LANDSCAPE**

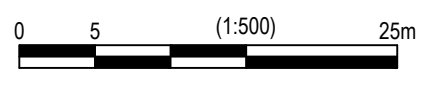


LEGEND

- LIMIT OF CONSTRUCTION BOUNDARY
- RECENT AND PROPOSED TOWN LAND ACQUISITION
- + EXISTING TREE TO REMAIN
- x TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
- + TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION



PLAN
 Scale 1:500



**HOSPITAL BERM EXTENSION
 - TREES TO BE REMOVED**

TREE SURVEY RECEIVED FROM TOWN OF DRUMHELLER, OCTOBER 2022.

- TOTAL TREES TO BE REMOVED*: 34**
- TREES ON PUBLIC LANDS: 9
 - TREES ON RECENT OR PROPOSED LAND ACQUISITIONS BY TOWN: 25

*TOTAL TREES REMOVED WITH FAIR, GOOD OR VERY GOOD HEALTH (RATINGS 1-3)

Tree ID	Species	Height (m)	DBH (cm)	Health	Public/Private
2143	Balsam poplar	7	39.8	1	Private
2144	Balsam poplar	8	38.4	2	Private
2145	Eastern cottonwood	8	48	1	Private
2147	American elm	7	26.6	1	Public
2148	Manitoba maple	6	16.6	3	Public
2149	Manitoba maple	9	16.2	2	Public
2160	Manitoba maple	10	22.1	1	Private
2161	Manitoba maple	16	57.6	1	Private
2162	Swedish columnar	12	18.5	1	Private
2165	American elm	17	71.8	1	Private
2166	American elm	14	28.4	1	Private
2167	American elm	15	55.5	2	Public
2168	Manitoba mail	15	40.2	2	Public
2173	Manitoba maple	8	27	3	Private
2174	Horse chestnut	5	7	1	Private
2175	Manitoba maple	14	58.2	1	Public
2176	American elm	6	8	1	Public
2177	American elm	7	7	2	Public
2180	Manitoba maple	15	31.7	2	Private
2181	Schubert chokecherry	6	14.2	2	Private
2184	Balsam poplar	17	68.4	2	Private
2185	Paper birch	6	17	1	Private
2186	Water birch	5	10.1	1	Private
2187	American elm	8	40.5	1	Private
2189	Balsam poplar	18	73.8	2	Private
2190	Balsam poplar	16	77.9	1	Private
2191	American elm	5	5.9	1	Private
2196	American elm	9	49	1	Private
2197	American elm	8	29.4	2	Private
2198	American elm	5	9.5	1	Private
2199	American elm	6	17.6	2	Public
2200	Balsam poplar	16	74.5	2	Private
2201	American elm	7	22.4	3	Private
2202	Manitoba maple	7	38	2	Private



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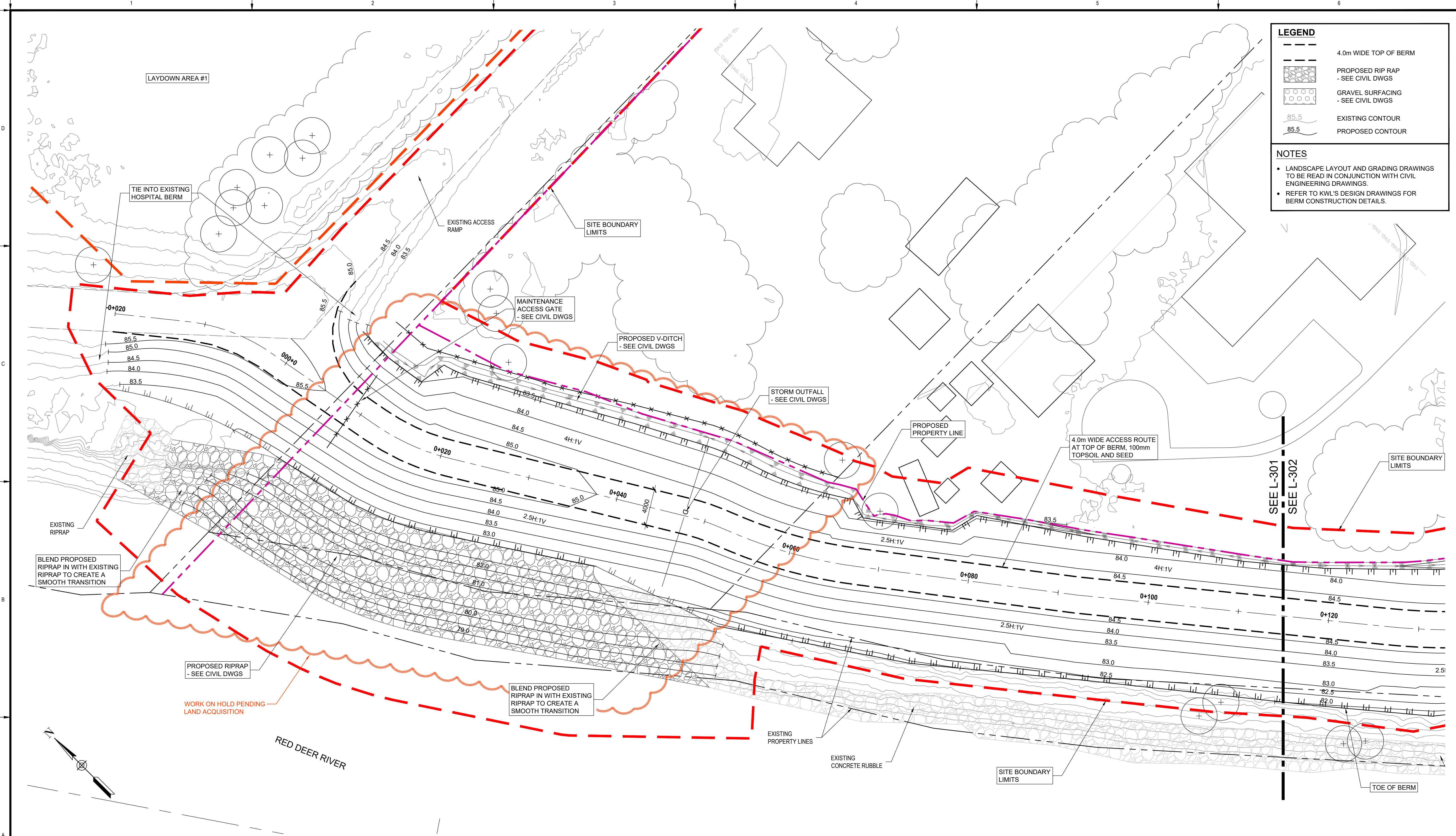
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**DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
 NORTH DRUMHELLER FLOOD IMPROVEMENTS**

**DIVISION 10 - HOSPITAL BERM EXTENSION
 TREE CLEARING PLAN**

Project No. **133142** Drawing No. **L-201** Rev. **0**

Group **LANDSCAPE**



LEGEND

- 4.0m WIDE TOP OF BERM
- [Cross-hatched] PROPOSED RIP RAP - SEE CIVIL DWGS
- [Dotted] GRAVEL SURFACING - SEE CIVIL DWGS
- 85.5 EXISTING CONTOUR
- 85.5 PROPOSED CONTOUR

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.

PLAN
Scale 1:200



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
LAYOUT & GRADING PLAN

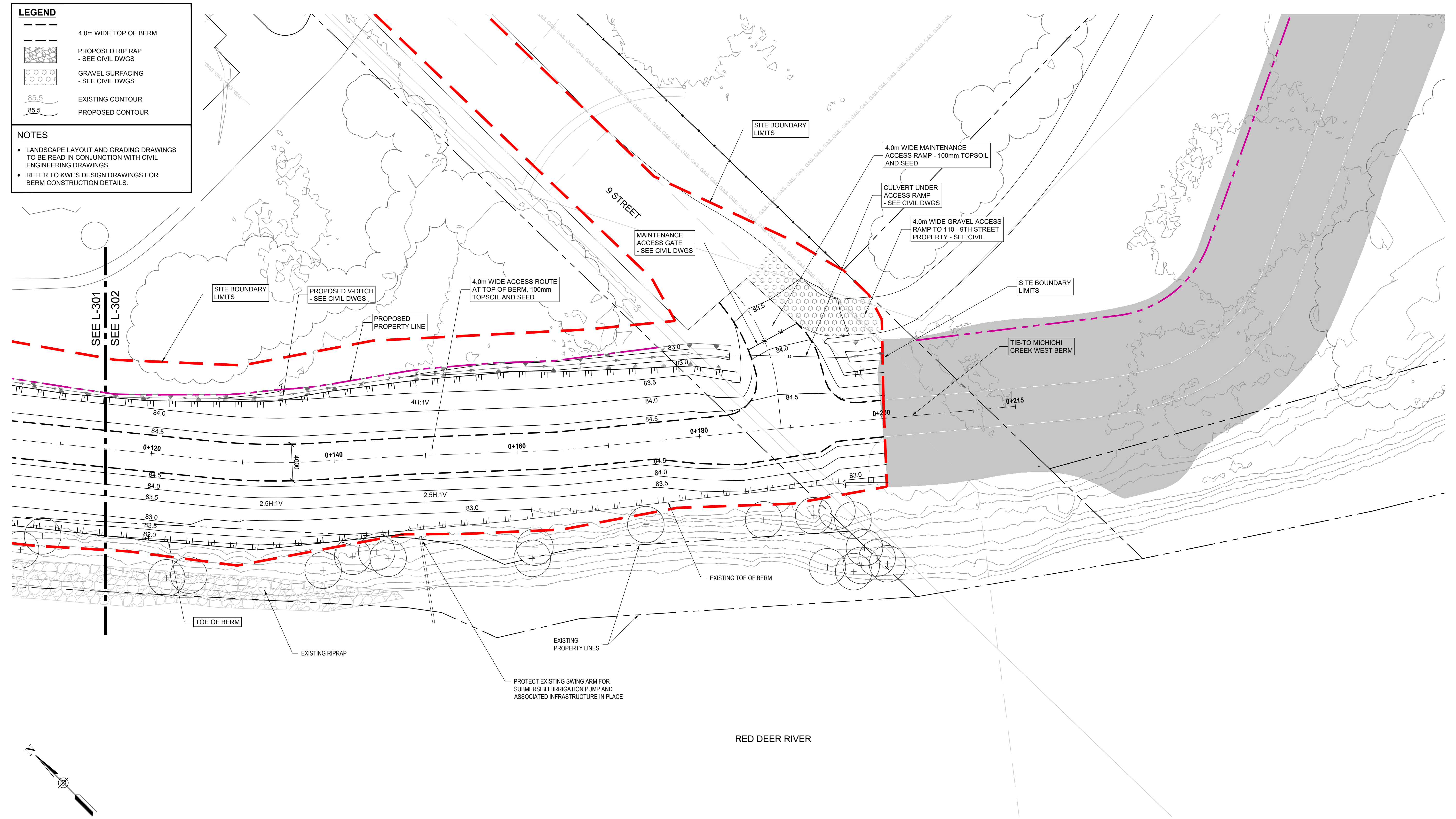
Project No. **133142** Drawing No. **L-301** Rev. **0**
Group **LANDSCAPE**

LEGEND

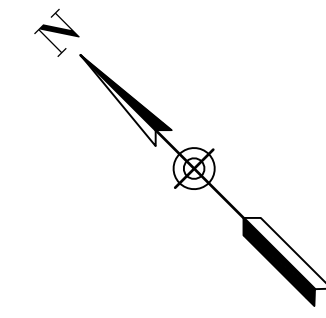
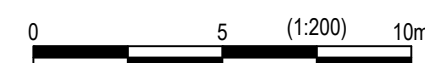
- 4.0m WIDE TOP OF BERM
- [Pattern] PROPOSED RIP RAP - SEE CIVIL DWGS
- [Pattern] GRAVEL SURFACING - SEE CIVIL DWGS
- 85.5 EXISTING CONTOUR
- 85.5 PROPOSED CONTOUR

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.



PLAN
Scale 1:200



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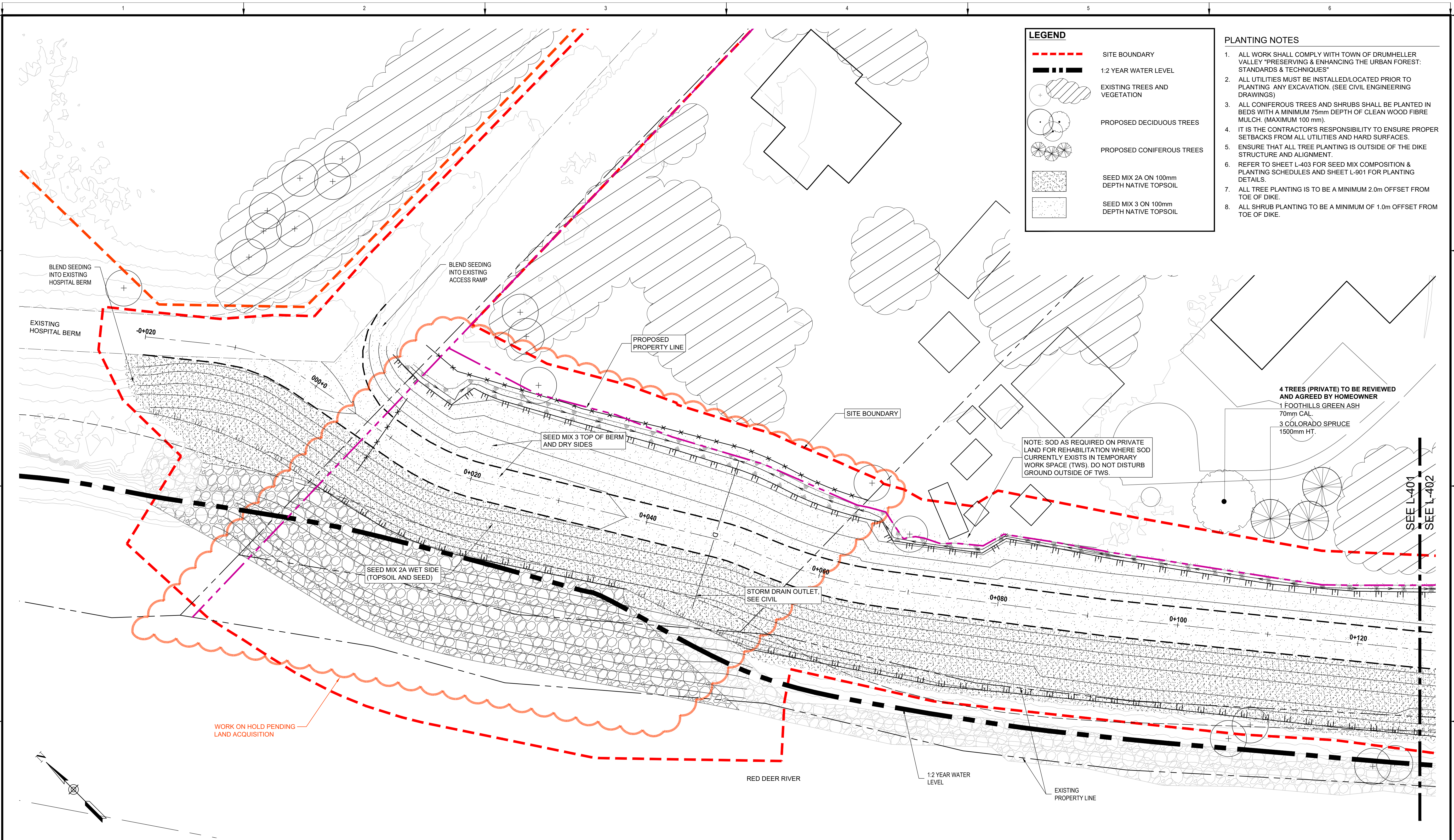
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-302** Rev. **0**
Group **LANDSCAPE**



LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- ⊕ EXISTING TREES AND VEGETATION
- ⊕ PROPOSED DECIDUOUS TREES
- ⊕ PROPOSED CONIFEROUS TREES
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL

- PLANTING NOTES**
- ALL WORK SHALL COMPLY WITH TOWN OF DRUMHELLER VALLEY "PRESERVING & ENHANCING THE URBAN FOREST: STANDARDS & TECHNIQUES"
 - ALL UTILITIES MUST BE INSTALLED/LOCATED PRIOR TO PLANTING ANY EXCAVATION. (SEE CIVIL ENGINEERING DRAWINGS)
 - ALL CONIFEROUS TREES AND SHRUBS SHALL BE PLANTED IN BEDS WITH A MINIMUM 75mm DEPTH OF CLEAN WOOD FIBRE MULCH. (MAXIMUM 100 mm).
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SETBACKS FROM ALL UTILITIES AND HARD SURFACES.
 - ENSURE THAT ALL TREE PLANTING IS OUTSIDE OF THE DIKE STRUCTURE AND ALIGNMENT.
 - REFER TO SHEET L-403 FOR SEED MIX COMPOSITION & PLANTING SCHEDULES AND SHEET L-901 FOR PLANTING DETAILS.
 - ALL TREE PLANTING IS TO BE A MINIMUM 2.0m OFFSET FROM TOE OF DIKE.
 - ALL SHRUB PLANTING TO BE A MINIMUM OF 1.0m OFFSET FROM TOE OF DIKE.

- 4 TREES (PRIVATE) TO BE REVIEWED AND AGREED BY HOMEOWNER**
- 1 FOOTHILLS GREEN ASH 70mm CAL.
 - 3 COLORADO SPRUCE 1500mm HT.

NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

SEE L-401
SEE L-402

PLAN
Scale 1:200



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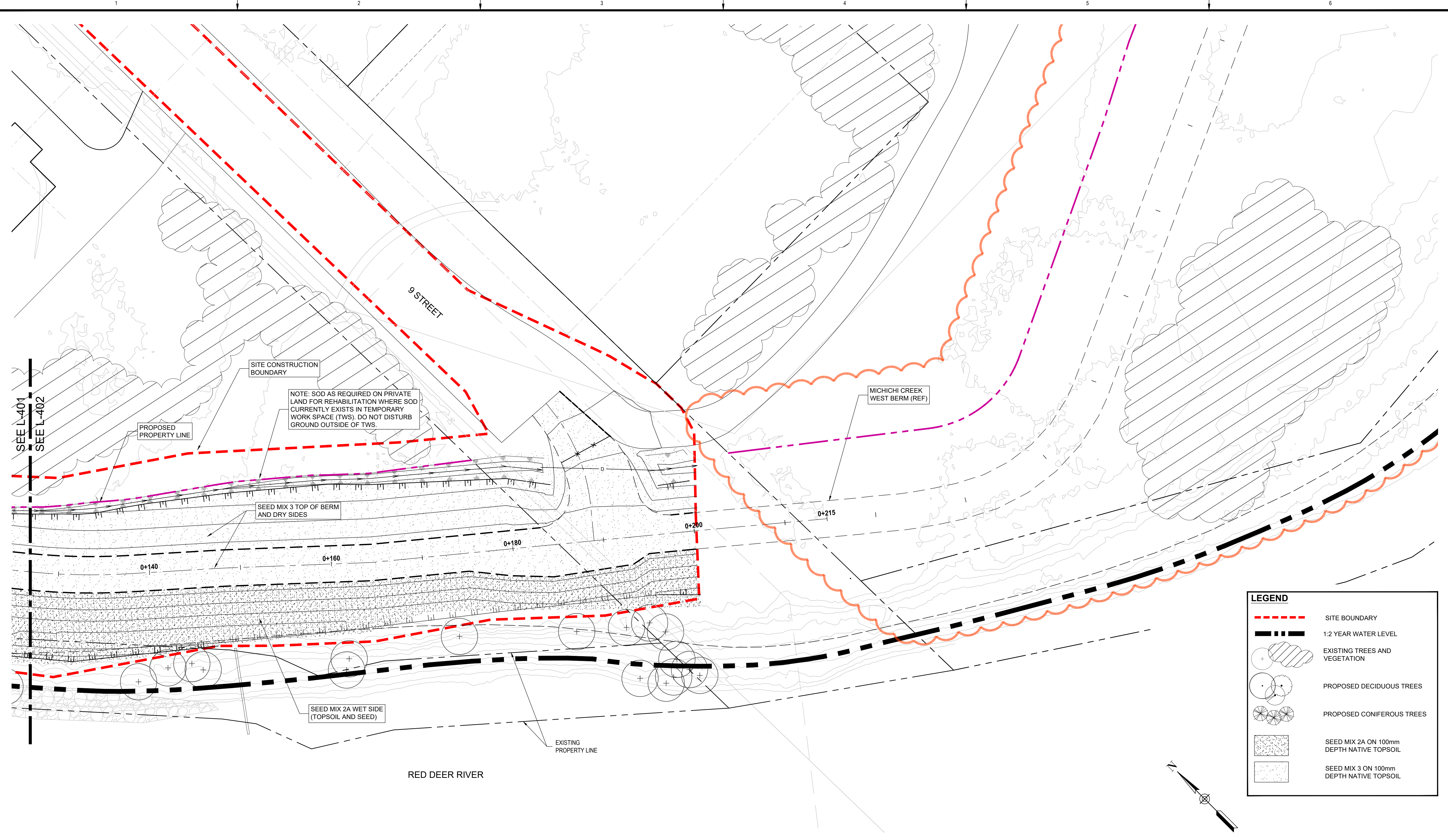
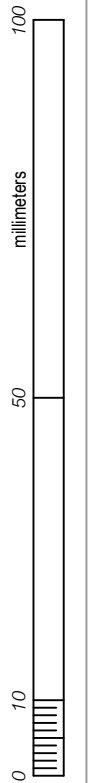
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
PLANTING PLAN

Project No. **133142** Drawing No. **L-401** Rev. **0**
Group **LANDSCAPE**



SITE CONSTRUCTION BOUNDARY

NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

PROPOSED PROPERTY LINE

SEED MIX 3 TOP OF BERM AND DRY SIDES

MICHICHI CREEK WEST BERM (REF)

SEE L-401
 SEE L-402

SEED MIX 2A WET SIDE (TOPSOIL AND SEED)

EXISTING PROPERTY LINE

RED DEER RIVER

LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREES
- PROPOSED CONIFEROUS TREES
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL

PLAN
 Scale 1:200



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 10 - HOSPITAL BERM EXTENSION
PLANTING PLAN

Project No. **133142** Drawing No. **L-402** Rev. **0**
 Group **LANDSCAPE**

PLANT SCHEDULE - PRIVATE LANDS

CONIFEROUS TREES	COMMON NAME	SIZE	QTY	
PICEA PUNGENS	COLORADO SPRUCE	1500MM HT.	3	TOTAL: 3
DECIDUOUS TREES	COMMON NAME	SIZE	QTY	
FRAXINUS PENNSYLVANICA 'HEUVER'	FOOTHILLS GREEN ASH	70MM CAL.	1	TOTAL: 1

PLANT SCHEDULE - PRIVATE LANDS

DECIDUOUS TREES	COMMON NAME	SIZE	QTY
ORNAMENTAL TREE (SPECIES TO BE DETERMINED)	TBD	#15 POT	21

NOTES
 1. ALL TREE PLANTING REPLACEMENTS ON PRIVATE PROPERTY TO BE COORDINATED WITH OWNER FOR SPECIES, SITE ACCESS, AND SCHEDULING. ASSUME NO MACHINE ACCESS AND NO ONGOING MAINTENANCE REQUIRED.

PLANTING STRATEGY

Hospital Berm Extension	No. Trees Removed	Qty. to be Planted on Public Lands	Qty. to be Planted on Private Lands	Total Trees/Shrubs Required
Public Lands	9	45	0	
Private Lands	25	100	25	
Total Required		145	25	170

As per the Town of Drumheller "Preserving and Enhancing The Urban Forest Standards and Techniques", where:

- Public Lands 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 on Public Lands.
- Private Lands a 5:1 ratio of planting replacement is specified, for every 1 fair, good, or very good tree that is removed, 1 trees/shrubs will be planted on Private Lands and 4 trees/shrubs will be planted on Public Lands.

PUBLIC PLANTING BREAKDOWN	QTY	COMPOSITION
Med - Large Trees	0	0%
Container Grown Trees	0	10%
Tree Seedlings	0	13%
Shrubs / Shrub Seedlings	0	77%
Total Provided	0	
Total Required	145	
Net Planting Amount	-145	

PRIVATE PLANTING BREAKDOWN	QTY	COMPOSITION
Med - Large Trees	4	16%
Container Grown Trees	21	84%
Total Provided	25	
Total Required	25	
Net Planting Amount	0	

* The Michichi Creek vegetated rip rap planting to be counted towards the replacement ratio, see sheet C-540 for details

PLANTING NOTES

- 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.
- 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.
- 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.
- 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 AFTER THE COMPLETION OF THE DIKE GRADING. 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.
- ENSURE ALL TREES AND SHRUBS ARE INSTALLED OUTSIDE OF DIKE EXTENTS - REFER TO CIVIL DRAWINGS, TYP.
- 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.
- 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.
- DISTURBANCES TO ADJACENT AREAS SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
- EROSION CONTROL MATTING REQUIRED ON ALL SLOPES STEEPER THAN 3:1 THAT ARE INDICATED TO BE SEEDED.
 - SLOPES > 3:1 AND < 2:1 :
S150 STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
 - SLOPES > 2:1 :
SC150 COCONUT AND STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
- ALL DEVELOPMENT AND CONSTRUCTION ACTIVITIES WITHIN 6 METERS OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST.
- ALL PRUNING OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA CERTIFIED ARBORIST.

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 caespitosa	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 - Wet Side of Slope Application rate of 58 kg / ha.

BOTANICAL NAME	COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Elymus lanceolatus / Agropyron dasystachyum	Northern Wheatgrass	15%	16%	9.30
Pascopyrum smithii / Agropyron smithii	Western Wheatgrass	20%	30%	17.36
Elymus trachycaulus / Agropyron trachycaulum var.	Slender Wheatgrass	10%	10%	5.97
Bouteloua gracilis	Blue Grama	10%	2%	0.88
Elymus canadensis	Canada Wildrye	10%	14%	8.30
Nassella viridula / Stipa viridula	Green Needlegrass	25%	27%	15.82
Koeleria macrantha	Junegrass	10%	1%	0.58

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 & Dry Side of Slope - 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.

SEEDING NOTES

- 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.
- SOW AT THE RATE INDICATED WITH SEED MIXES, DURING CALM WEATHER AND WHEN SOIL MOISTURE CONTENT IS ADEQUATE FOR GERMINATION.
- 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. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- FOR STEEPER THAN 2:1 SLOPES OR SLOPES THAT ARE NOT EASILY ACCESSIBLE USE MANUALLY OPERATED BROADCAST SEEDER. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- 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.
- COVER BROADCASTED SEED BY HAND RAKING AND ATV HARROWING-IN.
- OPTIMAL SEEDING PERIODS FOR NATIVE GRASSES:
 - MID TO LATE MAY, EARLY JUNE - NO LATER THAN JUNE 15TH.
 - 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.
- 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.
- APPLY WATER UNIFORMLY TO SEEDED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS AND TOPSOIL.
- MINIMIZE TRAVEL ON SEEDED SURFACES.
- USE WATERING EQUIPMENT AND TECHNIQUES AUTHORIZED BY THE OWNER.

NOTE: MIX 1 NOT ON DRAWINGS. WILL ONLY BE REQUIRED ON AN AS - NEEDED BASIS TO RESTORE AREAS DISTURBED BELOW THE 1:2 YEAR WATER MARK. SUCH AS THE INSTREAM RIPRAP LOCATIONS.

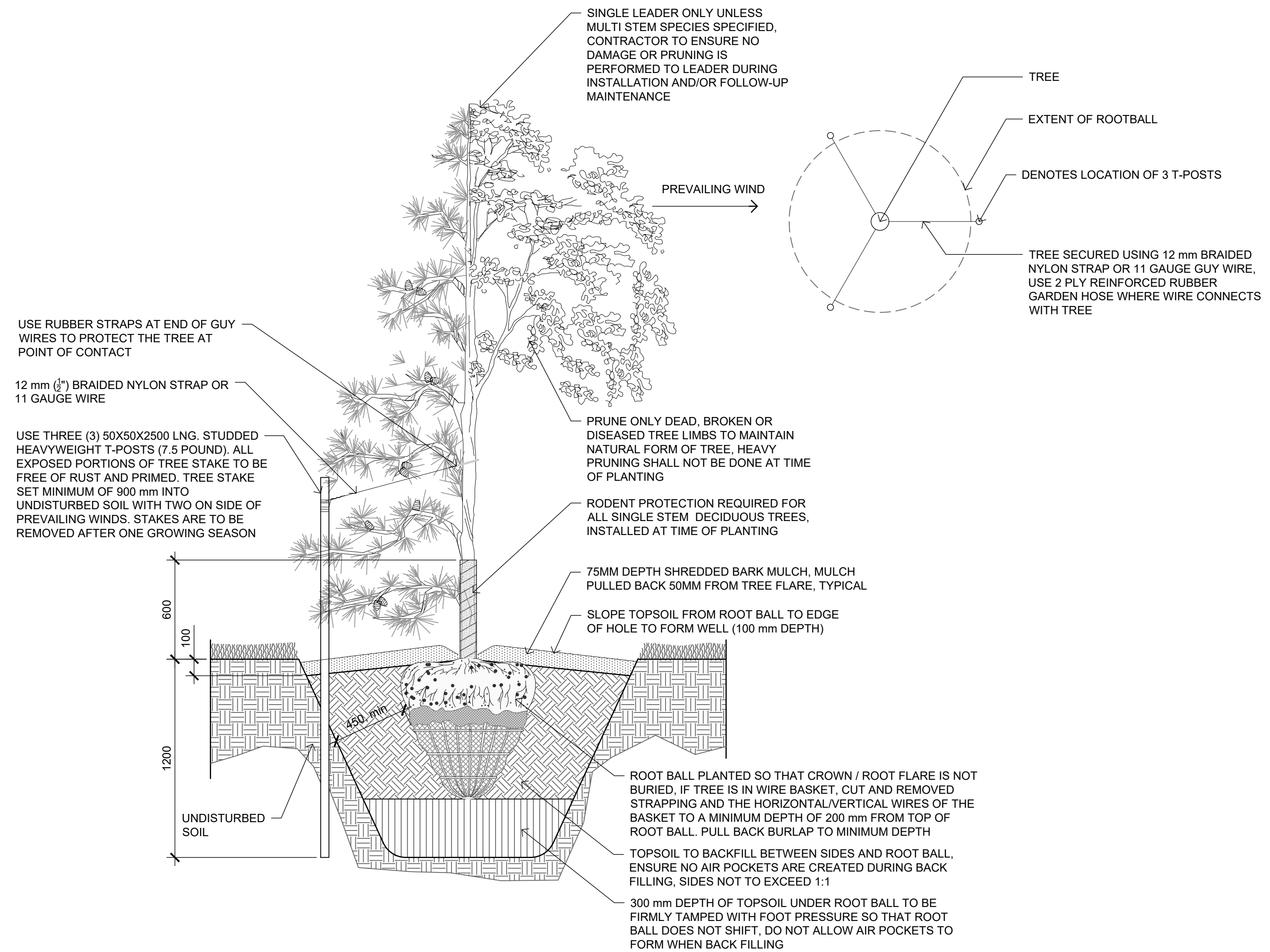


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0	2023-11-09	KM	MD	EW	ISSUED FOR TENDER						

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS

DIVISION 10 - HOSPITAL BERM EXTENSION
PLANTING SCHEDULES & NOTES

Project No. **133142** Drawing No. **L-403** Rev. **0**
 Group **LANDSCAPE**



A STANDARD TREE PLANTING
 L-901 SCALE 1:20



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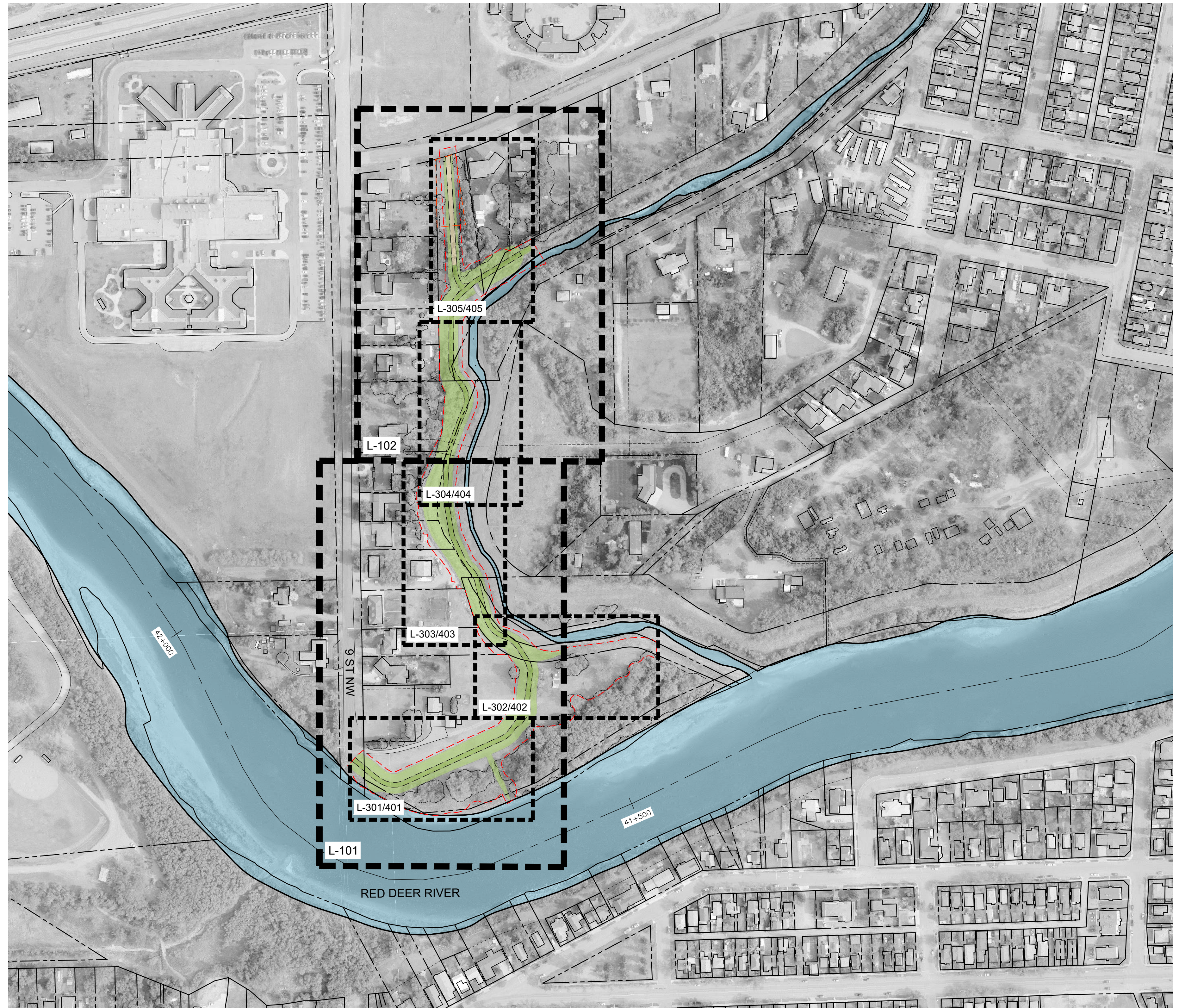
DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE			
NORTH DRUMHELLER FLOOD IMPROVEMENTS			
DIVISION 10 - HOSPITAL BERM EXTENSION			
LANDSCAPE DETAILS			
Project No.	133142	Drawing No.	
Group	LANDSCAPE		
		L-901	0

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE

NORTH DRUMHELLER FLOOD IMPROVEMENTS DIVISION 20 - MICHICHI CREEK WEST BERM LANDSCAPE TENDER PACKAGE

DRAWING LIST

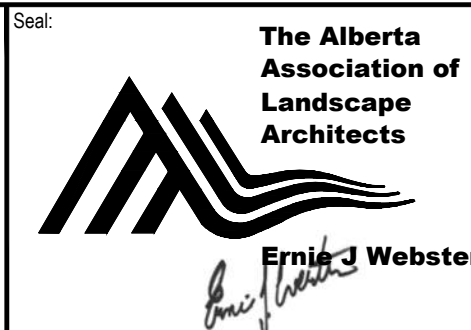
DRAWING NO.	DRAWING TITLE
L-100	LANDSCAPE COVER SHEET & KEY PLAN
L-101	LANDSCAPE MASTER PLAN
L-102	LANDSCAPE MASTER PLAN
L-201	TREE CLEARING PLAN
L-202	TREE CLEARING PLAN
L-203	TREE CLEARING NOTES
L-301	LAYOUT & GRADING PLAN
L-302	LAYOUT & GRADING PLAN
L-303	LAYOUT & GRADING PLAN
L-304	LAYOUT & GRADING PLAN
L-305	LAYOUT & GRADING PLAN
L-401	PLANTING PLAN
L-402	PLANTING PLAN
L-403	PLANTING PLAN
L-404	PLANTING PLAN
L-405	PLANTING PLAN
L-406	PLANTING SCHEDULES & NOTES
L-901	LANDSCAPE DETAILS



PLAN
Scale 1:2000



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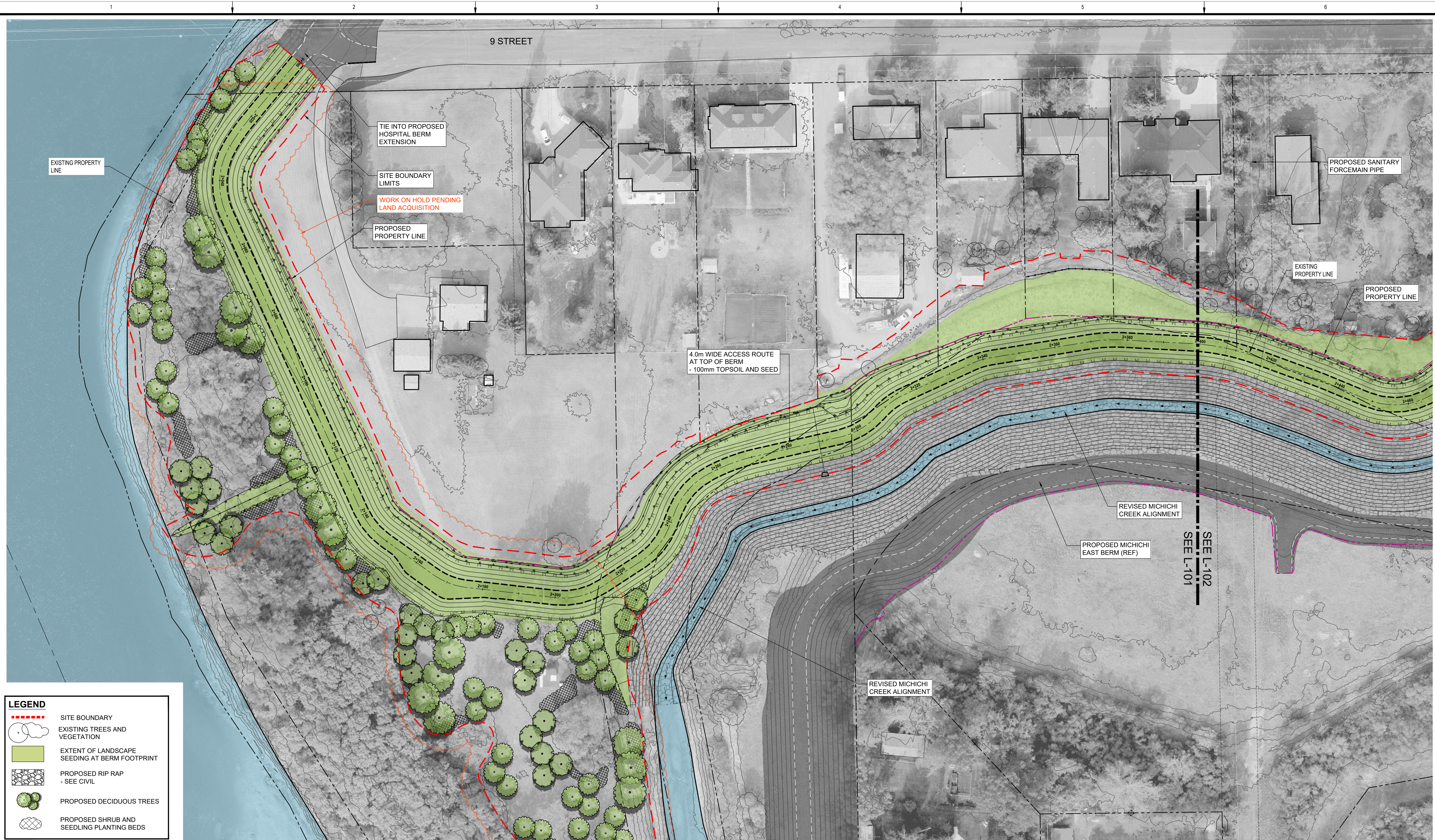
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Rev	Date	Des	Dwn	Chk	Description

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DIVISION 20 - MICHICHI CREEK WEST BERM
LANDSCAPE COVER SHEET
& KEY PLAN

Project No.	133142	Drawing No.	L-100	Rev.	0
Group	LANDSCAPE				



EXISTING PROPERTY LINE

TIE INTO PROPOSED HOSPITAL BERM EXTENSION

SITE BOUNDARY LIMITS

WORK ON HOLD PENDING LAND ACQUISITION

PROPOSED PROPERTY LINE

PROPOSED SANITARY FORCEMAIN PIPE

EXISTING PROPERTY LINE

PROPOSED PROPERTY LINE

4.0m WIDE ACCESS ROUTE AT TOP OF BERM - 100mm TOPSOIL AND SEED

REVISED MICHICHI CREEK ALIGNMENT

PROPOSED MICHICHI EAST BERM (REF)

SEE L-101
SEE L-102

REVISED MICHICHI CREEK ALIGNMENT

LEGEND

- - - - - SITE BOUNDARY
- EXISTING TREES AND VEGETATION
- EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
- PROPOSED RIP RAP - SEE CIVIL
- PROPOSED DECIDUOUS TREES
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS

PLAN
Scale 1:500



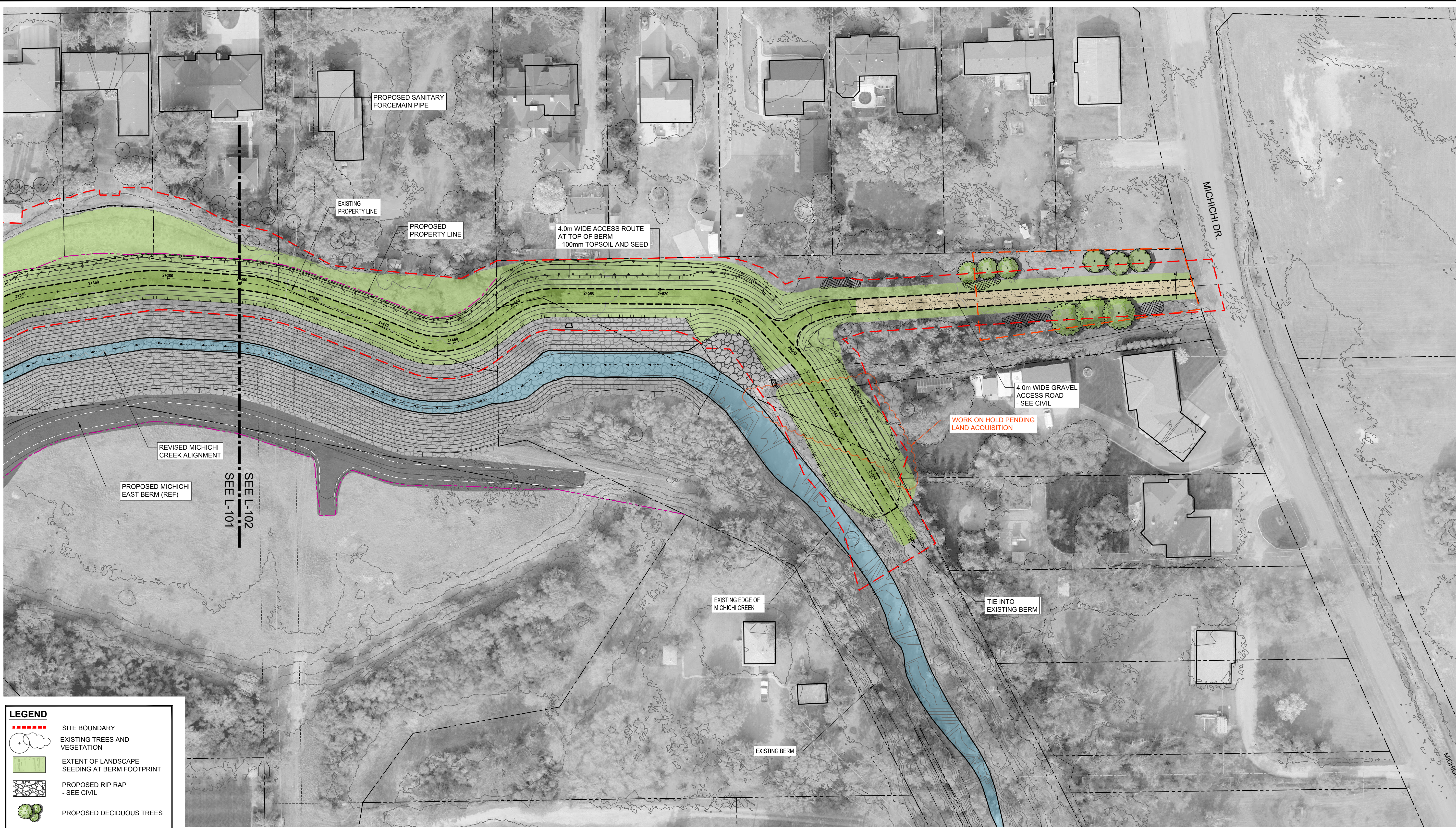
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
LANDSCAPE MASTER PLAN

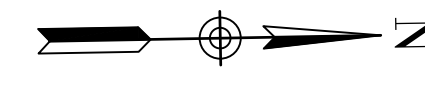
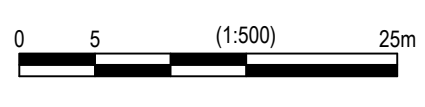
Project No. **133142** Drawing No. **L-101** Rev. **0**
Group **LANDSCAPE**



LEGEND

- SITE BOUNDARY
- EXISTING TREES AND VEGETATION
- EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
- PROPOSED RIP RAP - SEE CIVIL
- PROPOSED DECIDUOUS TREES
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS

PLAN
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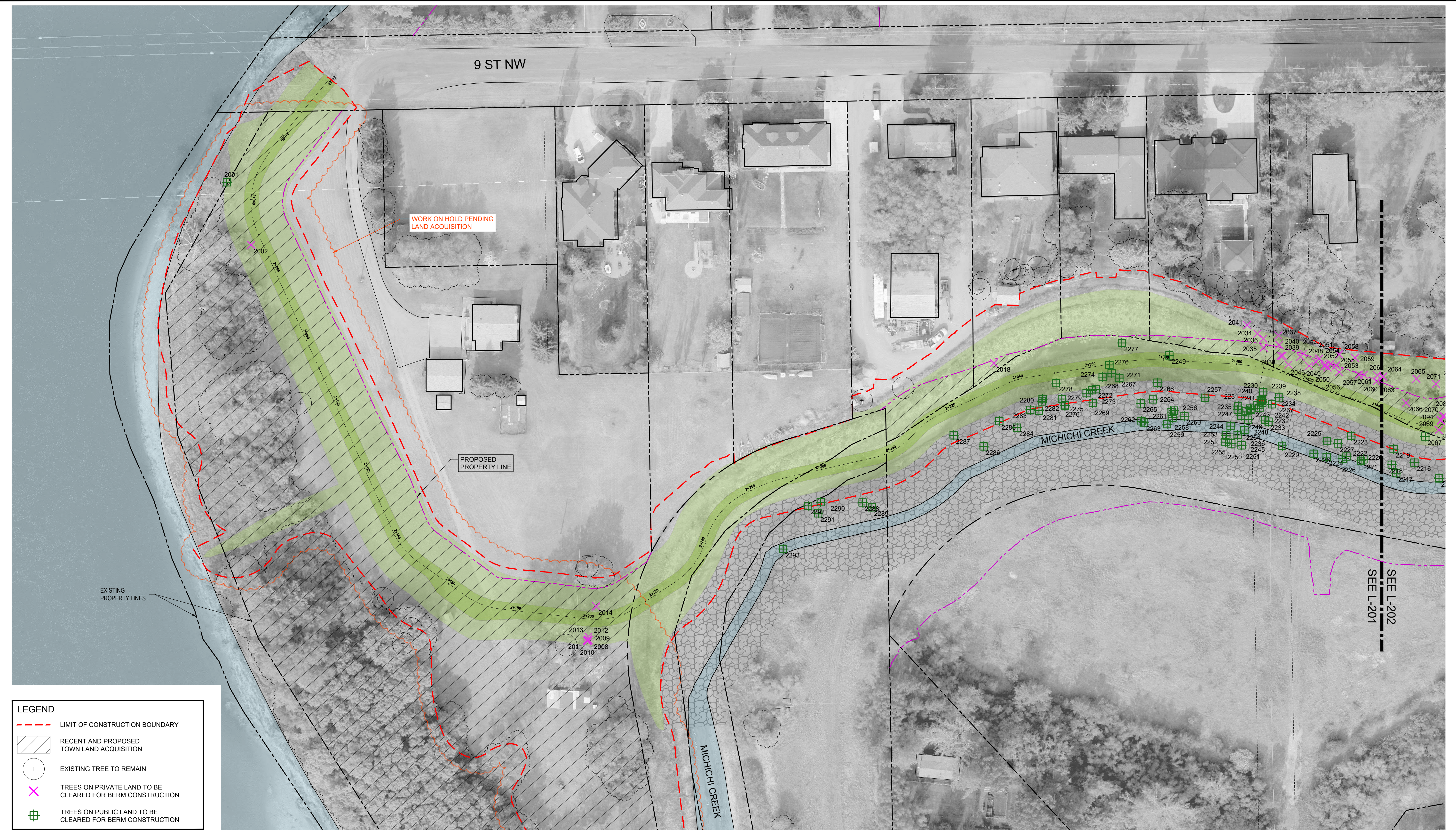
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Rev	Date	Des	Dwn	Chk	Description

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DIVISION 20 - MICHICHI CREEK WEST BERM
LANDSCAPE MASTER PLAN

Project No. **133142** Drawing No. **L-102** Rev. **0**
 Group **LANDSCAPE**



LEGEND

- LIMIT OF CONSTRUCTION BOUNDARY
- RECENT AND PROPOSED TOWN LAND ACQUISITION
- + EXISTING TREE TO REMAIN
- X TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
- + TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION

PLAN
 Scale 1:500



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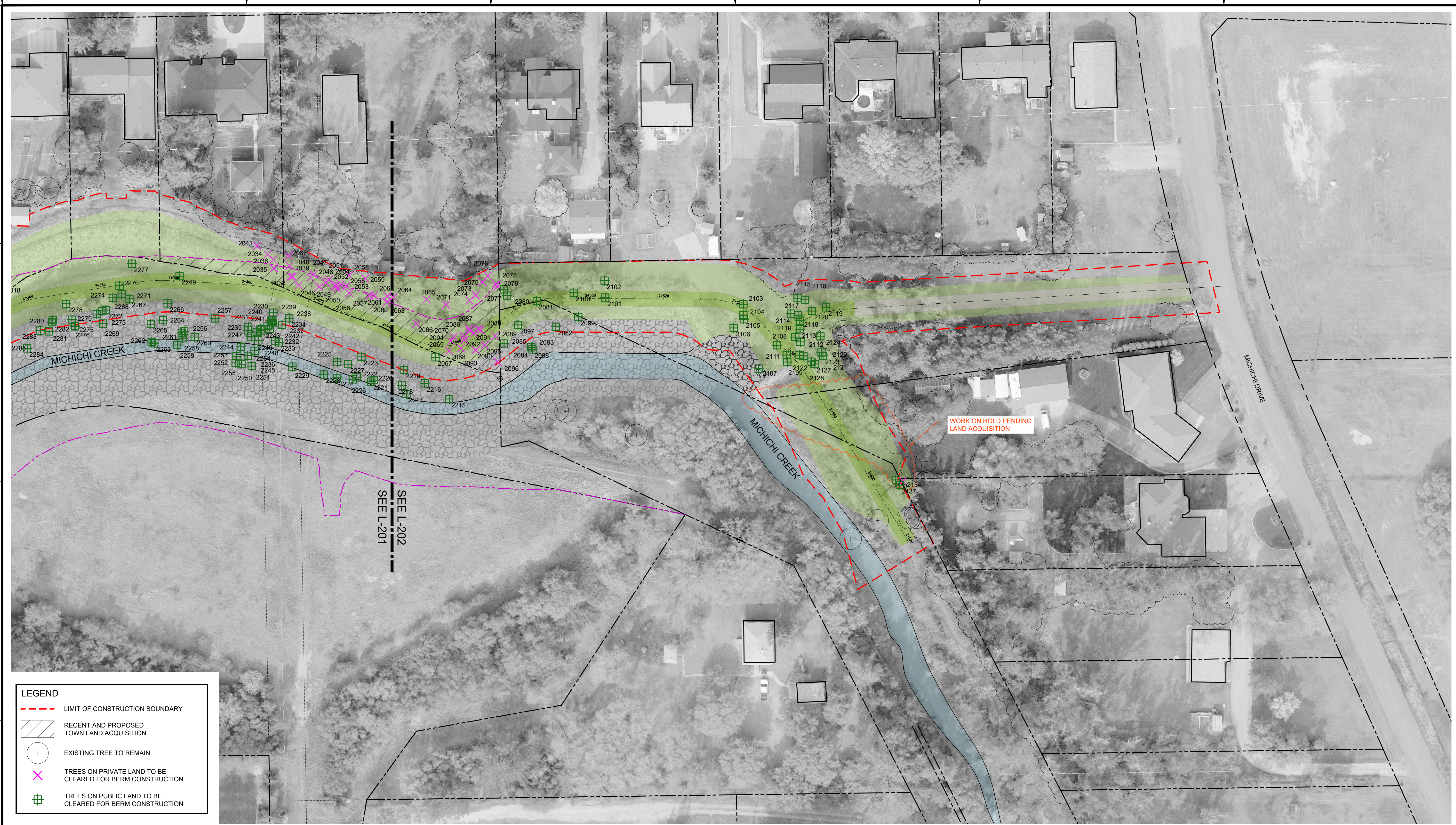
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
TREE CLEARING PLAN

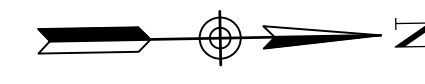
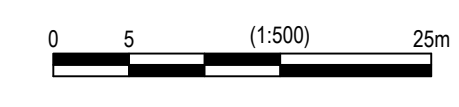
Project No. **133142** Drawing No. **L-201** Rev. **0**
 Group **LANDSCAPE**



LEGEND

- LIMIT OF CONSTRUCTION BOUNDARY
- RECENT AND PROPOSED TOWN LAND ACQUISITION
- + EXISTING TREE TO REMAIN
- X TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
- + TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION

PLAN
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
TREE CLEARING PLAN

Project No. **133142** Drawing No. **L-202** Rev. **0**
 Group **LANDSCAPE**

MICHICHI CREEK WEST BERM - TREES TO BE REMOVED

TREE SURVEY RECEIVED FROM TOWN OF DRUMHELLER, OCTOBER 2022.

TOTAL TREES TO BE REMOVED*: 162

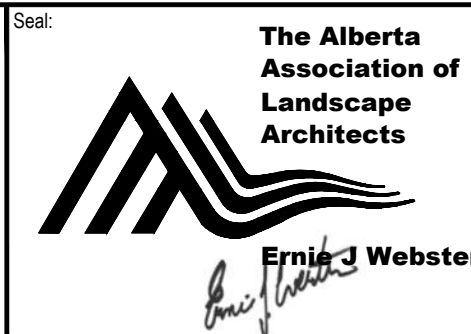
- TREES ON PUBLIC LANDS: 114
TREES ON RECENT OR PROPOSED LAND ACQUISITIONS BY TOWN: 31
TREES ON PRIVATE LANDS: 17

* TOTAL TREES REMOVED WITH FAIR, GOOD OR VERY GOOD HEALTH (RATINGS 1-3)

TOTAL TREES TO BE REMOVED (ALL HEALTH RATINGS) = 176

Table with 15 columns: Tree ID, Species, Height (m), DBH (cm), Health, Public/Private. Contains 176 rows of tree data.

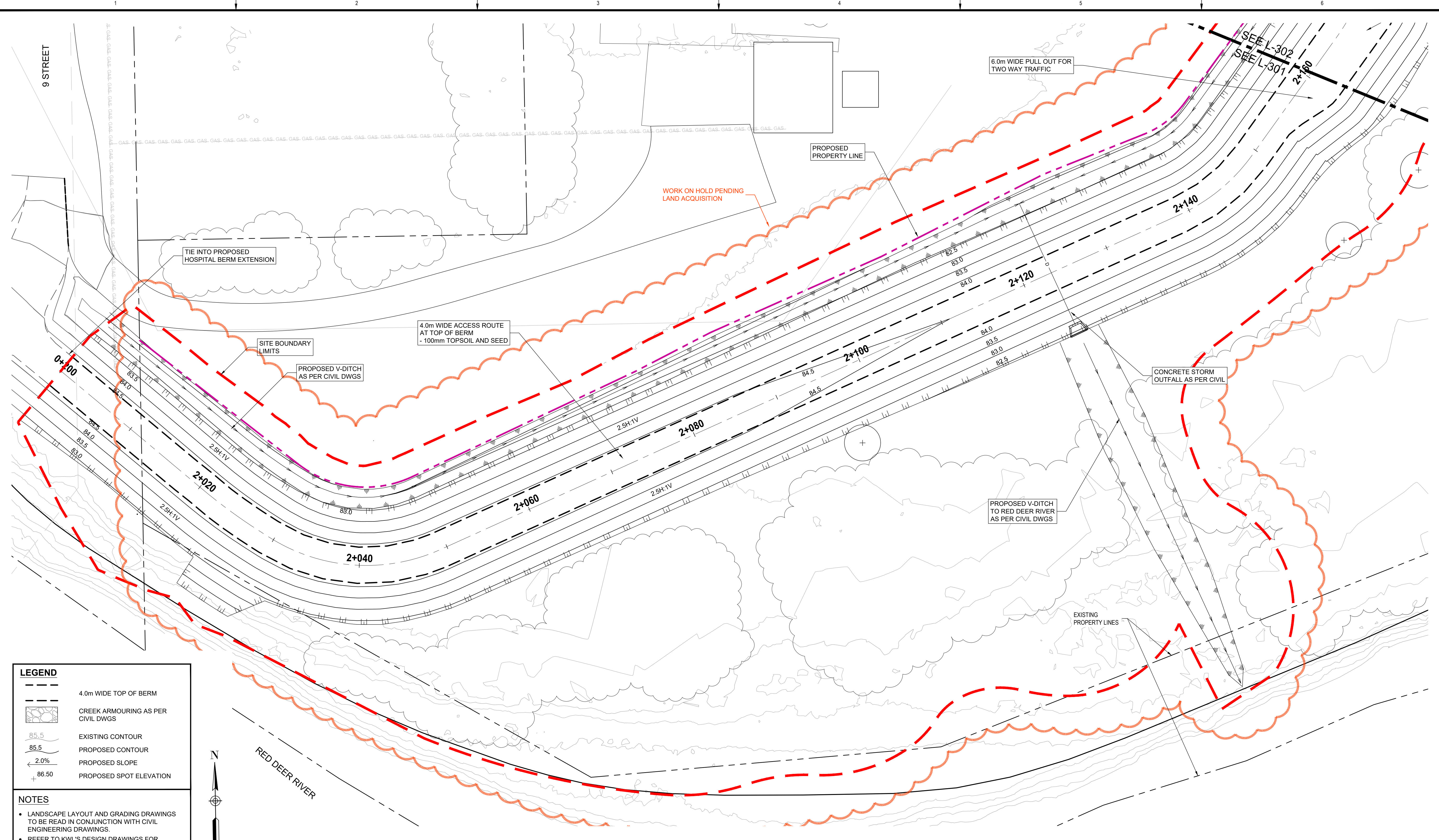
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DIVISION 20 - MICHICHI CREEK WEST BERM
TREE CLEARING NOTES
Project No. 133142
Drawing No. L-203
Rev. 0



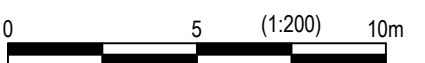
LEGEND

	4.0m WIDE TOP OF BERM
	CREEK ARMORING AS PER CIVIL DWGS
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SLOPE
	PROPOSED SPOT ELEVATION

- NOTES**
- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
 - REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.



PLAN
 Scale 1:200



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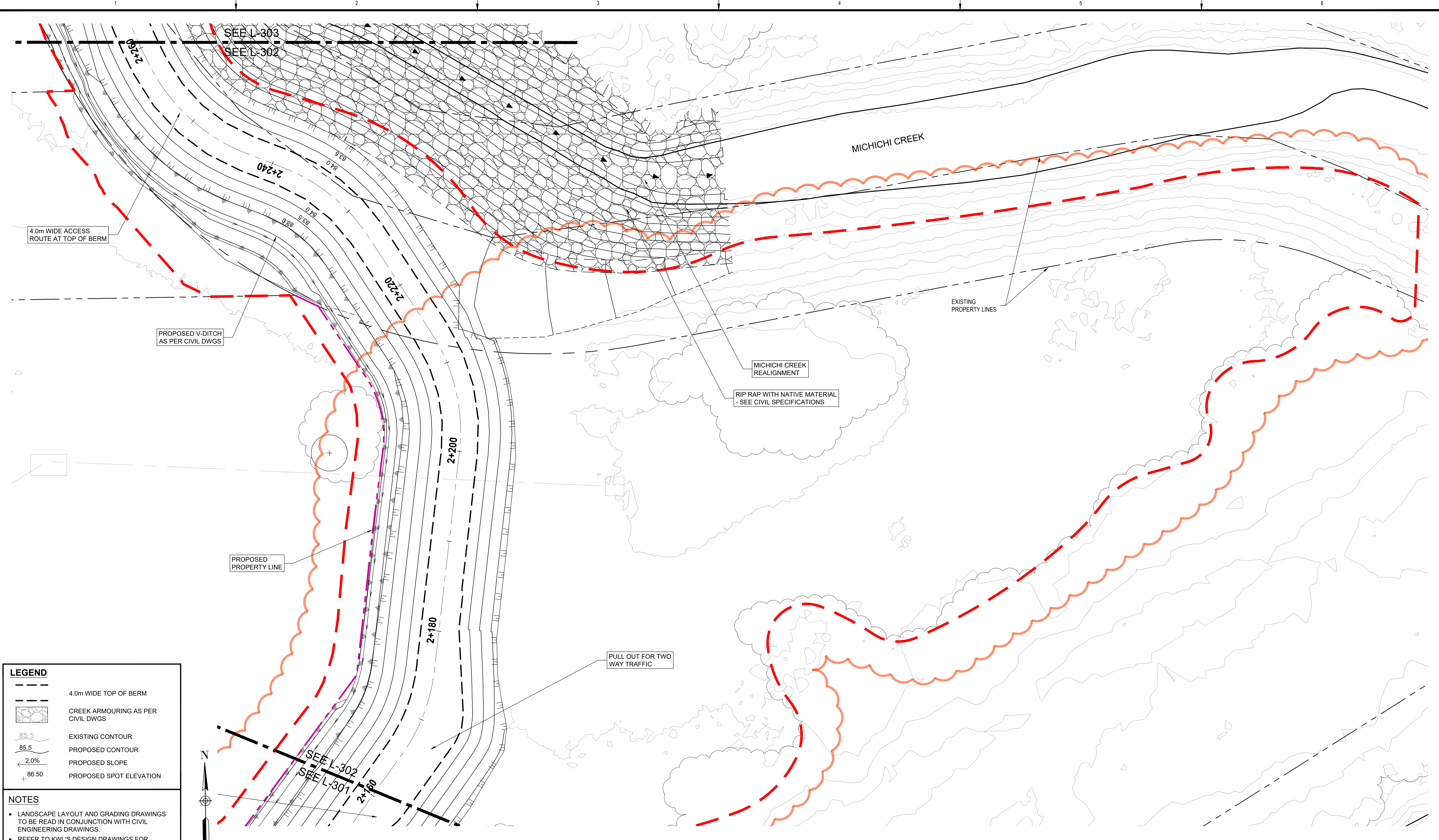
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Rev	Date	Des	Dwn	Chk	Description

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DIVISION 20 - MICHICHI CREEK WEST BERM
LAYOUT & GRADING PLAN

Project No. 133142
 Drawing No. L-301
 Group LANDSCAPE



LEGEND

- 4.0m WIDE TOP OF BERM
- CREEK ARMOURING AS PER CIVIL DWGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.

PLAN
Scale 1:200



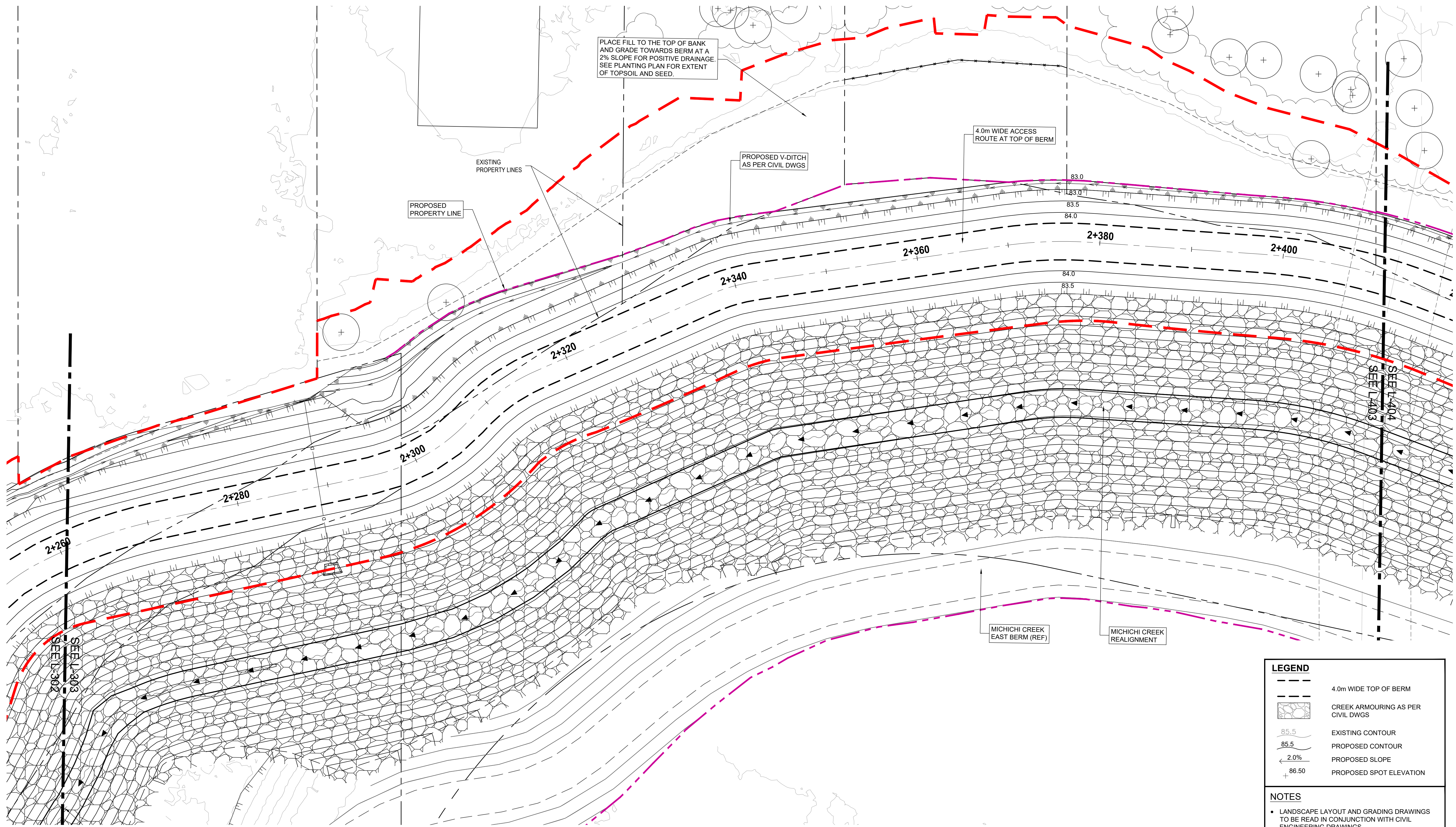
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
LAYOUT & GRADING PLAN

Project No. 133142
Group LANDSCAPE
Drawing No. L-302



PLACE FILL TO THE TOP OF BANK AND GRADE TOWARDS BERM AT A 2% SLOPE FOR POSITIVE DRAINAGE. SEE PLANTING PLAN FOR EXTENT OF TOPSOIL AND SEED.

4.0m WIDE ACCESS ROUTE AT TOP OF BERM

PROPOSED V-DITCH AS PER CIVIL DWGS

PROPOSED PROPERTY LINE

EXISTING PROPERTY LINES

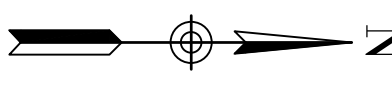
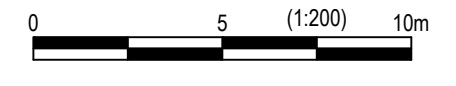
MICHICHI CREEK EAST BERM (REF)

MICHICHI CREEK REALIGNMENT

SEE L-302

SEE L-403

PLAN
Scale 1:200



LEGEND	
	4.0m WIDE TOP OF BERM
	CREEK ARMOURING AS PER CIVIL DWGS
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SLOPE
	PROPOSED SPOT ELEVATION

- NOTES**
- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
 - REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.



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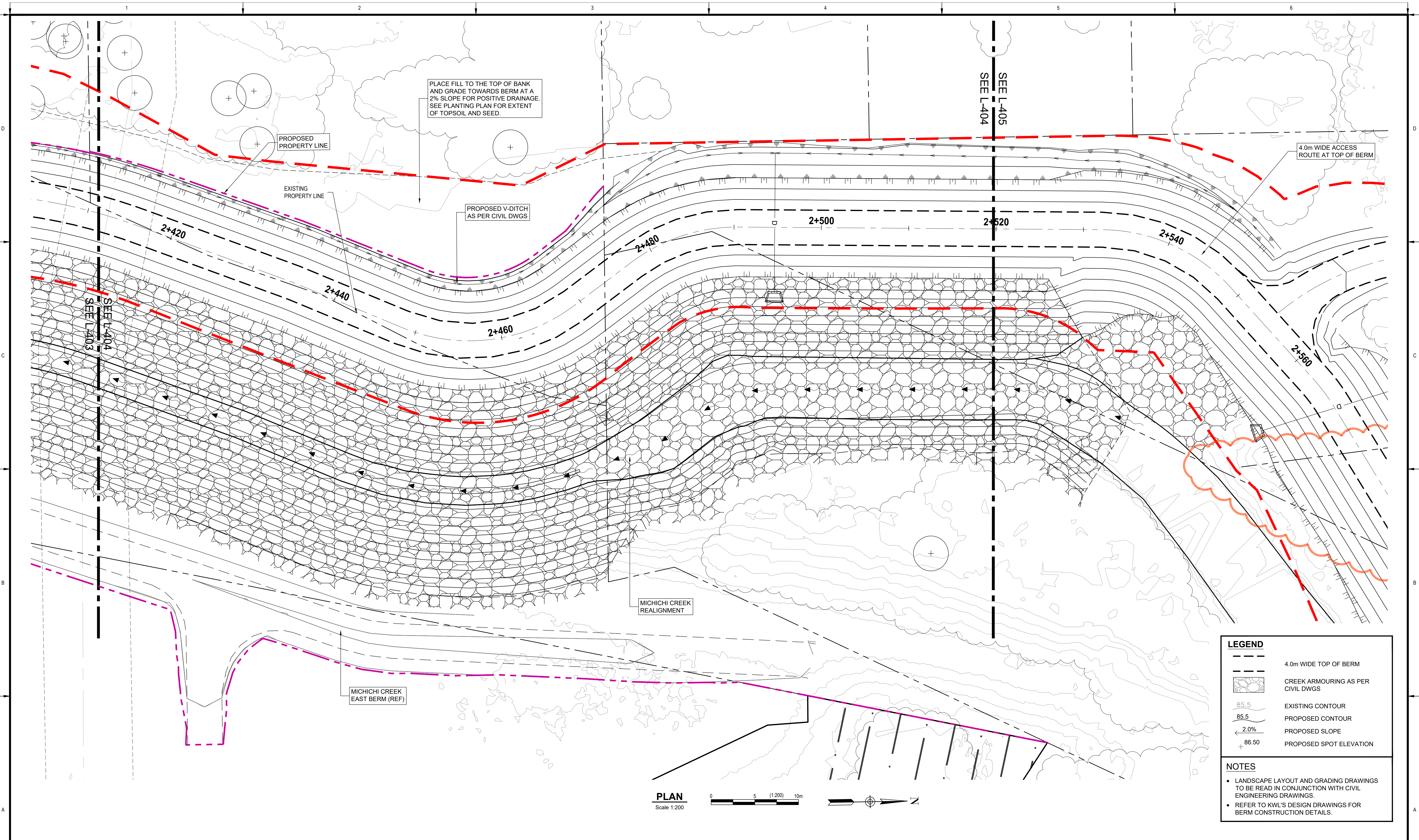
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-303**

Group **LANDSCAPE**



PLAN
 Scale 1:200

LEGEND

- 4.0m WIDE TOP OF BERM
- CREEK ARMOURING AS PER CIVIL DWGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- 2.0% PROPOSED SLOPE
- 86.50 PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.



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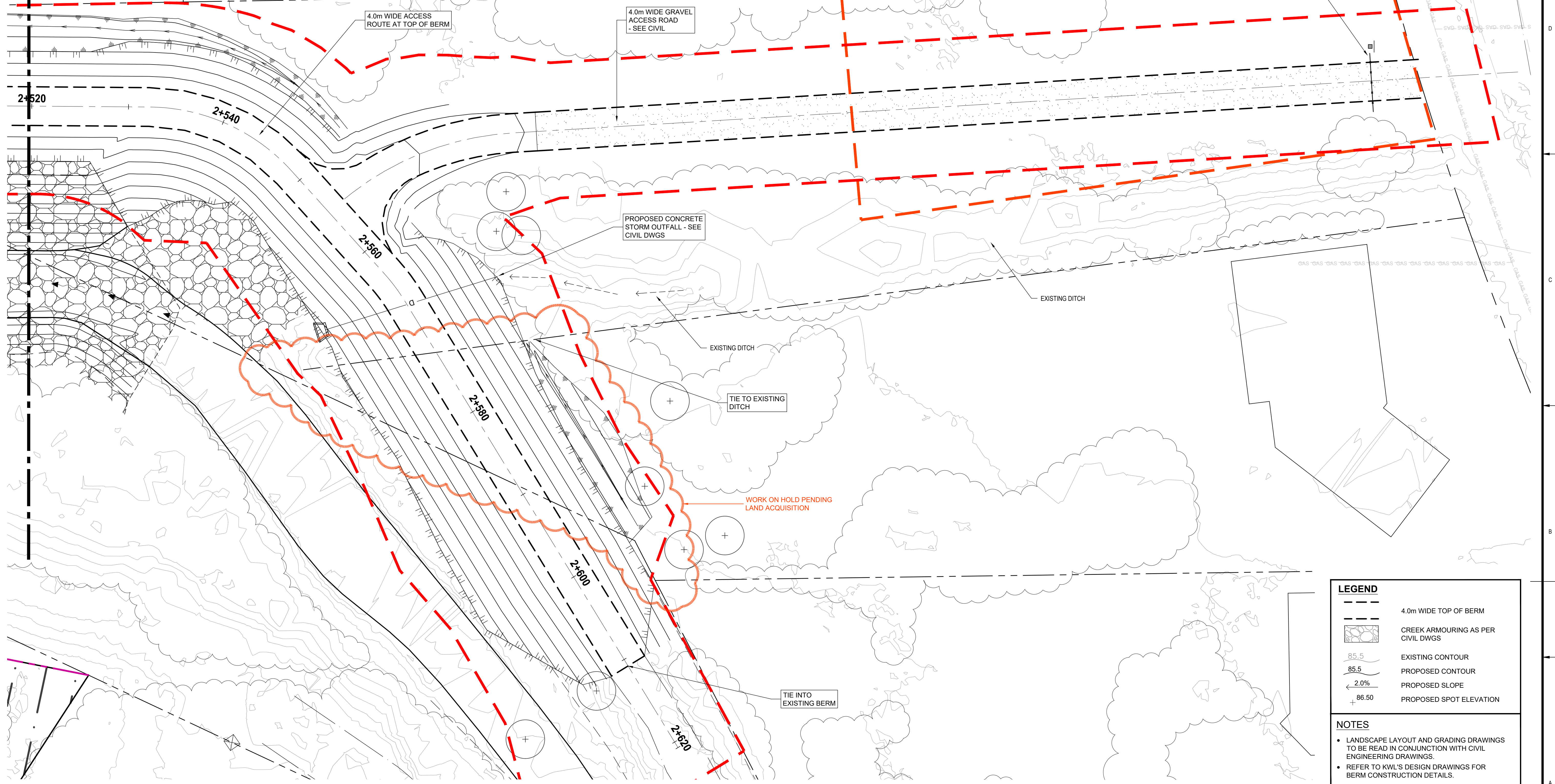
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DIVISION 20 - MICHICHI CREEK WEST BERM
LAYOUT & GRADING PLAN

Project No. 133142 Drawing No. L-304 Rev. ----
 Group LANDSCAPE

SEE L-404
SEE L-405



LEGEND

	4.0m WIDE TOP OF BERM
	CREEK ARMOURING AS PER CIVIL DWGS
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SLOPE
	PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM CONSTRUCTION DETAILS.

PLAN
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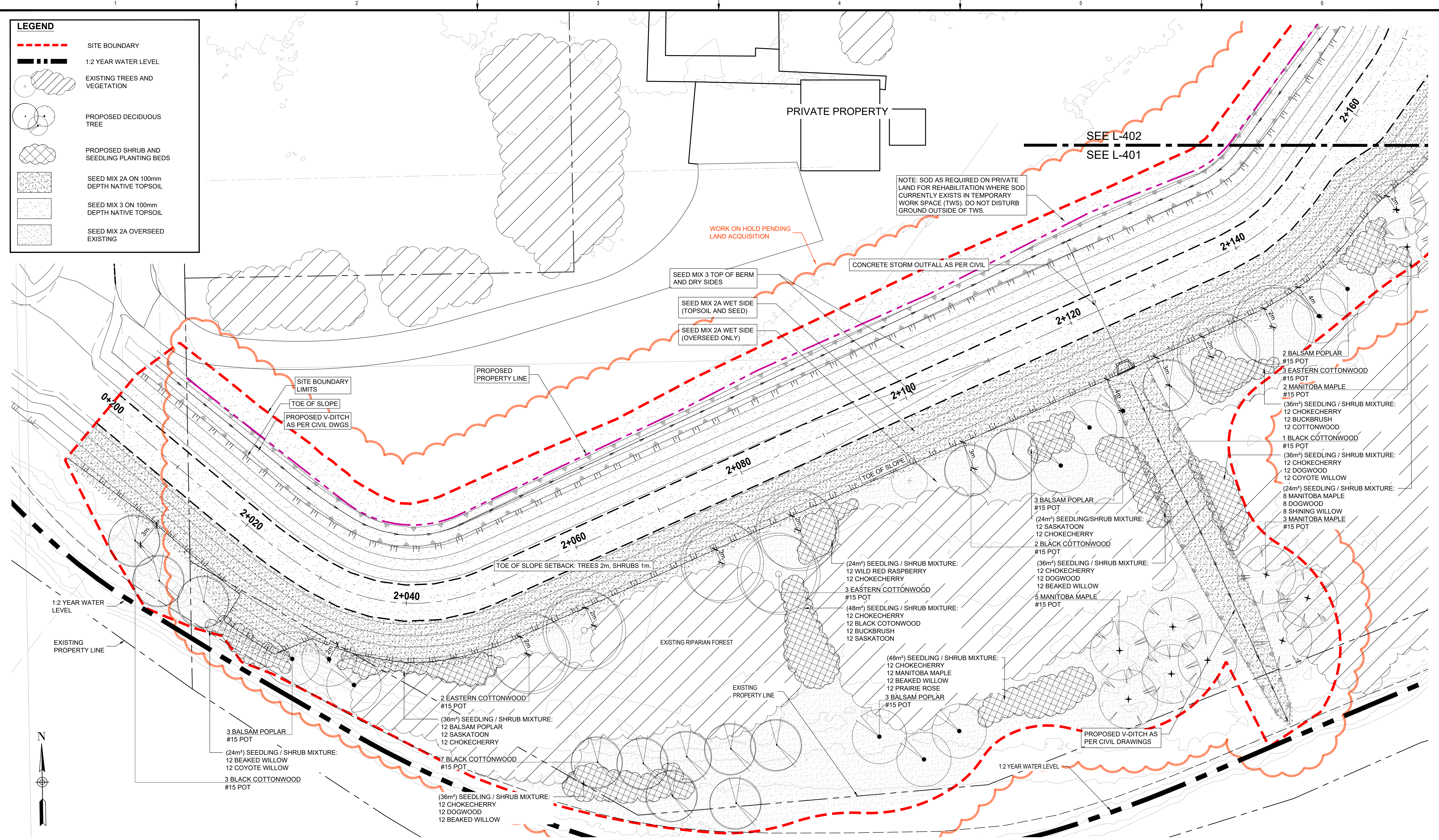
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DIVISION 20 - MICHICHI CREEK WEST BERM
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-305**

Group **LANDSCAPE** Rev. **----**

LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING



NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

- 2 BALSAM POPLAR #15 POT
- 3 EASTERN COTTONWOOD #15 POT
- 2 MANITOBA MAPLE #15 POT
- (36m²) SEEDLING / SHRUB MIXTURE: 12 CHOKECHERRY, 12 BUCKBRUSH, 12 COTTONWOOD
- 1 BLACK COTTONWOOD #15 POT
- (36m²) SEEDLING / SHRUB MIXTURE: 12 CHOKECHERRY, 12 DOGWOOD, 12 COYOTE WILLOW
- (24m²) SEEDLING / SHRUB MIXTURE: 8 MANITOBA MAPLE, 8 DOGWOOD, 8 SHINING WILLOW, 3 MANITOBA MAPLE #15 POT

- (24m²) SEEDLING / SHRUB MIXTURE: 12 WILD RED RASPBERRY, 12 CHOKECHERRY, 3 EASTERN COTTONWOOD #15 POT
- (48m²) SEEDLING / SHRUB MIXTURE: 12 BLACK COTTONWOOD, 12 BUCKBRUSH, 12 SASKATOON
- (48m²) SEEDLING / SHRUB MIXTURE: 12 CHOKECHERRY, 12 MANITOBA MAPLE, 12 BEAKED WILLOW, 12 PRAIRIE ROSE, 3 BALSAM POPLAR #15 POT

- (36m²) SEEDLING / SHRUB MIXTURE: 12 CHOKECHERRY, 12 DOGWOOD, 12 BEAKED WILLOW, 5 MANITOBA MAPLE #15 POT

- 3 BALSAM POPLAR #15 POT
- (24m²) SEEDLING / SHRUB MIXTURE: 12 BEAKED WILLOW, 12 COYOTE WILLOW
- 3 BLACK COTTONWOOD #15 POT

- 2 EASTERN COTTONWOOD #15 POT
- (36m²) SEEDLING / SHRUB MIXTURE: 12 BALSAM POPLAR, 12 SASKATOON, 12 CHOKECHERRY
- 7 BLACK COTTONWOOD #15 POT

- (36m²) SEEDLING / SHRUB MIXTURE: 12 CHOKECHERRY, 12 DOGWOOD, 12 BEAKED WILLOW

PLAN
Scale 1:200



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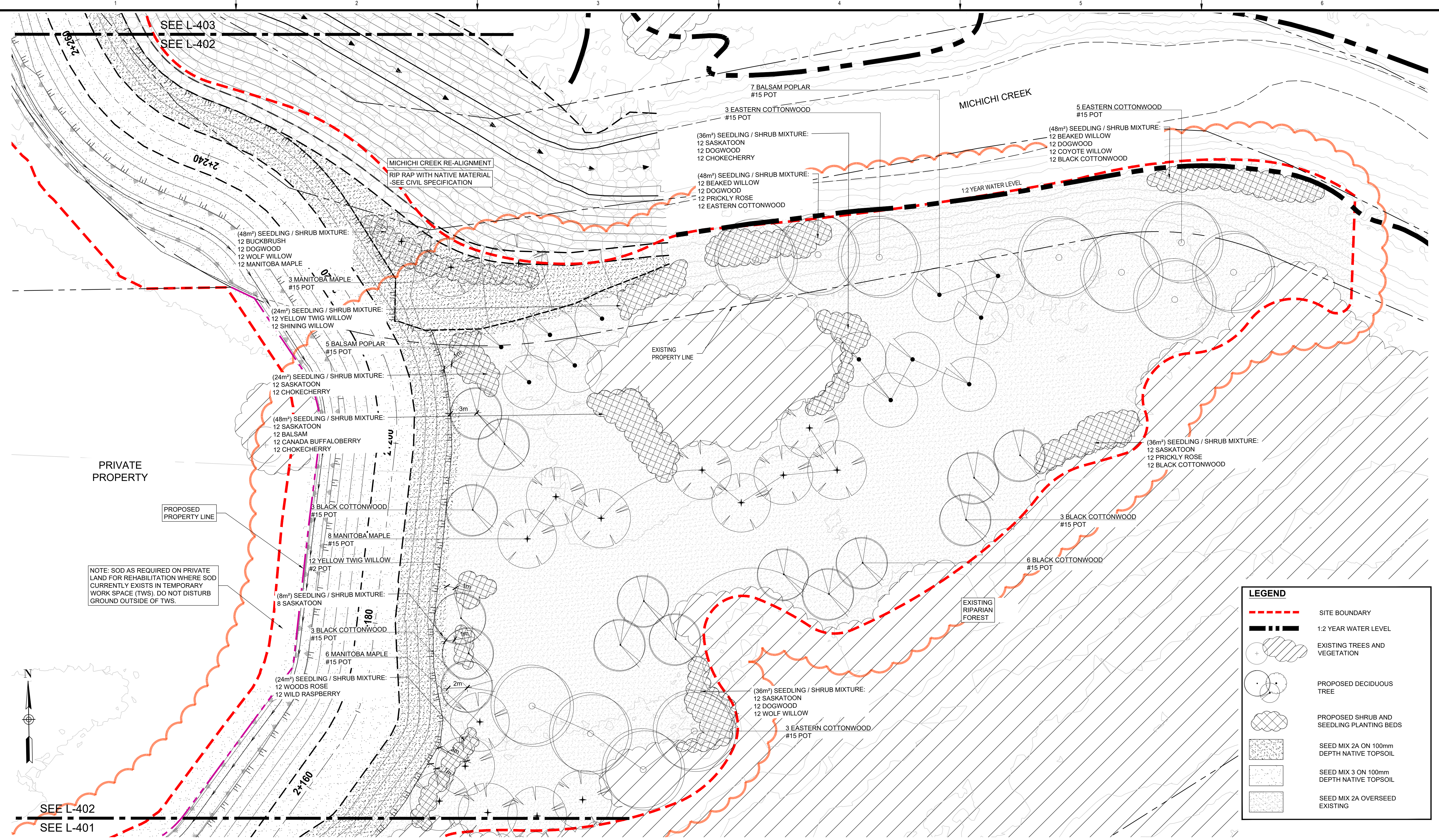
DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
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DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING PLAN

Project No. 133142
Group LANDSCAPE
Drawing No. L-401
Rev. 0

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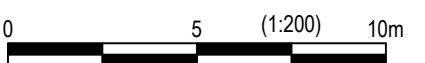
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LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING

PLAN
Scale 1:200



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
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DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING PLAN

Project No. **133142** Drawing No. **L-402** Rev. **0**
Group **LANDSCAPE**

LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- Existing Trees and Vegetation
- Proposed Deciduous Tree
- Proposed Shrub and Seedling Planting Beds
- Seed Mix 2A on 100mm Depth Native Topsoil
- Seed Mix 3 on 100mm Depth Native Topsoil
- Seed Mix 2A Overseed Existing

NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

PLAN
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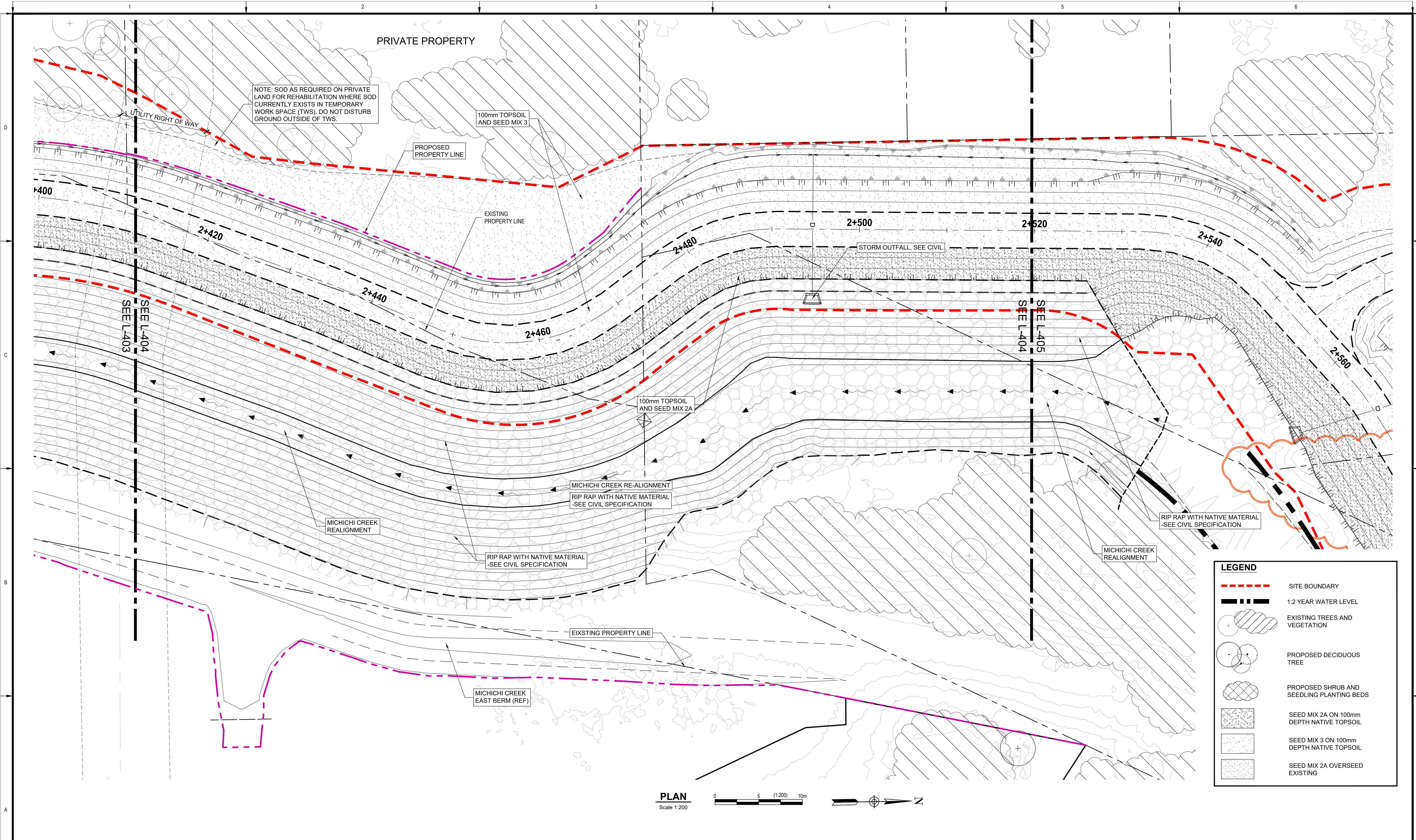
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING PLAN

Project No. 133142 Drawing No. L-403 Rev. 0
Group LANDSCAPE



LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING

PLAN
Scale 1:200



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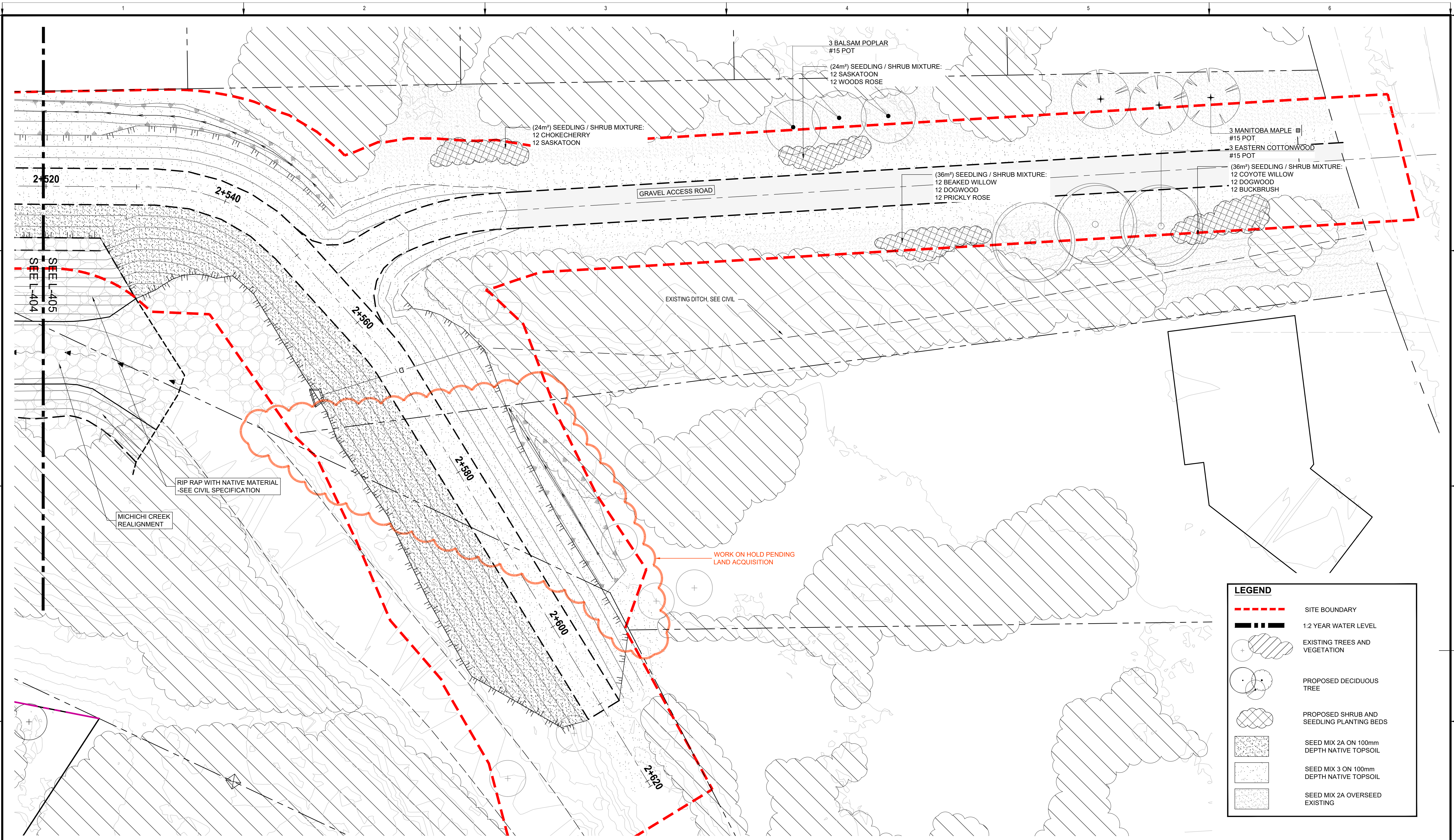
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DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING PLAN

Project No. **133142** Drawing No. **L-404** Rev. **0**
Group **LANDSCAPE**



LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- Existing trees and vegetation symbols
- Proposed deciduous tree symbol
- Proposed shrub and seedling planting beds symbol
- Seed Mix 2A on 100mm depth native topsoil symbol
- Seed Mix 3 on 100mm depth native topsoil symbol
- Seed Mix 2A overseed existing symbol

PLAN
Scale 1:200



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
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DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING PLAN

Project No. **133142** Drawing No. **L-405** Rev. **0**
 Group **LANDSCAPE**

PLANT SCHEDULE - PUBLIC LANDS

DECIDUOUS TREES	COMMON NAME	SIZE	QTY
ACER NEGUNDO	MANITоба MAPLE	#15 POT	30
POPULUS BALSAMIFERA	BALSAM POPLAR	#15 POT	26
POPULUS BALSAMIFERA TRICHOCARPA	BLACK COTTONWOOD	#15 POT	28
POPULUS DELTOIDES	EASTERN COTTONWOOD	#15 POT	22
TOTAL: 106			
SHRUBS	COMMON NAME	SIZE	QTY
AMALANCHIER ALNIFOLIA	SASKATOON	#2 POT	128
CORNUS SERICEA	RED OSIER DOGWOOD	#2 POT	115
CORNUS SERICEA 'FLAVIRAMEA'	YELLOW TWIG WILLOW	#2 POT	32
ELAEAGNUS COMMUTATA	WOLF WILLOW	#2 POT	24
PRUNUS VIRGINIANA	CHOKECHERRY	#2 POT	156
ROSA ACICULARIS	PRICKLY ROSE	#2 POT	36
ROSA ARKANSANA	PRAIRIE ROSE	#2 POT	24
ROSA WOODSII ULTRAMONTANA	WOODS' ROSE	#2 POT	24
RUBUS PARVIFOLIUS	NATIVE RASPBERRY	#2 POT	24
SALIX BEBBIANA	BEAKED WILLOW	#2 POT	84
SALIX EXIGUA	COYOTE WILLOW	#2 POT	48
SALIX LUCIDA	SHINING WILLOW	#2 POT	12
SHEPHERDIA CANADENSIS	CANADA BUFFALOBERRY	#2 POT	12
SYMPHORICARPOS OCCIDENTALIS 'BUCKBRUSH'	BUCKBRUSH	#2 POT	48
TOTAL: 767			
DECIDUOUS TREES - SEEDLINGS	COMMON NAME	SIZE	QTY
ACER NEGUNDO	MANITоба MAPLE	SEEDLING	44
POPULUS BALSAMIFERA	BALSAM POPLAR	SEEDLING	24
POPULUS DELTOIDES	EASTERN COTTONWOOD	SEEDLING	12
POPULUS TRICHOCARPA	BLACK COTTONWOOD	SEEDLING	48
TOTAL: 128			

NOTES

- 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
- ANY PROPOSED ALTERNATE PLANT MATERIALS SHOULD COME FROM THE LIST ABOVE AND BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ORDERING.

PLANT SCHEDULE - PRIVATE LANDS

DECIDUOUS TREES	COMMON NAME	SIZE	QTY
ORNAMENTAL TREE (SPECIES TO BE DETERMINED)	TBD	#15 POT	48

NOTES

- ALL TREE PLANTING REPLACEMENTS ON PRIVATE PROPERTY TO BE COORDINATED WITH OWNER FOR SPECIES, SITE ACCESS, AND SCHEDULING. ASSUME NO MACHINE ACCESS AND NO ONGOING MAINTENANCE REQUIRED.

PLANTING STRATEGY

Michichi West Berm	No. Trees Removed	Qty. to be Planted on Public Lands	Qty. to be Planted on Private Lands	Total Trees/Shrubs Required
Public Lands	114	570	0	
Private Lands	48	192	48	
Total Required		762	48	810

As per the Town of Drumheller "Preserving and Enhancing The Urban Forest Standards and Techniques", where:

- Public Lands 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 on Public Lands.
- Private Lands a 5:1 ratio of planting replacement is specified, for every 1 fair, good, or very good tree that is removed, 1 trees/shrubs will be planted on Private Lands and 4 trees/shrubs will be planted on Public Lands.

PUBLIC PLANTING BREAKDOWN	QTY	COMPOSITION
Med - Large Trees	0	0%
Container Grown Trees	106	10%
Tree Seedlings	128	13%
Shrubs / Shrub Seedlings	767	77%
Total Provided	1001	
Total Required	762	
Net Planting Amount	+239	

PRIVATE PLANTING BREAKDOWN	QTY	COMPOSITION
Container Grown Trees	48	100%
Total Provided	48	
Total Required	48	
Net Planting Amount	0	

PLANTING NOTES

- 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.
- 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.
- 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.
- 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 AFTER THE COMPLETION OF THE DIKE GRADING. 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.
- ALL TREES MUST BE SET BACK A MINIMUM OF 2.0m FROM TOE OF DIKE AND SHRUBS A MINIMUM OF 1.0m FROM TOE OF DIKE.
- ENSURE ALL TREES AND SHRUBS ARE INSTALLED OUTSIDE OF DIKE EXTENTS - REFER TO CIVIL DRAWINGS, TYP.
- 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.
- 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.
- DISTURBANCES TO ADJACENT AREAS SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
- EROSION CONTROL MATTING REQUIRED ON ALL SLOPES STEEPER THAN 3:1 THAT ARE INDICATED TO BE SEEDED.
 - SLOPES > 3:1 AND < 2:1 :
S150 STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
 - SLOPES > 2:1 :
SC150 COCONUT AND STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
- ALL DEVELOPMENT AND CONSTRUCTION ACTIVITIES WITHIN 6 METERS OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST.
- ALL PRUNING OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA CERTIFIED ARBORIST.

SEEDING NOTES

- 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.
- SOW AT THE RATE INDICATED WITH SEED MIXES, DURING CALM WEATHER AND WHEN SOIL MOISTURE CONTENT IS ADEQUATE FOR GERMINATION.
- 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. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- FOR STEEPER THAN 2:1 SLOPES OR SLOPES THAT ARE NOT EASILY ACCESSIBLE USE MANUALLY OPERATED BROADCAST SEEDER. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- 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.
- COVER BROADCASTED SEED BY HAND RAKING AND ATV HARROWING-IN.
- OPTIMAL SEEDING PERIODS FOR NATIVE GRASSES:
 - MID TO LATE MAY, EARLY JUNE - NO LATER THAN JUNE 15TH.
 - 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.
- 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.
- APPLY WATER UNIFORMLY TO SEEDED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS AND TOPSOIL.
- MINIMIZE TRAVEL ON SEEDED SURFACES.
- USE WATERING EQUIPMENT AND TECHNIQUES AUTHORIZED BY THE OWNER.

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 caespitosa	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.

NOTE: MIX 1 NOT ON DRAWINGS, WILL ONLY BE REQUIRED ON AN AS - NEEDED BASIS TO RESTORE AREAS DISTURBED BELOW THE 1:2 YEAR WATER MARK, SUCH AS THE INSTREAM RIPRAP LOCATIONS.

Upland Seed Mix 2A - Wet Side Slope - Application rate of 58 kg / ha.

BOTANICAL NAME	COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Elymus lanceolatus / Agropyron dasystachyum	Northern Wheatgrass	15%	16%	9.30
Pascopyrum smithii / Agropyron smithii	Western Wheatgrass	20%	30%	17.36
Elymus trachycaulus / Agropyron trachycaulum var.	Slender Wheatgrass	10%	10%	5.97
Bouteloua gracilis	Blue Grama	10%	2%	0.88
Elymus canadensis	Canada Wildrye	10%	14%	8.30
Nassella viridula / Stipa viridula	Green Needlegrass	25%	27%	15.82
Koeleria macrantha	Junegrass	10%	1%	0.58

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 & Dry Side Slopes - 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.

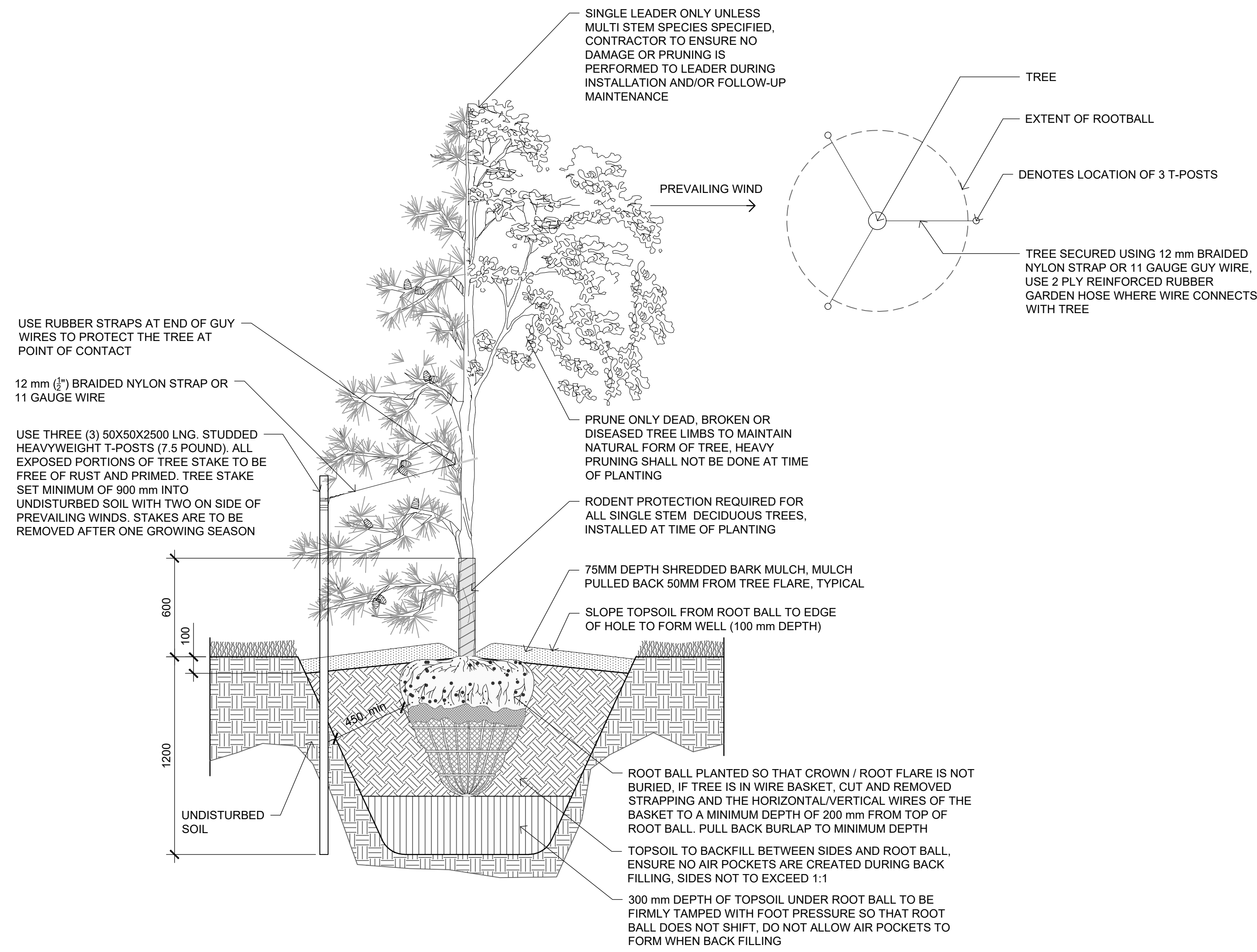


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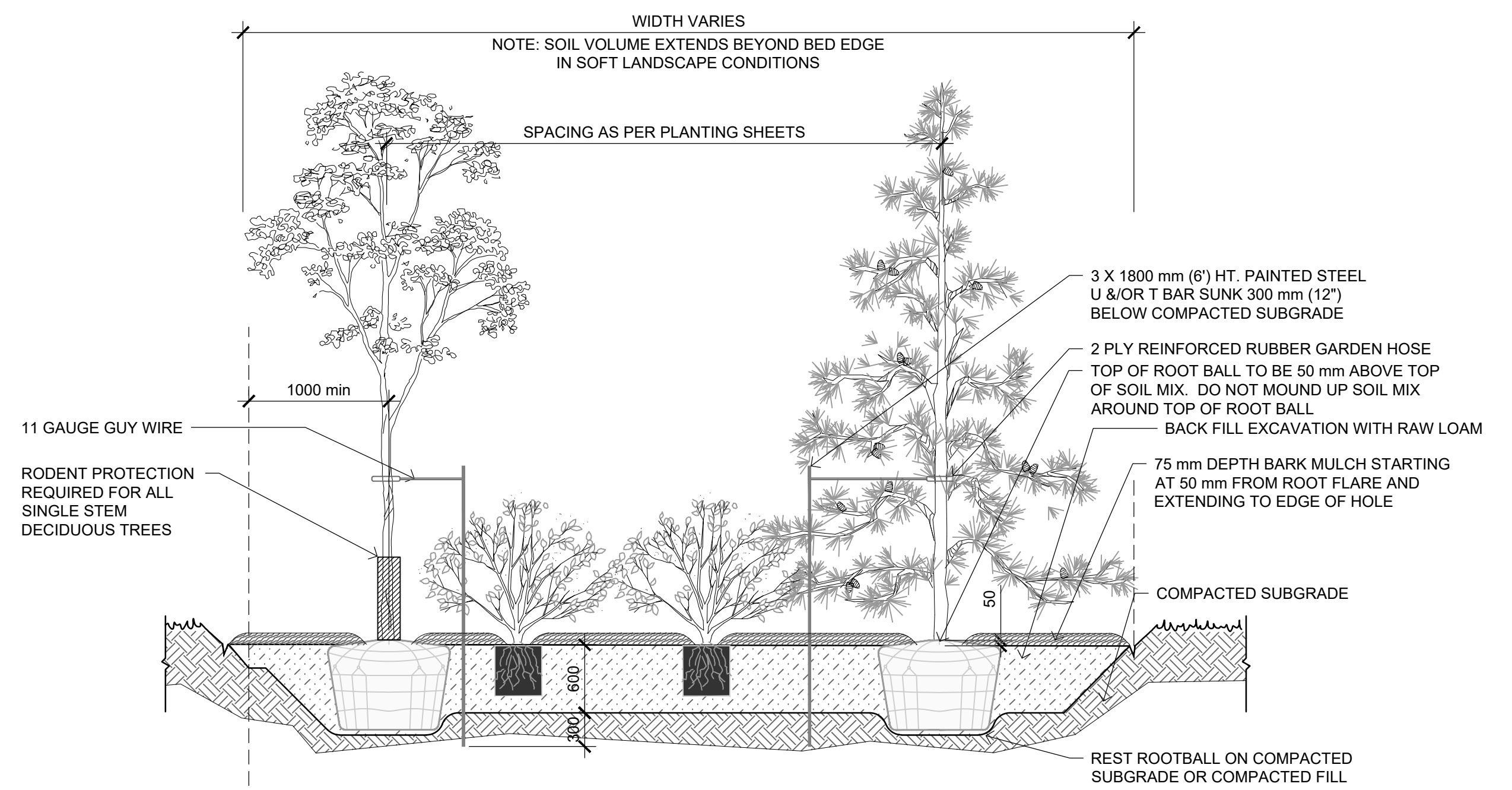
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 20 - MICHICHI CREEK WEST BERM
PLANTING SCHEDULES & NOTES

Project No. **133142** Drawing No. **L-406** Rev. **0**
 Group **LANDSCAPE**



A STANDARD TREE PLANTING
L-901 SCALE 1:20



B MIXED PLANTING BED WITH MULCH
L-901 SCALE 1:40



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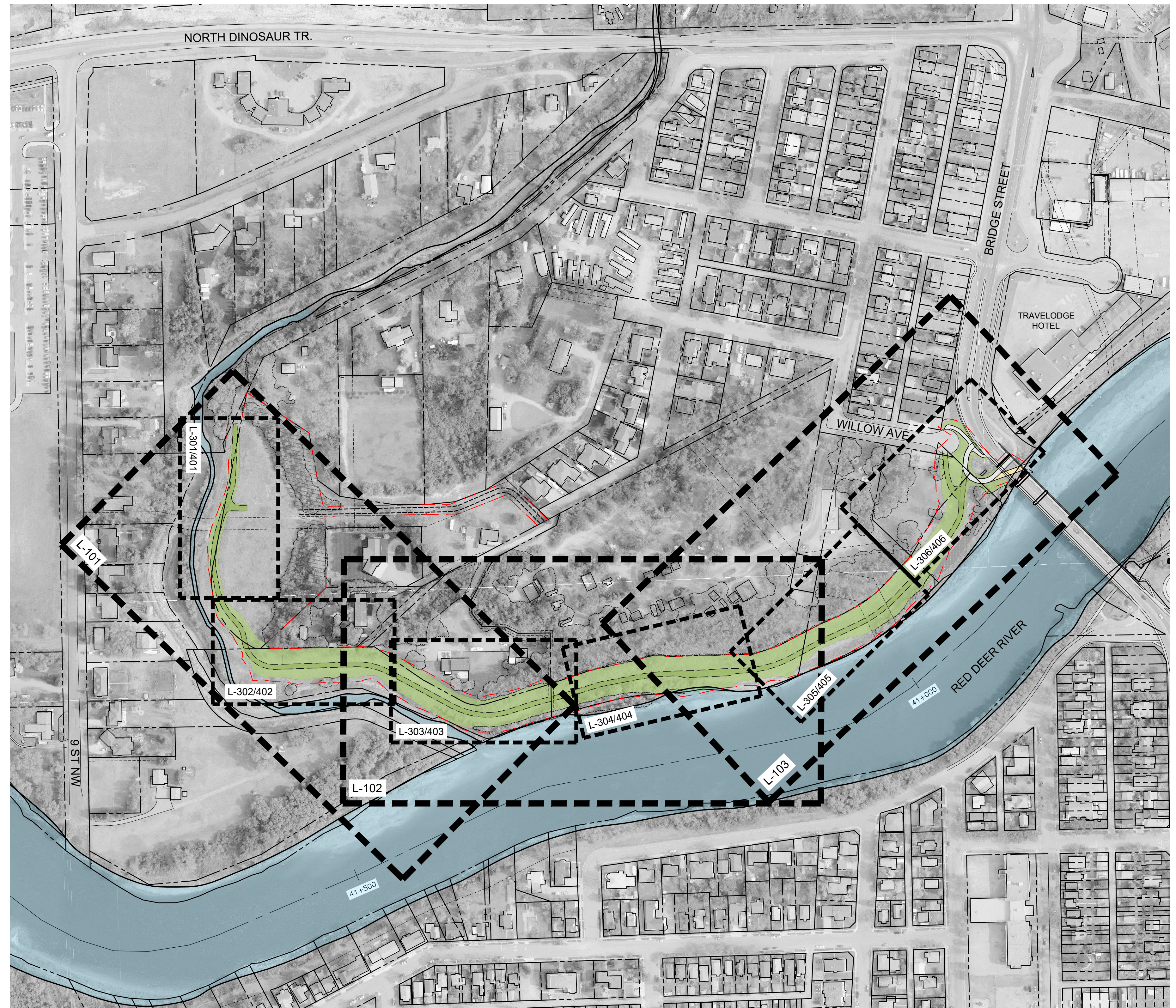
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Project No.	133142	Drawing No.	
Group	LANDSCAPE		
			L-901 0

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NORTH DRUMHELLER FLOOD IMPROVEMENTS DIVISION 30 - MICHICHI CREEK EAST BERM LANDSCAPE TENDER PACKAGE

DRAWING LIST

DRAWING NO.	DRAWING TITLE
L-100	LANDSCAPE COVER SHEET & KEY PLAN
L-101	LANDSCAPE MASTER PLAN
L-102	LANDSCAPE MASTER PLAN
L-103	LANDSCAPE MASTER PLAN
L-201	TREE CLEARING PLAN
L-202	TREE CLEARING PLAN
L-203	TREE CLEARING PLAN
L-204	TREE CLEARING NOTES
L-301	LAYOUT & GRADING PLAN
L-302	LAYOUT & GRADING PLAN
L-303	LAYOUT & GRADING PLAN
L-304	LAYOUT & GRADING PLAN
L-305	LAYOUT & GRADING PLAN
L-306	LAYOUT & GRADING 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 SCHEDULES & NOTES
L-901	LANDSCAPE DETAILS



PLAN
Scale 1:2000



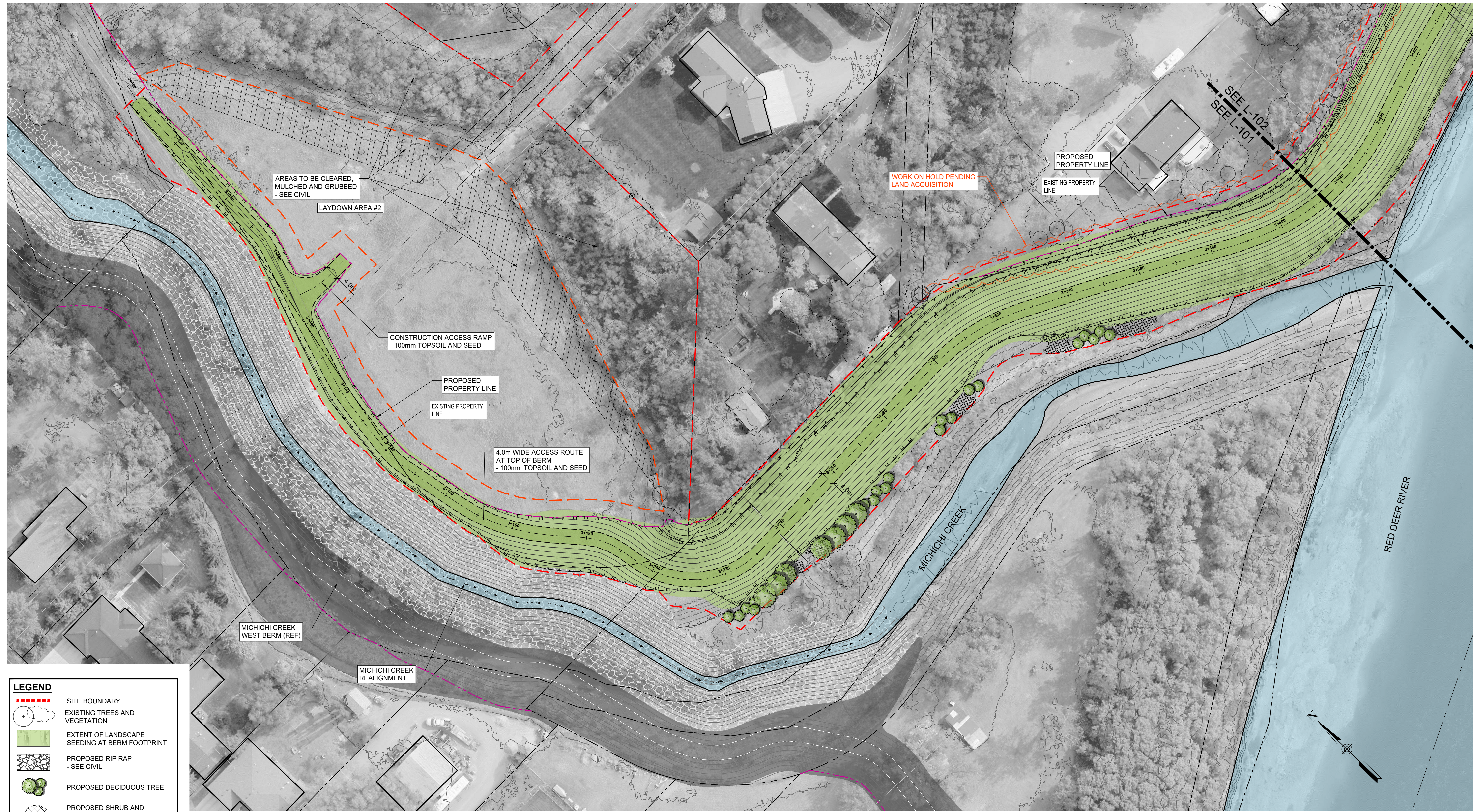
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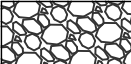


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DIVISION 30 - MICHICHI CREEK EAST BERM
LANDSCAPE COVER SHEET & KEY PLAN

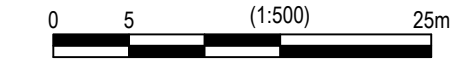
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Group **LANDSCAPE**



LEGEND

-  SITE BOUNDARY
-  EXISTING TREES AND VEGETATION
-  EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
-  PROPOSED RIP RAP - SEE CIVIL
-  PROPOSED DECIDUOUS TREE
-  PROPOSED SHRUB AND SEEDLING PLANTING BEDS

PLAN
Scale: 1:500



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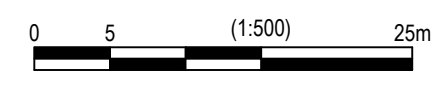
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DIVISION 30 - MICHICHI CREEK EAST BERM
LANDSCAPE MASTER PLAN

Project No. **133142** Drawing No. **L-101** Rev. **0**
Group **LANDSCAPE**



PLAN
Scale 1:500



LEGEND

	SITE BOUNDARY
	EXISTING TREES AND VEGETATION
	EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
	PROPOSED RIP RAP - SEE CIVIL
	PROPOSED DECIDUOUS TREE
	PROPOSED SHRUB AND SEEDLING PLANTING BEDS



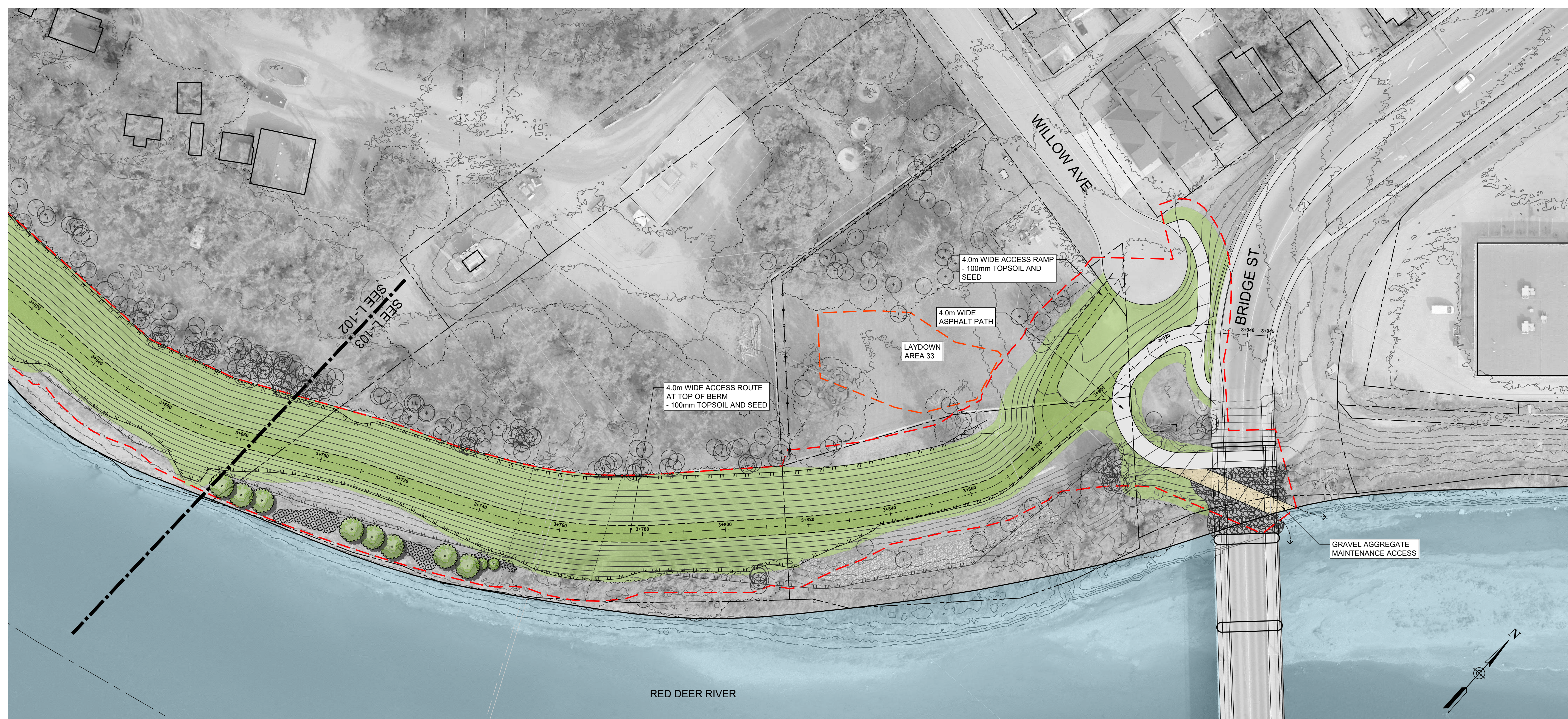
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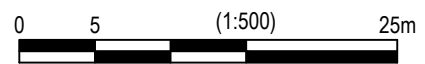
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DIVISION 30 - MICHICHI CREEK EAST BERM			
LANDSCAPE MASTER PLAN			
Project No.	133142	Drawing No.	
Group	LANDSCAPE		L-102
			0



LEGEND

- - - - SITE BOUNDARY
- EXISTING TREES AND VEGETATION
- EXTENT OF LANDSCAPE SEEDING AT BERM FOOTPRINT
- PROPOSED RIP RAP - SEE CIVIL
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS

PLAN
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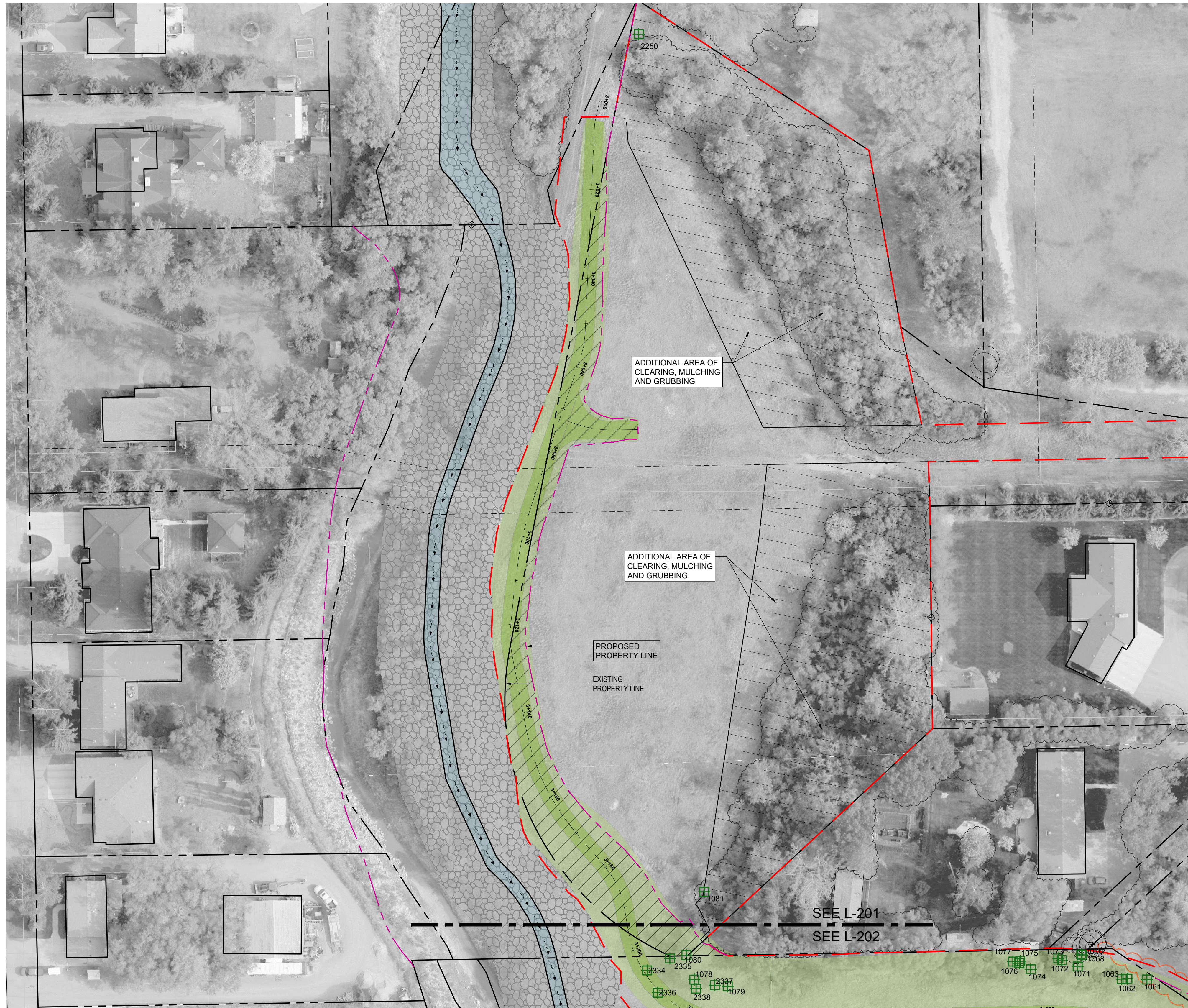
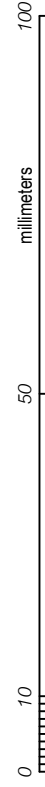
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LANDSCAPE MASTER PLAN

Project No. **133142** Drawing No. **L-103** Rev. **0**
 Group **LANDSCAPE**



LEGEND	
	LIMIT OF CONSTRUCTION BOUNDARY
	EXISTING TREE TO REMAIN
	TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
	TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION
	RECENT AND PROPOSED FUTURE TOWN LAND ACQUISITION
	AREA OF TREES AND BRUSH TO BE CLEARED



PLAN
 Scale 1:500



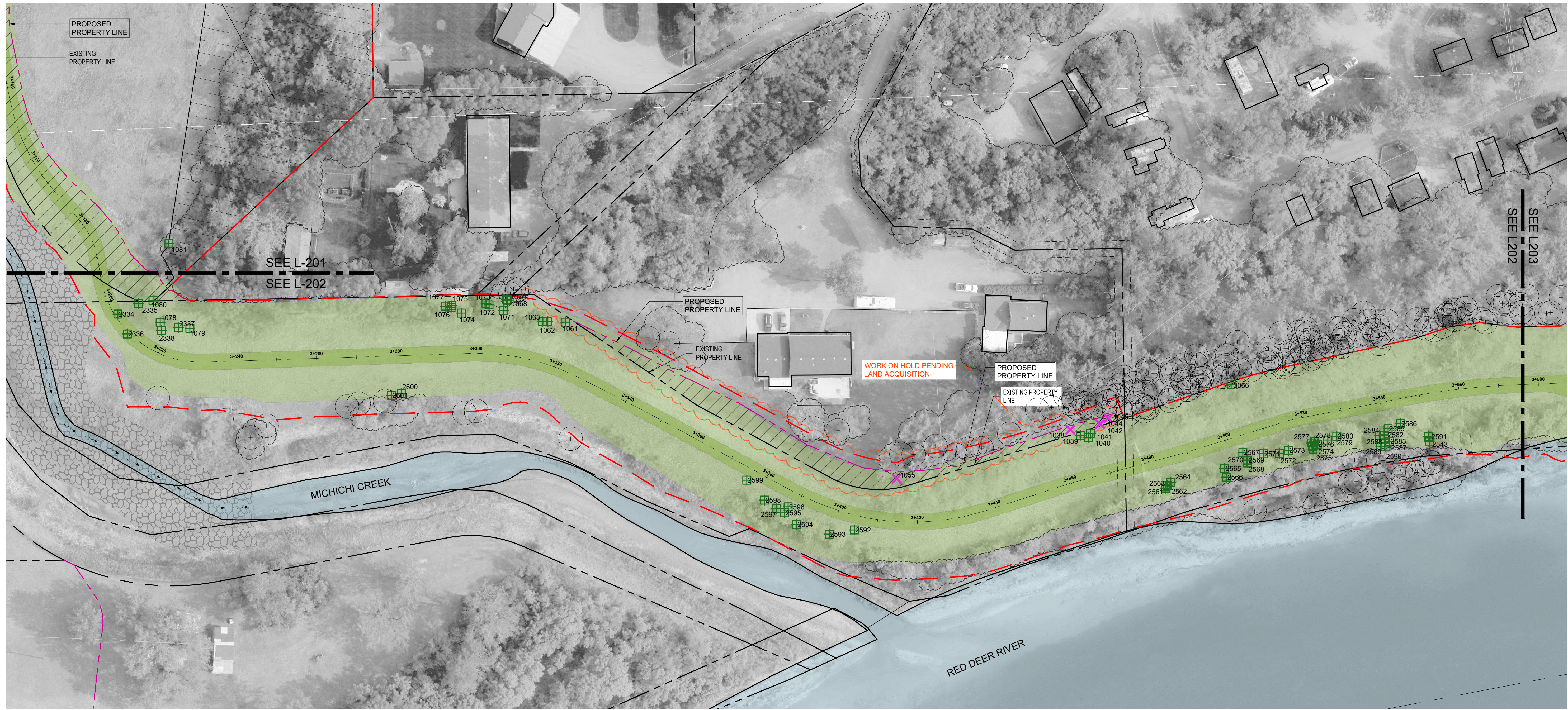
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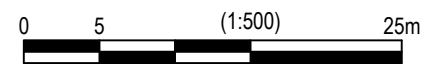
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Rev	Date	Des	Dwn	Chk	Description	Rev	Date	Des	Dwn	Chk	Description
0	2023-11-09	KM	MD	EW	ISSUED FOR TENDER						

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE NORTH DRUMHELLER FLOOD IMPROVEMENTS		
DIVISION 30 - MICHICHI CREEK EAST BERM TREE CLEARING PLAN		
Project No.	133142	Drawing No.
Group	LANDSCAPE	Rev.
		L-201
		0



PLAN
 Scale 1:500



LEGEND	
	LIMIT OF CONSTRUCTION BOUNDARY
	EXISTING TREE TO REMAIN
	TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
	TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION
	RECENT AND PROPOSED FUTURE TOWN LAND ACQUISITION
	AREA OF TREES AND BRUSH TO BE CLEARED



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
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DIVISION 30 - MICHICHI CREEK EAST BERM
TREE CLEARING PLAN

Project No. **133142** Drawing No. **L-202** Rev. **0**
 Group **LANDSCAPE**



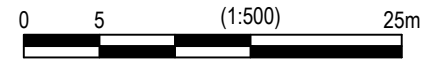
TREES PREVIOUSLY REMOVED
 IN 2023 SCHEDULE C CONTRACT

SEE L203
 SEE L202

LEGEND

- - - LIMIT OF CONSTRUCTION BOUNDARY
- + EXISTING TREE TO REMAIN
- ✕ TREES ON PRIVATE LAND TO BE CLEARED FOR BERM CONSTRUCTION
- + TREES ON PUBLIC LAND TO BE CLEARED FOR BERM CONSTRUCTION
- RECENT AND PROPOSED FUTURE TOWN LAND ACQUISITION

PLAN
 Scale 1:500



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**DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
 NORTH DRUMHELLER FLOOD IMPROVEMENTS**

**DIVISION 30 - MICHICHI CREEK EAST BERM
 TREE CLEARING PLAN**

Project No. **133142** Drawing No. **L-203** Rev. **0**
 Group **LANDSCAPE**

MICHICHI CREEK EAST BERM - TREES TO BE REMOVED

1000 SERIES: TREE SURVEY AS PER RANGELAND SURVEY, JANUARY 2022. EXTERNAL TREE HEALTH UNASSESSED AT THIS TIME, ASSUME HEALTHY.

2000 SERIES: TREE SURVEY RECEIVED FROM TOWN OF DRUMHELLER, OCTOBER 2022.

3000 SERIES: RIVERGROVE CAMPGROUND TREE SURVEY MAY 2022. EXTERNAL TREE HEALTH UNASSESSED AT THIS TIME, ASSUME HEALTHY.

TOTAL TREES TO BE REMOVED*: 100

- TREES ON PUBLIC LANDS: 95
- TREES ON RECENT OR PROPOSED LAND ACQUISITIONS BY TOWN: 4
- TREES ON PRIVATE LANDS: 1

* TOTAL TREES REMOVED WITH FAIR, GOOD OR VERY GOOD HEALTH (RATINGS 1-3)

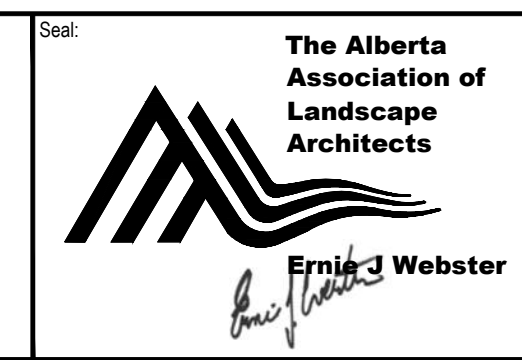
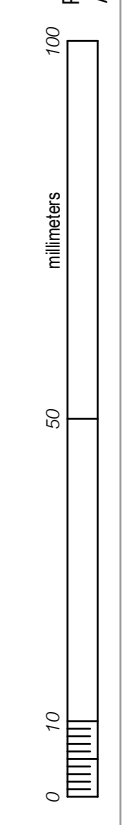
TOTAL TREES TO BE REMOVED (ALL HEALTH RATINGS) = 102

Tree ID	Species	DBH (cm)	Height (m)	Health	Public/Private
1008	Ash Species	6.8	6		Public
1015	Manitoba Maple	17.8	11		Public
1016	Manitoba Maple	10	7		Public
1017	Poplar Species	6.5	5		Public
1038	Manitoba Maple	5.5	5		Private
1039	Manitoba Maple	7.5	5		Public
1040	Ash Species	8.9	9		Public
1041	Ash Species	11.2	6		Public
1042	Manitoba Maple	19.2	9		Private
1044	Manitoba Maple	16.2	8		Private
1045	Manitoba Maple	21	8		Private
1055	Cottonwood	80.3	15		Private
1061	Poplar Species	6.9	6		Public
1062	Poplar Species	11.4	8		Public
1063	Poplar Species	14.9	8		Public
1068	Willow Species	23.3	11		Public
1070	Willow Species	22.9	11		Public
1071	Willow Species	18.6	10		Public
1072	Willow Species	21	11		Public
1073	Willow Species	21	11		Public
1074	Willow Species	10.8	8		Public
1075	Willow Species	7.8	9		Public
1076	Willow Species	25.5	10		Public
1077	Willow Species	15.2	9		Public
1078	Willow Species	9.9	8		Public
1079	Poplar Species	23.6	14		Public
1080	Poplar Species	43.5	14		Public
1081	Poplar Species	10.5	7		Public

Tree ID	Species	DBH (cm)	Height (m)	Health	Public/Private
2250	Manitoba Maple	20.5	7	3	Public
2334	Eastern cottonwood	44	13	2	Public
2335	Manitoba maple	27.2	10	3	Public
2336	Balsam poplar	11.6	6	3	Public
2337	Eastern cottonwood	28.6	12	1	Public
2338	Eastern cottonwood	24.9	12	1	Public
2490	Manitoba maple	21.7	9	1	Public
2495	Manitoba maple	10.8	8	1	Public
2496	Manitoba maple	24.8	10	2	Public
2497	Manitoba maple	22.9	12	1	Public
2498	Manitoba maple	26.1	13	2	Public
2499	Manitoba maple	7.5	5	1	Public
2500	Manitoba maple	8.5	5	2	Public
2503	Manitoba maple	31.2	12	1	Public
2504	Manitoba maple	36.5	13	2	Public
2505	Manitoba maple	37.4	13	2	Public
2506	Manitoba maple	23.6	13	2	Public
2507	Manitoba maple	24	11	3	Public
2508	Manitoba maple	19	10	3	Public
2509	Manitoba maple	21.1	10	1	Public
2510	Manitoba maple	34	12	2	Public
2511	Manitoba maple	9.1	5	2	Public
2512	Manitoba maple	38.8	10	2	Public
2513	Manitoba maple	29.3	13	2	Public
2514	Manitoba maple	9.8	6	2	Public
2515	Manitoba maple	36.7	12	3	Public
2516	Manitoba maple	13.9	8	1	Public
2527	Manitoba maple	17.6	6	2	Public
2529	Manitoba maple	18.7	7	3	Public
2530	Manitoba maple	14	8	2	Public
2533	White ash	12.5	8	1	Public

*25 TREES PREVIOUSLY REMOVED IN 2023 SCHEDULE C TREE REMOVAL CONTRACT

Tree ID	Species	DBH (cm)	Height (m)	Health	Public/Private
2540	Eastern cottonwood	43.7	13	1	Public
2541	Eastern cottonwood	23.8	10	3	Public
2542	Eastern cottonwood	65.5	16	3	Public
2543	Manitoba maple	12.8	8	2	Public
2561	White ash	10.6	6	1	Public
2562	White ash	5.6	7	3	Public
2563	White ash	7.4	5	1	Public
2564	White ash	6.5	5	1	Public
2565	Manitoba maple	16	10	2	Public
2566	Manitoba maple	21.1	11	2	Public
2567	Manitoba maple	17.4	11	1	Public
2568	Manitoba maple	19.2	12	1	Public
2569	Manitoba maple	13.8	12	1	Public
2570	Manitoba maple	13.5	12	1	Public
2571	Manitoba maple	18.4	11	2	Public
2572	Manitoba maple	10.7	10	1	Public
2573	Manitoba maple	11	10	1	Public
2574	Manitoba maple	20.6	11	1	Public
2575	Manitoba maple	9	7	1	Public
2576	Manitoba maple	8	6	1	Public
2577	Manitoba maple	18.1	11	1	Public
2578	Manitoba maple	18.4	12	1	Public
2579	Manitoba maple	12	12	2	Public
2580	Manitoba maple	20.5	11	2	Public
2582	Manitoba maple	28.2	9	4	Public
2583	Manitoba maple	25.5	12	1	Public
2584	Manitoba maple	17.5	11	1	Public
2585	Manitoba maple	18.8	11	2	Public
2586	Manitoba maple	17.5	9	1	Public
2587	Manitoba maple	29	13	4	Public
2588	Manitoba maple	14.5	11	2	Public
2589	Manitoba maple	12.5	10	1	Public
2590	Manitoba maple	23.2	13	2	Public
2591	Manitoba maple	22.6	12	2	Public
2592	Manitoba maple	9.2	5	1	Public
2593	Manitoba maple	10.3	7	1	Public
2594	Manitoba maple	9.2	7	2	Public
2595	Manitoba maple	12	9	1	Public
2596	Manitoba maple	8	7	2	Public
2597	Manitoba maple	11.2	8	1	Public
2598	Manitoba maple	7.9	6	1	Public
2599	Manitoba maple	5.5	5	1	Public
2600	Manitoba maple	12.3	7	1	Public
2601	Manitoba maple	11	7	1	Public
3066	Ash Species	45			Public



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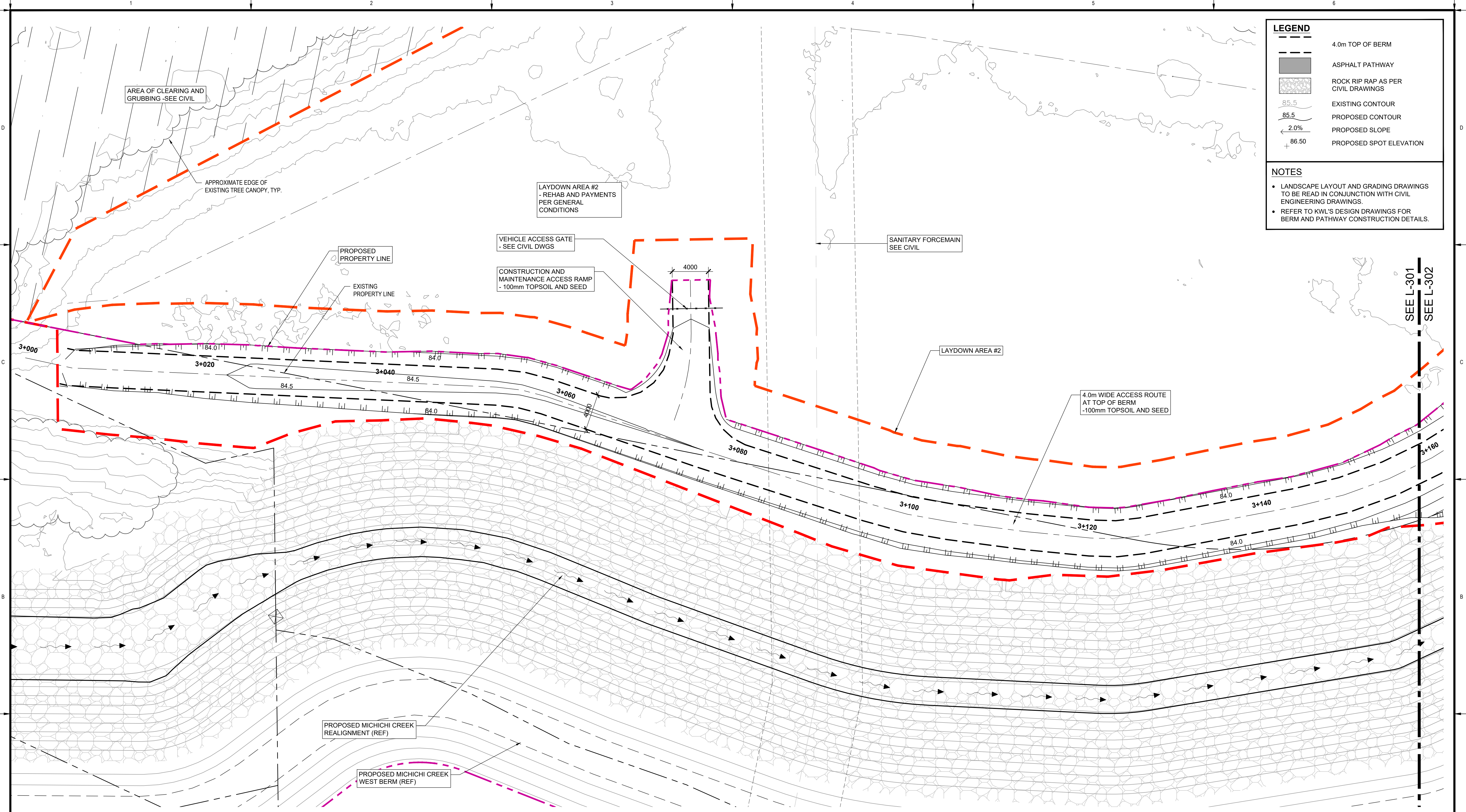
DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 30 - MICHICHI CREEK EAST BERM
TREE CLEARING NOTES

Project No. 133142
Group LANDSCAPE
Drawing No. L-204
Rev. 0

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170
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millimeters



LEGEND

	4.0m TOP OF BERM
	ASPHALT PATHWAY
	ROCK RIP RAP AS PER CIVIL DRAWINGS
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SLOPE
	PROPOSED SPOT ELEVATION

- NOTES**
- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
 - REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

PLAN
Scale 1:200

0 5 10m (1:200)



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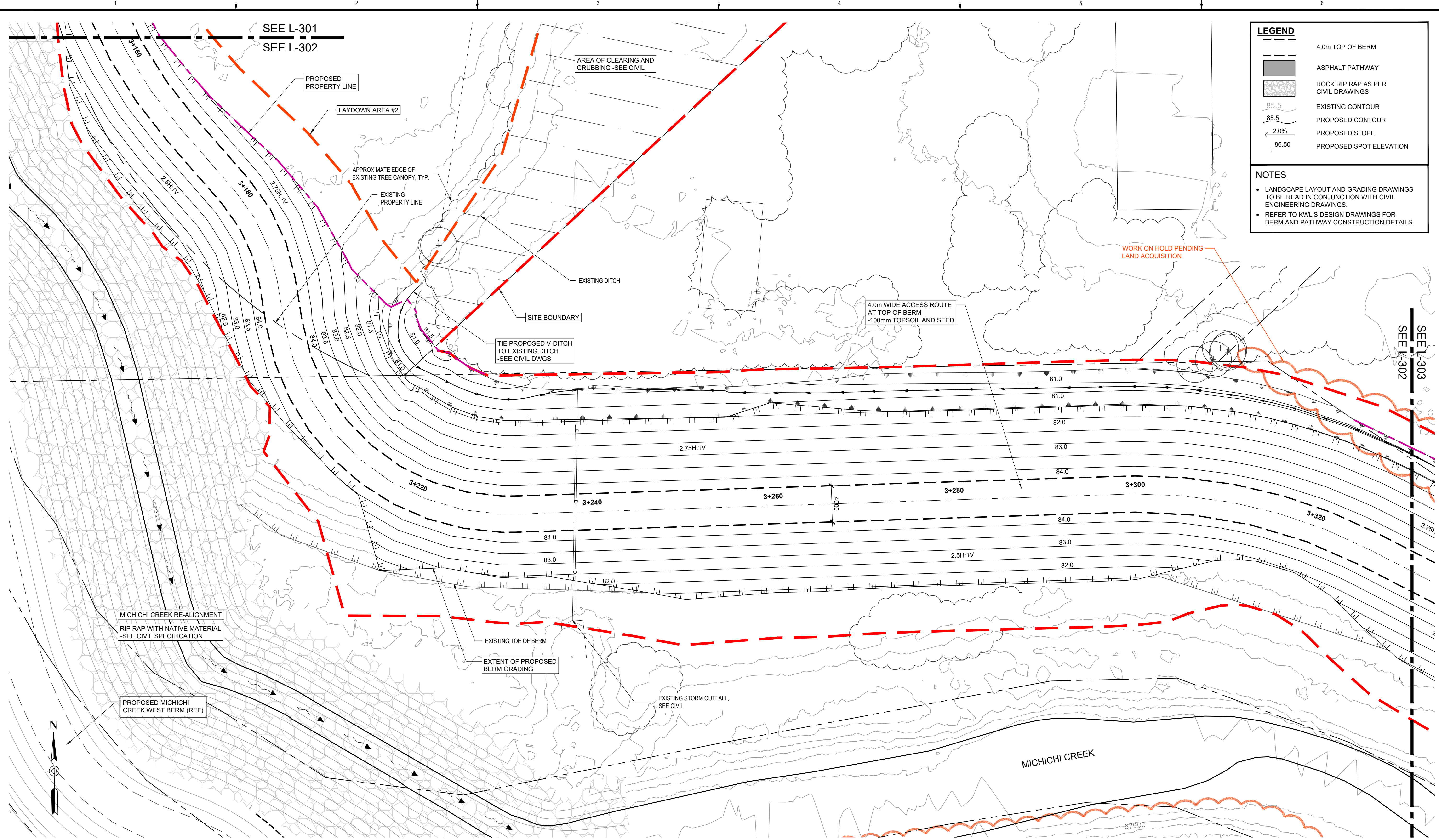
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS

DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-301** Rev. **0**

Group **LANDSCAPE**



LEGEND

- 4.0m TOP OF BERM
- ASPHALT PATHWAY
- ROCK RIP RAP AS PER CIVIL DRAWINGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- 2.0% PROPOSED SLOPE
- 86.50 PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

PLAN
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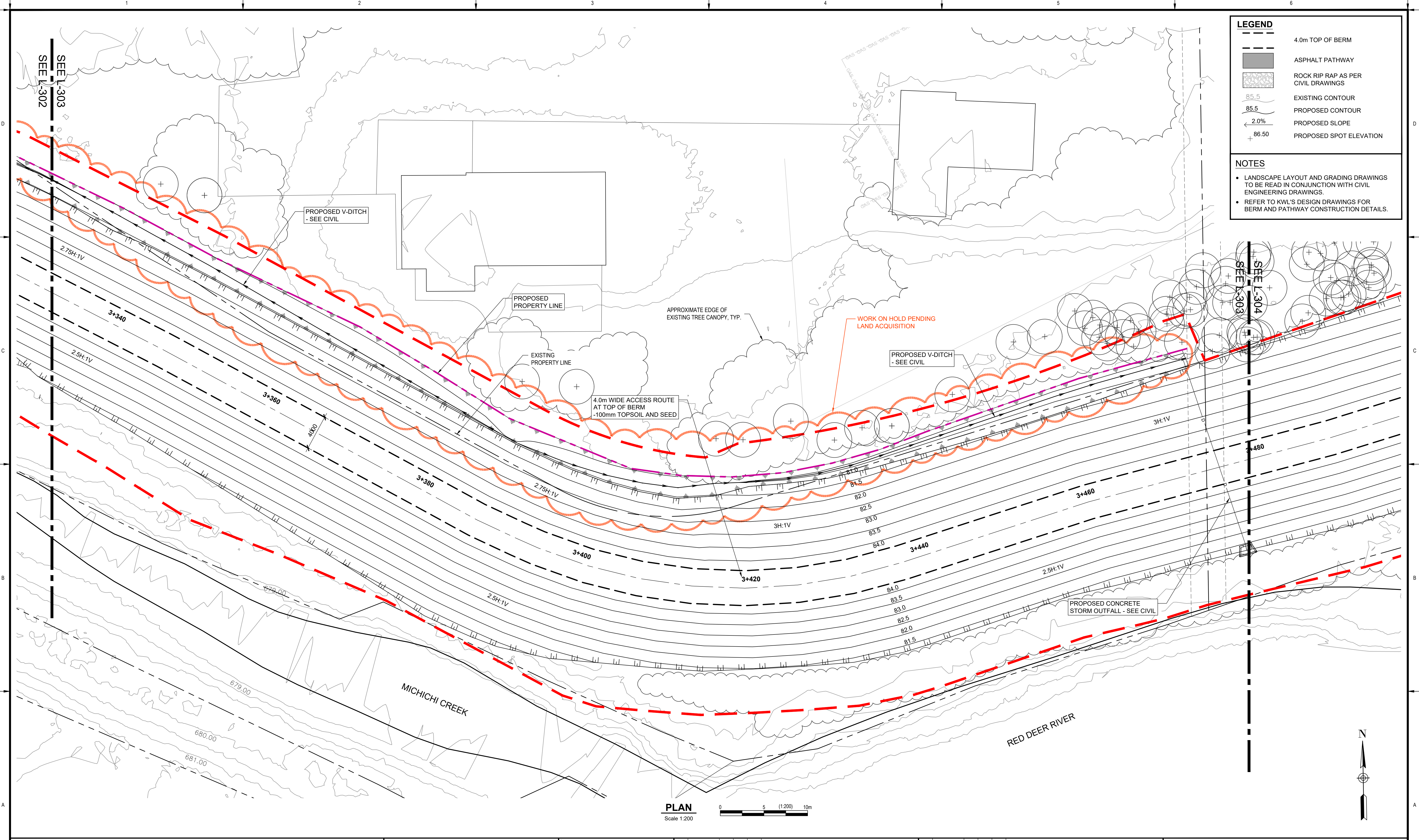
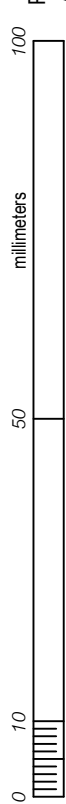
Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. 133142 Drawing No. L-302 Rev. 0
 Group LANDSCAPE

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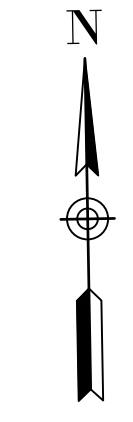
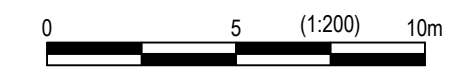
LEGEND

- 4.0m TOP OF BERM
- ASPHALT PATHWAY
- ROCK RIP RAP AS PER CIVIL DRAWINGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

PLAN
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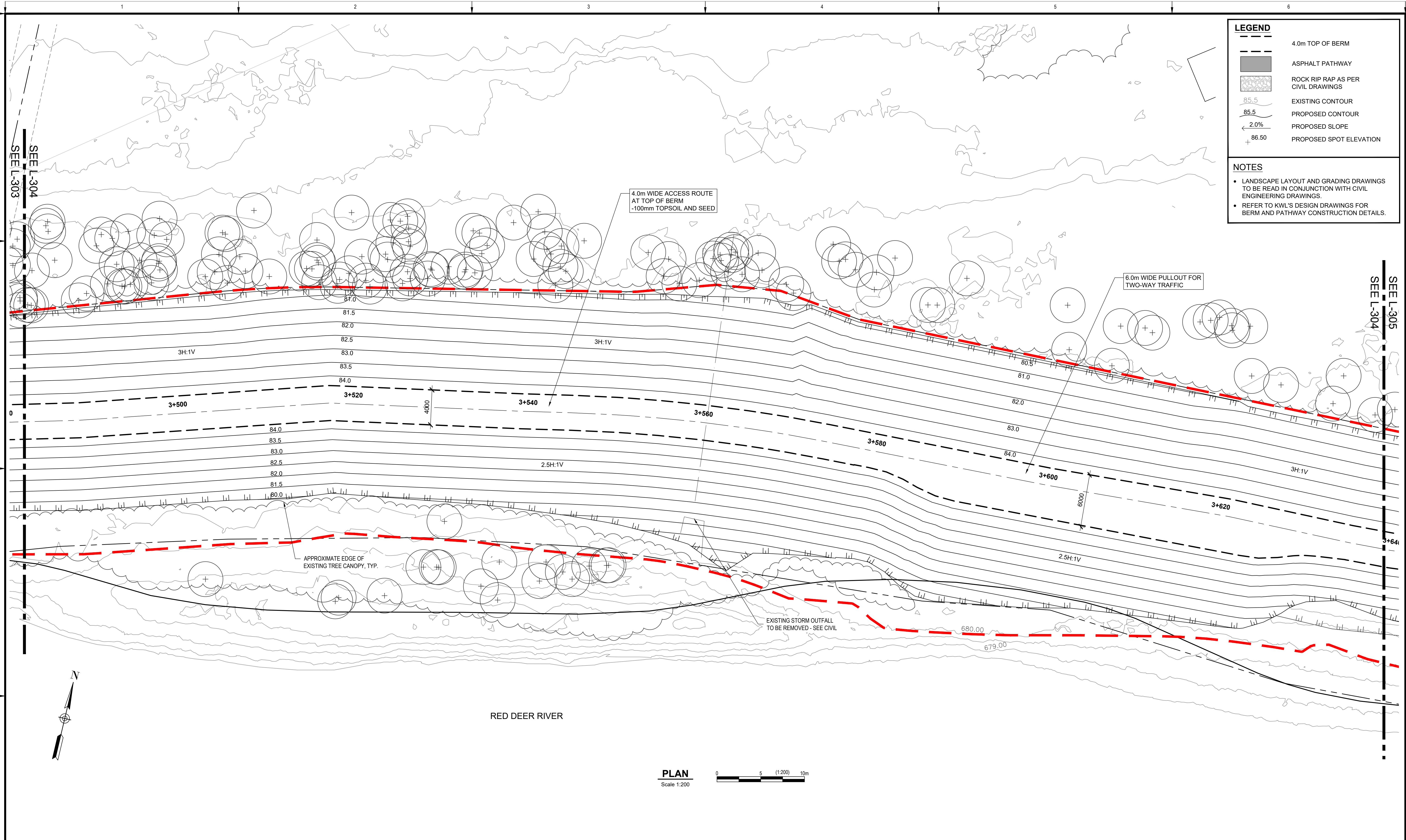
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DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. 133142 Drawing No. L-303 Rev. 0

Group LANDSCAPE



LEGEND

- 4.0m TOP OF BERM
- ASPHALT PATHWAY
- ROCK RIP RAP AS PER CIVIL DRAWINGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

PLAN
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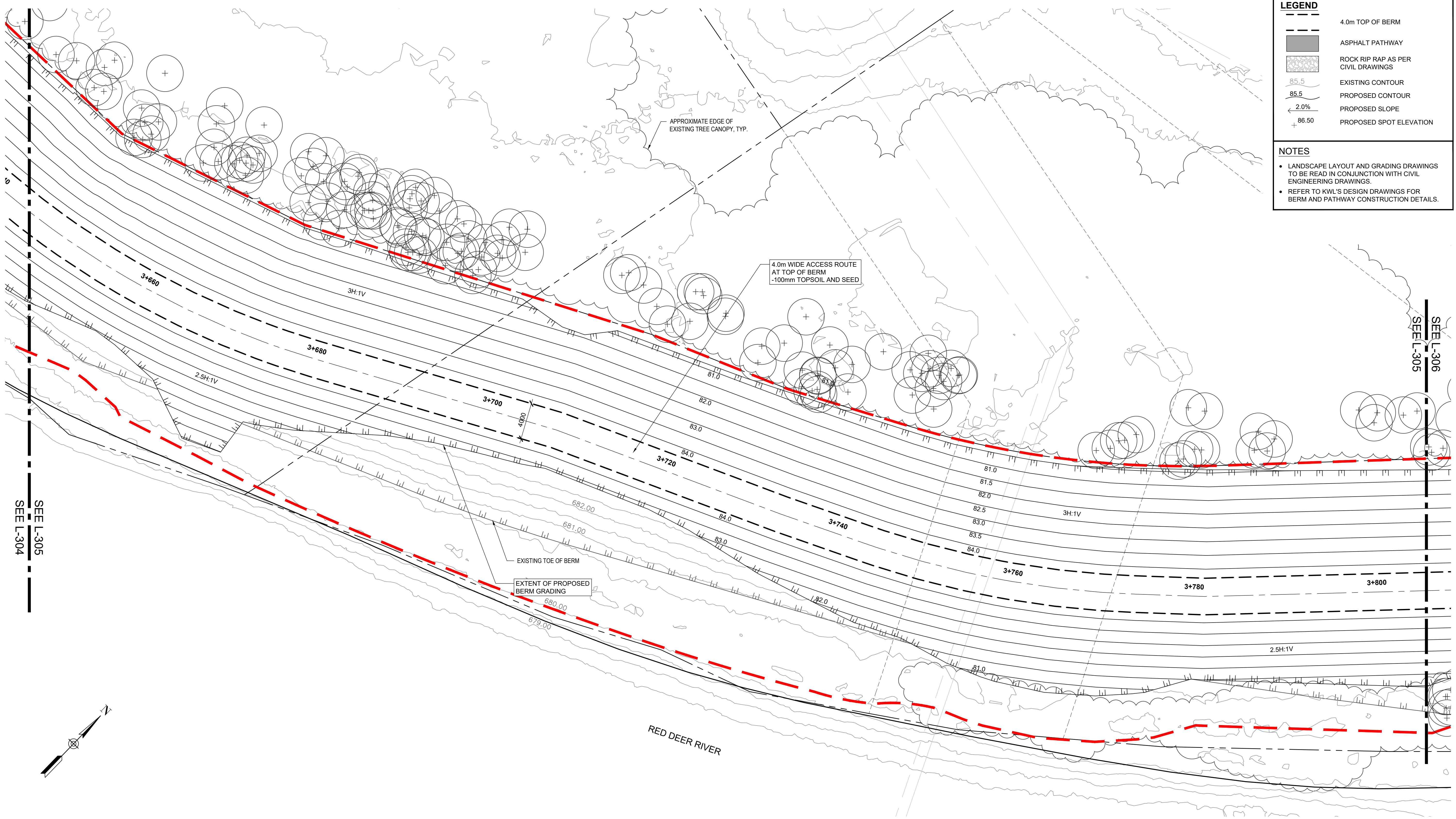
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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. 133142 Drawing No. L-304 Rev. C
 Group LANDSCAPE

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LEGEND

- 4.0m TOP OF BERM
- ASPHALT PATHWAY
- ROCK RIP RAP AS PER CIVIL DRAWINGS
- 85.5 EXISTING CONTOUR
- 85.5 PROPOSED CONTOUR
- 2.0% PROPOSED SLOPE
- 86.50 PROPOSED SPOT ELEVATION

NOTES

- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
- REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

SEE L-304

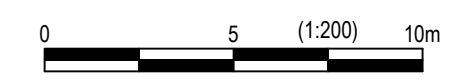
SEE L-305

SEE L-305

SEE L-306

RED DEER RIVER

PLAN
Scale 1:200



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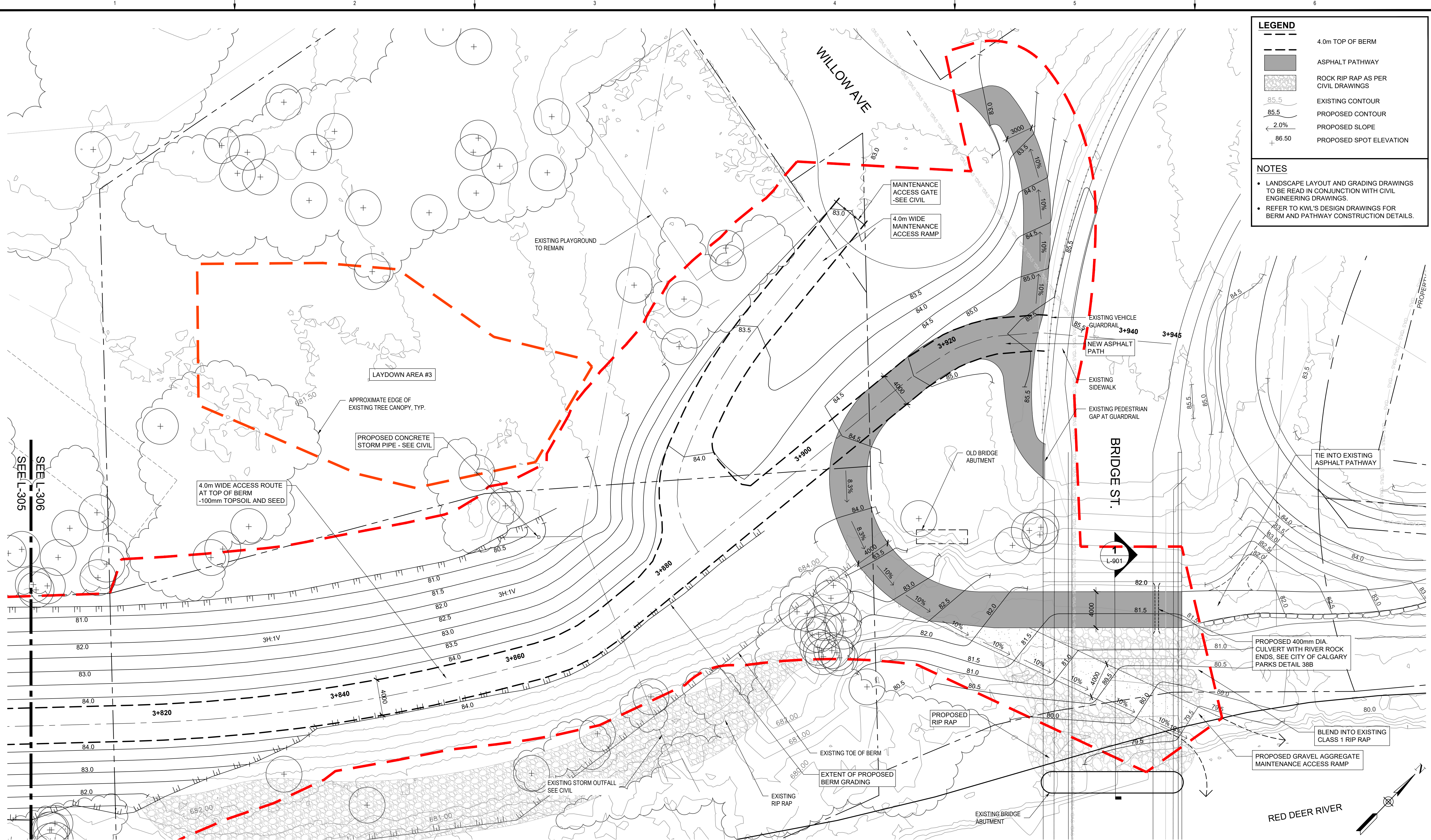
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DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-305** Rev. **0**
Group **LANDSCAPE**



LEGEND

- 4.0m TOP OF BERM
- ASPHALT PATHWAY
- ROCK RIP RAP AS PER CIVIL DRAWINGS
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION

- NOTES**
- LANDSCAPE LAYOUT AND GRADING DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL ENGINEERING DRAWINGS.
 - REFER TO KWL'S DESIGN DRAWINGS FOR BERM AND PATHWAY CONSTRUCTION DETAILS.

PLAN
Scale 1:200



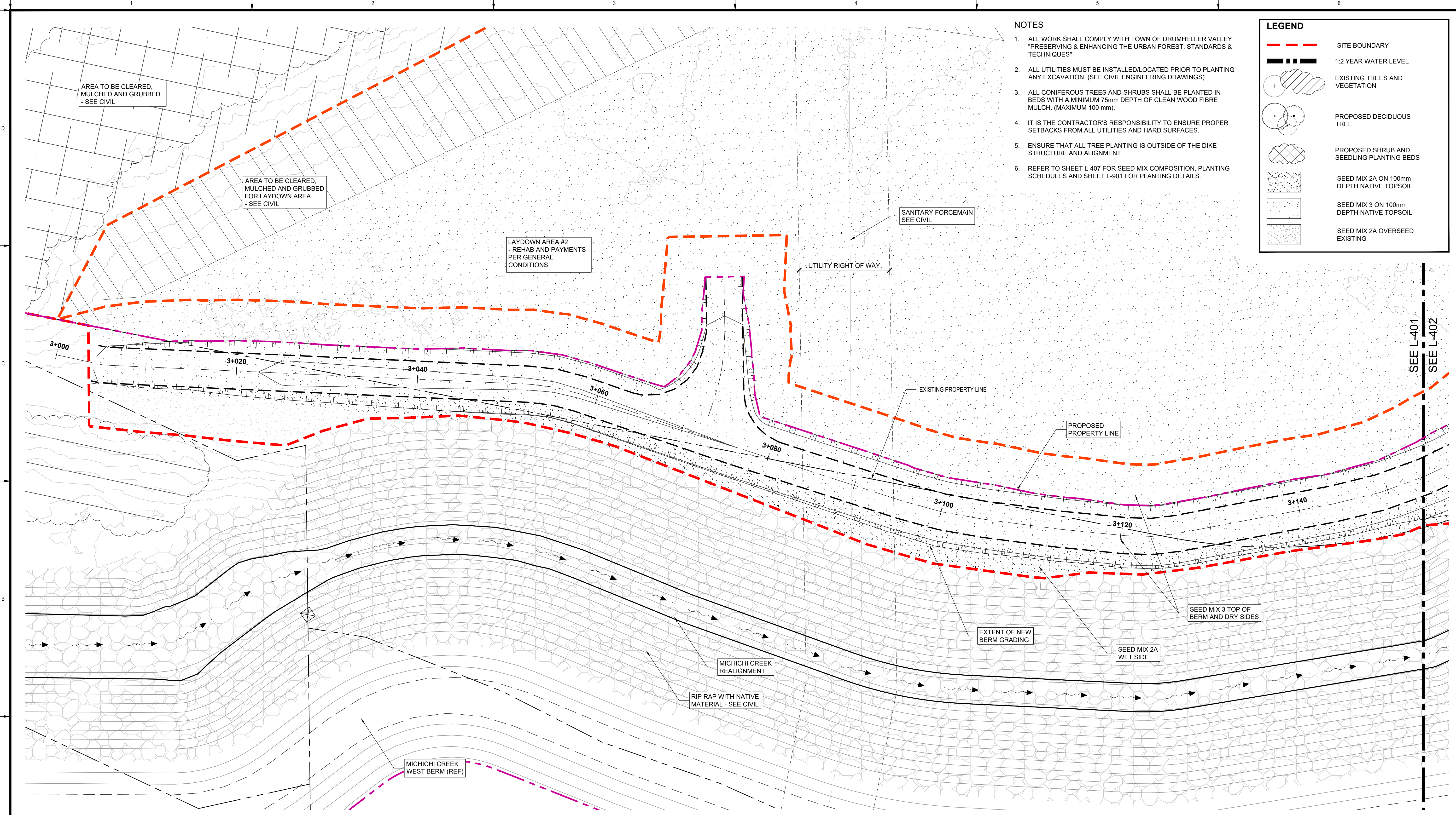
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DIVISION 30 - MICHICHI CREEK EAST BERM
LAYOUT & GRADING PLAN

Project No. 133142
Group LANDSCAPE
Drawing No. L-306
Rev. 0



NOTES

1. ALL WORK SHALL COMPLY WITH TOWN OF DRUMHELLER VALLEY "PRESERVING & ENHANCING THE URBAN FOREST: STANDARDS & TECHNIQUES"
2. ALL UTILITIES MUST BE INSTALLED/LOCATED PRIOR TO PLANTING ANY EXCAVATION. (SEE CIVIL ENGINEERING DRAWINGS)
3. ALL CONIFEROUS TREES AND SHRUBS SHALL BE PLANTED IN BEDS WITH A MINIMUM 75mm DEPTH OF CLEAN WOOD FIBRE MULCH. (MAXIMUM 100 mm).
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SETBACKS FROM ALL UTILITIES AND HARD SURFACES.
5. ENSURE THAT ALL TREE PLANTING IS OUTSIDE OF THE DIKE STRUCTURE AND ALIGNMENT.
6. REFER TO SHEET L-407 FOR SEED MIX COMPOSITION, PLANTING SCHEDULES AND SHEET L-901 FOR PLANTING DETAILS.

LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING

PLAN
Scale 1:200



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NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 30 - MICHICHI CREEK EAST BERM
PLANTING PLAN

Project No. 133142
Group LANDSCAPE
Drawing No. L-401
Rev. 0

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LEGEND

- SITE BOUNDARY
- - - 1:2 YEAR WATER LEVEL
- ⊕ EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- ⊗ PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- ▨ SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- ▩ SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- ▧ SEED MIX 2A OVERSEED EXISTING

PRIVATE PROPERTY

NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

WORK ON HOLD PENDING LAND ACQUISITION

PROPOSED V-DITCH AS PER CIVIL DWGS

5 MANITOBA MAPLE #15 POT

1 BALSAM POPLAR #15 POT

3 BALSAM POPLAR #15 POT

(30m²) SHRUB / SEEDLING MIXTURE:
12 CHOKECHERRY
12 BEAKED WILLOW
6 MANITOBA MAPLE
3+240

3 BLACK COTTONWOOD #15 POT

5 EASTERN COTTONWOOD #15 POT

SEED MIX 3 TOP OF BERM AND DRY SIDES

3+280

3 EASTERN COTTONWOOD #15 POT

(24m²) SHRUB / SEEDLING MIXTURE:
12 BALSAM POPLAR
12 RED OSIER DOGWOOD
2 MANITOBA MAPLE
#15 POT

(30m²) SHRUB / SEEDLING MIXTURE:
12 BUCKBRUSH
12 RED OSIER DOGWOOD
6 MANITOBA MAPLE

3+320

EXTENT OF NEW BERM GRADING

EXISTING TOE OF SLOPE

MICHICHI CREEK REALIGNMENT

RIP RAP WITH NATIVE MATERIAL - SEE CIVIL

TOE OF SLOPE

SEED MIX 2A WET SIDE

EXISTING RIPARIAN FOREST

SITE BOUNDARY LIMIT

EXTENT OF NEW BERM GRADING

EXISTING TOE OF SLOPE

PROPOSED MICHICHI CREEK WEST BERM (REF)

EXISTING STORM OUTFALL, SEE CIVIL

EXISTING PROPERTY LINE

1:2 YEAR WATER LEVEL

MICHICHI CREEK

PLAN

Scale 1:200



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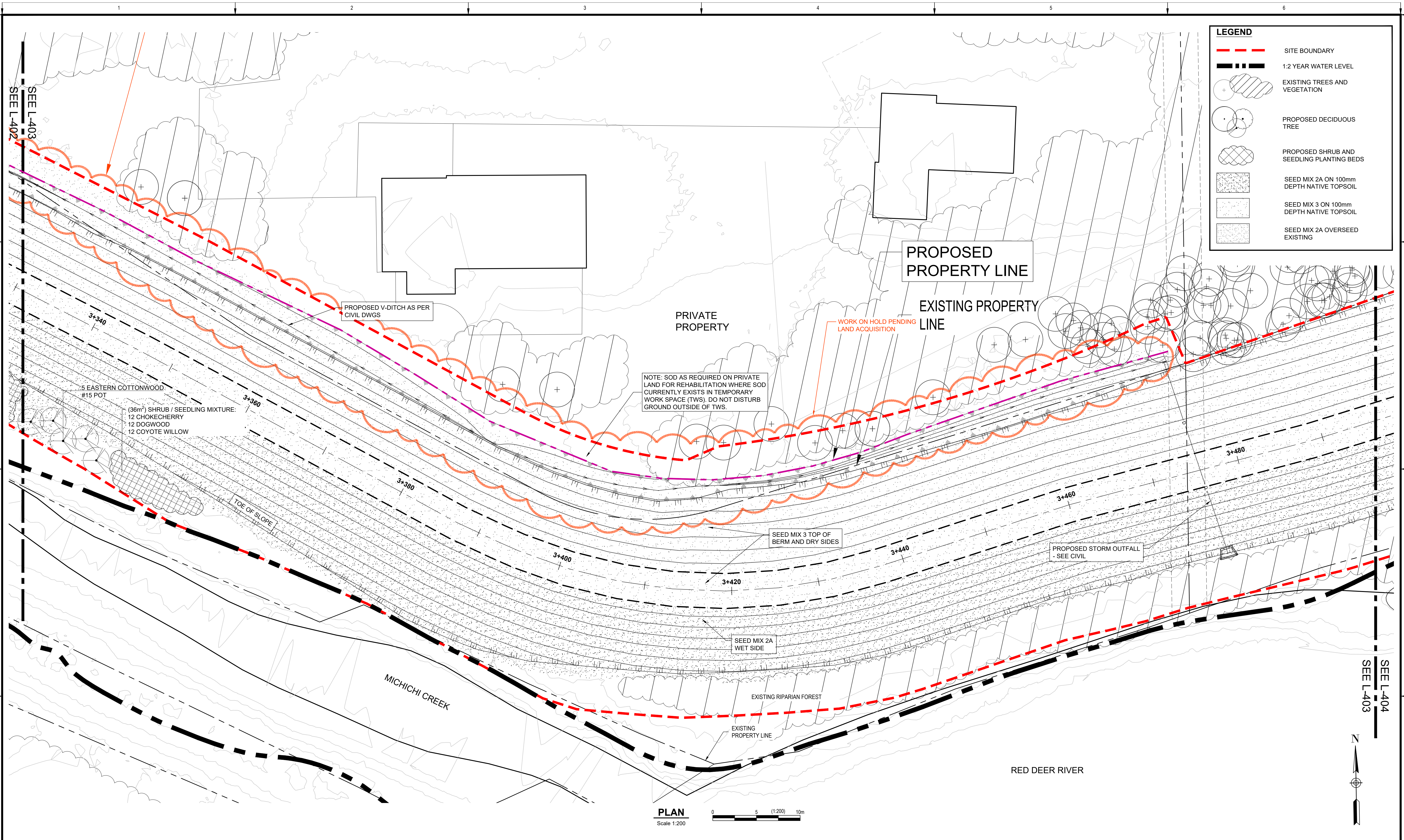
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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS

DIVISION 30 - MICHICHI CREEK EAST BERM PLANTING PLAN

Project No. 133142 Drawing No. L-402 Rev. 0

Group LANDSCAPE



LEGEND

- SITE BOUNDARY
- 1.2 YEAR WATER LEVEL
- ⊕ EXISTING TREES AND VEGETATION
- ⊕ PROPOSED DECIDUOUS TREE
- ⊕ PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING



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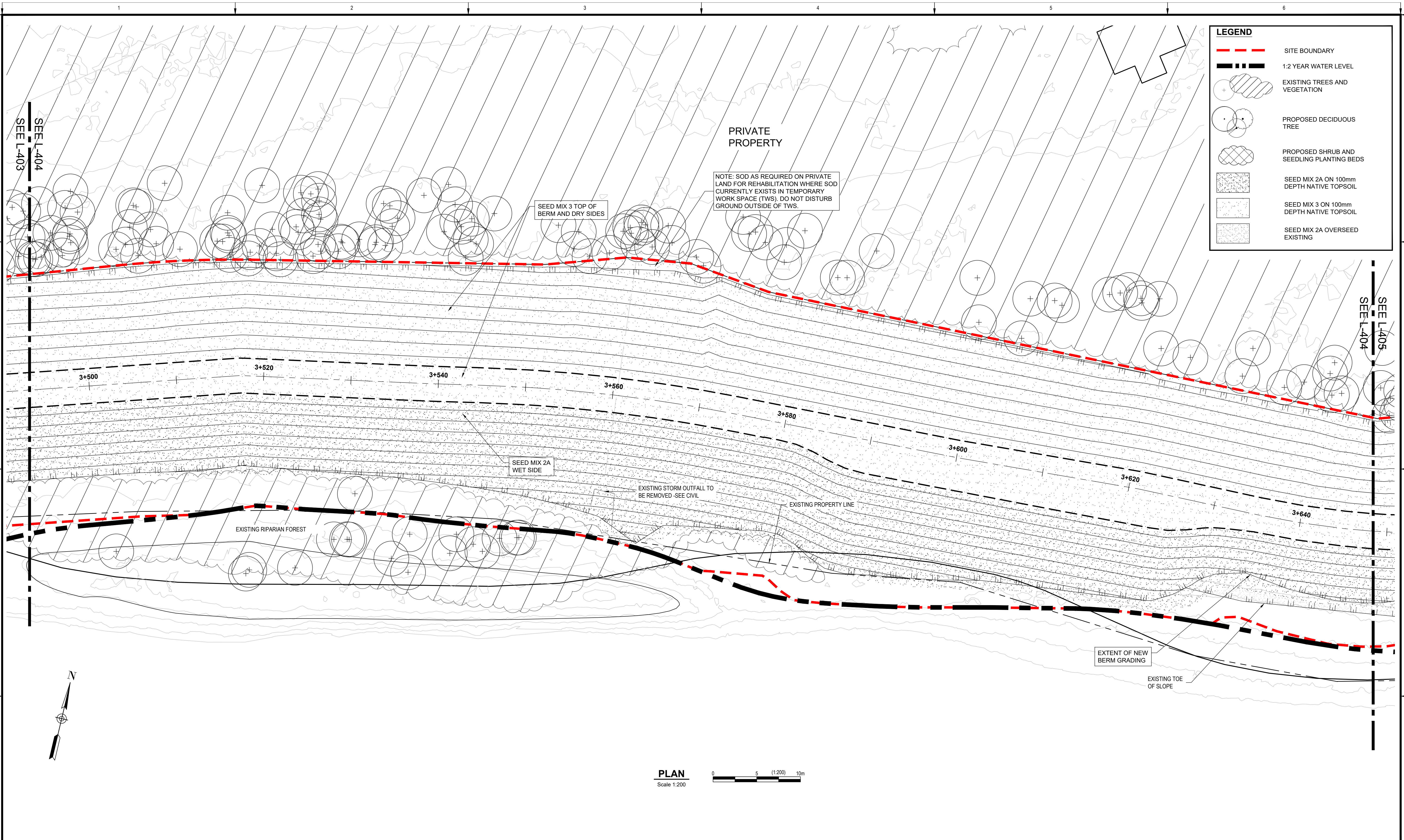
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DIVISION 30 - MICHICHI CREEK EAST BERM
PLANTING PLAN

Project No. 133142 Drawing No. L-403 Rev. 0
 Group LANDSCAPE



LEGEND	
	SITE BOUNDARY
	1.2 YEAR WATER LEVEL
	EXISTING TREES AND VEGETATION
	PROPOSED DECIDUOUS TREE
	PROPOSED SHRUB AND SEEDLING PLANTING BEDS
	SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
	SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
	SEED MIX 2A OVERSEED EXISTING

NOTE: SOD AS REQUIRED ON PRIVATE LAND FOR REHABILITATION WHERE SOD CURRENTLY EXISTS IN TEMPORARY WORK SPACE (TWS). DO NOT DISTURB GROUND OUTSIDE OF TWS.

SEED MIX 3 TOP OF BERM AND DRY SIDES

SEED MIX 2A WET SIDE

EXISTING STORM OUTFALL TO BE REMOVED - SEE CIVIL

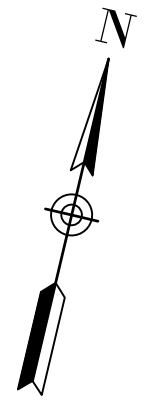
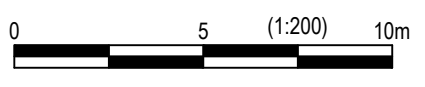
EXISTING PROPERTY LINE

EXISTING RIPARIAN FOREST

EXTENT OF NEW BERM GRADING

EXISTING TOE OF SLOPE

PLAN
 Scale 1:200



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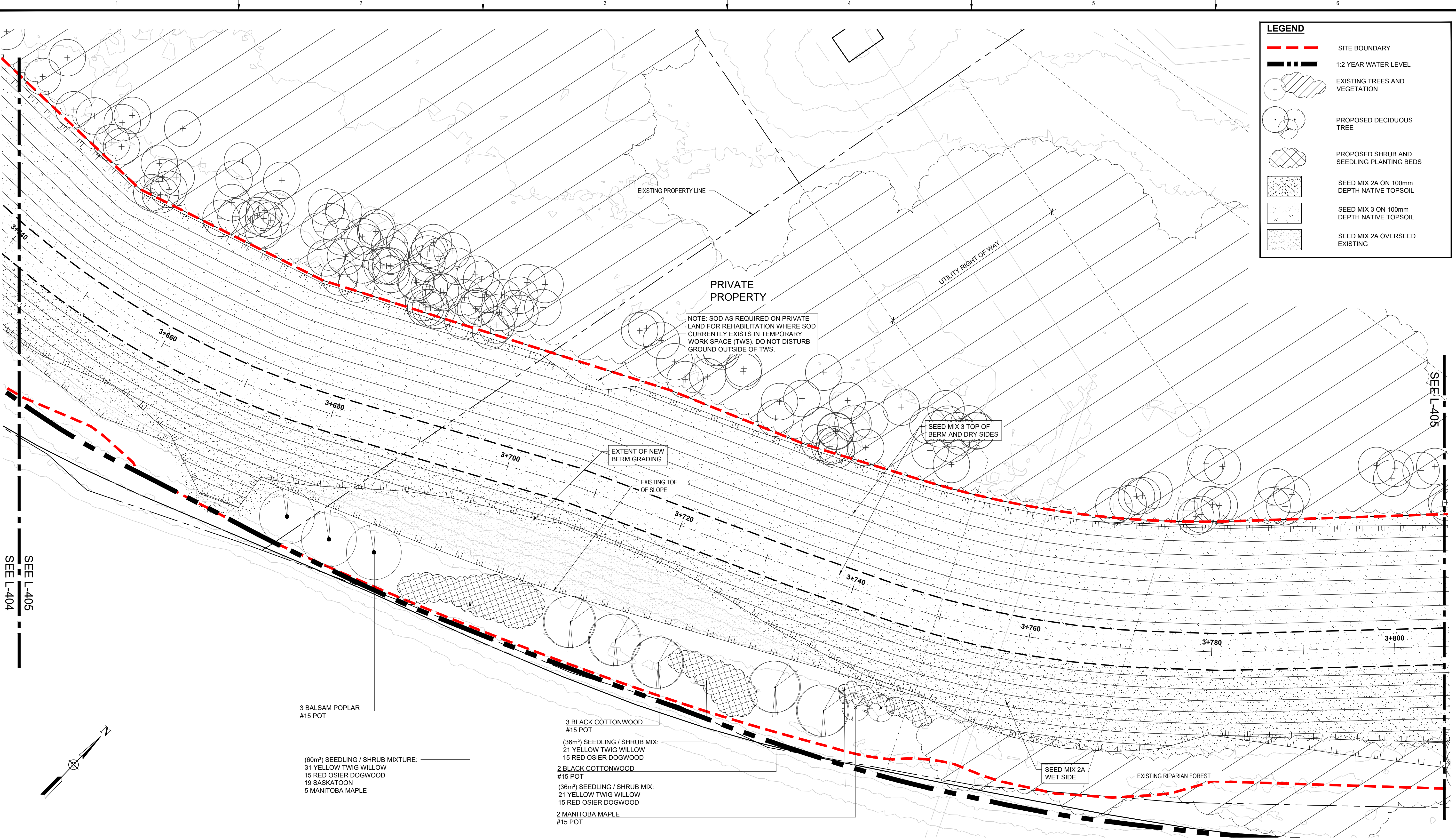
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PLANTING PLAN

Project No. 133142 Drawing No. L-404 Rev. 0
 Group LANDSCAPE



PLAN
Scale 1:200

SEE L-404

SEE L-405

SEE L-405



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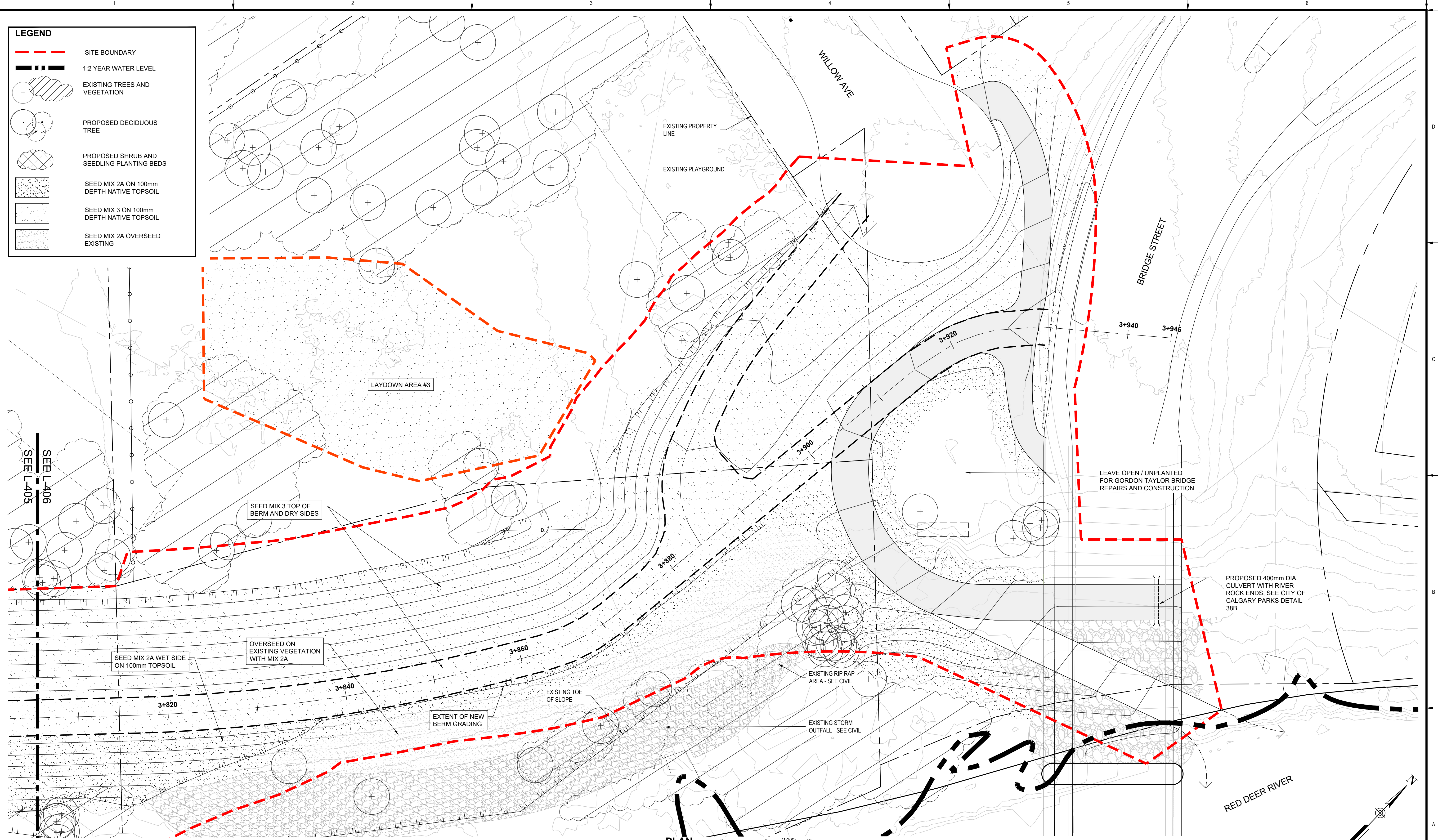
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DIVISION 30 - MICHICHI CREEK EAST BERM
PLANTING PLAN

Project No. 133142
Group LANDSCAPE
Drawing No. L-405
Rev. 0

LEGEND

- SITE BOUNDARY
- 1:2 YEAR WATER LEVEL
- EXISTING TREES AND VEGETATION
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB AND SEEDLING PLANTING BEDS
- SEED MIX 2A ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 3 ON 100mm DEPTH NATIVE TOPSOIL
- SEED MIX 2A OVERSEED EXISTING



SEE L-406
SEE L-405

SEED MIX 2A WET SIDE ON 100mm TOPSOIL

OVERSEED ON EXISTING VEGETATION WITH MIX 2A

SEED MIX 3 TOP OF BERM AND DRY SIDES

LAYDOWN AREA #3

EXTENT OF NEW BERM GRADING

EXISTING TOE OF SLOPE

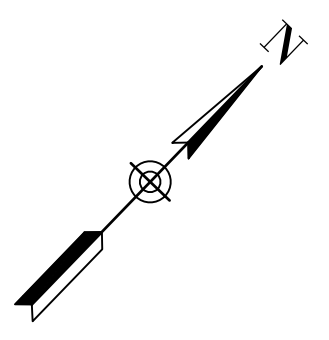
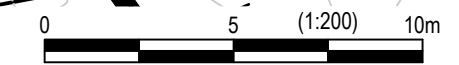
EXISTING RIP RAP AREA - SEE CIVIL

EXISTING STORM OUTFALL - SEE CIVIL

LEAVE OPEN / UNPLANTED FOR GORDON TAYLOR BRIDGE REPAIRS AND CONSTRUCTION

PROPOSED 400mm DIA. CULVERT WITH RIVER ROCK ENDS. SEE CITY OF CALGARY PARKS DETAIL 38B

PLAN
Scale 1:200



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
NORTH DRUMHELLER FLOOD IMPROVEMENTS
DIVISION 30 - MICHICHI CREEK EAST BERM
PLANTING PLAN

Project No. **133142** Drawing No. **L-406** Rev. **0**
Group **LANDSCAPE**

PLANT SCHEDULE - PUBLIC LANDS

DECIDUOUS TREES	COMMON NAME	SIZE	QTY
ACER NEGUNDO	MANITوبا MAPLE	#15 POT	9
POPULUS BALSAMIFERA	BALSAM POPLAR	#15 POT	7
POPULUS BALSAMIFERA TRICHOCARPA	BLACK COTTONWOOD	#15 POT	8
POPULUS DELTOIDES	EASTERN COTTONWOOD	#15 POT	13

TOTAL: 37

SHRUBS	COMMON NAME	SIZE	QTY
AMALANCHIER ALNIFOLIA	SASKATOON	#2 POT	43
CORNUS SERICEA	RED OSIER DOGWOOD	#2 POT	54
CORNUS SERICEA 'FLAVIRAMEA'	YELLOW TWIG WILLOW	#2 POT	52
PRUNUS VIRGINIANA	CHOKECHERRY	#2 POT	24
SALIX BEBBIANA	BEAKED WILLOW	#2 POT	12
SALIX EXIGUA	COYOTE WILLOW	#2 POT	20
SYMPHORICARPOS OCCIDENTALIS 'BUCKBRUSH'	BUCKBRUSH	#2 POT	12

TOTAL: 217

DECIDUOUS TREES - SEEDLINGS	COMMON NAME	SIZE	QTY
ACER NEGUNDO	MANITوبا MAPLE	SEEDLING	18
POPULUS BALSAMIFERA	BALSAM POPLAR	SEEDLING	12

TOTAL: 30

NOTES

- 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
- ANY PROPOSED ALTERNATE PLANT MATERIALS SHOULD COME FROM THE LIST ABOVE AND BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ORDERING.

PLANT SCHEDULE - PRIVATE LANDS

DECIDUOUS TREES	COMMON NAME	SIZE	QTY
ORNAMENTAL TREE (SPECIES TO BE DETERMINED)	TBD	#15 POT	5

NOTES

- ALL TREE PLANTING REPLACEMENTS ON PRIVATE PROPERTY TO BE COORDINATED WITH OWNER FOR SPECIES, SITE ACCESS, AND SCHEDULING. ASSUME NO MACHINE ACCESS AND NO ONGOING MAINTENANCE REQUIRED.

PLANTING STRATEGY

Michichi East Berm	No. Trees Removed	Qty. to be Planted on Public Lands	Qty. to be Planted on Private Lands	Total Trees/Shrubs Required
Public Lands	95	475	0	
Private Lands	5	20	5	
Total Required		495	5	500

As per the Town of Drumheller "Preserving and Enhancing The Urban Forest Standards and Techniques", where:

- Public Lands 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 on Public Lands.
- Private Lands a 5:1 ratio of planting replacement is specified, for every 1 fair, good, or very good tree that is removed, 1 trees/shrubs will be planted on Private Lands and 4 trees/shrubs will be planted on Public Lands.

PUBLIC PLANTING BREAKDOWN	QTY	COMPOSITION
Med - Large Trees (60-70mm Cal.)	0	0%
Container Grown Trees	37	13%
Tree Seedlings	29	10%
Shrubs / Shrub Seedlings	217	77%
Total Provided	283	
Total Required	495	
Net Planting Amount	-212	

PRIVATE PLANTING BREAKDOWN	QTY	COMPOSITION
Container Grown Trees	5	100%
Total Provided	5	
Total Required	5	
Net Planting Amount	0	

**THE MICHICHI CREEK VEGETATED RIP RAP PLANTING TO BE COUNTED TOWARDS THE REPLACEMENT RATIO, SEE SHEET C-540 FOR DETAILS

PLANTING NOTES

- 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.
- 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.
- 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.
- 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 AFTER THE COMPLETION OF THE DIKE GRADING. 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.
- ENSURE ALL TREES AND SHRUBS ARE INSTALLED OUTSIDE OF DIKE EXTENTS - REFER TO CIVIL DRAWINGS, TYP.
- 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.
- 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.
- DISTURBANCES TO ADJACENT AREAS SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
- EROSION CONTROL MATTING REQUIRED ON ALL SLOPES STEEPER THAN 3:1 THAT ARE INDICATED TO BE SEEDED.
 - SLOPES > 3:1 AND < 2:1 :
 - S150 STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
 - SLOPES > 2:1 :
 - SC150 COCONUT AND STRAW FIBRE EROSION CONTROL MATTING WITH BIODEGRADABLE STAKES. REFER TO MANUFACTURERS SPECIFICATIONS FOR STAKING PATTERN.
- ALL DEVELOPMENT AND CONSTRUCTION ACTIVITIES WITHIN 6 METERS OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST.
- ALL PRUNING OF EXISTING VEGETATION MUST BE SUPERVISED BY AN ISA CERTIFIED ARBORIST.

SEEDING NOTES

- 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.
- SOW AT THE RATE INDICATED WITH SEED MIXES, DURING CALM WEATHER AND WHEN SOIL MOISTURE CONTENT IS ADEQUATE FOR GERMINATION.
- 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. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- FOR STEEPER THAN 2:1 SLOPES OR SLOPES THAT ARE NOT EASILY ACCESSIBLE USE MANUALLY OPERATED BROADCAST SEEDER. HYDROMULCH IMMEDIATELY AFTER SEED IS PLACED.
- 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.
- COVER BROADCASTED SEED BY HAND RAKING AND ATV HARROWING-IN.
- OPTIMAL SEEDING PERIODS FOR NATIVE GRASSES:
 - MID TO LATE MAY, EARLY JUNE - NO LATER THAN JUNE 15TH.
 - 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.
- 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.
- APPLY WATER UNIFORMLY TO SEEDED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS AND TOPSOIL.
- MINIMIZE TRAVEL ON SEEDED SURFACES.
- USE WATERING EQUIPMENT AND TECHNIQUES AUTHORIZED BY THE OWNER.

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 - Wet Side Slope - Application rate of 58 kg / ha.

BOTANICAL NAME	COMMON NAME	TARGET COVER	% OF SEED MIX (PLS)	Kg REQUIRED (PLS)
Elymus lanceolatus / Agropyron dasystachyum	Northern Wheatgrass	15%	16%	9.30
Pascopyrum smithii / Agropyron smithii	Western Wheatgrass	20%	30%	17.36
Elymus trachycaulus / Agropyron trachycaulum var.	Slender Wheatgrass	10%	10%	5.97
Bouteloua gracilis	Blue Grama	10%	2%	0.88
Elymus canadensis	Canada Wildrye	10%	14%	8.30
Nassella viridula / Stipa viridula	Green Needlegrass	25%	27%	15.82
Koeleria macrantha	Junegrass	10%	1%	0.58

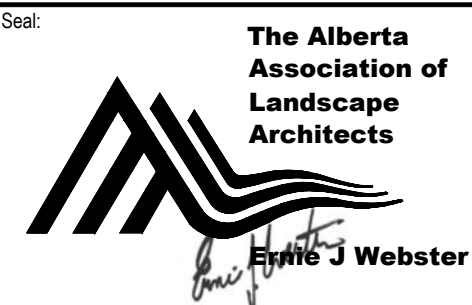
Cover Crop for Upland Seed Mix 2: Add a cover crop of Lolium multiflorum (Annual Ryegrass) at 5 kg / ha for entirety of Upland Seed Mix areas.

Seed Mix 3 - Top of Berm & Dry Side Slopes - 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.

NOTE: MIX 1 NOT ON DRAWINGS, WILL ONLY BE REQUIRED ON AN AS - NEEDED BASIS TO RESTORE AREAS DISTURBED BELOW THE 1:2 YEAR WATER MARK, SUCH AS THE INSTREAM RIPRAP LOCATIONS.

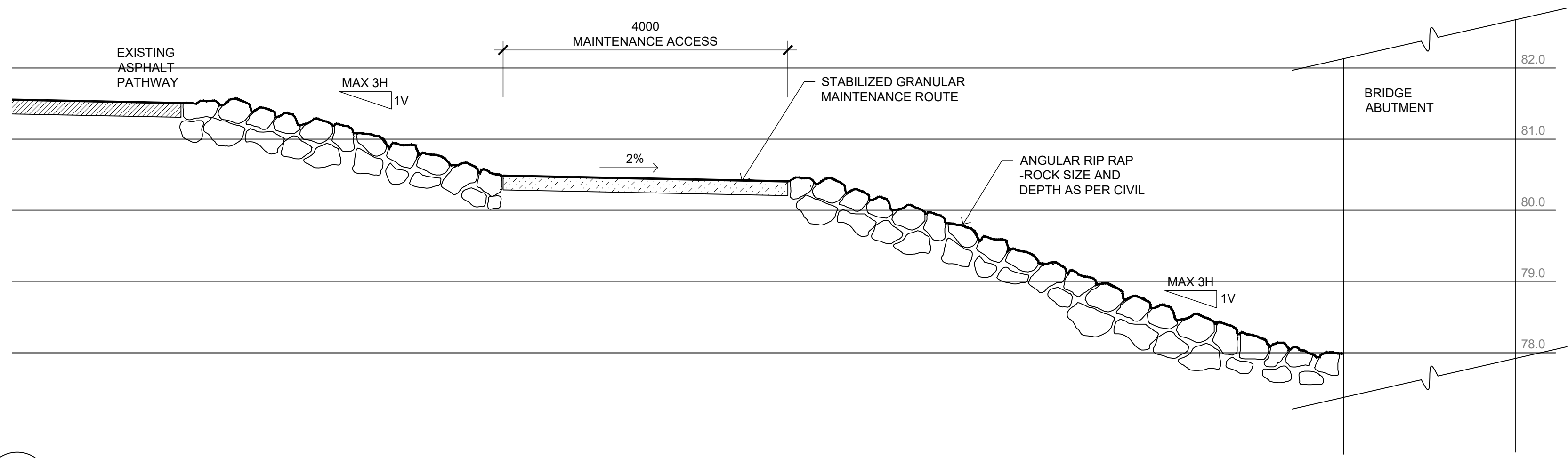


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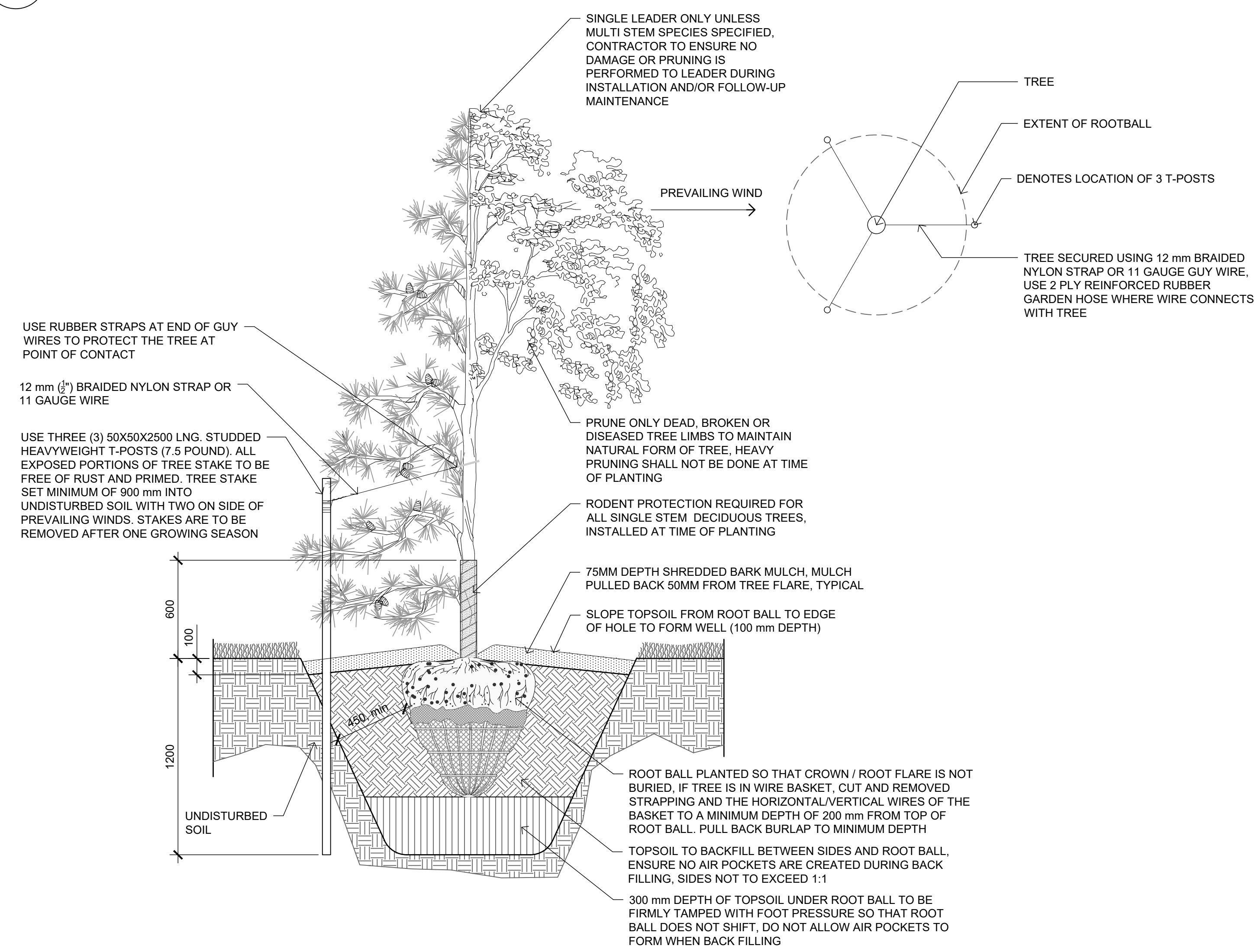
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DIVISION 30 - MICHICHI CREEK EAST BERM
PLANTING SCHEDULES & NOTES

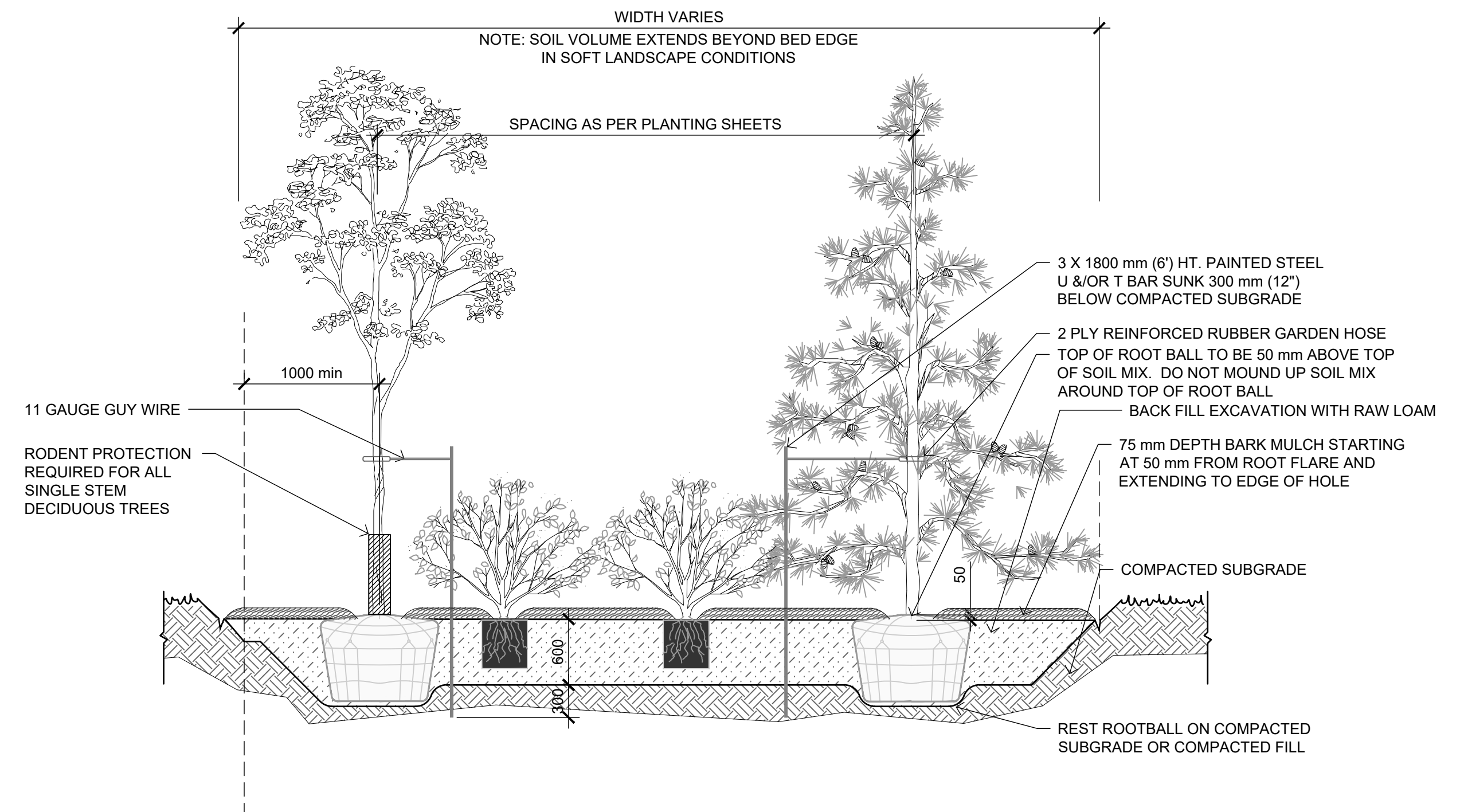
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Group LANDSCAPE



1 MAINTENANCE ACCESS AT BRIDGE
 L-901 1:50 SECTION



A STANDARD TREE PLANTING
 L-901 SCALE 1:20



B MIXED PLANTING BED WITH MULCH
 L-901 SCALE 1:40



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DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
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DIVISION 30 - MICHICHI CREEK EAST BERM
LANDSCAPE DETAILS

Project No. **133142** Drawing No. **L-901** Rev. **0**
 Group **LANDSCAPE**