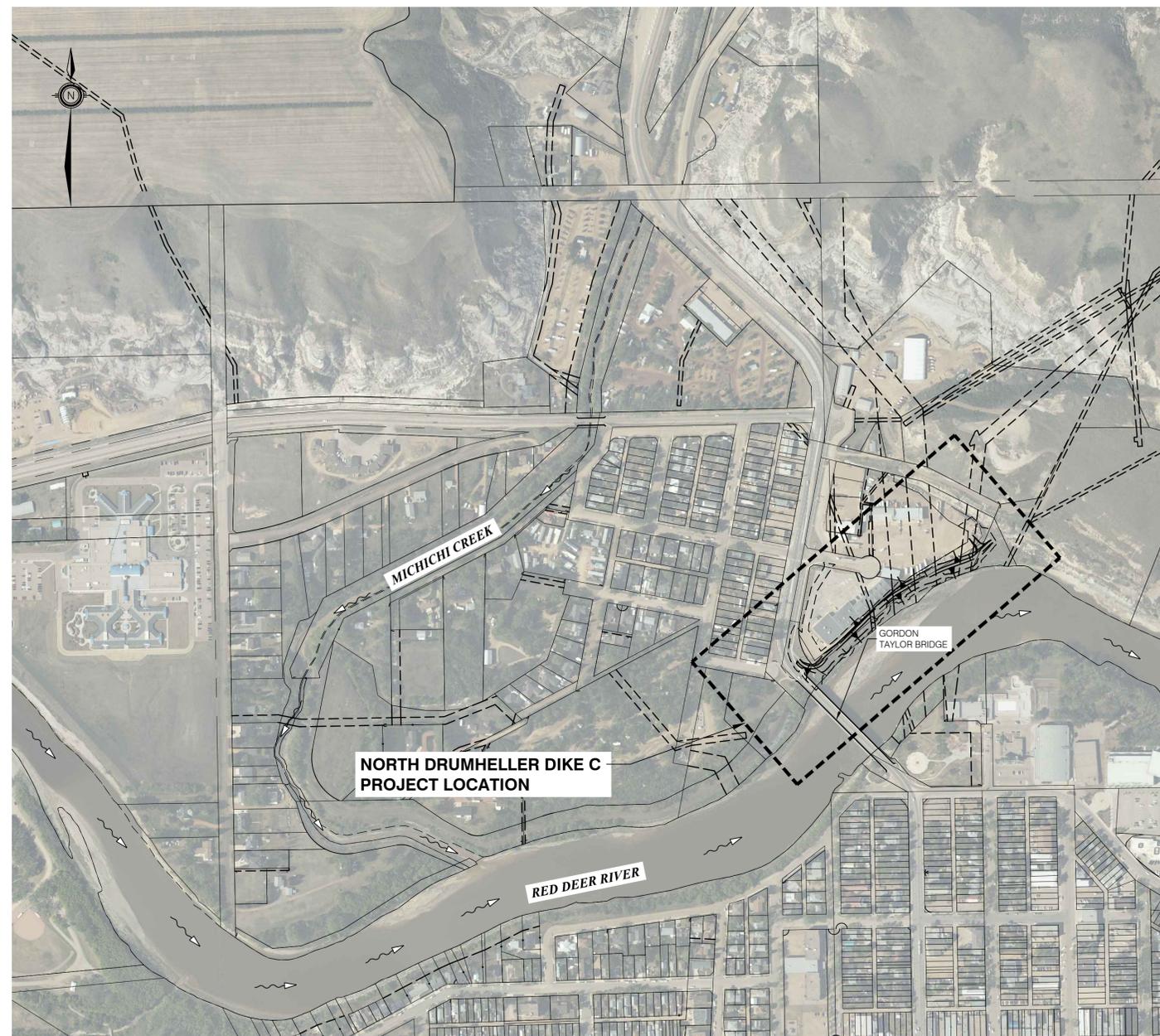


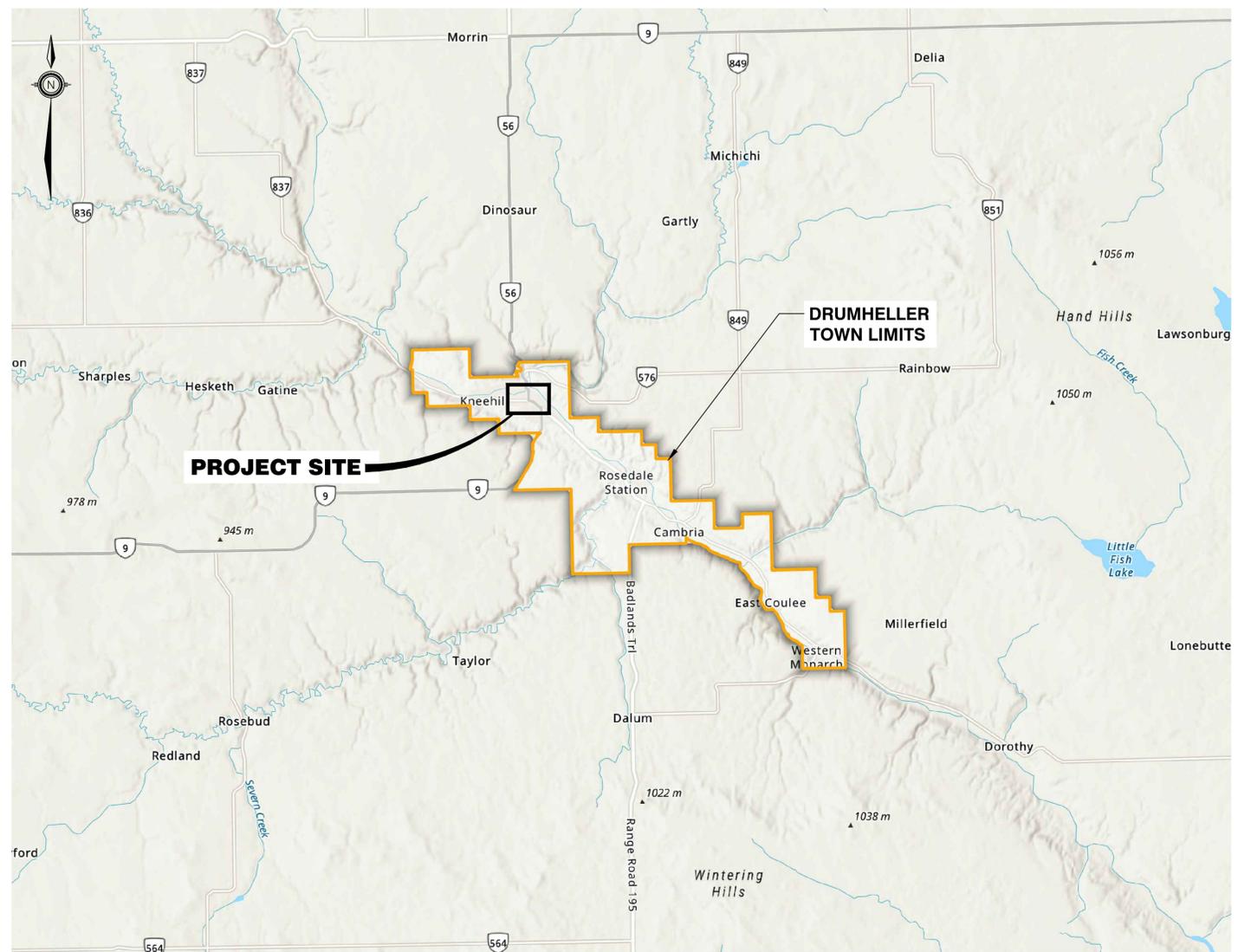
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At Full Size, this border measures 520 mm x 800 mm

100
50
0
millimetres



PROJECT SITE
Scale: 1:4000



LOCATION PLAN
Scale: N.T.S.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE DIKE C - NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT

DRAWING LIST	
DWG No.	DRAWING TITLE
GENERAL	
G-001	LOCATION MAP, AREA PLAN AND INDEX DRAWINGS
G-002	KEY PLAN, LEGEND, GENERAL NOTES AND SURVEY CONTROL
CIVIL	
C-001	EXISTING CONDITIONS PLAN
C-002	EROSION SEDIMENT CONTROL MEASURES AND ACCESS PLAN
C-101	DIKE C PLAN AND PROFILE
C-102	ACCESS RAMP AND TURN AROUND
C-301	DIKE C SECTIONS
C-501	DIKE C DETAILS - SHEET 1
C-502	DIKE C DETAILS - SHEET 2
C-503	DIKE C DETAILS - SHEET 3

LANDSCAPE DRAWING LIST	
DWG No.	DRAWING TITLE
L-100	LANDSCAPE COVER SHEET & KDY PLAN
L-101	LANDSCAPE MASTER PLAN & TREE PLANTING STRATEGY
L-201	TREE CLEARING PLAN
L-301	LAYOUT & GRADING PLAN
L-302	LAYOUT & GRADING PLAN
L-303	LAYOUT & GRADING PLAN
L-401	SEEDING PLAN
L-402	SEEDING PLAN
L-403	SEEDING PLAN
L-901	LANDSCAPE DETAILS
L-902	LANDSCAPE DETAILS
L-903	LANDSCAPE DETAILS
L-904	LANDSCAPE DETAILS

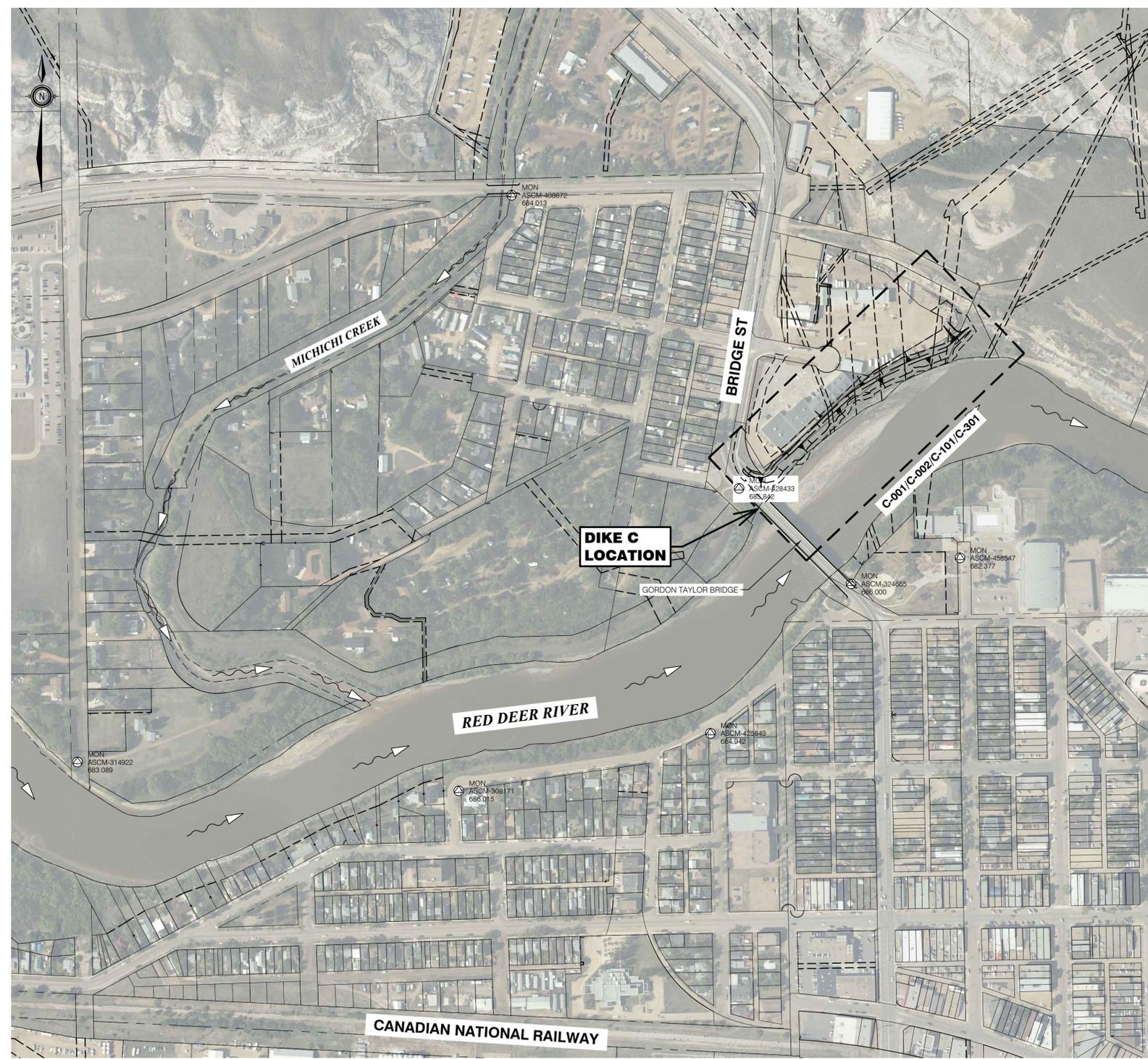
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1	2022-08-16	CLC	JYS	MVC	ISSUED FOR CONSTRUCTION

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE DIKE C			
NORTH DRUMHELLER DIKE C - RED DEER RIVER LOCATION MAP, AREA PLAN AND INDEX DRAWINGS			
Project No.	3446.004	Drawing No.	G-001
Group	GENERAL	Rev.	1



kwj KERR WOOD LEIDAL
consulting engineers
110 - 1212 1st Street SE
Calgary, AB T2G 2H8
T (403) 262-4241
E calgary@kwj.ca





SURVEY CONTROL / KEY PLAN
Scale 1:3000
0 25 (1:3,000) 150m

LEGEND	
	LEGAL LOT BOUNDARY
	EASEMENT / RIGHT-OF-WAY
	EDGE OF PAVED ROADS / PATHWAYS
	EDGE OF GRAVEL ROADS / PATHWAYS
	FENCE LINE
	PROPOSED FLOW DIRECTION
	RETAINING WALL
	TOP OF BANK
	TOE OF BANK
	STORM SEWER, CATCH BASIN & MANHOLE
	SANITARY SEWER WITH MANHOLE
	SANITARY FORCEMAIN WITH AIR RELEASE
	WATER MAIN & HYDRANT & VALVE
	CABLE MAIN
	ELECTRICAL MAIN
	OVERHEAD HYDRO & UTILITY POLE
	TELEPHONE MAIN
	OVERHEAD TELEPHONE
	GAS MAIN & VALVE
	STREET LIGHT DUCT & LIGHT
	RIVER CENTRELINE STATIONING
	ORDINARY HIGH WATER MARK (448 m/s ON RED DEER RIVER)
	IRON PIN, SURVEY MONUMENT & SURVEY TAG

CONSTRUCTION NOTES

- GENERAL:**
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALBERTA TRANSPORTATION CIVIL WORKS MASTER SPECIFICATIONS, DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE STANDARD SPECIFICATIONS & DRAWINGS, UNLESS NOTED OTHERWISE. WHEN A CONFLICT BETWEEN SPECIFICATION ARISES, THE MOST STRINGENT SHALL APPLY.
 - ALL AFFECTED RESIDENTS AND BUSINESSES SHALL BE NOTIFIED IN WRITING A MINIMUM OF 7 BUSINESS DAYS PRIOR TO ANY SCHEDULED ACCESS AND/OR SERVICE DISRUPTIONS.
 - CONTRACTOR SHALL PREPARE A TRAFFIC MANAGEMENT PLAN TO ADDRESS CONSTRUCTION DISRUPTIONS.
 - DURING CONSTRUCTION, ENSURE ALL OCCUPATIONAL HEALTH AND SAFETY (OH&S) REGULATIONS ARE FOLLOWED. CONTRACTOR SHALL PROVIDE THE CONTRACT ADMINISTRATOR WITH ALBERTA OCCUPATIONAL HEALTH AND SAFETY REPORTS, IF APPLICABLE.
 - ENSURE THE CURRENT MUNICIPAL OH&S GROUND DISTURBANCE PRACTICE AND PROCEDURES ARE FOLLOWED. CONTACT ALBERTA ONE CALL FOR EXTERNAL UTILITY LOCATES AT LEAST 72 HRS PRIOR TO THE START OF CONSTRUCTION.
 - CONFIRM ALL EXISTING SERVICES, CONNECTIONS AND CROSSING POINTS AT LEAST 48 HRS PRIOR TO START OF CONSTRUCTION ON ANY SUCH ITEM. NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE SHOULD CONFLICTS BE FOUND.
 - ADJUST ALL EXISTING AND NEW APPURTENANCES TO MEET THE FINAL DESIGN GRADES.
 - RESTORE ALL AREAS AFFECTED BY CONSTRUCTION WORKS TO THEIR ORIGINAL CONDITION OR BETTER.
 - ENSURE THAT ALL OPERATIONAL SERVICES TO EXISTING BUILDINGS REMAIN FUNCTIONAL DURING CONSTRUCTION AND OPERATIONAL POST-CONSTRUCTION. REPAIR AND/OR REPLACE ALL INFRASTRUCTURE (INCLUDING PRIVATE PROPERTY & BOULEVARDS) DAMAGED OR REMOVED DURING CONSTRUCTION TO BETTER THAN OR EQUAL TO PRE-CONSTRUCTION CONDITION.
 - ALL ELEVATIONS AND DIMENSIONS ARE IN METRES, UNLESS NOTED OTHERWISE.

- ENVIRONMENTAL:**
- USE BEST MANAGEMENT PRACTICES (BMP), IN ACCORDANCE WITH ALBERTA TRANSPORTATION, ALBERTA BMP GUIDELINES AND REGULATIONS, DURING CONSTRUCTION. ADJUST WORK ACTIVITIES DURING PERIODS OF PRECIPITATION AND/OR SNOWMELT TO MITIGATE AGAINST SEDIMENT RELEASE TO THE STORM DRAIN SYSTEM OR RED DEER RIVER. SOME BMPs TO CONSIDER ARE LISTED BELOW:
- INSPECT ALL EQUIPMENT DAILY FOR FLUID LEAKS.
 - ENSURE SPILL PROTECTION MEASURES ARE IN PLACE DURING RE-FUELING OF EQUIPMENT.
 - KEEP A SPILL KIT ON SITE AT ALL TIMES.
 - CONTRACTOR SHALL PREPARE AND SUBMIT AN ECO PLAN FOR APPROVAL PRIOR TO CONSTRUCTION AND ADHERE TO THE PLAN DURING CONSTRUCTION.
 - CONTRACTOR SHALL PROTECT ALL TREES TO REMAIN FROM DAMAGE DURING CONSTRUCTION. NOTIFY THE CONTRACT ADMINISTRATOR IMMEDIATELY IF A POSSIBLE CONFLICT IS FOUND.
 - CONTRACTOR TO COMPLETE NEST SWEEP PRIOR TO REMOVING ANY TREES ON SITE.
 - CONTRACTOR TO ADHERE TO ALL CONDITIONS OF THE REGULATORY APPROVALS.

- UTILITIES:**
- LOCATION AND ELEVATION OF EXISTING UTILITIES SHOWN ON DRAWINGS ARE APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE TO DETERMINE EXACT LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
 - ENSURE ALL EXISTING WATER SYSTEMS REMAIN IN USE DURING CONSTRUCTION.
 - IF GAS MAINS ARE PRESENT WITHIN THE PROJECT AREA, ALTAGAS AND OCCUPATIONAL HEALTH AND SAFETY (OH&S) REGULATIONS SHALL BE FOLLOWED. ALTAGAS REPRESENTATIVE MY BE REQUIRED TO BE PRESENT WHEN WORKING ADJACENT TO GAS MAINS (ESPECIALLY HIGH PRESSURE).
 - THE CONTRACTOR SHALL PROVIDE 72 HRS NOTICE PRIOR TO CONSTRUCTION NEAR ATCO UTILITY BOXES. A REPRESENTATIVE FROM ATCO MAY BE SCHEDULED TO BE PRESENT DURING EXCAVATION.
 - WHERE HEAVY WORK IS REQUIRED WITHIN THE EXCAVATION ZONE SURROUNDING UTILITY POLES, AND A POLE HOLD IS REQUIRED, THE CONTRACTOR MUST BE AUTHORIZED AND BE ABLE TO PULL A LIVE LINE PERMIT.

- REFERENCES:**
- ORTHOPHOTOS WERE TAKEN ON MAY 27, 2019 AND PROVIDED BY THE TOWN OF DRUMHELLER.
 - BASE DATA, INCLUDING LEGAL BOUNDARIES, PLANIMETRIC FEATURES AND EXISTING UTILITIES WERE PROVIDED BY THE TOWN OF DRUMHELLER.
 - EXISTING TOPOGRAPHY CONTOURS GENERATED FROM MAY 2018 LIDAR VERTICAL ACCURACY OF +/- 0.15 M AT 955 ON HARD, FLAT, OPEN SURFACES PROVIDED BY THE TOWN OF DRUMHELLER.
 - WATER LEVELS WERE OBTAINED FROM THE RED DEER RIVER AND TRIBUTARIES MODEL DEVELOPED BY NHC.
 - RED DEER RIVER AND MICHICHI CREEK CHAINAGES REFER TO THE CHAINAGES OBTAINED FROM THE RED DEER RIVER AND TRIBUTARIES MODEL DEVELOPED BY NHC.

SURVEY CONTROL INFORMATION

COORDINATES ARE TO NAD83(CSRS) / ALBERTA 3TM REFERENCE MERIDIAN 114W DATUM, ELEVATIONS ARE GEODETIC TO CGVD28 W/ GSD95 GEOID.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
308171	5704053.881	89100.310	686.015	ASCM
408872	5704737.678	89160.964	684.013	ASCM
324665	5704291.686	89551.698	686.000	ASCM
314922	5704086.976	88661.291	683.089	ASCM
458547	5704321.330	89677.034	682.377	ASCM
428433	5704401.222	89422.819	685.842	ASCM
425843	5704120.081	89389.736	684.942	ASCM



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consulting engineers
110 - 1212 1st Street SE
Calgary, AB T2G 2H8
T (403) 262-4241
E calgary@kwj.ca

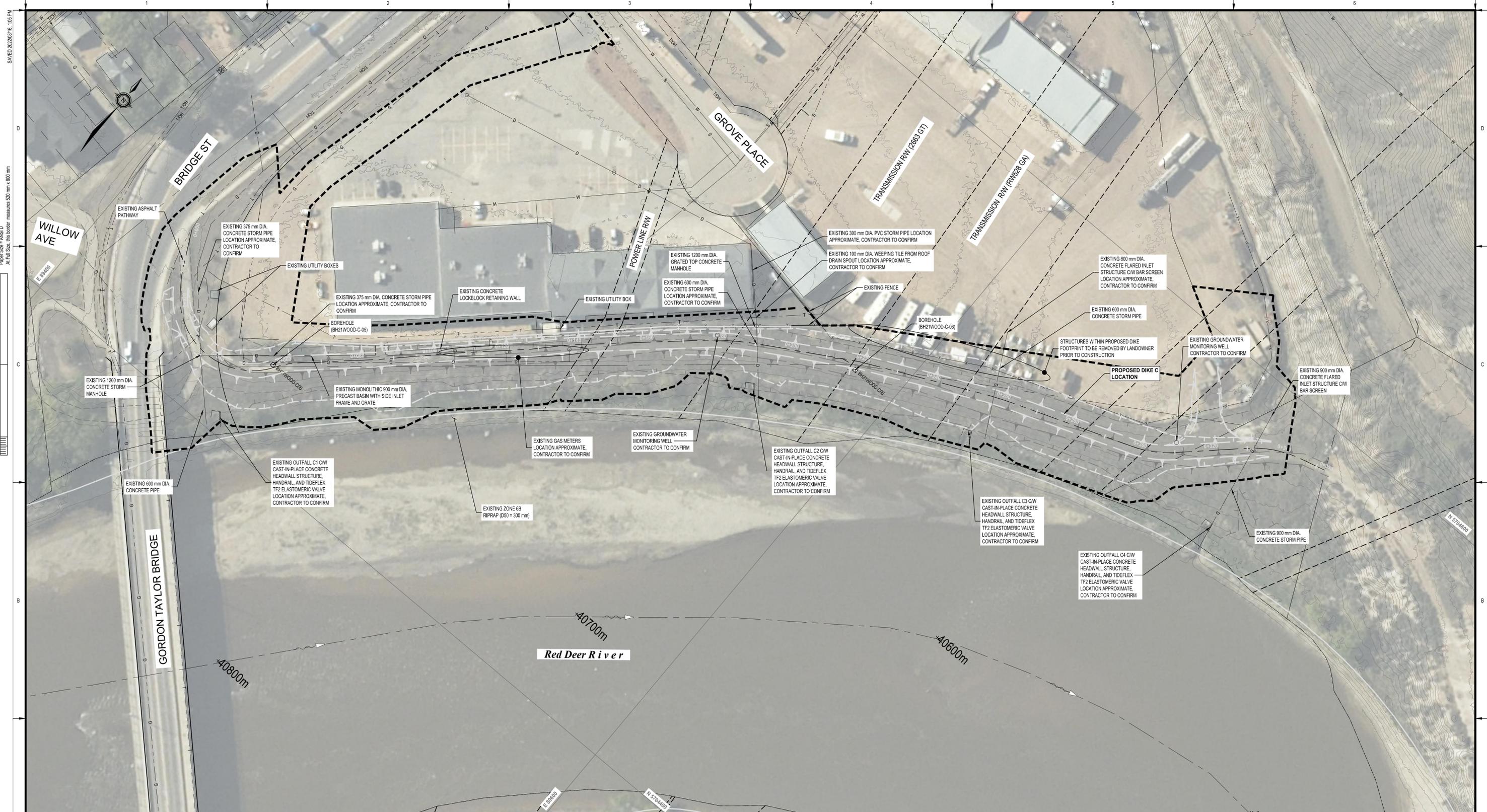


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Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
KEY PLAN, LEGEND, GENERAL NOTES AND SURVEY CONTROL

Project No: **3446.004** Drawing No: **G-002** Rev: **1**
Group: **GENERAL**



NORTH DRUMHELLER DIKE C - PLAN

Scale 1:500



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110 - 1212 1st Street SE
Calgary, AB T2G 2H8
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Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C

NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
EXISTING CONDITIONS PLAN

Project No. **3446.004** Drawing No. **C-001** Rev. **1**
Group **CIVIL**



NORTH DRUMHELLER DIKE C - PLAN

Scale 1:750



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Expiry Date of Permit: 01/01/24



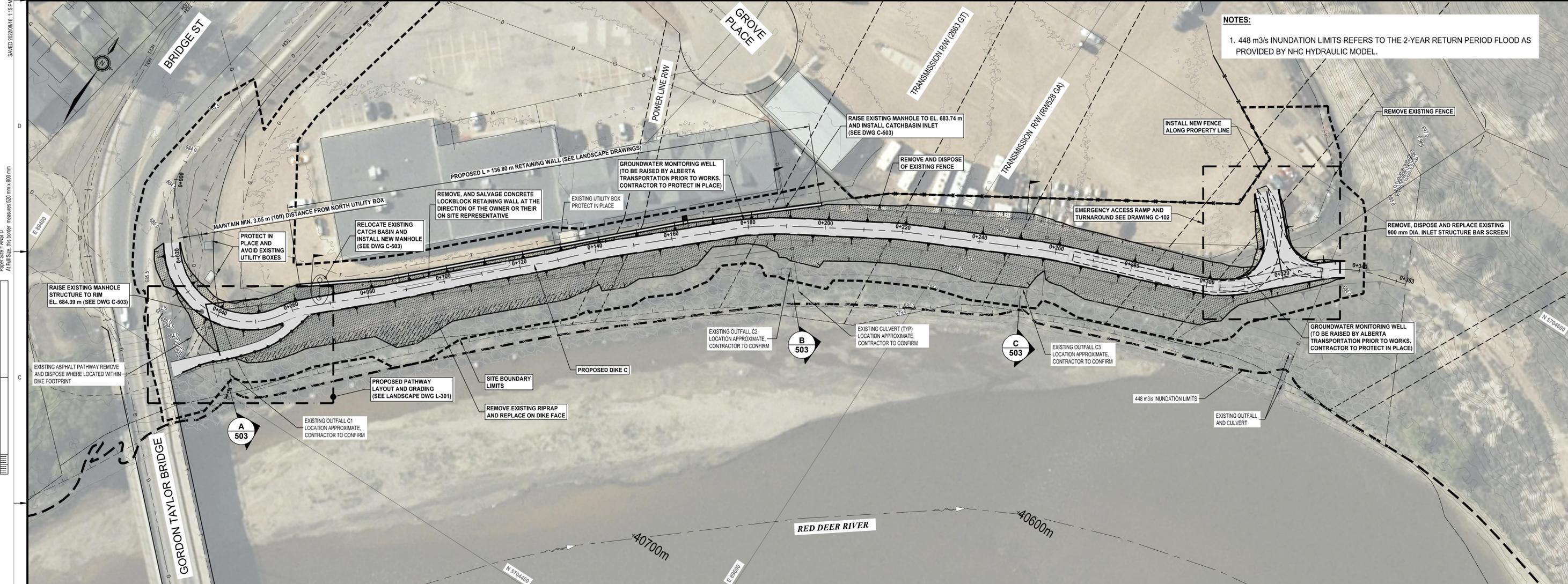
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Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C

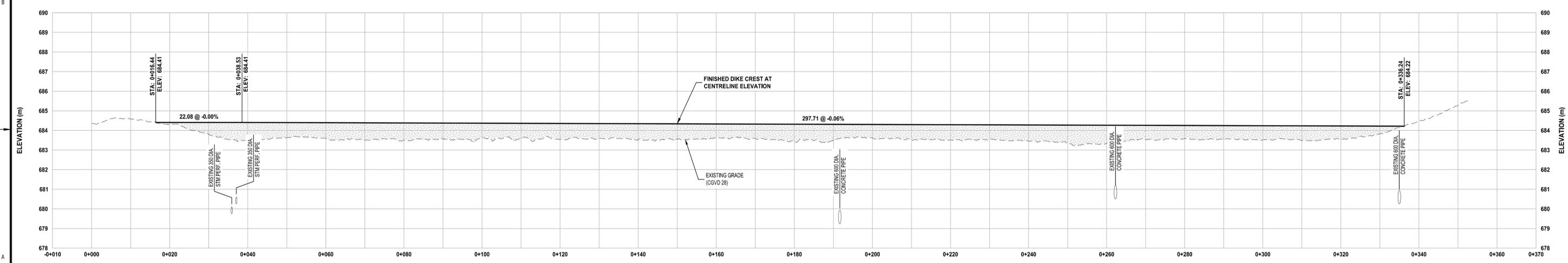
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
EROSION AND SEDIMENT CONTROL MEASURES
AND ACCESS PLAN

Project No. **3446.004** Drawing No. **C-002** Rev. **1**
Group **CIVIL**



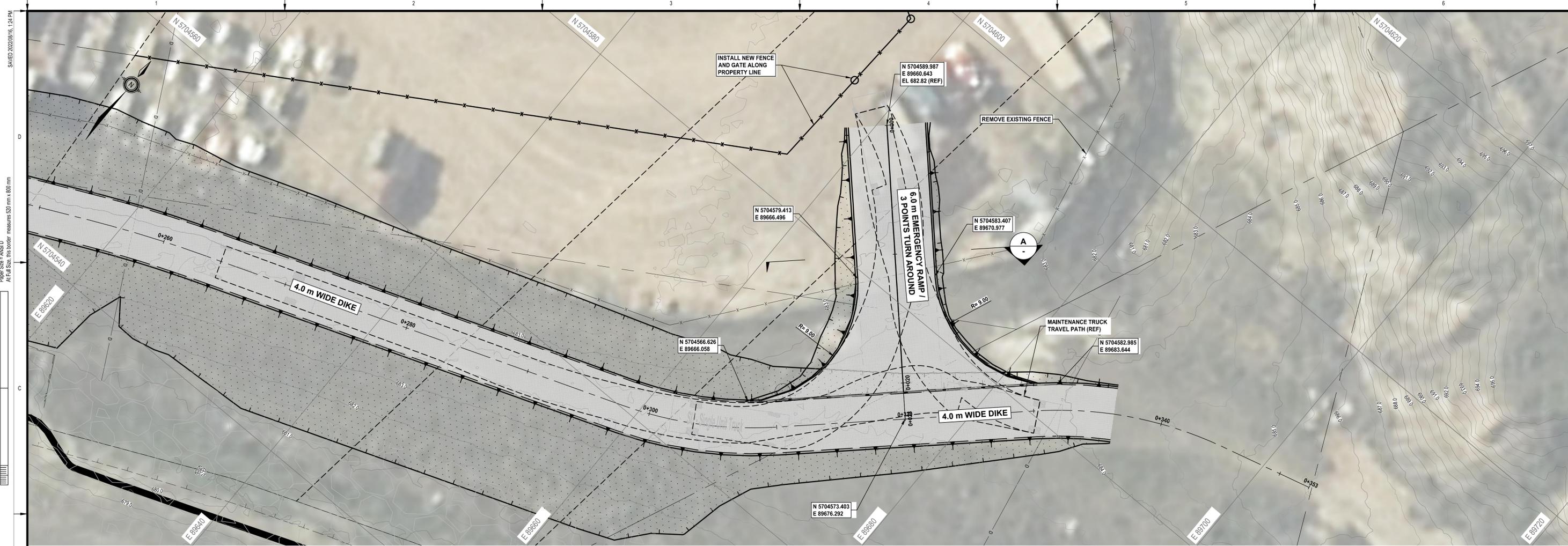
NOTES:
 1. 448 m³/s INUNDATION LIMITS REFERS TO THE 2-YEAR RETURN PERIOD FLOOD AS PROVIDED BY NHC HYDRAULIC MODEL.

NORTH DRUMHELLER DIKE C - PLAN
 Scale 1:500

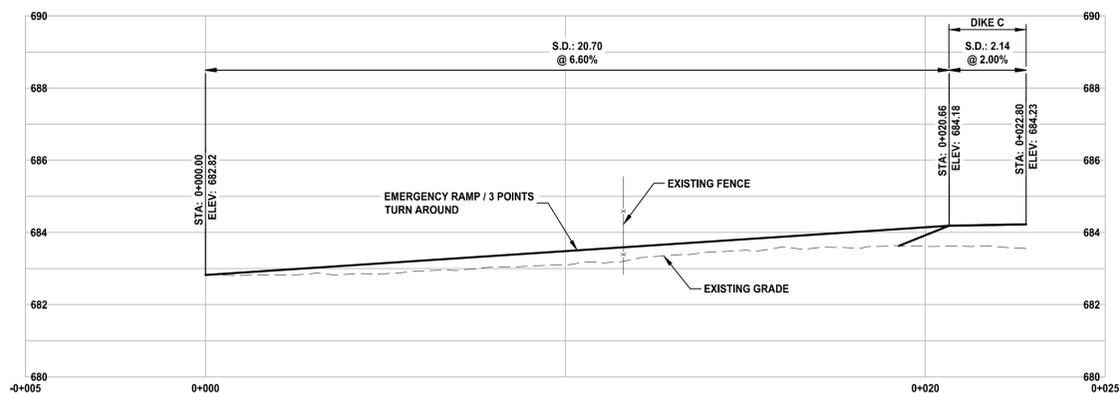


NORTH DRUMHELLER DIKE C - PROFILE
 Scale H 1:500 V 1:100

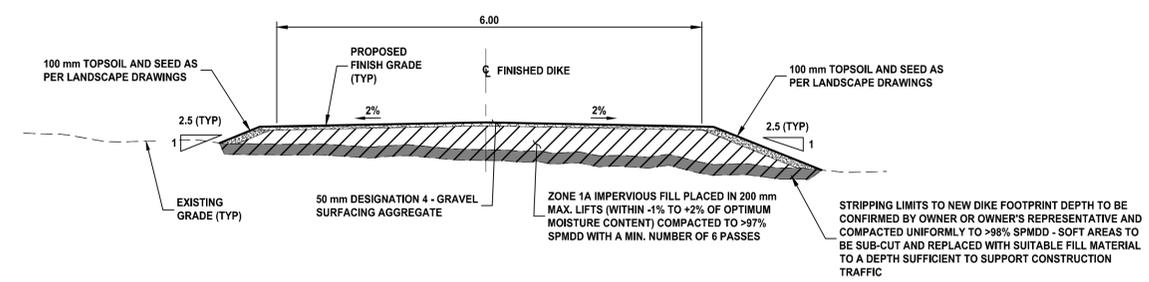
	<p>KERR WOOD LEIDAL consulting engineers</p> <p>110 - 1212 1st Street SE Calgary, AB T2G 2H8 T (403) 262-4241 E calgary@kwl.ca</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Rev</th> <th>Date</th> <th>Des</th> <th>Dwn</th> <th>Chk</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2022-06-17</td> <td>CLC</td> <td>JYS</td> <td>MVC</td> <td>ISSUED FOR TENDER</td> </tr> <tr> <td>1</td> <td>2022-08-16</td> <td>CLC</td> <td>JYS</td> <td>MVC</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> </tbody> </table>	Rev	Date	Des	Dwn	Chk	Description	0	2022-06-17	CLC	JYS	MVC	ISSUED FOR TENDER	1	2022-08-16	CLC	JYS	MVC	ISSUED FOR CONSTRUCTION	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Rev</th> <th>Date</th> <th>Des</th> <th>Dwn</th> <th>Chk</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Rev	Date	Des	Dwn	Chk	Description							<p>DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE DIKE C</p> <p>NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT PLAN AND PROFILE</p>
			Rev	Date	Des	Dwn	Chk	Description																											
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Rev	Date	Des	Dwn	Chk	Description																														
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PLAN
Scale 1:150



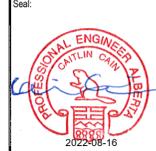
EMERGENCY ACCESS RAMP
Scale 1:100



EMERGENCY ACCESS RAMP SECTION A
Scale 1:50



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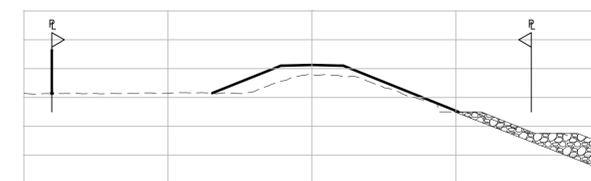
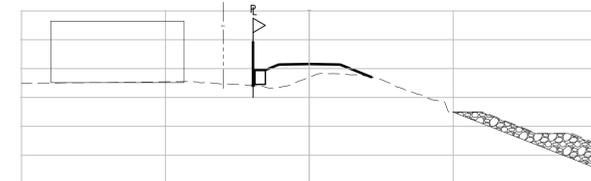
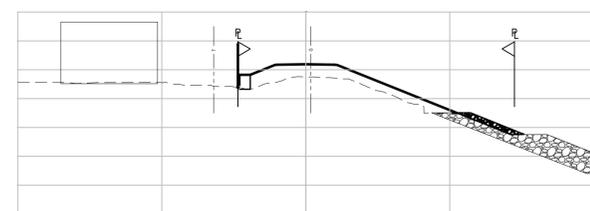
Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
ACCESS RAMP AND TURN AROUND
PLAN AND PROFILE

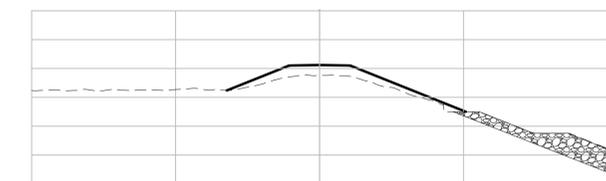
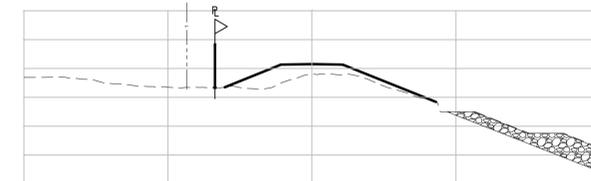
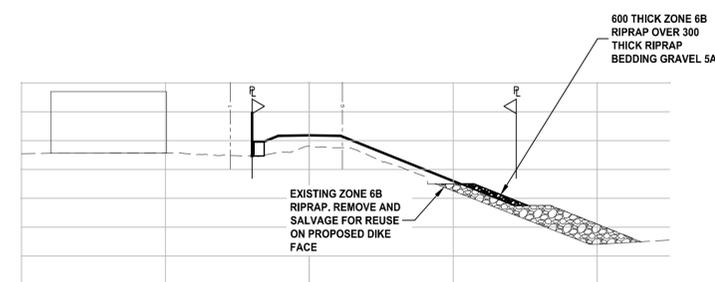
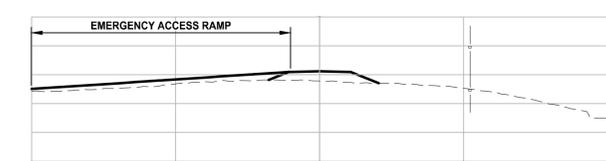
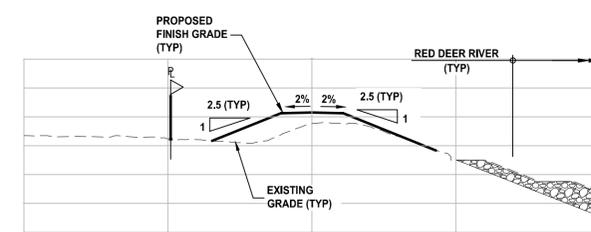
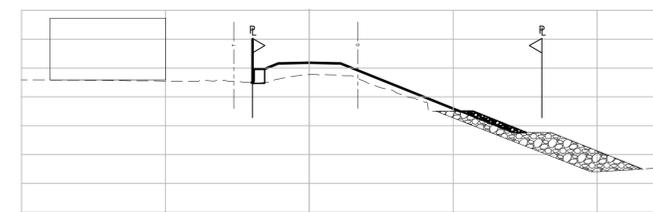
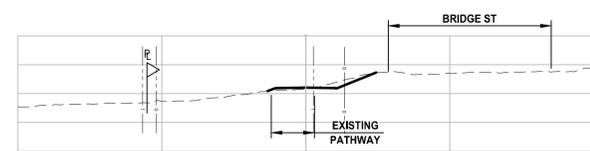
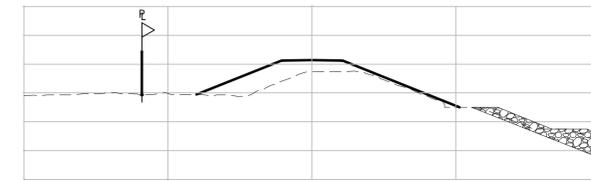
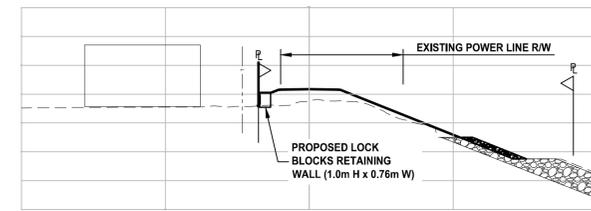
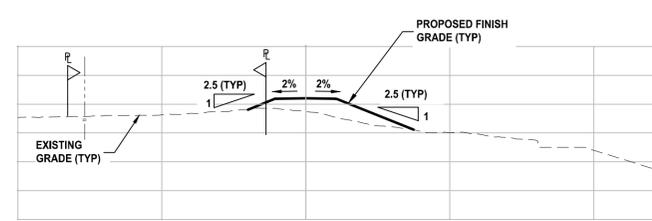
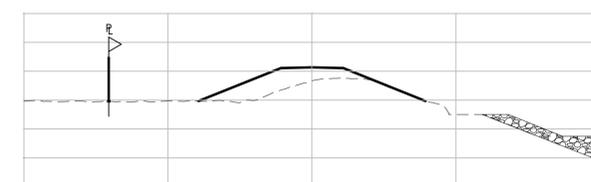
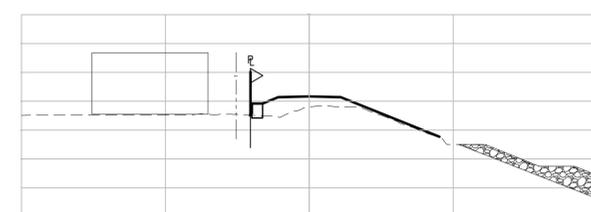
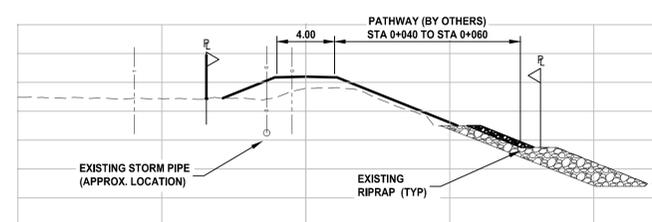
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Group **CIVIL**

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NOTE:
 1. SEE TYPICAL SECTIONS ON DWG C-501.



SECTIONS
 Scale 1:250



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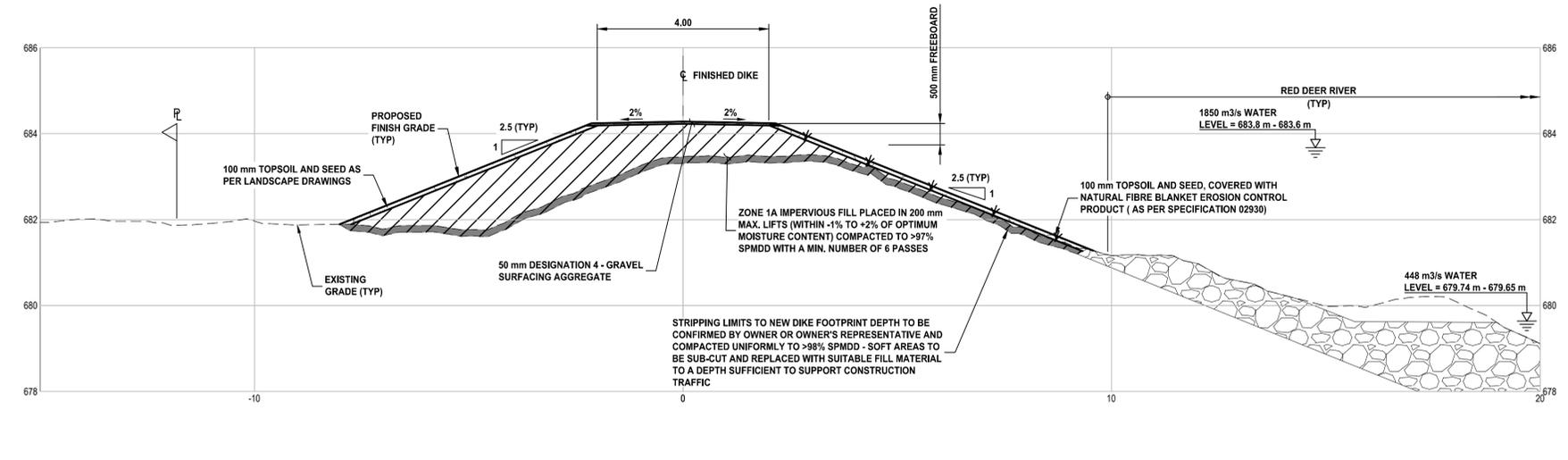
Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
SECTIONS

Project No. **3446.004** Drawing No. **C-301** Rev. **1**
 Group **CIVIL**

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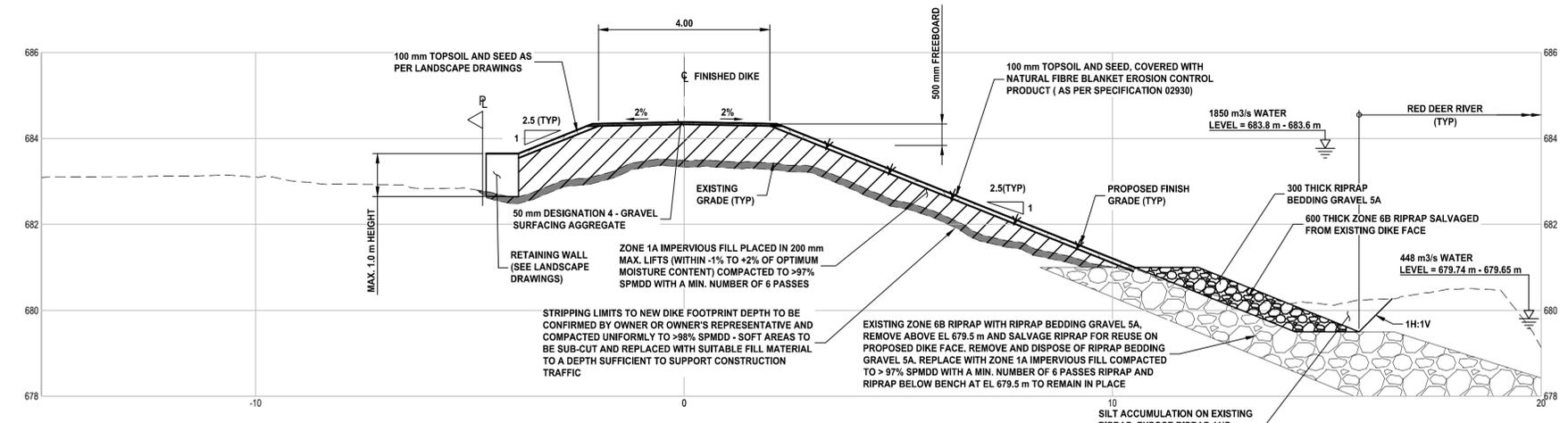


TYPICAL DIKE C SECTION

Scale 1:75 (STA 0+000 TO 0+050, STA 0+190 TO 0+270 AND STA 0+310 TO 0+333.45)



NOTES:
 1. 448 m³/s IS THE 2-YEAR WATER LEVEL AND 1850 m³/s IS THE 100-YEAR WATER LEVEL (REGULATED) AS PROVIDED BY NHC HYDRAULIC MODEL.



TYPICAL RETAINING WALL SECTION

Scale 1:75 (STA 0+050 TO 0+190 AND STA 0+270 TO 0+310)



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 Calgary, AB T2G 2H8
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Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
DIKE C DETAILS
SHEET 1

Project No. **3446.004** Drawing No. **C-501** Rev. **1**
 Group **CIVIL**

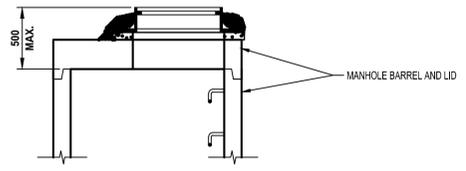
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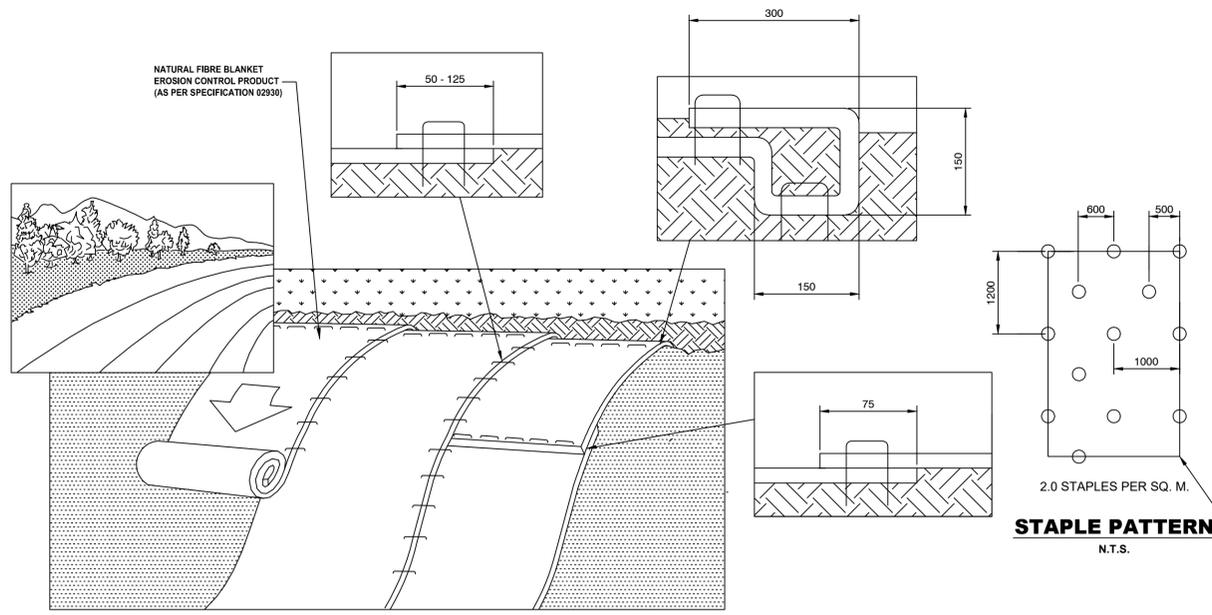


NOTES:

1. CONTRACTOR TO SALVAGE (IF SUITABLE) EXISTING CONCRETE MANHOLE LIDS, FRAMES & COVERS.
2. CONTRACTOR TO CONFIRM EXISTING CONCRETE BARREL DIAMETER AND STYLE OF MANHOLE BARREL JOINT.
3. CONTRACTOR TO MATCH EXISTING BARREL JOINT AND SUPPLY ADDITIONAL MANHOLE BARREL RISERS AS REQUIRED TO RAISE LID, FRAMES & COVERS TO SPECIFIED ELEVATIONS AS SHOWN IN DRAWING C-503. CONCRETE MANHOLE LIDS TO BE RE-USED IF SUITABLE (AS DETERMINED BY THE OWNER), OR SUPPLIED AND REPLACED BY THE CONTRACTOR IF NOT SUITABLE FOR RE-USE.
4. CONTRACTOR TO USE MASTIC JOINT SEAL AND/OR BARREL JOINT GASKET(S) AND GROUT ALL INTERIOR & EXTERIOR BARREL JOINTS AND ENSURE A WATERTIGHT INSTALLATION.
5. CONTRACTOR TO WRAP 6 MIL POLY ABOUT EXTERIOR OF EXTENDED MANHOLE BARRELS PRIOR TO BACKFILLING.



STANDARD MANHOLE RAISE DETAIL
 Scale 1:25



EROSION CONTROL BLANKET INSTALLATION
 Scale 1:25

INSTALLATION NOTES:

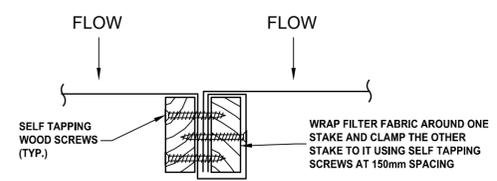
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPES BY ANCHORING THE RECP's IN A 0.15m DEEP X 0.15m WIDE TRENCH WITH APPROXIMATELY 0.30m OF RECP's EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 0.30m APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND APPLY REMAINING 0.30m PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 0.20m APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH ONE OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGE OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 0.050m - 0.125m OVERLAP DEPENDING ON RECP's WIDTH.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 0.075m OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 0.30m APART ACROSS ENTIRE RECP's WIDTH.

STAPLE PATTERN
 N.T.S.

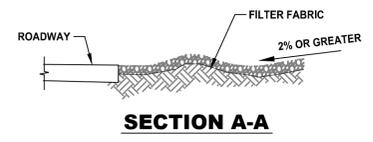
200mm WIRE STAPLES

GENERAL NOTES:

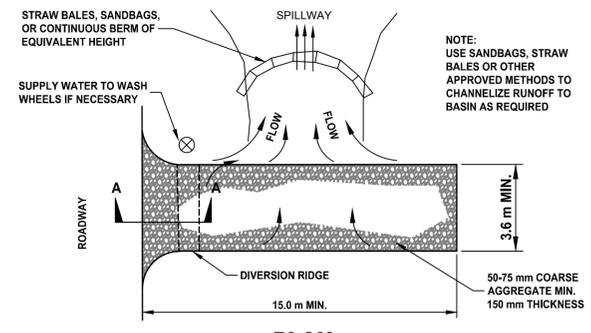
1. ALL WORK MUST BE UNDERTAKEN AND COMPLETED IN SUCH A MANNER AS TO PREVENT THE RELEASE OF SILT, RAW CONCRETE LEACHATE OR OTHER DELETERIOUS SUBSTANCES INTO ANY DITCH, WATERCOURSE, RAVINE AND STORM SEWER SYSTEM.
2. MAINTAIN ALL SEDIMENT CONTROL FACILITIES SHOWN ON THIS DRAWING UNTIL 90% OF THE LANDSCAPING IS COMPLETED.
3. SILT FENCE/FILTER FABRIC TO BE NILEX 2130 AND NILEX 4535 (C-10) RESPECTIVELY OR ENGINEER APPROVED EQUIVALENT.
4. REDUCED DUST BY USE OF WATER SPRAYED ON THE EXPOSED SOURCE OF THE DUST AS REQUIRED.
5. TEMPORARY EXPOSED SLOPES AND SPOIL STOCK PILES SHALL BE COVERED WITH ONE LAYER OF 6 mil POLY WEIGHTED AND STAPLED INTO PLACE.
6. SEDIMENT TO BE REMOVED FROM THE SEDIMENT CONTROL SYSTEM AFTER EACH STORM EVENT OR WHEN SEDIMENT HAS EXCEEDED 33% OF DESIGN SEDIMENT STORAGE VOLUME.



FABRIC SPLICE DETAIL
 N.T.S.



SECTION A-A

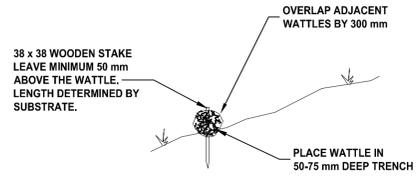


PLAN

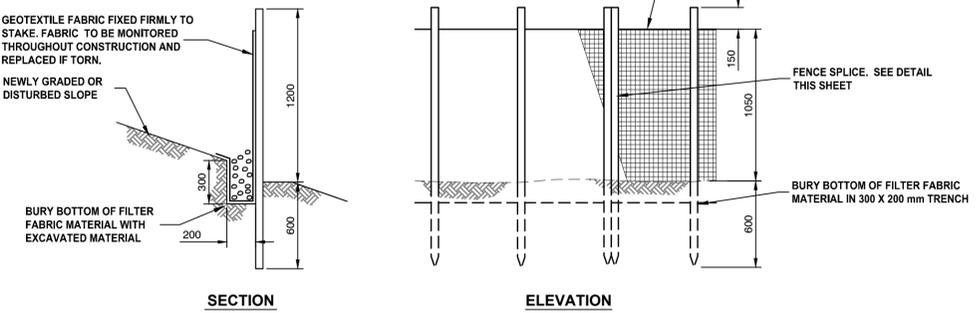
NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. THIS FIGURE IS PROVIDED FOR GUIDANCE ONLY, AND DOES NOT CONSTITUTE A DESIGN. THE CONTRACTOR IS REQUIRED TO SUBMIT A SITE SPECIFIC DESIGN IN THEIR EROSION AND SEDIMENT CONTROL PLAN.

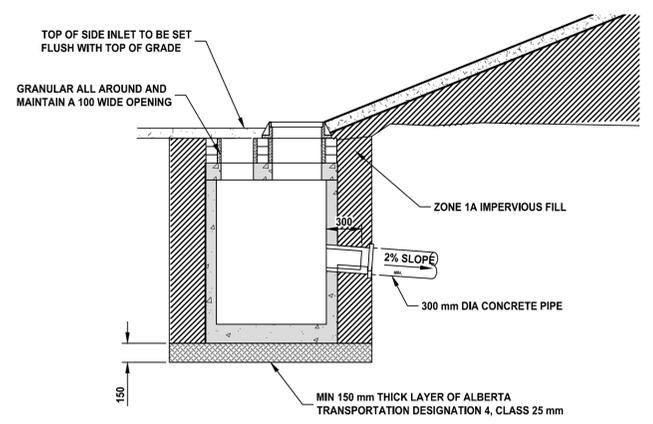
GRAVEL ACCESS PAD DETAIL
 N.T.S.



WATTLE ROLL DETAIL
 N.T.S.



SILT FENCE DETAIL
 SCALE 1:25



CATCH BASIN DETAIL
 N.T.S.

NOTE: ALL DIMENSIONS ON THIS SHEET ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED



kwl KERR WOOD LEIDAL
 consulting engineers
 110 - 1212 1st Street SE
 Calgary, AB T2G 2H8
 T (403) 262-4241
 E calgary@kwl.ca

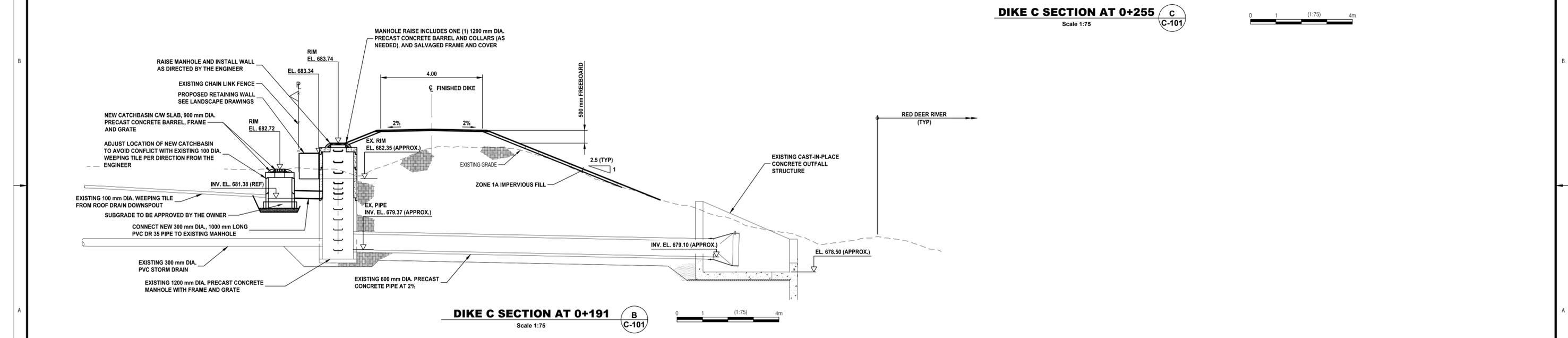
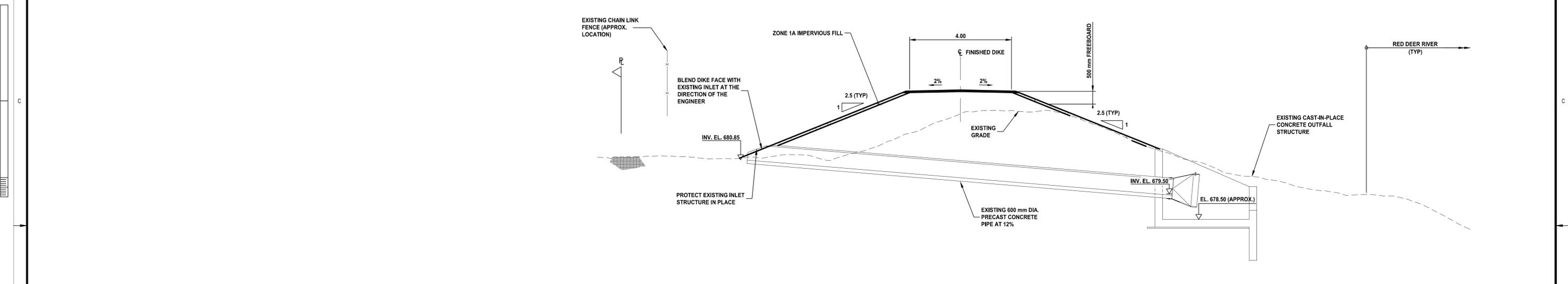
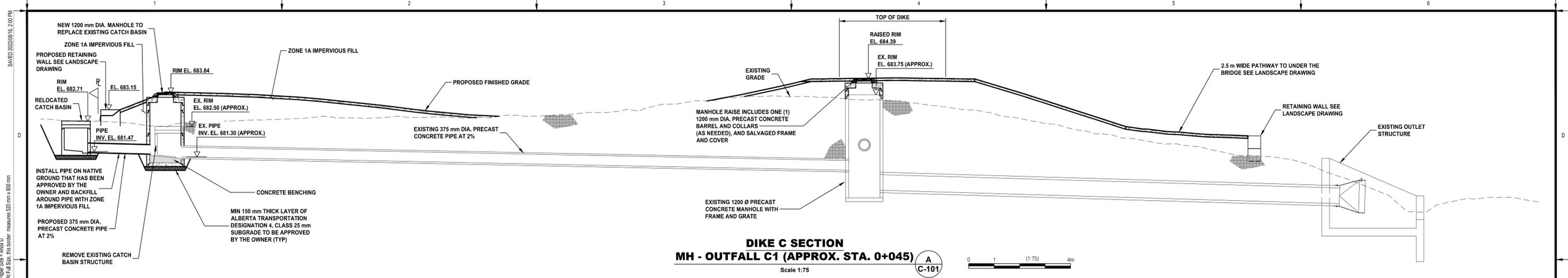


Rev	Date	Des	Dwn	Chk	Description
0	2022-06-17	CLC	JYS	MVC	ISSUED FOR TENDER
1	2022-08-16	CLC	JYS	MVC	ISSUED FOR CONSTRUCTION

Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
DIKE C DETAILS
SHEET 2

Project No. **3446.004** Drawing No. **C-502** Rev. **1**
 Group **CIVIL**



kwl KERR WOOD LEIDAL
consulting engineers
110 - 1212 1st Street SE
Calgary, AB T2G 2H8
T (403) 262-4241
E calgary@kwl.ca



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Rev	Date	Des	Dwn	Chk	Description

DRUMHELLER RESILIENCY AND FLOOD MITIGATION OFFICE
DIKE C
NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
DIKE C DETAILS
SHEET 3

Project No. **3446.004** Drawing No. **C-503** Rev. **1**
Group **CIVIL**

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LEGEND	
	ASPHALT PATHWAY
	GRAVEL SURFACING AGGREGATE
	PRECAST CONCRETE RETAINING WALL AND GUARDRAIL
	ROCK WALL



IBI GROUP
 3rd Floor – 227 11 Avenue SW
 Calgary AB T2R 1R9 Canada
 tel 403 270 5600 fax 403 270 5610
 ibigroup.com

The Alberta Association of Landscape Architects

 Erin J Webster

Rev	Date	Des	Dwn	Chk	Description
0	2022-06-17	BB	MD	EW	ISSUED FOR TENDER
1	2022-08-15	BB	MD	EW	ISSUED FOR CONSTRUCTION

Rev	Date	Des	Dwn	Chk	Description

TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
LANDSCAPE MASTER PLAN &
TREE PLANTING STRATEGY

Project No. **133142** Drawing No. **L-101** Rev. **1**
 Group **LANDSCAPE**



PLAN
 Scale 1:500

DIKE C - TREES

TREE SURVEY AS PER RANGELAND SURVEY, JANUARY 2022. EXTERNAL TREE HEALTH UNASSESSED AT THIS TIME.

Tree ID	Tree Species	DBH (cm)	Height (m)	External Health	Notes
1	Elm Species	4.20	4.00	Unassessed	
2	Ash Species	2.50	3.00	Unassessed	
3	Poplar Species	6.10	7.00	Unassessed	
7	Elm Species	6.00	5.00	Unassessed	
8	Elm Species	7.70	5.00	Unassessed	
9	Manitoba Maple	6.20	5.00	Unassessed	
10	Manitoba Maple	3.80	4.00	Unassessed	
11	Manitoba Maple	4.80	5.00	Unassessed	
12	Manitoba Maple	4.40	5.00	Unassessed	
13	Manitoba Maple	3.70	5.00	Unassessed	
14	Manitoba Maple	11.40	6.00	Unassessed	
15	Manitoba Maple	8.10	6.00	Unassessed	
5093	White Spruce	8.00	3.00	Good	
5094	White Spruce	12.00	3.00	Good	
5095	Other Spruce	7.00	2.00	Good	

TREE SURVEY AS PER DRFM PROGRAM ARCGIS VEGETATION INVENTORY, UPDATED MARCH 15, 2021.

TOTAL NUMBER OF FAIR, GOOD AND VERY GOOD TREES TO BE REMOVED = 15
 (ALL TREES FROM RANGELAND SURVEY WITHOUT A HEALTH ASSESSMENT ARE ASSUMED TO BE IN GOOD HEALTH)

TOTAL NUMBER OF NEW TREES AND SHRUBS TO BE PLANTED IN LIEU OF REMOVALS = 75

(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)

LEGEND

	EXISTING TREE TO BE REMOVED - VERY GOOD HEALTH QTY: 3
	EXISTING TREE TO BE REMOVED - GOOD HEALTH QTY: 10
	EXISTING TREE TO BE REMOVED - FAIR HEALTH QTY: 0
	EXISTING TREE TO BE REMOVED - POOR HEALTH QTY: 0
	EXISTING TREE TO BE REMOVED - VERY POOR HEALTH QTY: 0
	EXISTING TREE STUMP TO BE REMOVED QTY: 0
	EXISTING TREE TO REMAIN



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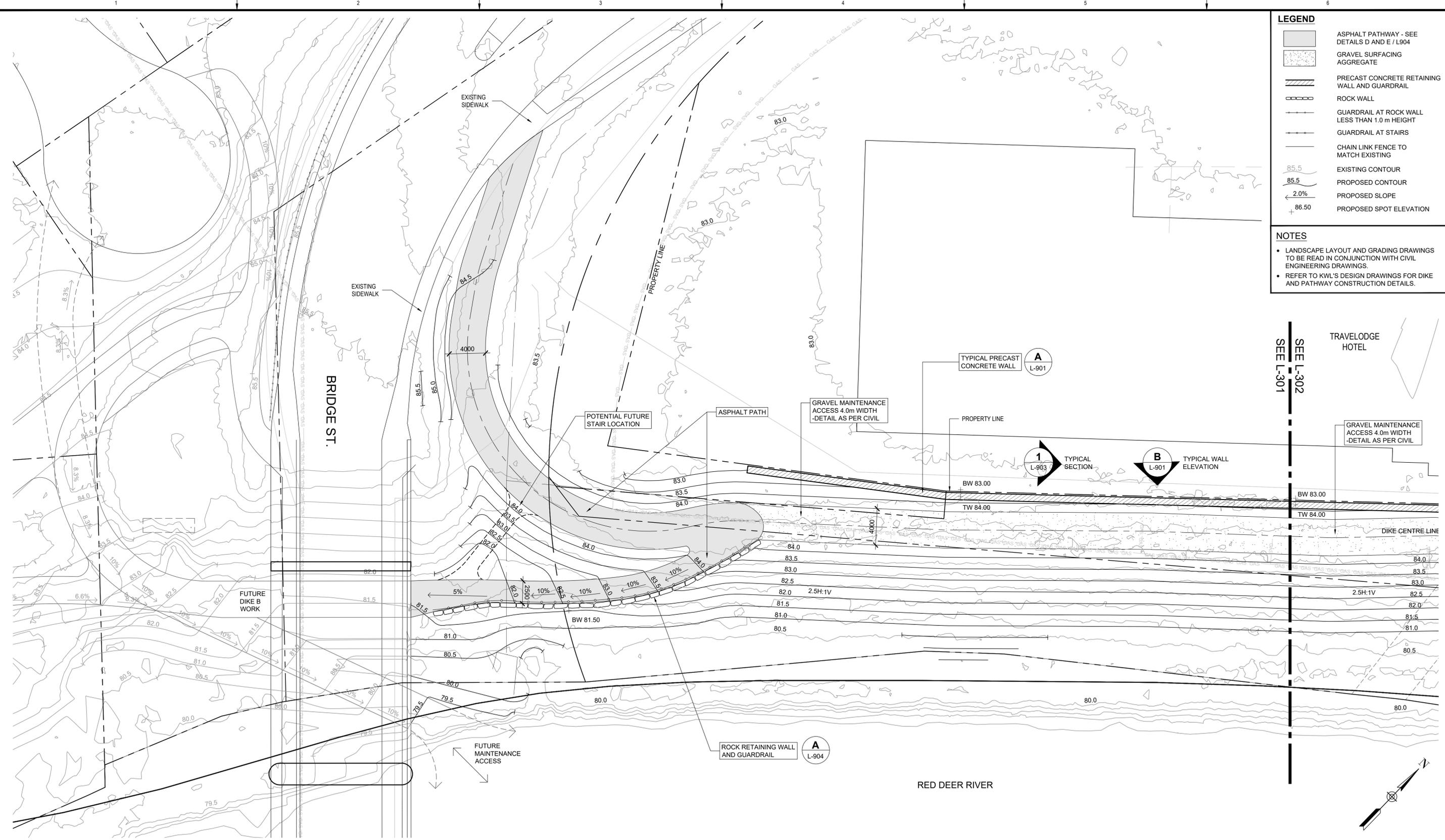
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Rev	Date	Des	Dwn	Chk	Description
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TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
TREE CLEARING PLAN

Project No. **133142** Drawing No. **L-201** Rev. **1**
 Group **LANDSCAPE**



LEGEND

- ASPHALT PATHWAY - SEE DETAILS D AND E / L904
- GRAVEL SURFACING AGGREGATE
- PRECAST CONCRETE RETAINING WALL AND GUARDRAIL
- ROCK WALL
- GUARDRAIL AT ROCK WALL LESS THAN 1.0 m HEIGHT
- GUARDRAIL AT STAIRS
- CHAIN LINK FENCE TO MATCH EXISTING
- 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 DIKE AND PATHWAY CONSTRUCTION DETAILS.

PLAN
Scale 1:200



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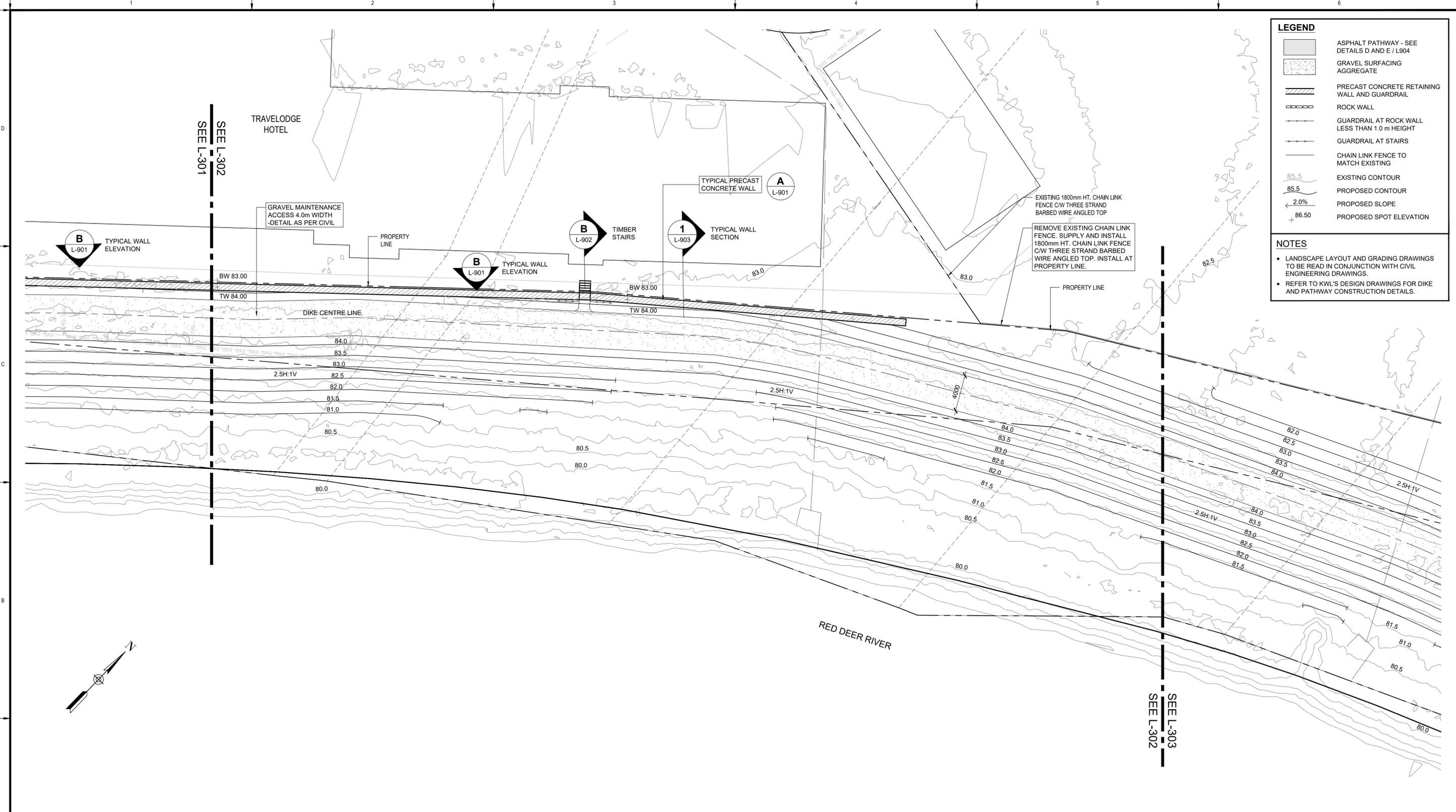
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TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
LAYOUT & GRADING PLAN

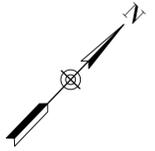
Project No. 133142 Drawing No. L-301 Rev. 1
Group LANDSCAPE



LEGEND	
	ASPHALT PATHWAY - SEE DETAILS D AND E / L904
	GRAVEL SURFACING AGGREGATE
	PRECAST CONCRETE RETAINING WALL AND GUARDRAIL
	ROCK WALL
	GUARDRAIL AT ROCK WALL LESS THAN 1.0 m HEIGHT
	GUARDRAIL AT STAIRS
	CHAIN LINK FENCE TO MATCH EXISTING
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SLOPE
	PROPOSED SPOT ELEVATION

NOTES

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- REFER TO KWL'S DESIGN DRAWINGS FOR DIKE AND PATHWAY CONSTRUCTION DETAILS.



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TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
LAYOUT & GRADING PLAN

Project No. **133142** Drawing No. **L-302** Rev. **1**
 Group **LANDSCAPE**

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At Full Size, this border measures 520 mm x 800 mm

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50
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millimeters

AIN LINK FENCE
3 AND BARBED
TOP. INSTALL AT
PROPERTY LINE

PROPERTY LINE

REMOVE EXISTING CHAIN LINK
FENCE. SUPPLY AND INSTALL 1800mm
HT. CHAIN LINK FENCE C/W THREE
STRAND BARBED WIRE ANGLED TOP.
INSTALL AT PROPERTY LINE.

GRAVEL MAINTENANCE
ACCESS 4.0m WIDTH
-DETAIL AS PER CIVIL

EMERGENCY
ACCESS RAMP

SEE L-303
SEE L-302

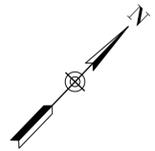
RED DEER RIVER

LEGEND

- ASPHALT PATHWAY - SEE DETAILS D AND E / L904
- GRAVEL SURFACING AGGREGATE
- PRECAST CONCRETE RETAINING WALL AND GUARDRAIL
- ROCK WALL
- GUARDRAIL AT ROCK WALL LESS THAN 1.0 m HEIGHT
- GUARDRAIL AT STAIRS
- CHAIN LINK FENCE TO MATCH EXISTING
- 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 DIKE AND PATHWAY CONSTRUCTION DETAILS.



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**TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
LAYOUT & GRADING PLAN**

Project No. **133142** Drawing No. **L-303** Rev. **1**
Group **LANDSCAPE**

LEGEND

- EXISTING TREE TO REMAIN
- SEED MIX 2A UPLAND AREAS (WET SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL
- SEED MIX 2B UPLAND AREAS (DRY SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL

- NOTES**
- ALL WORK SHALL COMPLY WITH TOWN OF DRUMHELLER VALLEY "PRESERVING & ENHANCING THE URBAN FOREST: STANDARDS & TECHNIQUES"
 - ALL UTILITIES MUST BE INSTALLED AND LOCATED PRIOR TO EXCAVATION AND LANDSCAPE CONSTRUCTION. (SEE CIVIL ENGINEERING DRAWINGS)

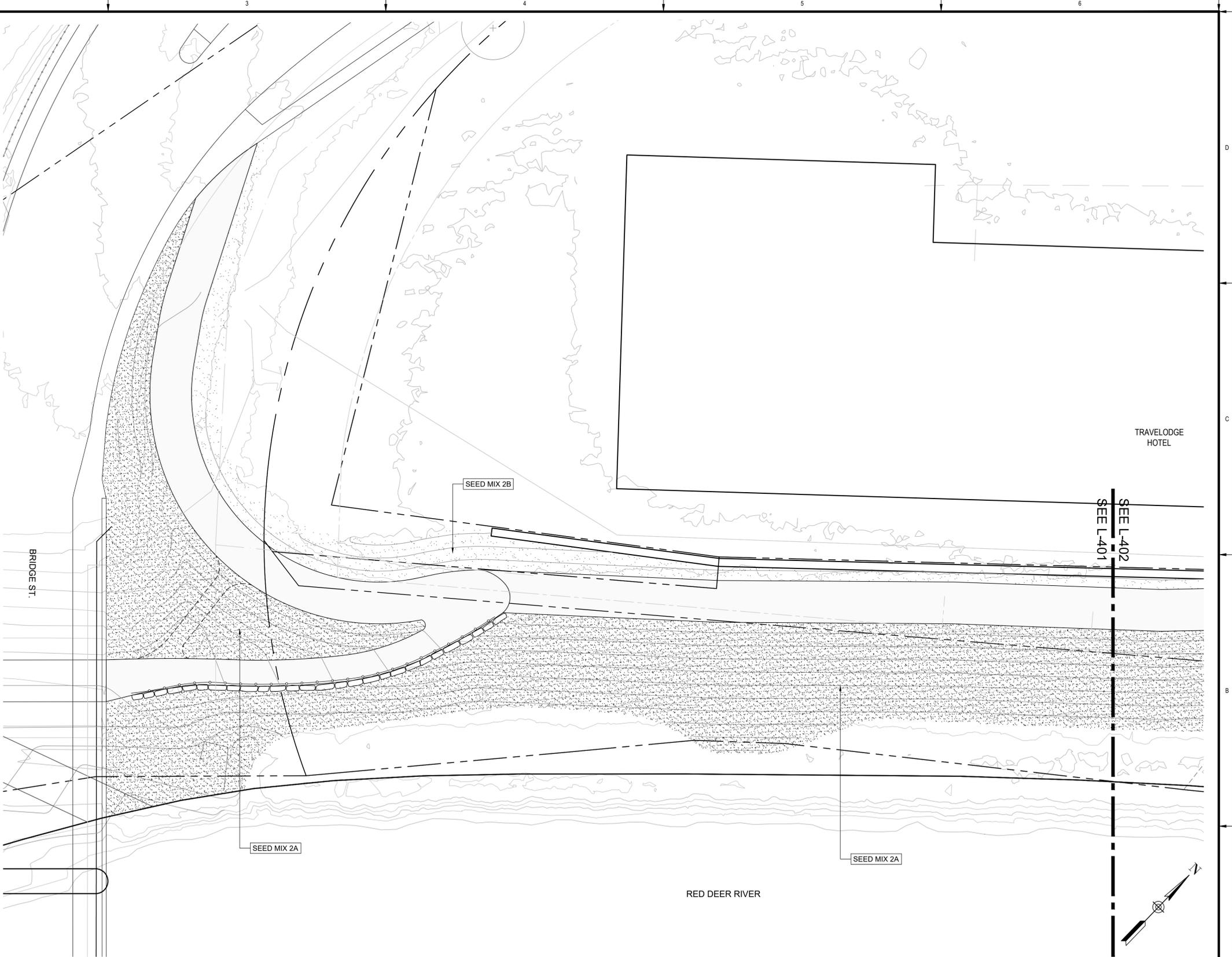
Seed Mix 2A - Upland Areas: Wet side slopes of dike, not likely susceptible to inundation - Application rate of 58 kg / ha.

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 Seed Mix 2A - Upland Areas: Annual Ryegrass - application rate of 5 kg / ha.

Seed Mix 2B - Upland Areas with low erosion and low risk of washout - Reinstall native topsoil materials and add crop of Lolium multiflorum (Annual Ryegrass) at 10 kg / ha for areas outlined on drawings.

- 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.
 - 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.
 - 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.



PLAN
Scale 1:200



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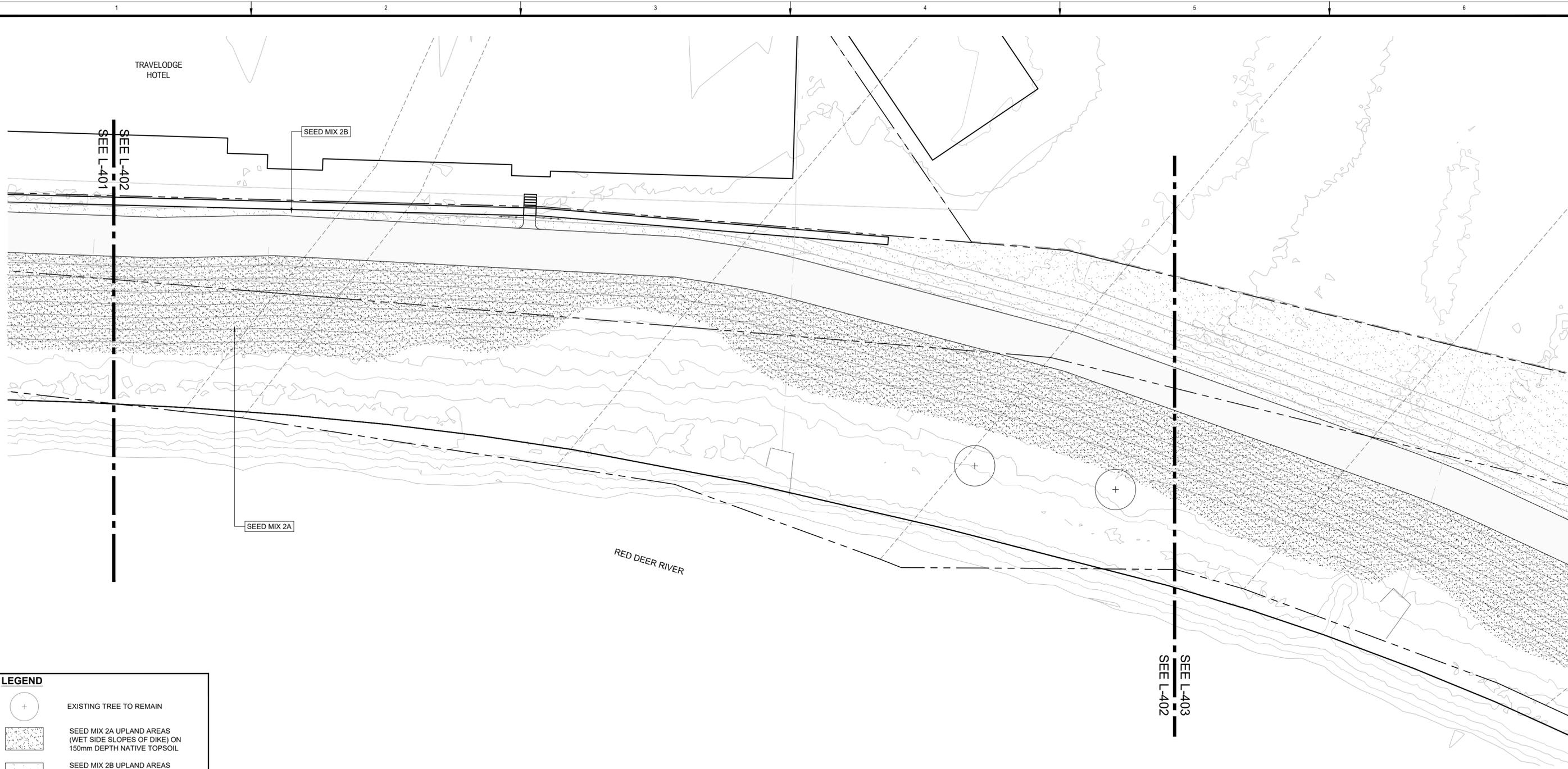
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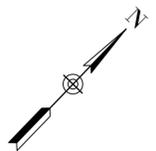
**TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
SEEDING PLAN**

Project No. **133142** Drawing No. **L-401** Rev. **1**
Group **LANDSCAPE**



LEGEND	
	EXISTING TREE TO REMAIN
	SEED MIX 2A UPLAND AREAS (WET SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL
	SEED MIX 2B UPLAND AREAS (DRY SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL

- NOTES**
1. ALL WORK SHALL COMPLY WITH TOWN OF DRUMHELLER VALLEY "PRESERVING & ENHANCING THE URBAN FOREST: STANDARDS & TECHNIQUES"
 2. ALL UTILITIES MUST BE INSTALLED AND LOCATED PRIOR TO EXCAVATION AND LANDSCAPE CONSTRUCTION. (SEE CIVIL ENGINEERING DRAWINGS)
 3. REFER TO SHEET L-401 FOR SEED NOTES & SEED MIX COMPOSITION.



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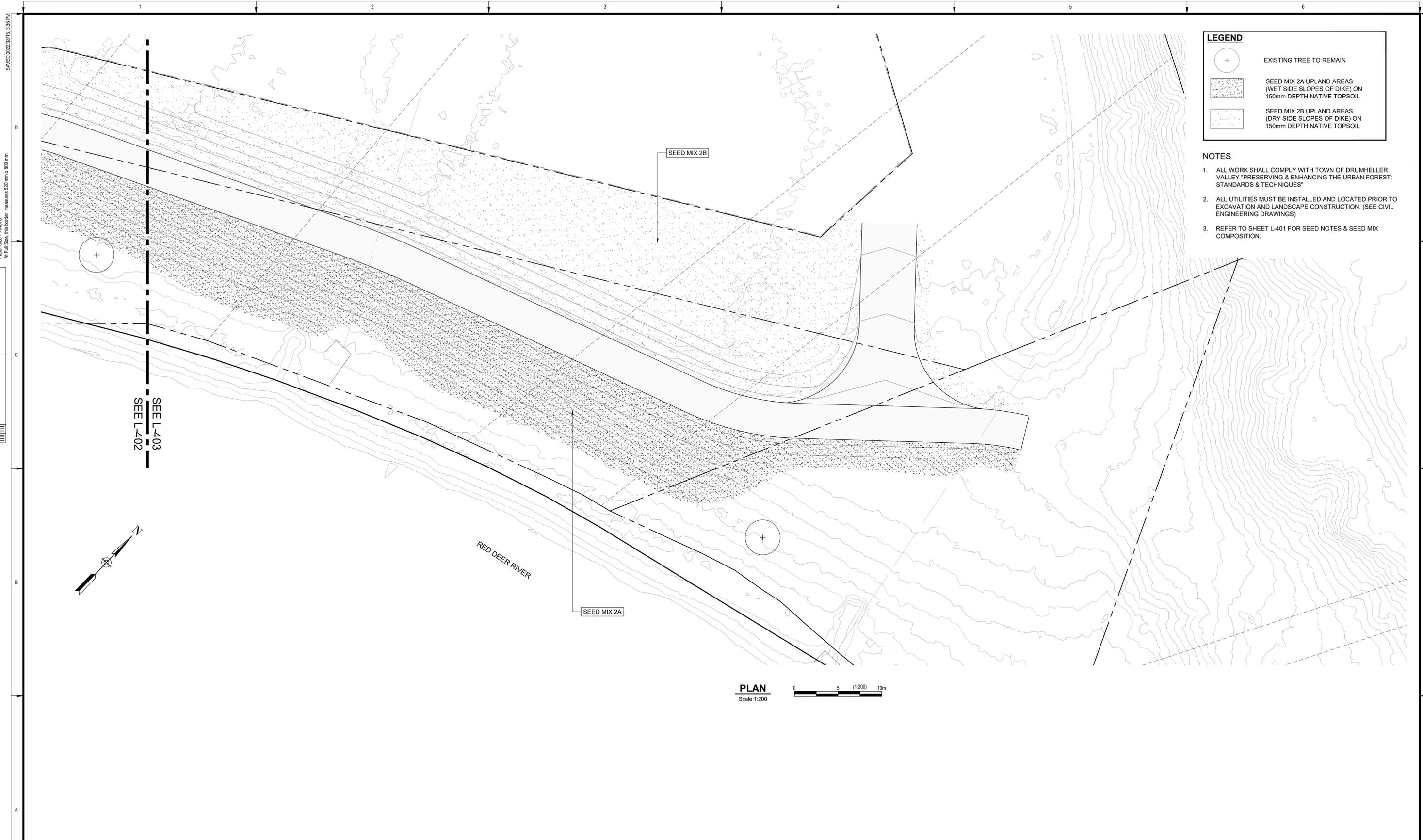
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TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
SEEDING PLAN

Project No. **133142** Drawing No. **L-402** Rev. **1**
 Group **LANDSCAPE**



LEGEND	
	EXISTING TREE TO REMAIN
	SEED MIX 2A UPLAND AREAS (WET SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL
	SEED MIX 2B UPLAND AREAS (DRY SIDE SLOPES OF DIKE) ON 150mm DEPTH NATIVE TOPSOIL

- NOTES**
1. ALL WORK SHALL COMPLY WITH TOWN OF DRUMHELLER VALLEY "PRESERVING & ENHANCING THE URBAN FOREST: STANDARDS & TECHNIQUES"
 2. ALL UTILITIES MUST BE INSTALLED AND LOCATED PRIOR TO EXCAVATION AND LANDSCAPE CONSTRUCTION. (SEE CIVIL ENGINEERING DRAWINGS)
 3. REFER TO SHEET L-401 FOR SEED NOTES & SEED MIX COMPOSITION.

SEE L-403
SEE L-402

PLAN
Scale 1:200



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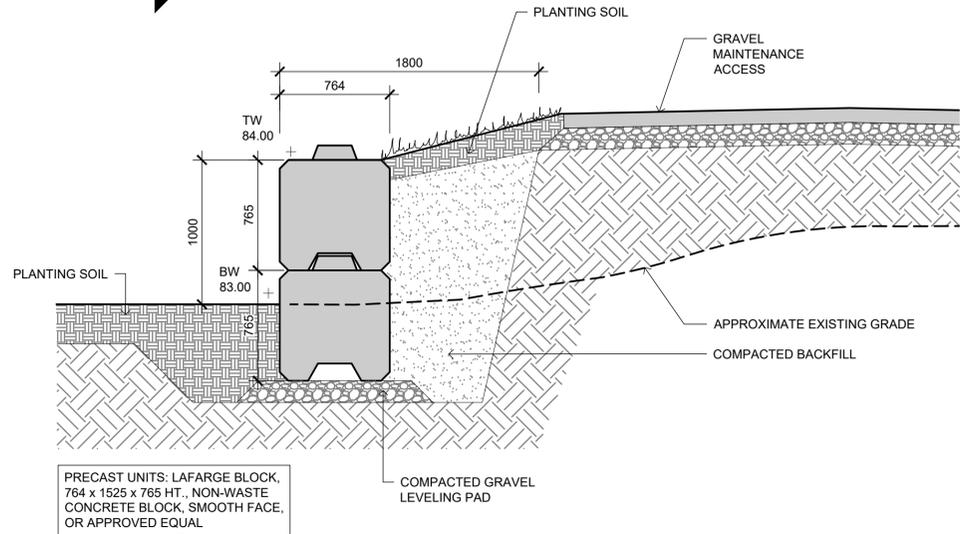
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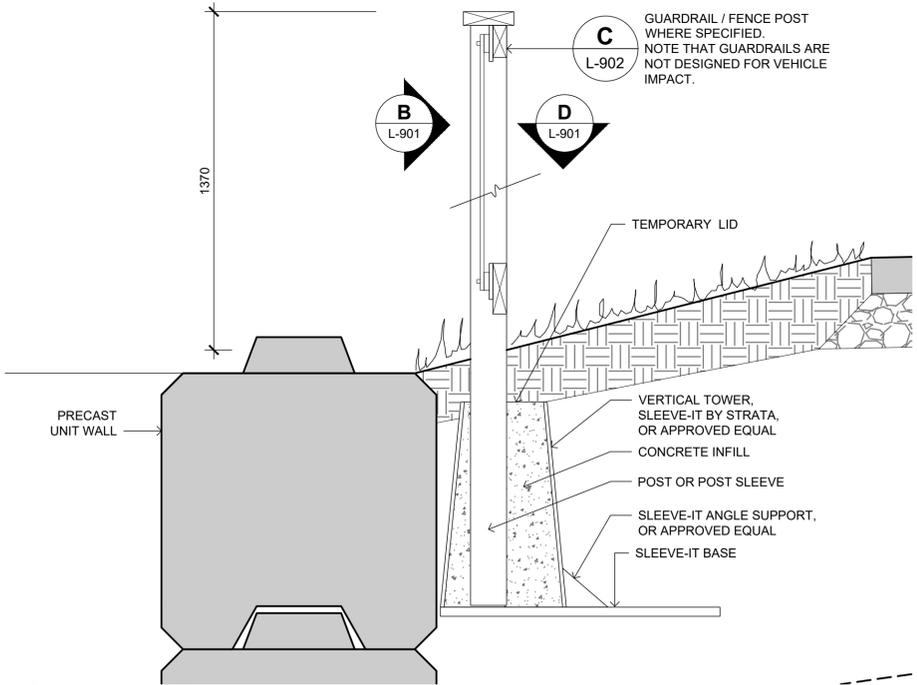
TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
SEEDING PLAN

Project No. **133142** Drawing No. **L-403** Rev. **1**
Group **LANDSCAPE**

B
 L-901
 TYPICAL
 ELEVATION



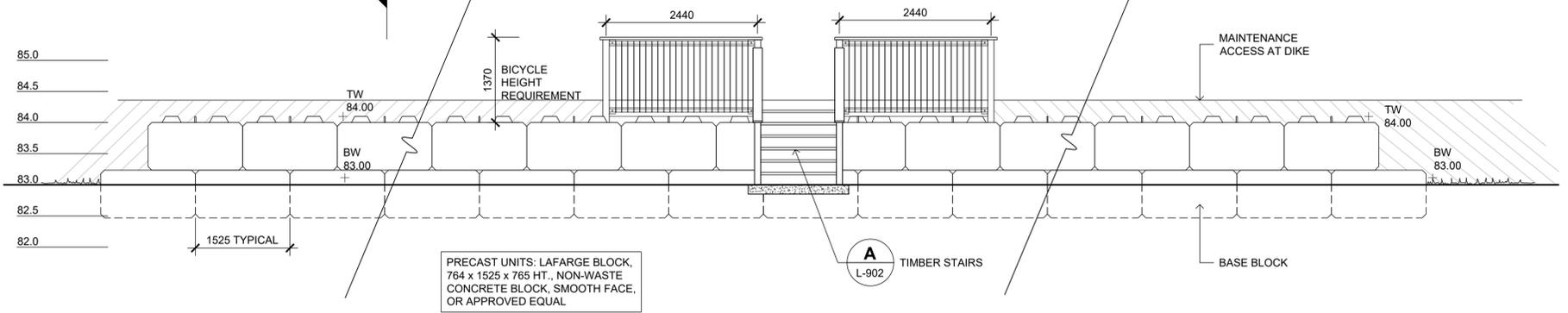
A
 L-901
 TYPICAL WALL DETAIL
 1:25 SECTION



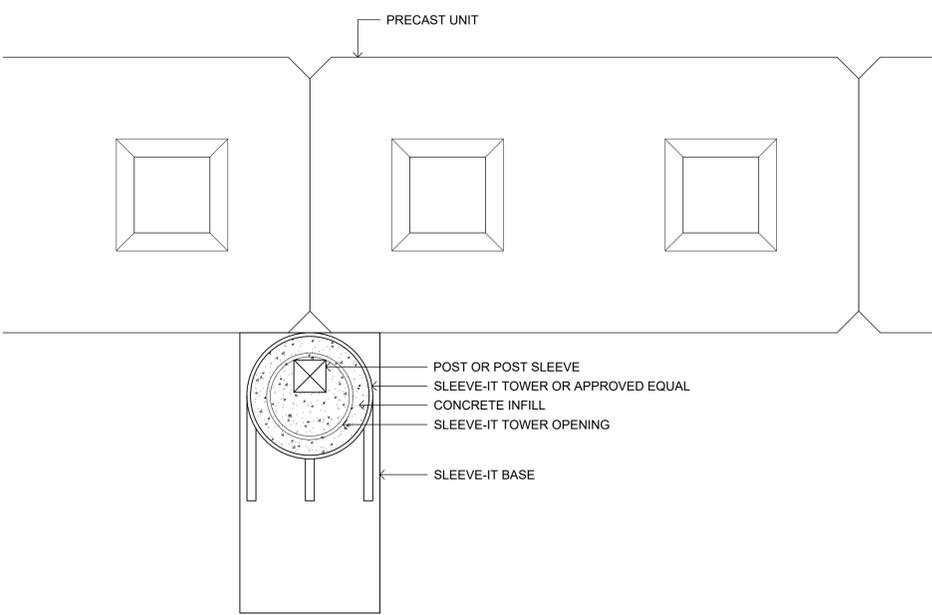
C
 L-901
 GUARDRAIL AT PRECAST RETAINING WALL AT STAIRS
 SCALE 1:10 SECTION

- IF SITE CONDITIONS OR WALL HEIGHTS VARY FROM TYPICAL SECTIONS, THE RETAINING WALL DETAIL IS TO BE REVIEWED, PRIOR TO CONSTRUCTION.
- ALL PRECAST CONCRETE BLOCKS TO HAVE SMOOTH FACE AND BE NON-WASTE.
- GUARDRAILS ARE DESIGNED FOR PEDESTRIAN/ BICYCLIST SAFETY AND NOT DESIGNED FOR VEHICLE IMPACT.

A
 L-901
 TYPICAL SECTION



B
 L-901
 RETAINING WALL
 1:50 TYPICAL ELEVATION



D
 L-901
 GUARDRAIL AT PRECAST RETAINING WALL AT STAIRS
 SCALE 1:10 PLAN



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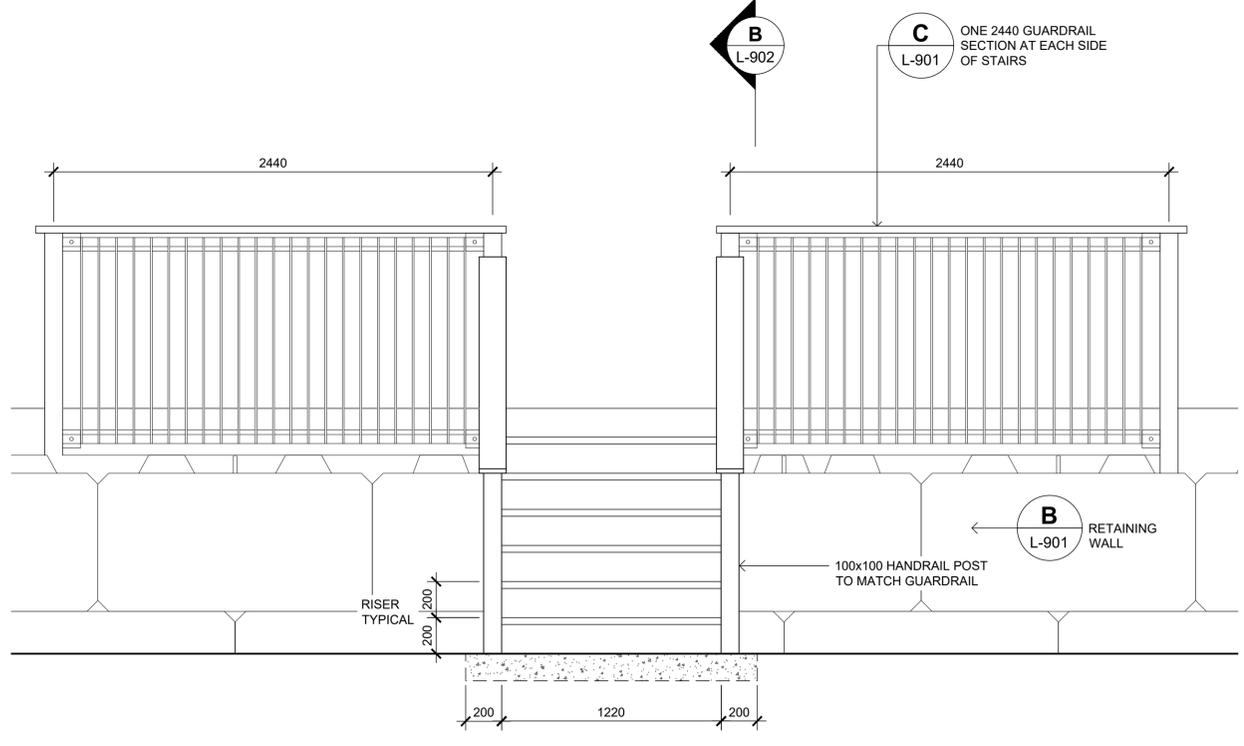
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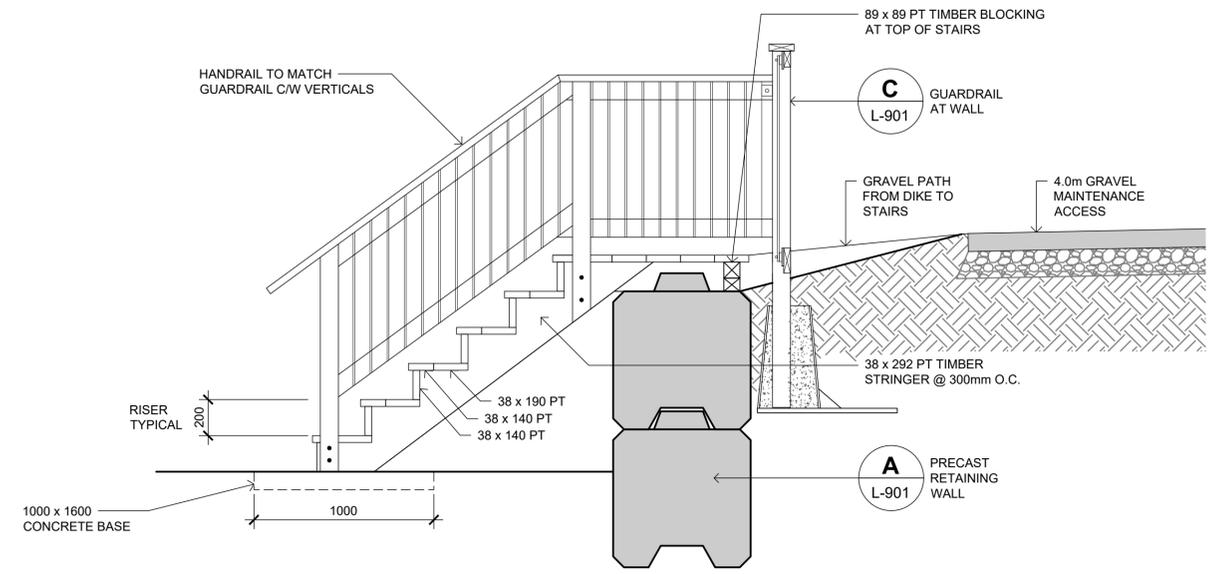
Rev	Date	Des	Dwn	Chk	Description

Project No. 133142		Drawing No.	
Group LANDSCAPE		L-901	
TOWN OF DRUMHELLER PACKAGE C DIKE PROJECT NORTH DRUMHELLER DIKE C LANDSCAPE DETAILS		Rev. 1	

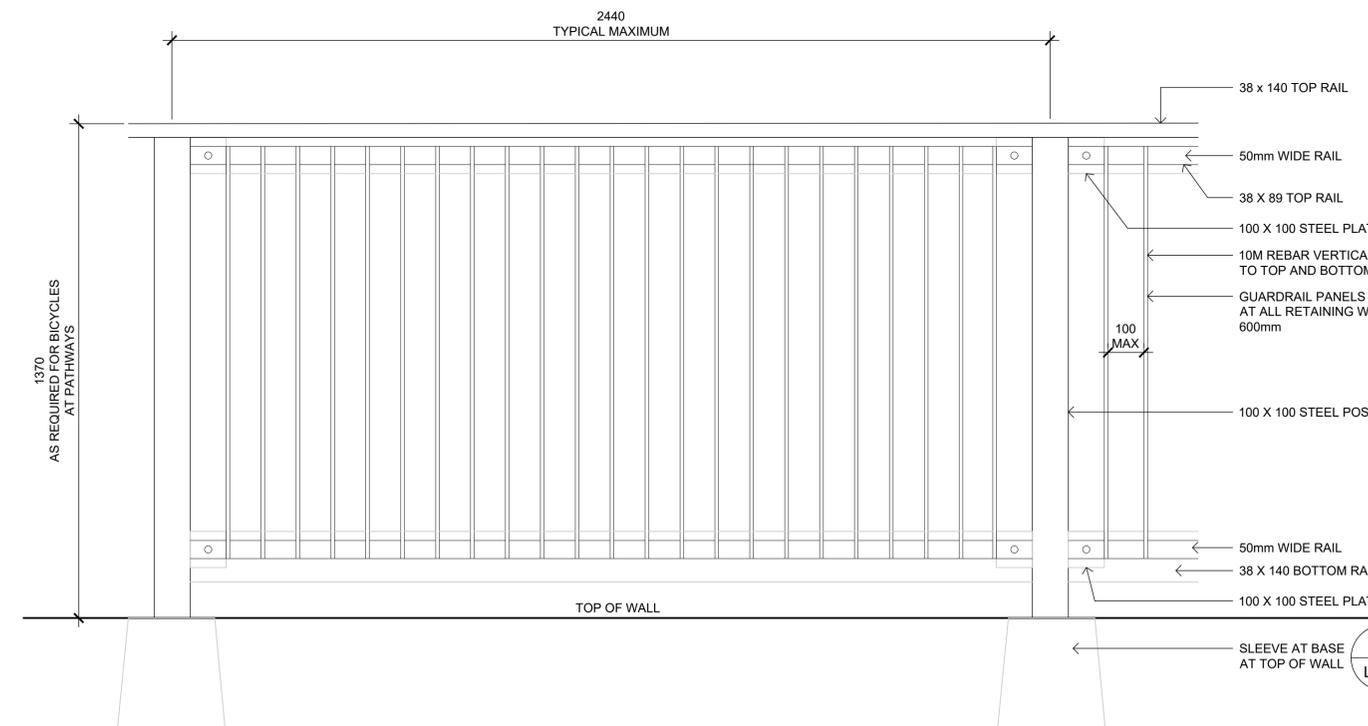
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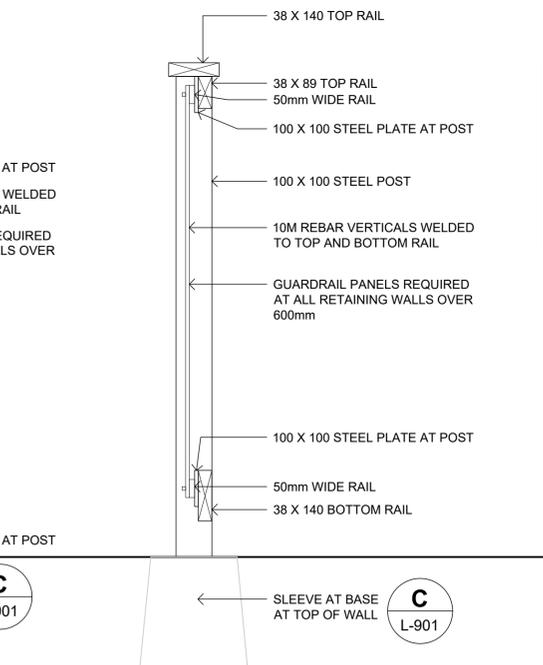
A TIMBER STAIRS AT WALL
L-902 1:20 ELEVATION



B TIMBER STAIRS AT WALL
L-902 1:20 SECTION



C PEDESTRIAN GUARDRAIL AT STAIRS
L-902 1:10 ELEVATION



D PEDESTRIAN GUARDRAIL AT STAIRS
L-902 1:10 SECTION

NOTES:

- ALL TIMBER TO BE PRESSURE TREATED
- ALL TIMBER FINISH TO BE TWO COATS SEMI-TRANSPARENT STAIN, COLOUR MEDIUM GREY
- STEEL POSTS, POWER COAT FINISH, COLOUR BLACK
- CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL METAL COMPONENTS.
- CONTRACTOR TO PROVIDE A SHOP DRAWING DEMONSTRATING THE METHOD OF CONSTRUCTION FOR CONSULTANTS APPROVAL, BASED ON THIS DETAIL DRAWING, PRIOR TO COMMENCING CONSTRUCTION.



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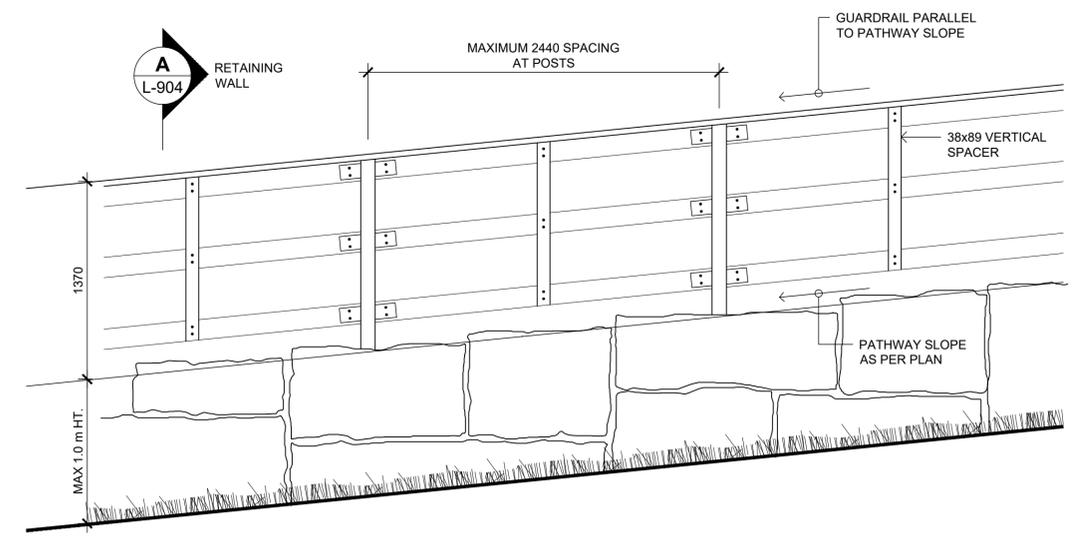
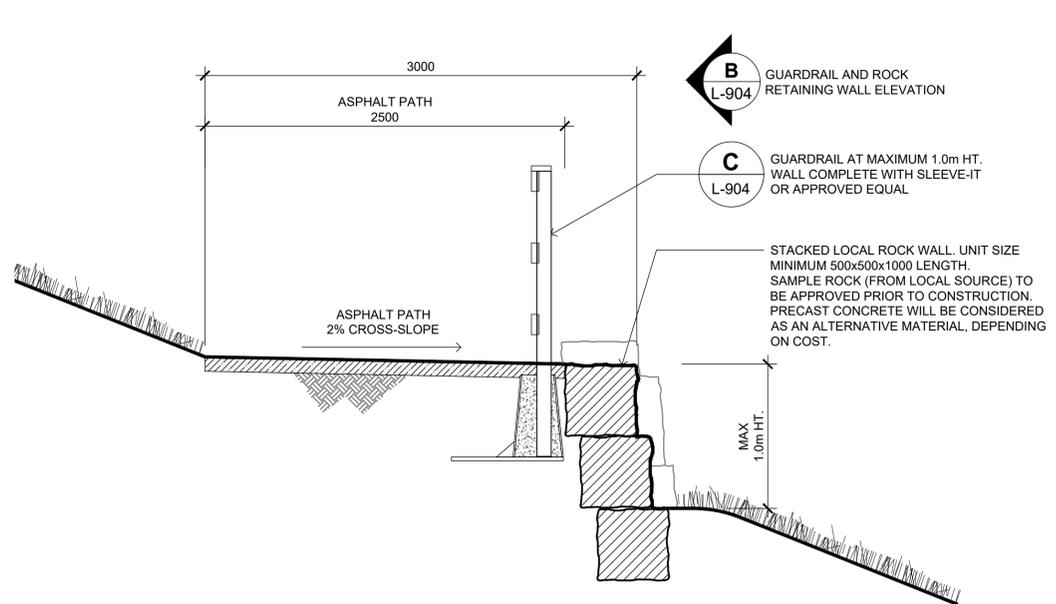
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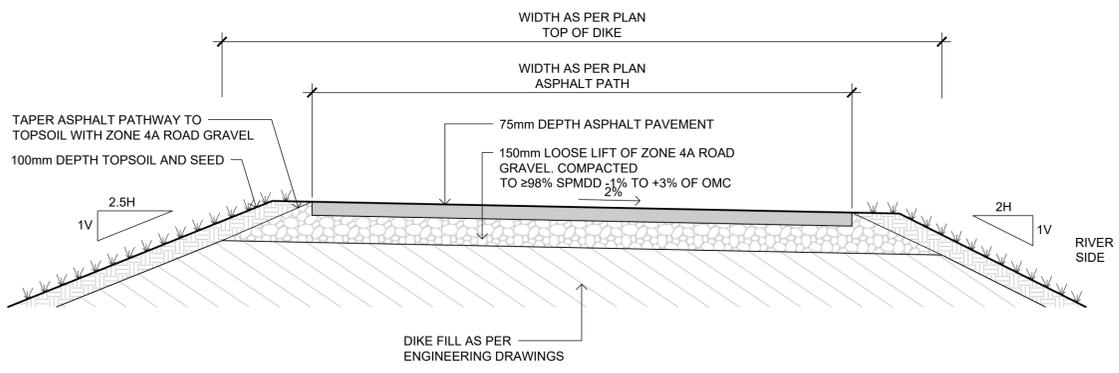
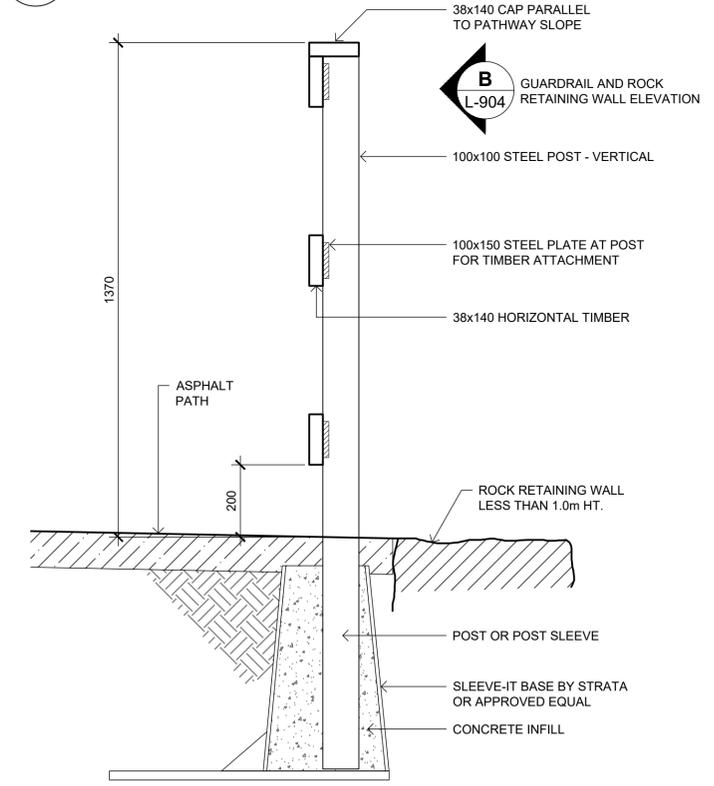
TOWN OF DRUMHELLER
PACKAGE C DIKE PROJECT
NORTH DRUMHELLER DIKE C
LANDSCAPE DETAILS

Project No. **133142** Drawing No. **L-902** Rev. **1**
 Group **LANDSCAPE**



A GUARDRAIL AND ROCK RETAINING WALL LESS THAN 1.0m HT. 1:25 SECTION

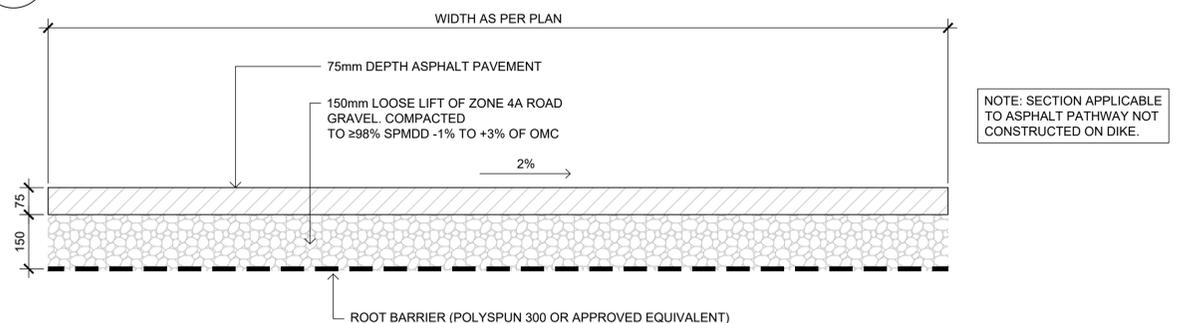
B GUARDRAIL AND ROCK RETAINING WALL LESS THAN 1.0m HT. 1:25 ELEVATION



D ASPHALT PATHWAY AT TOP OF DIKE SCALE 1:20

C GUARDRAIL AT WALL LESS THAN 1.0m HT. 1:10 SECTION

E ASPHALT PATHWAY SCALE 1:10



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TOWN OF DRUMHELLER
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 NORTH DRUMHELLER DIKE C
 LANDSCAPE DETAILS

Project No. 133142
 Group LANDSCAPE
 Drawing No. L-904
 Rev. 1