BURNS MAENDEL
CONSULTING ENGINEERS LTD.

903 Rosser Avenue
Brandon, MB R7A 0L3
Tel: 204.728.7364
Fax: 204.728.4418
www.bmce.ca

May 2, 2022

Environmental Approvals
Manitoba Conservation and Climate
1007 Century Street
Winnipeg, Manitoba R3H 0W4

Attention: **Edwin Yazon, P.Eng. – Environmental Engineer**

Reference: Rapid City Transfer Station – File No. 16861

Subject: Request for Additional Information – DGHTAL 6102.00

To Whom it May Concern,

BMCE is writing this letter in response to Mr. Edwin Yazon, P.Eng.'s, Request for Additional Information from TAC members, emailed to Mrs. Ashley Haigh, EIT on June 21, 2021 with regards to the Rapid City WDG conversion to a transfer station. Please refer to the summarized questions below for detailed answers:

1.0. Alternative Storage Method

Q1.1: Please clarify on how storage wastes will be covered.
Chemical Container Containment Area: The RM has decided to only accept empty/rinsed chemical containers. We understand that empty/rinsed chemical containers are not considered a hazardous waste and therefore do not require coverage. Chemical containers will still be located within the fenced hazardous waste compound to prevent littering from wind distribution.

Batteries – Class 8: Batteries will be properly stored on pallets within a SeaCan unit as shown on the revised Drawings.

Antifreeze: Antifreeze will be properly stored in 200 litre barrels provided by Notre Dame Used Oil & Filer Depot within the hazardous waste compound as shown on the revised Drawings.

Fluorescent Lights: Fluorescent lights will be properly stored in Product Care Recycling approved/provided plastic lined cardboard boxes within a SeaCan unit as shown on the revised Drawings.

Paint Aerosols: Paint aerosols will be stored in Product Care Recycling approved/provided UN certified 205 litre drums within the hazardous waste compound as shown on the revised Drawings.

Paint Cans: Paint cans will be stored in plastic/covered Product Care Recycling approved/provided containers within the hazardous waste compound as shown on the revised Drawings.

Single Use Propane Canisters: Single use propane canisters will be properly stored in Product Care Recycling approved/provided UN certified 205 litre drums within the hazardous waste compound as shown on the revised Drawings.

Propane Canisters: Propane canisters will be properly stored on a concrete slab within the hazardous waste storage area. Propane canisters will not be kept outdoors for longer than one year before being transferred, therefore are not at risk of corrosion.

Used Oil: Used oil will be stored in a 2270 Litre tank within the hazardous waste compound as shown on the revised Drawings. Additional clarifications on used oil storage provided in Section 4.0 and 5.0.

Used Oil Containers/Filters: Used oil containers/filters will be properly stored in heavy-duty bags as well as bag-stands and barrels, respectively, provided by Notre Dame Used Oil & Filter Depot within a SeaCan unit as shown on the revised Drawings.

All wastes listed above are placed within a secondary containment berm with a runoff/spill evaporation pond.

Q1.2: Have any alternative storage methods been considered (i.e., enclosed building, covered storage, etc.)?
All hazardous wastes except for the propane canisters will be covered, as explained above. The secondary containment berm provided will collect any snow/rain runoff that contacts the hazardous waste area as well as provide storage for accidental leaks.

Q1.3: Provide the reason for not selecting other alternatives.
See answer above.

2.0. Site Plan

Q2.1: A layout plan to include the configuration of the proposed storage area and any related existing and planned components and appurtenances (hazardous waste containers, used oil tank, fences, buildings, wells, etc.) must be provided. The plan must show the site access details.
See attached revised Drawings.

Q2.2: Please also provide a site plan indicating the distance form the burn pit to the hazardous waste depot.
See attached revised Drawings.

3.0. Leachate/Hazardous Waste Runoff

Q3.1: There is reference to leachate generation, accumulation, and containment. It is not clear how a site that stores hazardous wastes in containers on a temporary basis generates leachate. Waste Management Facilities Regulation defines leachate as liquid that has percolated though solid waste and contains dissolved and suspended materials from the solid waste. Has the proposal used the term "leachate" to reference the accumulated liquid arising from the snow melt/ storm water and spillage/leakage of waste?
Yes, we have used the term leachate to represent the melt/runoff/leakage that occurs within the hazardous waste containment area. BMCE has revised the Application for Dangerous Good Handling and Transportation (attached), previously submitted on March 23, 2021, and replaced the term 'leachate' with 'hazardous waste runoff'.

Q3.2: Snow melt and rainwater runoff needs to be managed properly. What are the procedures involved in the collection, testing and disposal of this accumulated wastewater? Provide the details pertaining to this procedure along with diagrams.
Snow melt and rainwater runoff that collects in the hazardous waste area will be contained within the secondary containment berms, where it will evaporate. In the event the secondary containment is near capacity, the operator will take a sample of the runoff and submit it to an accredited laboratory for analysis of hazardous constituents, which will dictate the appropriate disposal method. The environmental officer will be contacted and notified of the situation, prior to sampling,

and would provide approval on the determined appropriate actions. If no contamination is present, the runoff may be discharged through a valved culvert, see attached revised Drawings.

Q3.3: Metal containers with prolonged contact with snow/water would lead to corrosion and may affect the integrity of the containment. What measures are proposed to prevent this from occurring?
The only hazardous wastes subject to contact with snow/water and potential erosion are the propane canisters.

The hazardous waste depot will be graded such that water will not pond or accumulate and propane tanks will be stored on a concrete pad (elevated off the ground). Corrosion of the metal containers will be mitigated by removing all hazardous wastes from the site at minimum once every year to prevent prolonged contact with snow/water.

Q3.4: Provide a plan for containing, handling, monitoring, storing, and disposing of contaminated water in the event of a response to a fire, leak, or discharge.
On April 6, 2022 BMCE spoke with Mr. Edwin Yazon and Mr. Asit Dey of Manitoba Environment, Climate and Parks (MECP) to discuss the storage of contaminated fire water. It is BMCE's understanding that MECP is waiving this requirement and therefore, no provision for the storage of contaminated fire water has been included. Any runoff or water accumulation within the secondary containment berms will be handled as detailed above in Q3.2.

4.0. Storage Containers

Q4.1: Used oil: capacity of the storage tank, double wall, or single wall, whether ULC certified?
The used oil tank is a double walled, ULC certified, 2270 litre capacity tank.

Q4.2: Batteries: are these Class 8 – Lead Acid Batteries (automobile)? Please provide the number of batteries estimated per year.
The RM of Oakview estimates that the Oakview transfer station will collect approximately 750 kg of battery waste each year (approximately 42 car batteries).

Q4.3: Solvents and paints: what type of containers are used? Provide the details of storage containers.
See Section 1.0.

5.0. Wastes Handling/Loading and Unloading

Q5.1: Please describe how wastes are received, stored, and transferred for offsite processing.
Hazardous wastes brought to the transfer station by the public will be assessed by the transfer station operator to ensure they conform to the collection standards. Once the wastes have been deemed acceptable, the operator will allow access to the hazardous waste depot where the public/operator will collect and place the wastes, properly packed, in their designated storage areas. Hazardous wastes will only be removed from transportation vehicles within the hazardous waste depot, inside the secondary containment area, to contain any accidental spills.

Wastes will be stored as detailed in Section 1.0.

The applicable Stewardships (identified in this Section) will be contacted for waste transfer when the maximum storage capacity of hazardous wastes has been reached or when the maximum storage period of one year has expired in accordance with the *Standards for Transfer Stations in Manitoba,*

2016. Stewardships and Collectors responsible for the transfer and recycling of hazardous wastes are as follows:

Manitoba Hazardous Waste Stewardship / Collector	Waste Received/Transferred/Recycled
Product Care Recycling	• Paint Aerosols • Paint Products • Single Use Compressed Gas Cylinders (Propane) • Fluorescent Tubes & Bulbs (Whole)
Notre Dame Used Oil & Filter Depot	• Antifreeze • Class 8 Lead Acid Batteries • Used Oil • Used Oil Filters/Containers
Prairie Propane Ltd.	• Compressed Gas Cylinders (Propane)
Cleanfarms Inc.	• Rinsed Pesticide Containers

Hazardous wastes will only be transported/loaded on receiving vehicles within the hazardous waste depot, inside the secondary containment area, to contain any accidental spills. The use of equipment, such as a skid steer, my be used to lift and place pallets/tubs/drums of hazardous waste.

Q5.2: Identify the waste transfer area.
See attached revised Drawings.

Q5.3: Please identify the location of absorbents and spill kits.
See attached revised Drawings.

Q5.4: Please list the facilities that are identified for receiving hazardous waste.
Product Care Recycling, Notre Dame Used Oil & Filter Depot, Prairie Propane Ltd., and Cleanfarms.

- Many of these Stewardships/Collectors use Miller Environmental for the transportation of the hazardous wastes.

Q5.5: A hazardous waste generator registration needs to be submitted for updating the current registration.
See attached hazardous waste generator registration. This registration has also been submitted via the online e-form on January 13, 2022 at 9:46am. Clarifying comments addressing questions regarding the e-form were sent to hazwaste@gov.mb.ca on January 19, 2022 at 9:13am.

I trust that the above meets your requirements, however should you require additional information please do not hesitate to contact the undersigned at 204-728-7364.

Yours truly,
BURNS MAENDEL CONSULTING ENGINEERS LTD.

[redacted]

Ashley Haigh, P. Eng
Civil Engineer

903 Rosser Ave.
Brandon, Manitoba
R7A 0L3
Tel: (204) 728-7364
Fax: (204) 728-4418

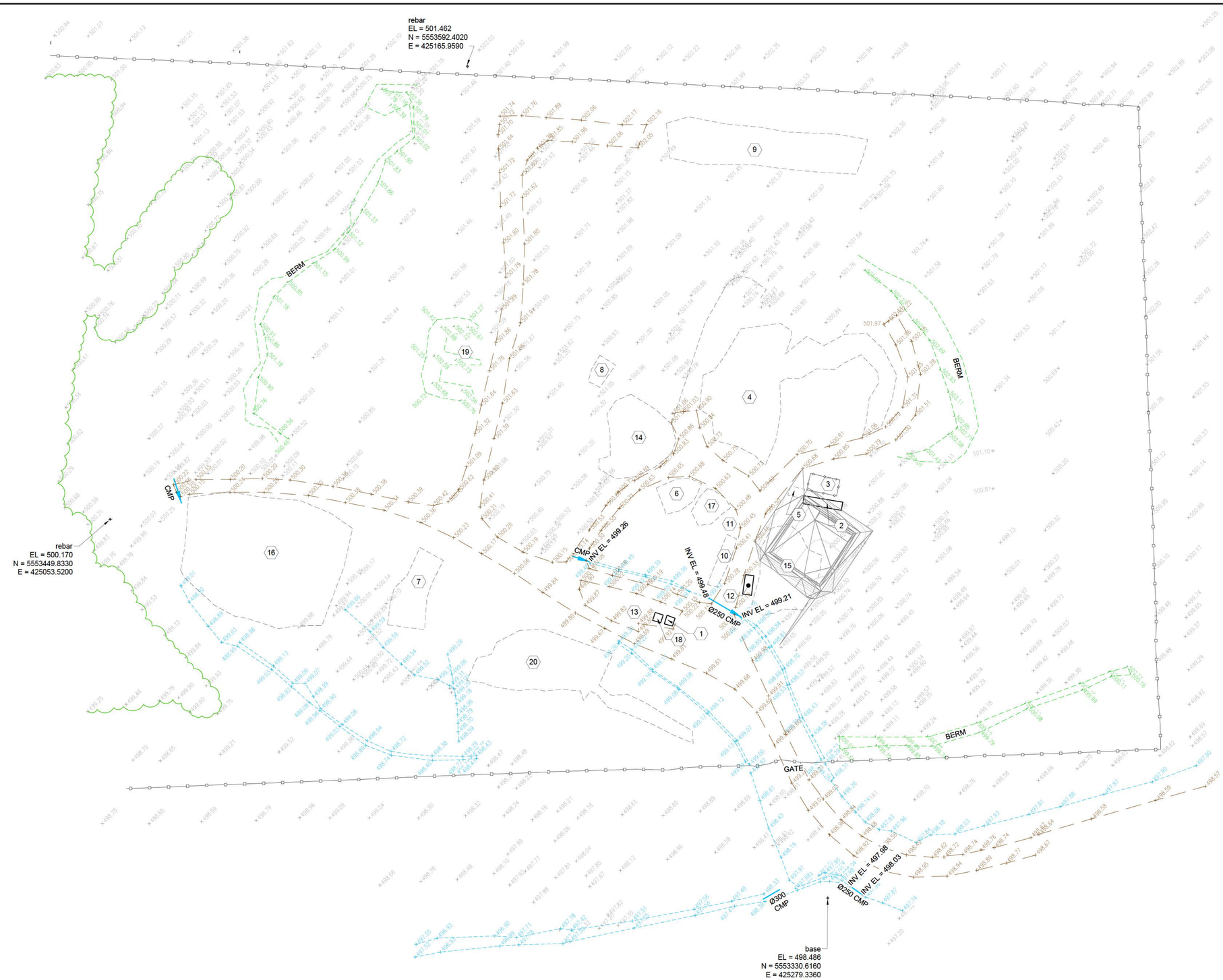
BURNS MAENDEL
CONSULTING ENGINEERS LTD.

RM OF OAKVIEW
SOLID WASTE TRANSFER STATION

SW 29-13-19 WPM
MANITOBA

CIVIL DRAWINGS		
DWG NO.	DRAWING NAME	REV
C1.1	EXISTING SITE SURVEY	C
C1.2	PROPOSED SITE PLAN	3
C1.3	SITE GRADING	3
C2.1	TRANSFER STATION GRADING	3
C2.2	ROAD AND SWALE DETAILS	2
C3.1	BIN WALL SECTION	3
C3.2	BIN WALL DETAILS	3
C3.3	HAZARDOUS WASTE CONTAINMENT AREA SECTIONS AND DETAILS	3

DATE	PROJECT NO:
APRIL 29, 2022	BMCE-19-103



KEYNOTES:

1. ATTENDANT'S SHACK
2. SHIPPING CONTAINER
3. CHEMICAL CONTAINER CONTAINMENT AREA
4. CONCRETE WASTE PILE
5. ELECTRONIC WASTE PILE
6. FRIDGE STORAGE AREA
7. GLASS PILE
8. DRYWALL PILE
9. HOUSEHOLD WASTE TRENCH
10. PAINT CAN PILE
11. PLASTIC HOSE PILE
12. WASTE TRANSFER BIN
13. PROPANE CANISTERS
14. SCRAP METAL PILE
15. TIRE PILE
16. TREE COMPOST
17. USED OIL PILE
18. WOOD SHED
19. BURN PIT
20. EARTHEN COVERED WASTE PILE

GENERAL NOTES:

1. ALL UNITS ARE IN METRES AND DECIMALS THEREOF.
2. EXISTING FEATURE LOCATIONS DERIVED FROM SURVEY INFORMATION COLLECTED BY BMCE ON OCTOBER 25, DECEMBER 16, AND DECEMBER 17 2019.
3. PRIOR TO CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE INDIVIDUAL UTILITY COMPANIES FOR LOCATES.
4. THREE REBAR BENCHMARKS HAVE BEEN PROVIDED ON SITE AND SHOWN ON DRAWING C1.1.
5. CONTRACTOR TO COMMISSION LEGAL LAND SURVEYOR TO ESTABLISH ADDITIONAL BENCHMARKS FOR CONSTRUCTION CONTROL ON SITE. COORDINATE LOCATION OF BENCHMARKS WITH ENGINEER.

LEGEND

FENCE LINE	
BUSH LINE	
EDGE OF ROAD	
DITCH OR SWALE	
BERM	
GROUND ELEVATION	× 100.00
DITCH ELEVATION	× 100.00
ROAD ELEVATION	× 100.00
BERM ELEVATION	× 100.00

NO:	DATE	APP.	BY	DESCRIPTION
C	APRIL 29, 2022	AH	CR	ISSUED FOR INFORMATION
B	FEBRUARY 4, 2022	AH	CR	ISSUED FOR INFORMATION
A	MARCH 12, 2021	DAB	CR	ISSUED FOR INFORMATION

REVISIONS

DESIGNED BY: -
REVIEWED BY: -
DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
SCALE: 1:650

PROJECT NAME:
RURAL MUNICIPALITY OF OAKVIEW
SOLID WASTE TRANSFER STATION
SW 29-13-19 WPM

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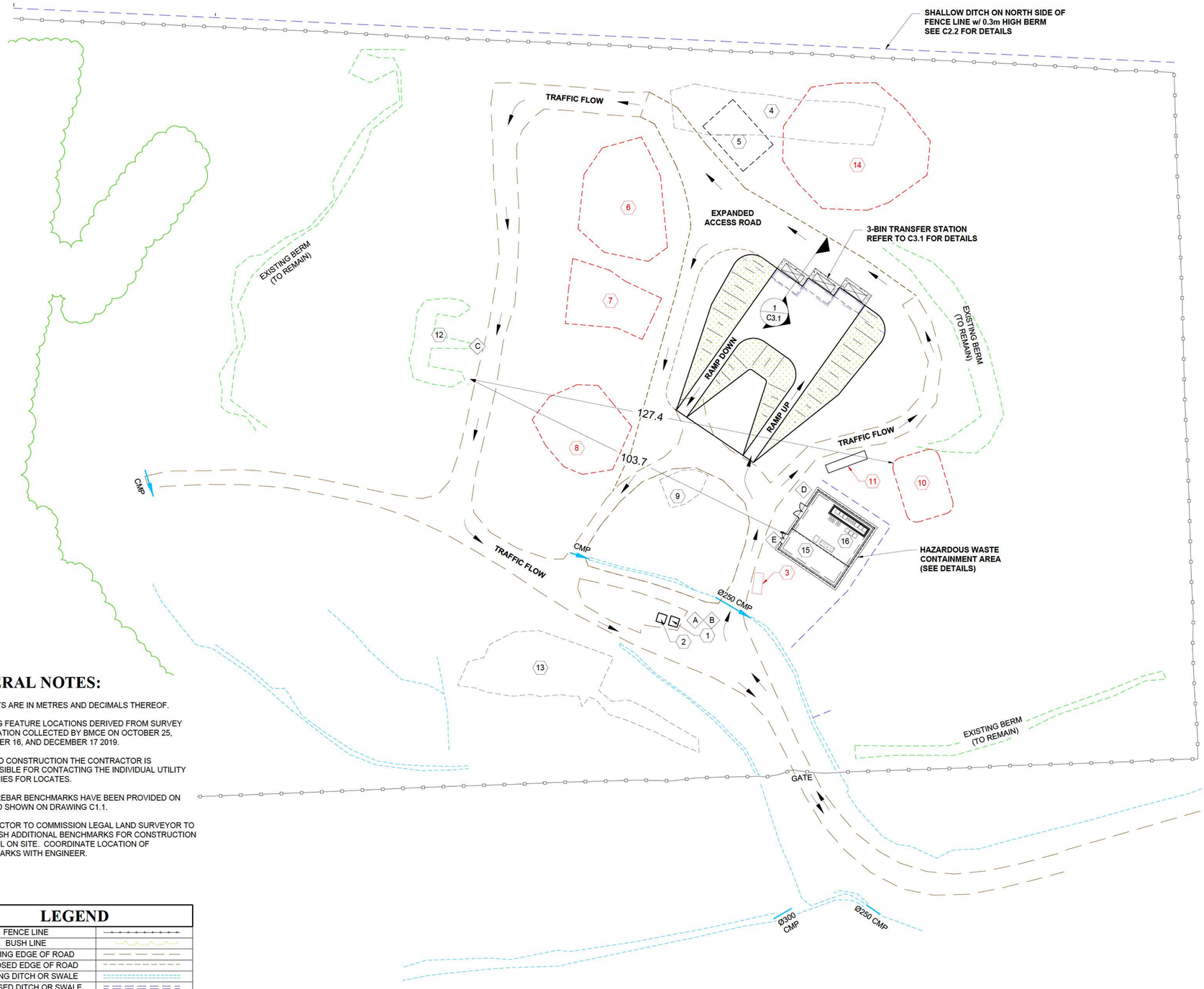
DRAWING TITLE:
EXISTING
SITE SURVEY

PROJECT NUMBER: BMCE-19-103
DRAWING NO: C1.1



KEYNOTES:

1. ATTENDANT'S SHACK
2. WOOD SHED
3. WASTE TRANSFER BIN (TO BE RELOCATED TO NEW TRANSFER STATION AREA)
4. HOUSEHOLD WASTE TRENCH (TO BE CLOSED)
5. ASPHALT SHINGLES
6. CONCRETE WASTE PILE (RELOCATED)
7. GLASS PILE (RELOCATED)
8. SCRAP METAL PILE (RELOCATED)
9. FRIDGE STORAGE AREA
10. TIRE PILE (RELOCATED)
11. SHIPPING CONTAINER w/ ELECTRONIC WASTE (RELOCATED)
12. BURN PIT
13. EARTHEN COVERED WASTE PILE
14. TREE COMPOST (RELOCATED)
15. RINSED CHEMICAL CONTAINER CONTAINMENT AREA (TO BE RECONSTRUCTED WITH A CLAY LINER; POSTS TO BE REUSED WHERE POSSIBLE)
16. THE FOLLOWING HAZARDOUS WASTES SHALL BE PLACED WITHIN THE CONTAINMENT AREA
    - ANTIFREEZE
    - BATTERIES - CLASS 8
    - FLUORESCENT LIGHTS
    - PAINT AEROSOLS
    - PAINT CANS
    - PROPANE CANISTERS
    - SINGLE USE PROPANE CANISTERS
    - USED OIL
    - USED OIL PAILS AND FILTERS

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LEGEND

FENCE LINE	
BUSH LINE	
EXISTING EDGE OF ROAD	
PROPOSED EDGE OF ROAD	
EXISTING DITCH OR SWALE	
PROPOSED DITCH OR SWALE	
EXISTING BERM	

A — **TRANSFER STATION**
HOUSEHOLD WASTE
DRYWALL
CONCRETE WASTE
ASPHALT SHINGLES
SALVAGE PILES
GLASS - METAL - TIRES - REFRIGERATORS - APPLIANCES
FOR ELECTRONIC WASTE, SEE ATTENDANT
NO INDUSTRIAL WASTE
NO MEDICAL WASTE
900 x 1200

B — **HAZARDOUS WASTES:**
- ANTIFREEZE
- BATTERIES (CLASS 8)
- FLUORESCENT LIGHTS
- PAINT & AEROSOLS
- PESTICIDE & FERTILIZER CONTAINERS
- PROPANE CANISTERS
- USED OIL

DEPOSIT HAZARDOUS WASTE IN DESIGNATED AREAS **ONLY**
SEE ATTENDANT
900 x 1200

C — BURNING
- BOUGHS
- CARDBOARD
- NON-SALVAGEABLE UNTREATED WOOD

NO PLASTIC
700 x 700

D — CLASS 8 LEAD ACID BATTERIES
ACCEPTED SEASONALLY BETWEEN
APRIL 1 AND OCTOBER 31
900 x 700

E — PESTICIDE AND FERTILIZER CONTAINERS
PRIOR TO DISPOSAL:
1) TRIPLE OR PRESSURE RINSE
2) REMOVE ALL CAPS, BOOKLETS AND METAL HANDLES
900 x 900

SIGNAGE

SCALE: N.T.S.

NOTE: EXISTING SIGNS ON SITE TO BE RELOCATED AS REQUIRED.

NO:	DATE	APP.	BY	DESCRIPTION
3	APRIL 29, 2022	AH	CR	REVISED TO SUIT TECHNICAL ADVISORY COMMITTEE COMMENTS
2	FEBRUARY 15, 2022	AH	CR	REVISED TO SUIT TECHNICAL ADVISORY COMMITTEE COMMENTS
1	FEBRUARY 4, 2022	AH	CR	ISSUED FOR CLIENT REVIEW AND COMMENT
0	MARCH 12, 2021	DAB	CR	ISSUED FOR CONSTRUCTION
A	AUG 11, 2020	DAB	CR	ISSUED FOR REVIEW AND COMMENT

REVISIONS

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559

[redacted]

DESIGNED BY: AH
REVIEWED BY: DAB
DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
SCALE: 1:650

PROJECT NAME:
RURAL MUNICIPALITY OF OAKVIEW
SOLID WASTE TRANSFER STATION
SW 29-13-19 WPM

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R7A 0L3
Tel: (204) 728-7364
Fax: (204) 728-4418

rebar
EL = 501.462
N = 5553592.4020
E = 425165.9590

SHALLOW DITCH ON NORTH SIDE OF FENCE LINE w/ 0.3m HIGH BERM
SEE PROFILE AND DETAIL ON C2.2

rebar
EL = 500.170
N = 5553449.8330
E = 425053.5200

ASPHALT SHINGLES

RELOCATED TREE COMPOST PILE

RELOCATED CONCRETE WASTE PILE

RELOCATED GLASS PILE

RELOCATED SCRAP METAL

RELOCATED TIRE PILE

REFER TO C2.1 FOR TRANSFER STATION RAMP GRADING

EXISTING FRIDGE STORGE

E-WASTE SEA CAN

HAZARDOUS WASTE CONTAINMENT AREA
REFER TO C2.1 FOR GRADING
AND C3.3 FOR DETAILS

CMP INV EL = 499.26

Ø250 CMP INV EL = 499.48

INV EL = 499.21

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5. CONTRACTOR TO COMMISSION LEGAL LAND SURVEYOR TO ESTABLISH ADDITIONAL BENCHMARKS FOR CONSTRUCTION CONTROL ON SITE. COORDINATE LOCATION OF BENCHMARKS WITH ENGINEER.

POINT TABLE

POINT NUMBER	DESCRIPTION	ELEVATION	NORTHING	EASTING
10	BinCornerTop	504.820	5,553,519.64	425,258.27
11	BinCornerTop	504.820	5,553,522.11	425,260.03
12	BinCornerTop	504.820	5,553,514.35	425,265.72
13	BinCornerTop	504.820	5,553,516.82	425,267.48
14	BinCornerTop	504.820	5,553,519.30	425,269.24
15	BinCornerTop	504.820	5,553,511.53	425,274.93
16	BinCornerTop	504.820	5,553,514.01	425,276.69
17	BinCornerTop	504.820	5,553,516.48	425,278.45
18	BinCornerTop	504.820	5,553,508.89	425,283.90
19	BinCornerTop	504.820	5,553,511.19	425,285.90

GRADING NOTES:

- EXISTING ROADWAY TO BE GRADED TO IMPROVE DRAINAGE.
- ROADWAY TO BE EXTENDED FOR TRANSFER STATION ACCESS.
- RAMP SIDE SLOPES TO BE SEEDED WITH GRASS TO PREVENT EROSION.
- AREA TO BE GRADED TO PROMOTE DRAINAGE AWAY FROM RAMP. SEED WITH GRASS AS REQUIRED.
- (1) WEEPING TILE DAYLIGHT (TYPICAL 2 LOCATIONS) GRADE OUTLET AREA TO PROMOTE DRAINAGE TO SWALE.

LEGEND

MAJOR DRAINAGE ARROW	
EXISTING DITCH	
PROPOSED SWALE	
EXISTING EDGE OF ROAD	
PROPOSED EDGE OF ROAD	
EXISTING BERM	
EXISTING DITCH	× 100.00
EXISTING GROUND	× 100.00
EXISTING ROAD	× 100.00
EXISTING BERM	× 100.00
PROPOSED ELEVATION	× 100.00
PROPOSED GUTTER / DITCH	× 100.00
GRADE SLOPE	2.0%
PROPOSED CULVERT	

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ENGINEERS GEOSCIENTISTS MANITOBA
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[redacted]

DESIGNED BY: AH | REVIEWED BY: DAB
DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
SCALE: 1:500

PROJECT NAME:
RURAL MUNICIPALITY OF OAKVIEW
SOLID WASTE TRANSFER STATION
SW 29-13-19 WPM

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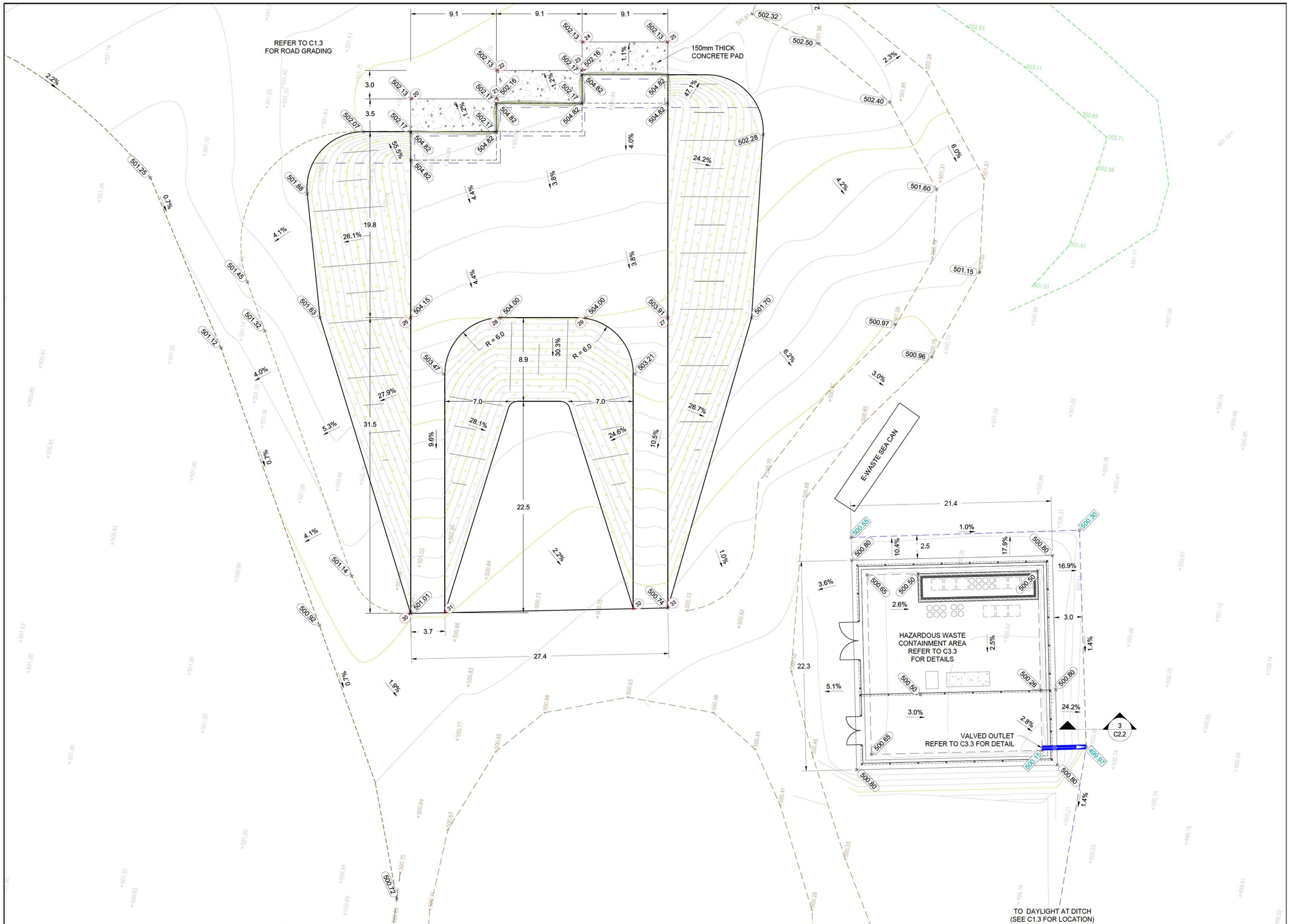

POINT TABLE

POINT NUMBER	DESCRIPTION	ELEVATION	NORTHING	EASTING
20	TopOfSlab	502.130	5,553,524.97	425,262.05
21	TopOfSlab	502.160	5,553,519.68	425,269.51
22	TopOfSlab	502.130	5,553,522.15	425,271.26
23	TopOfSlab	502.160	5,553,516.86	425,278.72
24	TopOfSlab	502.130	5,553,519.34	425,280.47
25	TopOfSlab	502.130	5,553,514.05	425,287.93
26	TopOfBinRamp	504.148	5,553,505.95	425,248.55
27	TopOfBinRamp	503.906	5,553,490.08	425,270.91
28	TopOfBinRamp	504.000	5,553,500.41	425,256.35
29	TopOfBinRamp	504.000	5,553,495.14	425,263.77
30	RampStart	501.010	5,553,480.24	425,230.31
31	RampStart	501.010	5,553,478.19	425,233.33
32	RampStart	500.740	5,553,466.92	425,249.95
33	RampStart	500.740	5,553,464.84	425,253.01

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LEGEND

MAJOR DRAINAGE ARROW	
EXISTING DITCH	
PROPOSED SWALE	
EXISTING EDGE OF ROAD	
PROPOSED EDGE OF ROAD	
EXISTING BERM	
EXISTING DITCH	× 100.00
EXISTING GROUND	× 100.00
EXISTING ROAD	× 100.00
EXISTING BERM	× 100.00
PROPOSED ELEVATION	100.00
PROPOSED GUTTER / DITCH	100.00
GRADE SLOPE	2.0%

NO:	DATE	APP.	BY	DESCRIPTION
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No. 4559

[redacted]

DESIGNED BY: AH
REVIEWED BY: DAB
DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
SCALE: 1:200

PROJECT NAME:
RURAL MUNICIPALITY OF OAKVIEW
SOLID WASTE TRANSFER STATION
SW 29-13-19 WPM

BURNS MAENDEL CONSULTING ENGINEERS LTD.
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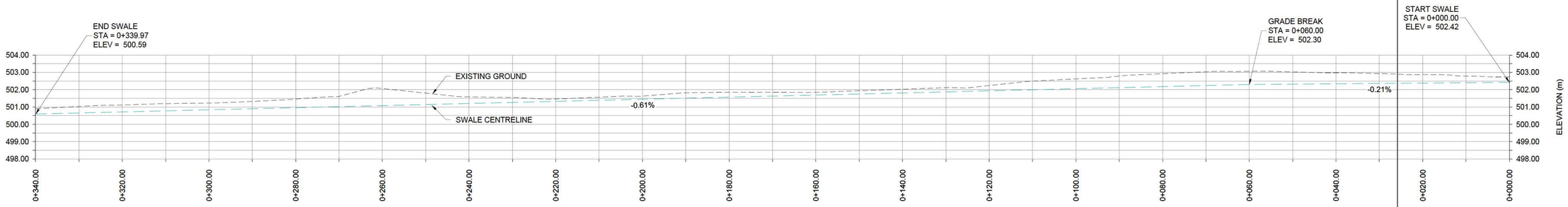

NORTH SWALE PROFILE

SCALE: HOR = 1:500
VERT = 1:125

NORTH SWALE PARTIAL PLAN

SCALE: 1:500

GENERAL NOTES:

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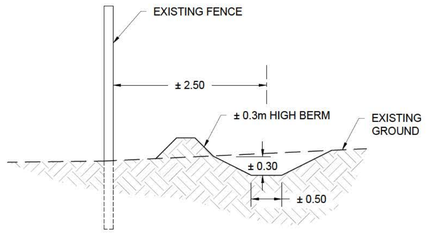
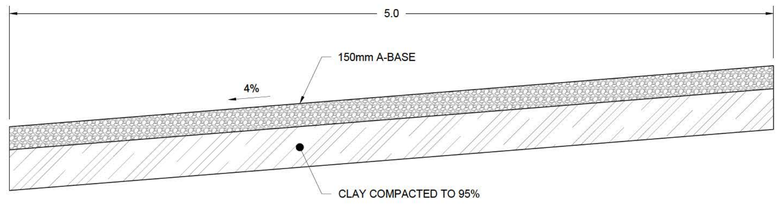
2. EXISTING FEATURE LOCATIONS DERIVED FROM SURVEY INFORMATION COLLECTED BY BMCE ON OCTOBER 25, DECEMBER 16, AND DECEMBER 17 2019.
3. PRIOR TO CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE INDIVIDUAL UTILITY COMPANIES FOR LOCATES.
4. THREE REBAR BENCHMARKS HAVE BEEN PROVIDED ON SITE AND SHOWN ON DRAWING C1.1.
5. CONTRACTOR TO COMMISSION LEGAL LAND SURVEYOR TO ESTABLISH ADDITIONAL BENCHMARKS FOR CONSTRUCTION CONTROL ON SITE. COORDINATE LOCATION OF BENCHMARKS WITH ENGINEER.

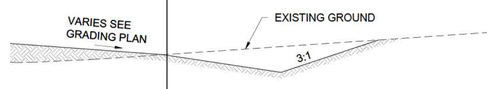


2 / C1.3 **NORTH SWALE SECTION**
SCALE: 1:50



TYPICAL ROAD SECTION

SCALE: 1:20



3 / C2.1 **SWALE SECTION**
SCALE: 1:50

NO:	DATE	APP.	BY	DESCRIPTION
2	APRIL 29, 2022	AH	CR	REVISED TO SUIT TECHNICAL ADVISORY COMMITTEE COMMENTS
1	FEBRUARY 15, 2022	AH	CR	REVISED TO SUIT TECHNICAL ADVISORY COMMITTEE COMMENTS
0	FEBRUARY 4, 2022	AH	CR	ISSUED FOR CLIENT REVIEW AND COMMENT

REVISIONS

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559

[redacted]

DESIGNED BY:	REVIEWED BY:
AH	DAB

DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
SCALE: AS NOTED

PROJECT NAME:
RURAL MUNICIPALITY OF OAKVIEW
SOLID WASTE TRANSFER STATION
SW 29-13-19 WPM

BURNS MAENDEL CONSULTING ENGINEERS LTD.
903 Rosser Ave.
Brandon, Manitoba
R7A 0L3
Tel: (204) 728-7364
Fax: (204) 728-4418

GENERAL NOTES:

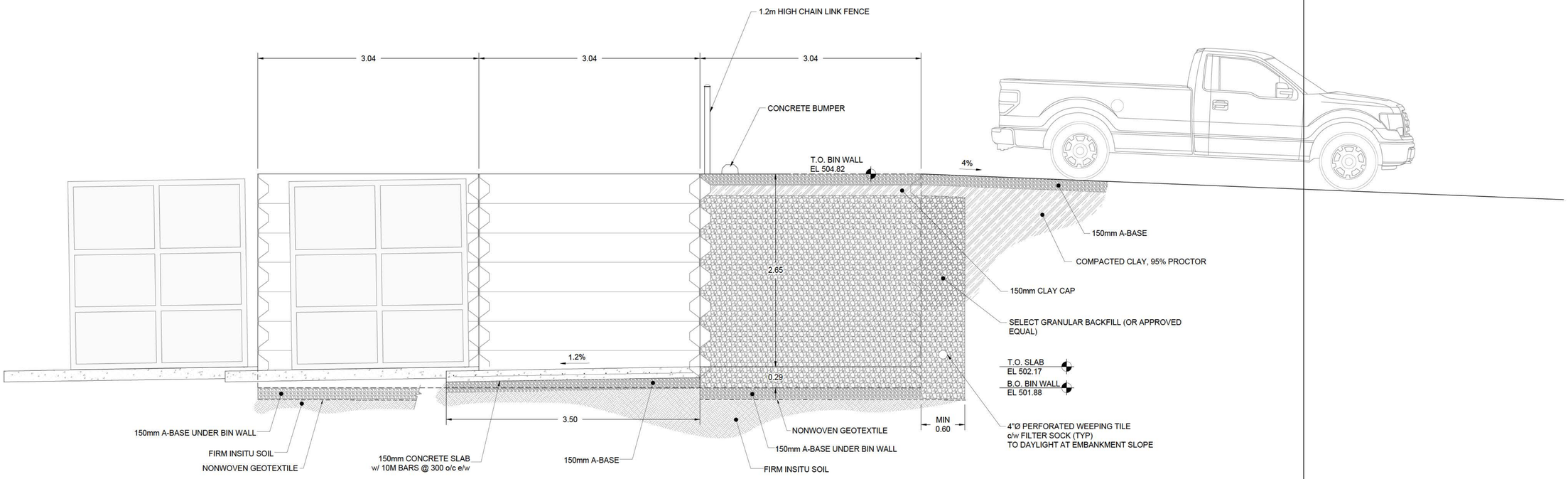
1. ALL UNITS ARE IN METRES AND DECIMALS THEREOF.
2. EXISTING FEATURE LOCATIONS DERIVED FROM SURVEY INFORMATION COLLECTED BY BMCE ON OCTOBER 25, DECEMBER 16, AND DECEMBER 17 2019.
3. PRIOR TO CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE INDIVIDUAL UTILITY COMPANIES FOR LOCATES.
4. THREE REBAR BENCHMARKS HAVE BEEN PROVIDED ON SITE AND SHOWN ON DRAWING C1.1.
5. CONTRACTOR TO COMMISSION LEGAL LAND SURVEYOR TO ESTABLISH ADDITIONAL BENCHMARKS FOR CONSTRUCTION CONTROL ON SITE. COORDINATE LOCATION OF BENCHMARKS WITH ENGINEER.

CONSTRUCTION NOTES:

1. CONTRACTOR TO SUBMIT BIN WALL SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. SELECT GRANULAR BACKFILL SHALL BE WELL-GRADED, GRANULAR MATERIAL WITH LESS THAN 10% FINES PASSING THE #200 MESH SIZE. RELATIVELY CLEAN PIT-RUN OR CRUSHED STONE IS SUITABLE.

DESIGN PARAMETERS:

1.	LIVE LOAD:	CL 625
2.	BACKFILL SOIL UNIT WEIGHT:	22 kN/m^3
3.	BACKFILL SOIL FRICTION ANGLE:	32 DEGREES
4.	FOUNDATION SOIL ALLOWABLE BEARING CAPACITY:	200 kPa (ASSUMED)
5.	FOUNDATION SOIL FRICTION ANGLE:	30 DEGREES
6.	TOP OF WALL FILL SLOPE:	LEVEL
7.	WALL VERTICAL SLOPE:	VERTICAL
8.	ESTIMATED SERVICE LIFE:	75 YEARS
9.	SELECT BACKFILL:	FREE DRAINING WELL GRADED GRANULAR MATERIAL AS SPECIFIED BY ARMTEC



1 / C1.2 BIN WALL SECTION
SCALE: 1:30

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1	FEBRUARY 4, 2022	AH	CR	ISSUED FOR CLIENT REVIEW AND COMMENT
0	MARCH 12, 2021	DAB	CR	ISSUED FOR CONSTRUCTION

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DESIGNED BY: AH | REVIEWED BY: DAB
DRAWN BY: CR
PROJECT START DATE: NOV 6, 2019
PLOT SIZE: A1 (594x841)
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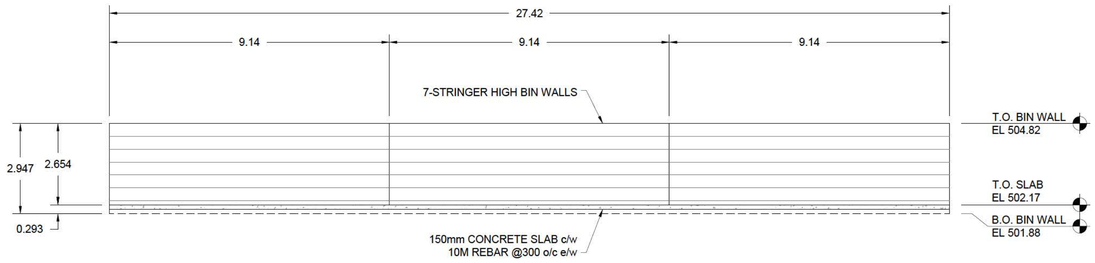


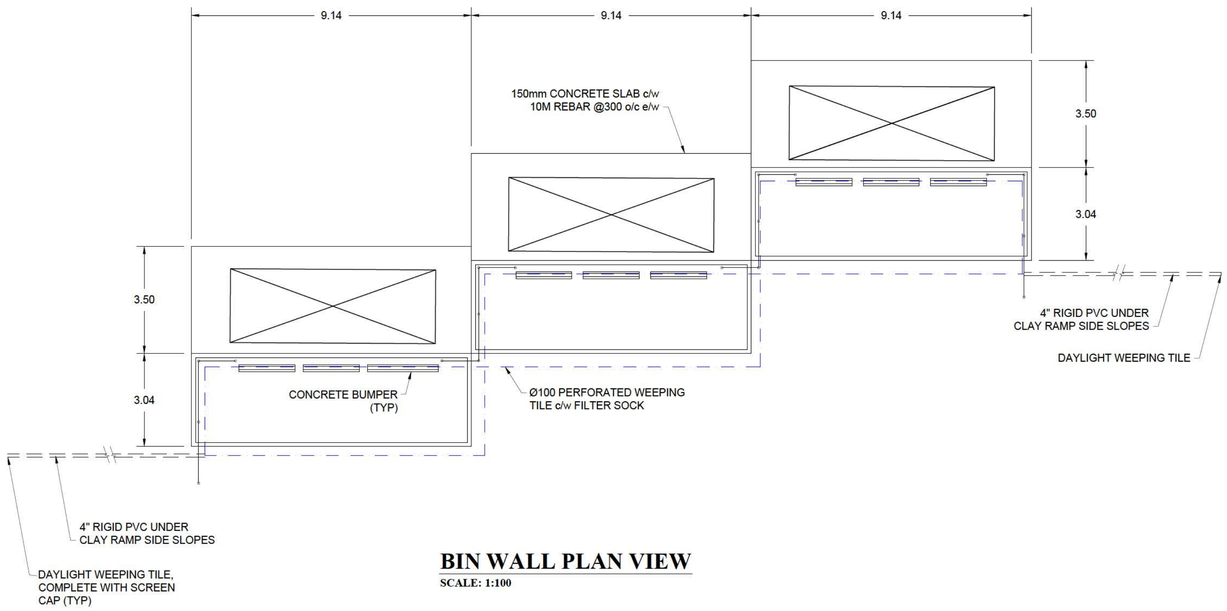
BIN WALL ELEVATION

SCALE: 1:100

NOTES:

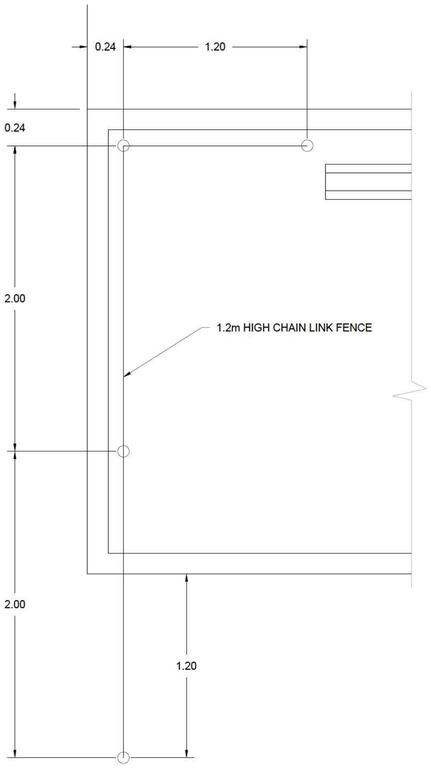
1) MATERIAL PLACED IN AND AROUND BIN WALL IS TO BE PLACED AND COMPACTED IN LIFTS TO 95% MDD.

2) MATERIAL USED IN AND AROUND BINS IS TO BE A CLEAN PIT RUN WITH LESS THAN 10% PASSING THE #200 SIEVE.



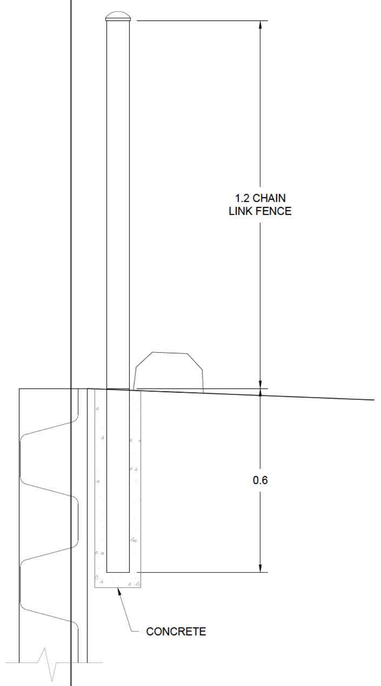
BIN WALL PLAN VIEW

SCALE: 1:100



BIN WALL FENCE PLAN VIEW

SCALE: 1:20



BIN WALL FENCE DETAIL

SCALE: 1:10

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DRAWN BY:	
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A1 (594x841)	
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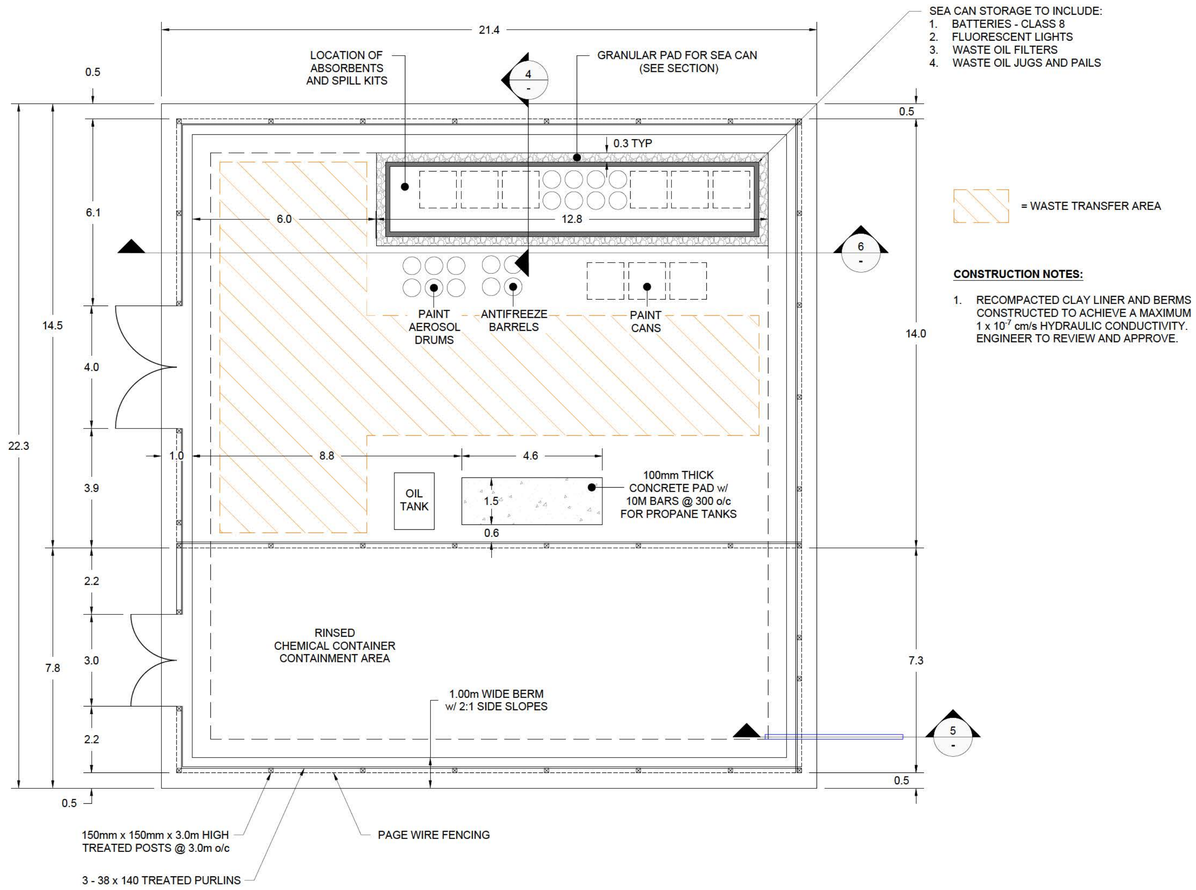


HAZARDOUS WASTE CONTAINMENT AREA

SCALE: 1:100

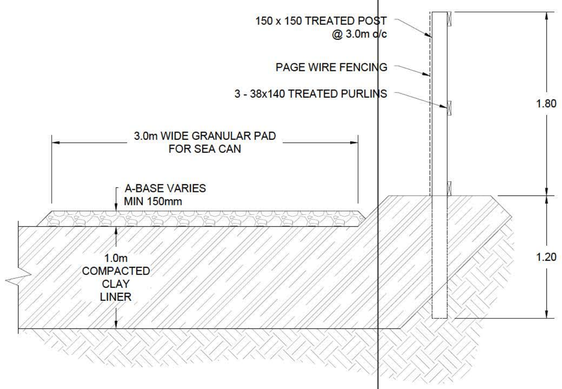
DRAINAGE NOTES:

1. RATIONAL METHOD USED FOR ALL DRAINAGE CALCULATIONS.
2. SHOAL LAKE CS #5012654 IDF EQUATIONS WERE UTILIZED FOR DRAINAGE DESIGN.
3. ASSUMED Tc = 15 MIN. (TYPICAL)
4. RUNOFF COEFFICENTS:

   C = 0.25 (GRASS SHOULDER)
   C = 0.60 (GRAVEL AREAS)
5. DEVELOPMENT CONDITIONS:

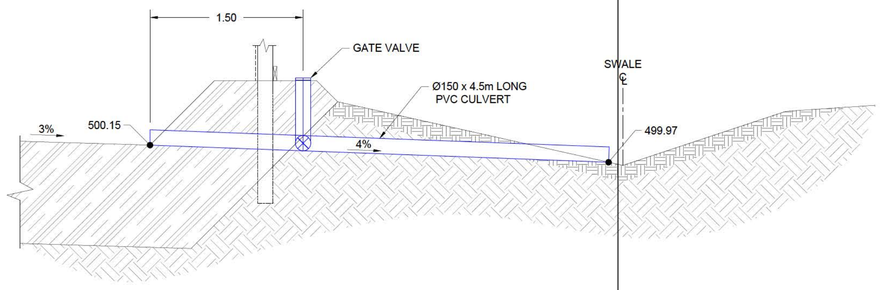
   WEIGHTED "C" = 0.60
   T_C = 15.0 MIN.
   Q = 0.007 m^3/s
6. A 25 YEAR RUNOFF RATE REQUIRES A MINIMUM STORAGE VOLUME OF 8.77 m^3 FOR THE HAZARDOUS WASTE CONTAINMENT AREA.
7. ADDITIONAL STORAGE CONTRIBUTIONS INCLUDE:

   OIL TANK = 2.27 m^3
   APPROX. 10 - 200L BARRELS = 2.0 m^3
8. THE PROPOSED SECONDARY STORAGE REQUIRES A MINIMUM STORAGE VOLUME OF 13 m^3 FOR THE HAZARDOUS WASTE CONTAINMENT AREA. THE PROPOSED SECONDARY STORAGE HAS MORE THAN 100 m^3 STORAGE CAPACITY.



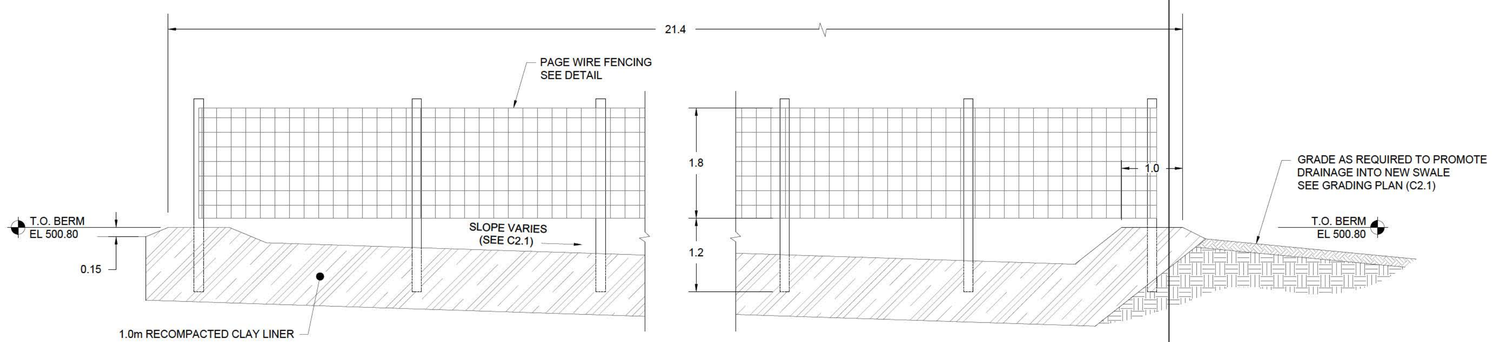
4 - FENCE AND PAD SECTION

SCALE: 1:30



5 - VALVED CULVERT DETAIL

SCALE: 1:30



6 - CONTAINMENT SECTION VIEW

SCALE: 1:100

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