

Government of Northwest Territories

Appendix D

Hay River Emergency Dredging Contract Documents

1230258-P01-00-SPC-0001 Revision B

02 June 2023

WV

SECTION 00 01 10

Table of Contents

1230258-P01-00 01 10-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFID (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  J. Chen	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

Section Number	Title	Number of Pages
DIVISION 00 – Procurement and Contracting Requirements		
00 01 10	Table of Contents	2
00 01 15	List of Drawing Sheets	2
00 21 13	General Information	2
DIVISION 01 - General Requirements		
01 11 00	Summary of Work	5
01 29 13	Measurement and Payment	5
01 31 13	Project Coordination	4
01 31 19	Project Meetings	3
01 33 00	Submittal Procedures	5
01 33 20	Shop Drawings, Product Data, Material Testing, and Samples	5
01 35 29.06	Health and Safety Requirements	6
01 35 43	Environmental Procedures	7
01 41 00	Regulatory Requirements	3
01 45 00	Quality Control	3
01 50 13	Temporary Facilities and Control for Dredging	4
01 52 00	Construction Facilities	8
01 55 26	Traffic Control	6
01 56 00	Temporary Barriers and Enclosures	3
01 60 10	Materials and Equipment	5
01 71 23	Field Engineering	4
01 74 00	Cleaning	3
01 77 00	Closeout Procedures	3
DIVISION 31 – Earthwork		
31 23 00	Excavation and Fill	6
DIVISION 35 – Waterway and Marine Construction		
35 24 00	Dredging	7
APPENDIX D – Specifications and Drawings		
Appendix D.1 – Drawings		
Appendix D.2 – Barge Drawings, Specifications, and Photographs		
Appendix D.3 – Barge Stability Reports (TO COME)		
Appendix D.4 – Draft Environmental Management Reports		
Appendix D.5 – Mackenzie Valley Land and Water Board Type B Water License (TO COME)		
Appendix D.6 – DFO Letter of Advice (TO COME)		
Appendix D.7 – Area A Soil Analyses		
Appendix D.8 – Canadian Hydrographic Service Standards for Hydrographic Surveys		

*** END OF SECTION ***



SECTION 00 01 15







List of Drawing Sheets

1230258-P01-00 01 15-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History

Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertifID (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with CertifID Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with CertifID Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	 J. Chen	 D. Leonard	 D. Leonard

List of Drawing Sheets

<u>Drawing Number</u>	<u>Title</u>	<u>Revision</u>
1230258-P01-DDD-1000	Cover Sheet, Drawing List, Design Criteria, and General Notes	B
1230258-P01-DDD-1001	Dredging Plan – Dredge Area A	E
1230258-P01-DDD-1002	Dredging Plan – Dredge Area B1, B2, and B3	E
1230258-P01-DDD-1003	Dredging Section – Sheet 1	D
1230258-P01-DDD-1004	Dredging Section – Sheet 2	D
1230258-P01-DDD-1100	General Arrangement – Staging Area and Stockpile Sites	D
1230258-P01-DDD-1101	General Arrangement – Landfill Stockpile Sites	A

***** END OF SECTION *****



SECTION 00 21 13

General Information

1230258-P01-00-21 13-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with Cert#10 (2023/06/02) Verify with verify.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with verify.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with verify.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General	3
---	---------------	---

1 General

- .1 Tenderer shall be familiarized with all available data and scope, and price accordingly.
- .2 Tenderer shall be familiarized with the barge load and operational restrictions provided in the attached documents (TO COME).
- .3 The contractor shall incorporate the following assumptions into their bid or state their assumptions otherwise:
 - .1 The Contractor will have two crews working simultaneously.
 - .2 Area A is susceptible to north winds and associated waves and swells which may lead to poor conditions for the dredging operations. Assume 20% downtime in Area A due to this weather condition. The dredger in Area A may relocate to another area to mitigate against this downtime. Area B is not susceptible to this weather condition. The tug captains will make determinations for on-water conditions and hold the right to suspend or re-direct operations due to poor sea state.
 - .3 The harbour tug support provided by the Owner through Marine Transportation Services is not dedicated to the Work. Assume 80% availability of tug support. Weekly and daily scheduling with Marine Transportation Services shall be conducted to coordinate harbour tug needs, minimize schedule overlap, and maximize tug availability for the project.
 - .4 Due to the potential narrowness of the navigation channel, the harbour tug will remove the loaded dredgeate barge prior to bringing an empty dredgeate barge.
 - .5 Marine Transportation Services' hours of operation are 0700-1900 daily, with option to increase hours with 10 days advance notice to Marine Transportation Services.
- .4 Tenderer shall mitigate downtime due to mechanical malfunction and repairs to ensure that the full scope of the emergency dredging work will be completed within the dredging window.
- .5 It is anticipated that a rate of 60 m³/h per dredging crew will be required to achieve the project goals.
- .6 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site and is fully conversant with all conditions.

***** END OF SECTION ****

SECTION 01 11 00

Summary of Work

1230258-P01-01 11 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History

Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	<small>Javin Junfeng Chen Signed with CertID (2023/06/02) Verify with verifio.com or Adobe Reader.</small> J. Chen	<small>Daniel Leonard Signed with ConSignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> D. Leonard	<small>Daniel Leonard Signed with ConSignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> D. Leonard
A	23-May-2023	Issued for Review	J. Chen	D. Leonard	D. Leonard

Table of Contents

1	Place of the Work	3
2	Contract Method	3
3	Scope of Work.....	3
3.1	General	3
3.2	Work Covered by the Contract Documents	4
3.3	Owner Supplied Equipment and Services	5
3.4	Coordination with Others	5
4	Scheduling.....	6

1 Place of the Work

- .1 The Place of the Work is located near the Town of Hay River, Northwest Territories.

2 Contract Method

- .1 The Work will be performed as a unit price Contract in accordance with the Contract Documents and paid for with measurement in accordance with Section 01 29 13 - Measurement and Payment.

3 Scope of Work

3.1 General

- .1 The list of Work covered by Contract Documents given in Clause 3.2 is presented for the purpose of complementing or clarifying the Drawings, Specifications, and other Contract Documents, but shall not constitute a complete list of the Work of this Contract.
- .2 Comply fully with the provisions of the Contract Documents.
- .3 The Contractor shall accept the Site in its prevailing condition at the time of commencement of Work.
- .4 Primary access to the Site shall be via the loadout and staging area, and access road indicated on the Drawings.
- .5 The Contractor will be permitted to moor their marine equipment at the loadout and staging area for the duration of the Project.
- .6 Prior to mobilizing, submit to the Engineer a list of temporary buildings and proposed locations that the Contractor intends to bring onto the Site. Select locations on the Site that minimize the need for relocation during the Work. Any relocation of buildings or materials laydown that is required is considered incidental to the Work and no separate measurement or payment will be made.
- .7 The Owner will provide office space for the Engineer at the Synchrolift facility.
- .8 Provide suitable facilities for holding weekly updates, coordination, and safety meetings.
- .9 No temporary construction power will be available at the Site. Contractor to provide temporary power as required.
- .10 Establish all lines and grades required to set out the Work. The Contractor shall locate all other reference points and lines and take necessary action to prevent their destruction. All dimensions noted on the Drawings shall be field verified prior to commencement of the Work.
- .11 Mobilize and maintain sufficient stocks of all materials at the Site at all times to meet the demands of the construction schedule and milestones with a reasonable reserve to compensate for changes in the Work or changes in the construction program, and to minimize equipment downtime.
- .12 Supply all construction tools and consumables required to complete the Work of this Contract.
- .13 The Contractor shall mobilize and supply all fuel required for the Work except as noted in Clause 3.3 – Owner Supplied Equipment and Services.

- .14 Supply and erect temporary barriers around the working area of the Site as required for safety and the protection of operating equipment.
- .15 Maintain Site security with the goal of protection of the public.
- .16 Maintain the existing roads and road surfaces at the Place of the Work in a safe and sound condition during the period of the Contract including making good and repairing any damage arising from the Work performed under this Contract.
- .17 Maintain cleanliness at the Place of the Work. All debris shall be moved daily into containers. Remove debris that could in any way interfere with neighboring operations or the public.
- .18 Provide access to the Engineer, Engineer's Environmental Auditor, and other personnel as required for inspection and monitoring of the Work.
- .19 Mobilize the minimum amount of equipment including vehicles to the Site.
- .20 Contractor shall install, operate, maintain, and replace geofabric around perimeter of dredgeway barges as needed to achieve required turbidity control from water re-entry into the Hay River in accordance with the requirements of the regulatory authorizations of the Water License and Construction Environmental Management Plan.

3.2 Work Covered by the Contract Documents

- .1 The Work includes, but is not necessarily limited to, the following:
 - .1 Mobilization and Demobilization:
 - .1 Mobilize and demobilize all equipment, materials, supplies, and labour to and from Site to complete the Work in line with the Contract Documents.
 - .2 Site Surveys and As-Builts:
 - .1 Establish a baseline survey on Site including a tide gauge so that the proper depth of dredging can be determined.
 - .2 Conduct a pre-dredge bathymetric survey to form the basis of measurement of dredging Work.
 - .3 Conduct intermediate bathymetric surveys as necessary to measure the Work completed.
 - .4 Survey all Site services to avoid any damage.
 - .5 Establish a baseline survey on Site to form the basis of measurement of stockpile quantities.
 - .6 Complete a post-dredge bathymetric survey and provide as-built Drawings as per the Contract Documents.
 - .3 Environmental Compliance:
 - .1 Prepare and adhere to the Construction Environmental Management Plan in accordance with all relevant Environmental Management Plans and applicable permits.
 - .2 The applicable permits and authorizations that are anticipated to be in place at contract award will be the following:
 - Type B Water License issued by the Mackenzie Valley Land and Water Board
 - Letter of Advice by the Department of Fisheries and Oceans Canada
 - Transport Canada Minor Works Order

- .4 Dredging:
 - .1 Dredging of riverbed materials and stockpiling the dredged material on a barge.
- .5 Stockpiling
 - .1 Preparation of the stockpile sites as indicated on the Drawings.
 - .2 Stockpiling of all dredged riverbed materials onshore at the designated locations including geo-referencing of dredged materials.
 - .3 Stockpile site management with regards to water management, erosion and dust control.

3.3 Owner Supplied Equipment and Services

- .1 The following equipment and services will be provided by the Owner, through Marine Transportation Services, to the Contractor for the Work:
 - .1 Exclusive use of four (4) 1000 series barges and two (2) spud barges, which will be prepared, seaworthy, and fully compliant with relevant regulatory agencies.
 - .2 A harbour tug boat and operator for transiting the barges. Services will be available 7 days per week, up to 12 hours per day as needed from July 16 to August 14, 2023. Activating the harbour tug will be conducted in accordance with the weekly and daily scheduling with Marine Transportation Services. Increased hours of service can be accommodated via request to MTS with a lead time of 10 days.
 - .3 Fuel and other consumables for the harbour tug.
 - .4 Extraneous marine components required for docking, anchoring, loading, and transiting the harbour, including but not limited to ropes, anchors, hoists, and ramps
 - .5 Navigation, transiting, anchoring of the barges, and direction for spud deployment.
 - .6 Insurance of the vessels.
- .2 Marine Transportation Services will have full authority over mariner-related decisions, including the right to suspend operations due to poor weather/sea state, or other potentially unsafe activities while at sea.

3.4 Coordination with Others

- .1 Coordinate all operations including public and industrial vessel traffic and cooperate fully with other Contractors at the Place of the Work.
- .2 Fulfill the duties of Principal Contractor under the Workers' Safety and Compensation Commission regulations as noted below during construction. Specifically undertake responsibility for managing overall Site safety in regard to interfaces between Contractor activities, protecting the public from worksite activities, and emergency situation coordination.
- .3 Coordinate activities with the Government of the Northwest Territories' Marine Transportation Services including tug support for vessel movements and usage of spud barges.

4 Scheduling

- .1 Prior to mobilizing, Contractor shall prepare and submit a baseline bar chart schedule identifying planned Work sequencing and resourcing for completing the Work.
- .2 Contractor shall submit weekly updates of the schedule.
- .3 Work can be greater than 12 hours per day with possible noise restrictions in place in accordance with the Town of Hay River Bylaws, coordination with the Owner, and available harbour tug support.
- .4 The Work areas shall be prioritized in the following order starting from highest priority to lowest:
 - .1 Area A.
 - .2 Area B3.
 - .3 Area B1.
 - .4 Area B2.
- .5 The timing of the Work is critical to meeting the regulatory window for dredging (as defined by DFO) and to meet the funding requirements for the Project. In support of this, the Contractor shall meet the following key milestones:
 - .1 Commence dredging within 2 weeks of contract award but not before July 16, 2023.
 - .2 In-water Work shall be limited to DFO restrictions, i.e., completed by September 14, 2023.
 - .3 Dredging of Area A to be completed by September 1, 2023.
 - .4 Substantial Completion shall be achieved by September 22, 2023.
 - .5 Stockpile properties shall be developed and utilized as needed based on progress of dredging activity. Owner properties (Areas 1 to 5 on Drawing No. 1230258-P01-DDD-1100) shall be developed and used first and fully. Once these are at capacity, the Landfill properties can be used (Areas 8 to 10 on Drawing No. 1230258-P01-DDD-1101), followed by Town of Hay River Properties (Areas 6 and 7 on Drawing No. 1230258-P01-DDD-1100).
 - .6 Contractor responsible for stockpile site management with regards to water management, erosion, and dust control until October 31, 2023, or until permanent snow cover, whichever comes first.

***** END OF SECTION *****

SECTION 01 29 13

Measurement and Payment

1230258-P01-01 29 13-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History





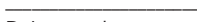
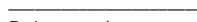
Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertNo (2023/06/02) Verify with veriflo.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with veriflo.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with veriflo.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	 J. Chen	 D. Leonard	 D. Leonard

Table of Contents

1	Measurement, General.....	3
2	Payment, General	3
3	Length, Area, and Volume Measurements.....	3
4	Mass and Displacement Measurements.....	4
5	Description of Items in Schedule of Unit Prices.....	4
6	Description of Items in Schedule of Additional Unit Prices for Additions and Deletions.....	5

1 Measurement, General

- .1 All items of Work listed in the Schedule of Unit Prices in Appendix D will be measured by the Contractor with copies of the Contractor's calculations submitted to the Engineer for review prior to the Contractor's application for progress payment of each item of Work.
- .2 Methods of measurement and computation to determine quantities of materials furnished and Work performed under the Contract will be as described herein unless otherwise specified in the relevant individual sections. The SI system of units shall be used for weights, measurements, and computations unless noted otherwise.
- .3 When a complete structure or structural unit or piece of equipment is specified as the unit of measurement, the unit shall include all necessary fittings and accessories.
- .4 No measurement will be made for:
 - .1 Work performed or materials placed outside of the lines indicated on the Drawings or established by the Engineer.
 - .2 Materials wasted, used, or disposed of in a manner not called for under the Contract.
 - .3 Materials rejected after installation that are found not to conform to the provisions of the Contract.
 - .4 Hauling and disposing of rejected materials.
 - .5 Materials remaining on hand after completion of the Work.

2 Payment, General

- .1 Payment for unit price Work acceptably completed under the Contract will be made in accordance with the provisions of the Contract for the various items of Work appearing in the Schedule of Unit prices from Section III – Bid Form of the Tender documents.
- .2 Any Work called for in the Specifications or indicated on the Drawings, or which is necessary for the completion of the Work, and which is not specifically listed as a separate item in the Schedule of Unit prices, shall be deemed incidental to the Work and no separate payment will be made for such Work. The cost of such Work shall be included in the unit prices for the items of Work appearing in the Schedule of Unit prices.
- .3 Quantities, where stated, are approximate and are given for the purpose of providing uniform basis for the comparison of Bids. Changes in the unit prices shall not be made except as permitted in Appendix K – Construction Contract of the Tender documents.
- .4 The Owner reserves the right to delete items in their entirety, without changing the unit prices of any other items. Unit price items shall therefore be complete and independent of other items.

3 Length, Area, and Volume Measurements

- .1 Unless otherwise specified, measurements will be made horizontally and/or vertically. Measurements will be to the neat lines indicated on the Drawings or as altered by the Engineer to suit field conditions or in accordance with approved Change Orders.

- .2 Quantities for dredging shall be measured based on the pre-dredge, intermediate, and post-dredge surveys, completed in accordance with the Specifications and approved by the Engineer. Overdredge will be paid for up to 300 mm beyond the specified dredge depth. Dredging depth lower than the overdredge allowance and beyond the limits specified on the Drawings will not be paid.

4 Mass and Displacement Measurements

- .1 Not Used

5 Description of Items in Schedule of Unit Prices

- .1 The unit prices stated in the Schedule of Unit prices shall be full compensation for furnishing all labour, materials, and equipment required to complete the scope of Work in accordance with the Specifications.
- .2 The unit prices below shall be used to measure any changes made between the tender Specifications / Drawings and construction Specifications / Drawings and any field changes instructions for quantities, dimensions, weights, and gradations that are changed, added, or deleted as a result of the progress of design.
- .3 The following is a description of the items appearing in the Schedule of Unit prices. The intent of this description is to clarify the main components included in each item and not to provide a comprehensive list of all the Work required to complete the item in accordance with the Drawings and Specifications.
 - .1 General:
 - .1 "Mobilization" shall include mobilizing all equipment and provision of all construction facilities and controls required for the Work, including bonds and insurance, and inspection and receipt of the Owner supplied equipment. Payment will be made as a lump sum based on the assessment of the percentage of the work completed by the Engineer.
 - .2 "Demobilization" shall include removal of all construction equipment and facilities, cleaning up the Site of all Contractor's debris, and handover of Owner supplied equipment to the satisfaction of the Engineer. Payment will be made as a lump sum based on the assessment of the percentage of the work completed by the Engineer.
 - .2 Environmental Compliance:
 - .1 "Construction Environmental Management Plan" shall include all labour, equipment, and materials required to prepare the Construction Environmental Management Plan (CEMP) in accordance with all relevant Environmental Management Plans and applicable permits as described in the Contract Documents. The CEMP shall be signed off by a Qualified Environmental Professional as per Section 01 35 43 – Environmental Procedures. Payment will be made as a lump sum based on the assessment of the percentage of the work completed by the Engineer.
 - .2 "Environmental Compliance" shall include, but not be limited to, all labour, expertise, equipment, instrumentation, materials, analytical services, and consumables required to adhere to the CEMP, all relevant Environmental Management Plans and applicable permits as described in the Contract Documents which shall be overseen and signed off by the QEP as per Section 01 35 43 – Environmental Procedures. Unit of payment will be weekly.

.3 Dredging:

- .1 "Dredging" shall be measured and paid for per cubic metre of approved dredging completed at the Site using in place measurement. In place measurement means the volume calculated based on the length, width and depth of the area dredged. Measurement will be based on pre-dredge and post-dredge, or pre-dredge and interim bathymetric surveys conducted in accordance with Section 35 24 00 – Dredging, Clause 3.4. An over dredge allowance of 300 mm is permitted. Material excavated beyond 300 mm over dredge lines and grades or outside the specified dredge zones will not be measured for payment. Bathymetric Surveys are considered to be incidental to the work.

.4 Stockpiling:

- .1 "Stockpiling of Dredged Material" shall be measured and paid for per cubic metre of stockpiled approved dredged material and shall include all labour, equipment, and materials for transportation of dredged material, placement and compaction of the material, and location tracking of the material as per the Contract Documents. Site surveys and as-built drawings are considered to be incidental to the work. Site preparation is considered to be incidental to the work.

.5 Standby:

- .1 "Dredger Standby" shall include all Contractor labour and equipment for standby time due to reasons outside of the Contractor's control. Contractor equipment failure, Contractor failure to comply with the Contract Documents, and stop work orders due to Contractor noncompliance with environmental or health and safety requirements and regulations are not included. Payment will be made in half-day increments. Standby time less than a half-day will not be paid. Note that a workday is considered to be 12 hours.

6 Description of Items in Schedule of Additional Unit Prices for Additions and Deletions

- .1 Not used.

*** END OF SECTION ***

SECTION 01 31 13

Project Coordination

1230258-P01-01 31 13-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History

Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	<small>Javin Junfeng Chen Signed with CertiFIO (2023/06/02) Verify with verifio.com or Adobe Reader.</small> J. Chen	<small>Daniel Leonard Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> D. Leonard	<small>Daniel Leonard Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> D. Leonard
A	23-May-2023	Issued for Review	J. Chen	D. Leonard	D. Leonard

Table of Contents

1	Coordination.....	3
2	Site Organization.....	3
3	Cutting and Patching.....	3
4	Scheduling.....	3

1 Coordination

- .1 Assume full responsibility for all construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of Work under the Contract Documents. If conflicts arise, refer the matter to the Engineer for their decision.
- .2 Examine the construction Drawings and Specifications, and the Work of all other Contractors which may affect the performance of the Work. Report to the Engineer immediately, any defects or incomplete Work which may affect proper execution of the Work. Commencement of Work constitutes acceptance of surfaces and conditions except as to latent defects not apparent at the time of commencement and all claims waived against the Owner.
- .3 Inform the Engineer and other parties concerned prior to performing Work which attaches to or affects Work of other Contractors, utilities, or the Owner.
- .4 Ensure cooperation with Subcontractors so that Work is carried out expeditiously and satisfactorily until completion and cooperate and coordinate the Work with other Contractors.
- .5 Maintain existing exits and provide safe means of egress from all parts of the Work area at all times.
- .6 Coordinate Work with the Engineer and other Contractors who will be working on the Site.
- .7 Coordinate with other marine users to allow passage through the channel.
- .8 Refer to Section 01 11 00 - Summary of Work for the designation of the Principal Contractor in the event that multiple Contractors are on the Site and other coordination related responsibilities.
- .9 All public inquiries shall be directed or forwarded to the Engineer.

2 Site Organization

- .1 Upon notification of Contract award, appoint key personnel to supervise and direct the Work on-site and to be available to accept instructions from the Engineer as per the requirements in Appendix K – Construction Contract of the Tender documents. The Owner reserves the right to remove any personnel from the Site if the performance of such personnel concerned is detrimental to the performance of the Work.
- .2 Determine and review manpower requirements on a regular basis with the Engineer. Ensure that sufficient numbers of each class and type of trade are available when required to carry out the Work.

3 Cutting and Patching

- .1 Not used.

4 Scheduling

- .1 Contractor shall schedule its operations to avoid any delays to the Work of other Contractors.
- .2 Contractor shall cooperate fully with other Contractors and obtain their approval for any operations which could impede or prevent their Work from continuing as requested.

- .3 Contractor shall coordinate and schedule its operations daily and weekly with the Government of the Northwest Territories' Marine Transportation Services for tug support and operation of spud barges.
- .4 Daily and weekly schedule of dredging barge movements and positioning shall be shared with other users of the harbour including the Canadian Coast Guard and Great Slave Lake Advisory Committee.

***** END OF SECTION ****



SECTION 01 31 19

Project Meetings

1230258-P01-01 31 19-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFO (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  J. Chen	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	Pre-Construction Meeting	3
2	Progress Meetings	3
3	Safety Meetings	3
4	Coordination Meetings	4

1 Pre-Construction Meeting

- .1 After notification of Contract award, the Contractor shall arrange and conduct a pre-construction meeting to be attended by authorized representatives of the Contractor and major Subcontractors. The Contractor shall advise all other interested parties whose coordination is required during construction and request their attendance. The meeting shall be held virtually via video conference.
- .2 The topic for discussion will include methods and means by which full cooperation and coordination of all participants can be achieved during construction.
- .3 The Contractor shall document responsibilities and necessary activities of participants as discussed and distribute copies to each participant.

2 Progress Meetings

- .1 The Contractor will conduct, chair, and document weekly progress meetings throughout the construction period and will inform all parties concerned in advance of the starting time and venue of the proposed meeting. The Contractor shall make representative(s) available for meetings as required. In general, meetings will be held at the Site in suitable facilities provided by the Contractor or virtually via video conference.
- .2 Topic for discussion will include construction schedule, Contractor's forecast Work, and equipment and methods. If the Work schedule is deemed to be slipping, the Contractor shall be prepared to discuss his methods to bring the Work back on and maintain the schedule.
- .3 Ensure responsible people attend who have the required authority to commit the Contractor to solutions agreed upon at the meeting. Assign the same person(s) to attend such meetings throughout the construction period. The Engineer shall endeavor to make expeditious technical decisions should such issues develop. However, the design of the Work covers numerous technical fields and immediate responses are not always possible.
- .4 Subcontractors, material Suppliers, and others may be invited to attend meetings in which their aspects of the Work are involved. The relations between such participants and discussions relative to, are not the responsibility of the Engineer and do not form part of the meeting's content.
- .5 Inform the Engineer in advance of meetings regarding all items to be added to the agenda.
- .6 The Contractor will distribute copies of the minutes of the meetings to all participants accordingly.

3 Safety Meetings

- .1 The Contractor shall hold all appropriate safety meetings as required by the Workers' Safety and Compensation Commission of the Northwest Territories and Nunavut, the Contractor's internal policies and the Contractor's approved safety plan.

4 Coordination Meetings

- .1 The Contractor shall hold daily and weekly meetings with Government of the Northwest Territories' Marine Transportation Services to coordinate and schedule its operations with regards to tug support and operation of spud barges.
- .2 Daily and weekly schedule of dredging barge movements and positioning shall be shared with other users of the harbour including the Canadian Coast Guard and Great Slave Lake Advisory Committee.

***** END OF SECTION *****



SECTION 01 33 00

Submittal Procedures

1230258-P01-01 33 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this specification by any third party. This specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertID (2023-06-02) Verify with veriflo.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with CertID (2023-06-02) Verify with veriflo.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with CertID (2023-06-02) Verify with veriflo.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
2	Samples.....	3
3	Test Reports and Certificates	4
4	Schedule of Work.....	4
5	Record Drawings	4
6	Certification of Tradesmen	5
7	Photographs and Publicity.....	5
8	Warranties and Guarantees	5
9	Procedures	5
10	Taxes.....	5
11	Breakdown of Costs.....	5
12	List of Submittals.....	5

1 General

- .1 Be responsible for the following:
 - .1 Verification of field measurements, field construction criteria, catalogue numbers, and similar data.
 - .2 Coordinate each submittal with requirements of the Work and the Contract Documents. Individual submittal will not be reviewed until all related information is available.
 - .3 Errors and omissions in submittal. The Engineer's review of submittal does not relieve this responsibility.
 - .4 Notify the Engineer in writing at the time of Bid submission, of any deviation in submittal from requirements of the Contract Documents.
- .2 Deliver submittals as required by the Specifications well in advance of schedule dates for fabrication, manufacture, erection, and installation to provide adequate time for reviews, securing necessary approvals, possible revisions, and re-submittals, placing orders, securing delivery, and to avoid construction delays. Allow five days for Engineer's review of each submittal.
- .3 Accompany each submittal with a letter of transmittal containing all pertinent information required for identification and checking of transmittals including date of submission, project title and number, Contractor's name and contact information, contact person's name and position, and subject identification.
- .4 When submittals are resubmitted for any reason, transmit under a new letter of transmittal.
- .5 Do not carry out Work until submittals have been reviewed by the Engineer. Work adjacent to or impacted by the submittal shall not proceed until the Engineer review of the submittal is complete and has been returned to the Contractor.
- .6 Provide the Engineer with advanced notice for inspections.
- .7 Contractor is responsible for the distribution of submittals reviewed by the Engineer to all trades necessary to complete the Work. Contractor shall maintain an up-to-date file of all submissions and revisions on Site at all times.
- .8 Shop Drawings, Product data, samples, and mock-ups shall be submitted in SI metric units. Where items or information are not in SI metric units, provide converted values in brackets adjacent to imperial units.
- .9 Contractor to revise submittals as indicated by the Engineer's written mark-ups or comments and resubmit as required. Fabrication, selection, or purchase of components described in the submittal prior to review by the Engineer is at the Contractor's own risk.

2 Samples

- .1 Not used.

3 Test Reports and Certificates

- .1 Clearly show on each certification the name and location of the Work, name and address of Contractor, quantity and date of shipment, and delivery and name of manufacturing or fabricating company. Ensure certificates are signed by an authorized representative of the manufacturing or fabricating company.
- .2 Submit two copies of all test reports submitted with certificates of compliance showing date or dates of testing, the specified requirements for which the testing was performed, and results of the test or tests.
- .3 Provide certificates and test results, fully identifiable with the items, stating that requirements have been met for items conforming to special materials or testing requirements or designed or manufactured in accordance with special codes.

4 Schedule of Work

- .1 Submit proposed schedule of Work in accordance with the following requirements:
 - .1 Update schedule on a weekly basis and submit for review by the Engineer on the first day of every week unless otherwise directed by the Engineer.
 - .2 Schedules shall be provided in a bar chart form.
 - .3 Coordinate each revised schedule of Work with schedules of Subcontractors and the Engineer.
 - .4 Adjust the schedules of Work as required by the Engineer in order to expedite the Work to meet the completion date.
 - .5 Obtain approval by the Engineer of each revised schedule of Work prior to proceeding with the Work.
 - .6 Contractor shall coordinate and schedule its operations daily and weekly with the Government of the Northwest Territories' Marine Transportation Services for tug support and operation of spud barges.
 - .7 Daily and weekly schedule of dredging barge movements and positioning shall be shared with other users of the harbour including the Canadian Coast Guard and Great Slave Lake Advisory Committee.

5 Record Drawings

- .1 After award of Contract, prepare a set of reproducible Drawings for purpose of maintaining record Drawings. Accurately and neatly record deviations from the Contract Documents caused by Site conditions and changes ordered by the Engineer.
- .2 Record locations of concealed components of municipal, mechanical, and electrical services discovered or located during the course of the Work.
- .3 Provide survey drawings of the stockpile sites.
- .4 Provide post-dredge survey drawings of the dredged areas.
- .5 On completion of the Work and prior to final inspection, submit Record Drawings to the Engineer.

6 Certification of Tradesmen

- .1 Provide certificates, at the request of the Engineer, to establish qualifications of personnel employed on the Work where such certification is required by authorities having jurisdiction, by the Engineer, or by the Contract Documents.

7 Photographs and Publicity

- .1 Prohibit photographs and publicity of any kind unless prior approval of the Owner is obtained.

8 Warranties and Guarantees

- .1 Not used.

9 Procedures

- .1 Review by Engineer of Contractor's technical methods, procedures, installation, and erection sequences is for general concept only and in no way relieves or mitigates the Contractor's obligation for the safe execution and completion of the Work in accordance with the Specifications and Drawings and all applicable codes and ordinances.

10 Taxes

- .1 The Contractor shall submit details of the amount of taxes applicable to the Work as per Appendix K – Construction Contract of the Tender documents if so requested by the Engineer.

11 Breakdown of Costs

- .1 Furnish to the Engineer, upon request, a detailed breakdown of costs for those portions of the Work requested from time to time by the Engineer.

12 List of Submittals

- .1 A list of submittals is provided in an Appendix. Notify the Engineer of any discrepancies between the list of submittals and the Contract Documents. The list of submittals is provided as a reference and does not relieve the Contractor of responsibility for submissions which may be included elsewhere in the Contract Documents.

Table 1 - List of submittals

Specification Section	Description	Date
01 11 00	Baseline Project Schedule	Prior to mobilizing
01 11 00	Project Schedule Update	Weekly
01 33 00	Record Drawings	Completion of work
01 33 00	Certification of Tradesmen	As requested
01 39 29.06	Site Specific Health and Safety Plan	Within 10 days of contract award
01 39 29.06	Work Site Health and Safety Inspection Reports	Daily
01 39 29.06	Incident and Accident Reports	Within 2 days of occurrence
01 39 29.06	WHMIS Safety Data Sheets	Prior to mobilizing
01 35 43	CEMP	Within 10 days of contract award
01 35 43	Details of incidents, non-compliance, and non-conformance events with the associated corrective action(s)	within one working day of the observation of the incident or event
01 52 00	List of temporary buildings and proposed locations	Prior to mobilizing
01 55 26	Traffic Management Plan	10 days prior to starting work
01 71 23	name and address of surveyor	Prior to mobilizing
01 71 23	documentation to verify accuracy of field engineering Work	As requested
31 23 00	site preparation plan	Prior to mobilizing
31 23 00	Stockpile Survey – Before Stockpiling	Prior to stockpiling at a site
31 23 00	Stockpile Survey – After Stockpiling	After completion of stockpiling at a site
35 24 00	Proposed surveyor, sounding equipment, and methodology.	5 days prior to the start of the pre-dredge survey.
35 24 00	Bathymetric Surveys – pre-dredge	Prior to dredging
35 24 00	Bathymetric Surveys – post-dredge	Upon completion of dredging
35 24 00	Bathymetric Surveys – interim	After completion of interim survey

***** END OF SECTION *****



SECTION 01 33 20

Shop Drawings, Product Data, Material Testing, and Samples

1230258-P01-01 33 20-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFO (2023/06/02) Verify with verify.com or Adobe Reader.</small>  J. Chen	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verify.com or Adobe Reader.</small>  D. Leonard	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verify.com or Adobe Reader.</small>  D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
	1.1 Description of Work	3
	1.2 Submittal Requirements	3
2	Shop Drawings.....	3
3	Samples.....	3
4	Mock-Ups.....	3
5	Shop Drawing, Mock-Up, and Sample Review.....	3
6	Material Testing and Inspections.....	3

1 General

1.1 Description of Work

- .1 This section specifies requirements for Contractor submissions of the following to Engineer for review:
 - .1 Product data.
 - .2 Material testing reports.

1.2 Submittal Requirements

- .1 All submissions of Project components, Products, samples, etc. shall be in accordance with Section 01 33 00 – Submittal Procedures.

2 Shop Drawings

- .1 Not used.

3 Samples

- .1 Not used.

4 Mock-Ups

- .1 Not used.

5 Shop Drawing, Mock-Up, and Sample Review

- .1 Not used.

6 Material Testing and Inspections

- .1 The Contractor, at no cost to the Owner and as part of their Work, shall coordinate the performance of all inspections and material testing and approvals required by this Contract. Should the test require a representative sample or repair of as constructed area as a result of testing, the Contractor at no cost to the Owner will undertake the selection and delivery of samples to the testing agency and carry out repairs to constructed Work as required by the Engineer. Unless otherwise noted, all tests performed by an independent testing agency will be paid for by the Contractor.
- .2 Prior to the start of Work, the Contractor shall provide the Engineer with a schedule outlining the required tests and inspections and indicate the dates or frequency of testing or inspections to ensure that they are fully coordinated with the requirements of the Contract Documents.

- .3 The Contractor shall provide certificate of inspections and test results to the Engineer via e-mail noting within the body of the e-mail whether the tests or inspections conform to the requirements of the Contract Documents.
- .4 Should the Contractor cover Work to be tested or inspected prior to carrying out required testing or inspections, then the Engineer has the right to request at no cost to the Owner to have the Work in question be uncovered and tested. Following positive test results or inspection, the Work in question is to be reinstated at no cost to the Owner as per the Contract Documents.
- .5 Should the inspection or test results indicate that the Work by the Contractor do not meet the requirements of the Contract Documents, the Engineer has the right to request at no cost to the Owner that the Work be demolished or removed from the Site, replaced, or re-executed in accordance with the Contract Documents and retested or inspected to ensure conformance with the Contract Documents.

***** END OF SECTION *****



SECTION 01 35 29.06

Health and Safety Requirements

1230258-P01-01 35 29.06-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with Certifio (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  J. Chen	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
1.1	Reference Standards	3
1.2	Terms and Definitions	3
1.3	Action and Informational Submittals	3
1.4	Filing of Notice	4
1.5	Safety Assessment	4
1.6	Meetings	4
1.7	Regulatory Requirements	4
1.8	Project / Site Conditions	4
1.9	General Requirements	5
1.10	Responsibility	5
1.11	Compliance Requirements	5
1.12	Unforeseen Hazards	5
1.13	Health and Safety Coordinator	5
1.14	Posting of Documents	6
1.15	Correction of Non-Compliance	6
1.16	Use of Vessels	6

1 General

1.1 Reference Standards

- .1 Northwest Territories and Nunavut
 - .1 Safety Act, R.S.N.W.T. - Updated 2015
 - .2 Occupational Health and Safety Regulations, R-039-2015 – Updated 2021
- .2 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS).
- .4 Canada Shipping Act, S.C. 2001, c. 26

1.2 Terms and Definitions

- .1 Where the applicable Health and Safety legislation refers to the "Principal Contractor", this specification uses the term "Contractor". These entities are to be read to be the same.

1.3 Action and Informational Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within ten (10) days after date of award and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site-specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 Ensure the site-specific Health and Safety Plan includes the requirements for the Construction Environmental Management Plan, Emergency Response Plan, Communication Plan, Hot Work Plan, and any other safety plan requirements relevant to the Work.
- .3 Submit electronic copy of Contractor's authorized representative's work site health and safety inspection reports to the Engineer daily.
- .4 Submit copies of reports or directions issued by Federal and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports within two (2) days of the incident or accident.
- .6 Submit WHMIS Safety Data Sheets prior to mobilization.
- .7 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within five days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within three (3) days after receipt of comments from Engineer.
- .8 Engineer's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation, or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to the Engineer.

1.4 Filing of Notice

- .1 File Notice of Project with authorities prior to beginning of Work.
- .2 Contractor shall be responsible and assume the Principal Contractor role as set out in the legislation for each work zone location. Provide a written acknowledgement.
- .3 Work zone locations include:
 - .1 Hay River East Channel
 - .2 Loadout and staging area
 - .3 Stockpile sites
- .4 Install proper site separation and identification in order to maintain time and space at all times throughout the life of project.

1.5 Safety Assessment

- .1 Perform site specific safety hazard assessment related to project.

1.6 Meetings

- .1 Schedule and administer Health and Safety meeting with Engineer prior to commencement of Work.

1.7 Regulatory Requirements

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.8 Project / Site Conditions

- .1 Work at site may involve contact with:
 - .1 Wildlife.
 - .2 Fuel re-supply.
 - .3 The Hay River.
 - .4 Regulatory Agencies.
 - .5 Project Stakeholders.
 - .6 Working in remote locations.
 - .7 Working in, on and near water.
 - .8 Working around construction equipment.
 - .9 Underground electrical hazards.
 - .10 Working around cranes.
 - .11 Cold / heat weather extremes.

1.9 General Requirements

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. The Health and Safety Plan must address project specifications.
- .2 The Engineer may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
- .3 Provide a health and safety vessel which shall be operational at all times when on-water work is occurring to provide first aid or shuttle personnel to and from shore as required.

1.10 Responsibility

- .1 Be responsible for the health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Principal Contractor as described in the Northwest Territories OHS Regulations.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, territorial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- .4 Contractor must comply with the requirements of the onsite MTS OHS program and with all safety plans, instructions, and recommendations. All Contractor staff entering MTS property must receive MTS orientation.

1.11 Compliance Requirements

- .1 Comply with health and safety standards listed in Clause 1.1 – Reference Standards in this Section.

1.12 Unforeseen Hazards

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Territory having jurisdiction and advise Engineer verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in accordance with Acts and Regulations of Territory having jurisdiction and advise Engineer verbally and in writing.

1.13 Health and Safety Coordinator

- .1 Employ and assign to Work, competent, and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
 - .1 Have site-related working experience specific to activities associated with.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

- .4 Be responsible for implementing, enforcing daily, and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.14 Posting of Documents

- .1 Ensure applicable items, articles, notices, and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Territory having jurisdiction, and in consultation with Engineer.

1.15 Correction of Non-Compliance

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Engineer.
- .2 Provide Engineer with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 Use of Vessels

- .1 The contractor shall be familiar with and adhere to the barge load and operational restrictions provided in the attached documents (TO COME).

***** END OF SECTION *****

SECTION 01 35 43

Environmental Procedures

1230258-P01-01 35 43-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertNo (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General	3
1.1	General	3
1.2	References	3
1.3	Construction Environmental Management Plan	3
1.4	Submittals	4
1.5	Permits	4
1.6	Environmental Monitoring	4
1.7	Contractor’s Responsibility	5
2	Execution	5
2.1	Environmental Monitoring and Supervision	5
2.2	Air Quality and Dust Control	6
2.3	Drainage and Sediment Control	6
2.4	Environmentally Harmful Products	6
2.5	Solid Non-Hazardous Waste	7
2.6	Spill Prevention and Emergency Response Planning	7
2.7	Sedimentation and Water Handling	8

1 General

1.1 General

- .1 This Section covers performance-based environmental standards to be met by the Contractor for the Work.

1.2 References

- .1 Environmental protection practices are to comply with the following Territorial and Federal acts, regulations, and guidelines, and any other applicable legislation:
 - .1 Fisheries Act; Fisheries and Oceans Canada.
 - .2 Species at Risk Act, Fisheries and Oceans Canada.
 - .3 Land Development Guidelines for the Protection of Aquatic Habitat (1992); Fisheries and Oceans Canada and Ministry of Environment.
 - .4 Mackenzie Valley Resource Management Act.
 - .5 Canadian Navigable Waters Act.
 - .6 Environmental Protection Act; Government of Northwest Territories
 - .7 Spill Contingency Planning and Reporting Regulations, Government of Northwest Territories
 - .8 Canadian Migratory Bird Convention Act
 - .9 Wildlife Act; Government of Northwest Territories
 - .10 Species at Risk Act; Government of Northwest Territories

1.3 Construction Environmental Management Plan

- .1 The Contractor shall prepare a Construction Environmental Management Plan (CEMP) for the Work and shall be responsible for executing the Work within the CEMP.
- .2 The CEMP shall be prepared in accordance with the following Project Environmental Management Plans (attached in an Appendix):
 - .1 Monitoring plan.
 - .2 Sediment and erosion control plan.
 - .3 Spill contingency plan.
 - .4 Waste management plan.
 - .5 Any other approved management plans as required by the Mackenzie Valley Land and Water Board.
- .3 The CEMP shall include and conform with the conditions and mitigations of the applicable regulatory authorizations including the following (attached in an Appendix):
 - .1 Mackenzie Valley Land and Water Board Type B Water License
 - .2 Department of Fisheries and Oceans Letter of Advice.

- .4 The CEMP shall include processes and procedures to prevent disturbance and incidental takes to migratory birds as per the Migratory Bird Convention Act.
- .5 Environmental samples shall be submitted for laboratory analysis with the goal of receiving results expediently. Soil stockpile samples shall be collected at time of dredgeate placement in accordance with the procedures presented in the Monitoring Plan, and results shall be received and provided to the Engineer within 1 week.

1.4 Submittals

- .1 CEMP:
 - .1 Submit the CEMP to the Engineer for review within 10 days of contract award.
- .2 Informational Submittals:
 - .1 Details of incidents, non-compliance, and non-conformance events with the associated corrective action(s) within one working day of the observation of the incident or event.

1.5 Permits

- .1 Permits and/or authorizations for the handling, storage, transport and/or disposal of materials, including but not limited to sediment and water, for the Work have been applied for by the Owner and it is not anticipated that additional permits will be required to transport dredged material over land and into stockpile locations provided by the Owner.
- .2 A Development Permit from the Town of Hay River may be required. The Owner will obtain the permit if necessary.
- .3 It is anticipated that the following permits will be in place prior to contract award:
 - .1 A Letter of Advice from DFO under the *Fisheries Act*. See Appendix for a copy of the letter and details of the Work limitations, procedures, submittals, and other requirements for the protection of Fish and Fish Habitat.
 - .2 Mackenzie Valley Land and Water Board Type B Water License. See Appendix for a copy of the license and details.
 - .3 A Transport Canada minor works order under the *Navigation Protection Act* has been registered. The owner will complete the notification procedure upon contractor mobilization.

1.6 Environmental Monitoring

- .1 The Contractor shall provide environmental monitoring services through a Qualified Environmental Professional (QEP). The QEP shall be an environmental professional registered and in good standing with the Northwest Territories Association of Professional Engineers and Geoscientists (NAPEG). All work shall be carried out in accordance with applicable environmental regulations, standards, and best practices.
- .2 The QEP shall provide environmental monitoring services on-site during construction to meet the requirements of the Environmental Management Plans, DFO Letter of Advice, and the Mackenzie Valley Land and Water Board Type B Water License as per the CEMP.
- .3 The Contractor shall provide access to the Engineer's Environmental Auditors to the Work.
- .4 The QEP's roles on-site include, but are not limited to:

- .1 Real-time turbidity monitoring.
- .2 Water quality sampling.
- .3 Sediment and soil sampling.
- .4 Routine inspections of construction activities and practices and throughout in-water activities.
- .5 Incident investigation and reporting.
- .6 Stopping Work if it appears that permit or approval conditions are not being followed.
- .7 Preparing a report at the end of the project for the Owner and government agencies reporting on all environmental measures that were undertaken during the Work and summarizing any incidents, non-compliance, and non-conformance events along with corrective action(s).
- .8 Weekly reporting of activities, analytical and instrument data results, and other information as required to Engineer's Environmental Auditor as per the CEMP.

1.7 Contractor's Responsibility

- .1 Undertake the Work in strict compliance with the conditions contained in the appropriate acts, authorization permits, licenses, and approvals. Do not perform, omit, or permit, any act or thing which contravenes the requirements of this Section, or contravenes applicable legislation, regulations and/or bylaws, or which causes, or has the potential to cause, environmental damage.
- .2 In the event of a discrepancy between any of the requirements of this Section, and the provisions of any legislation, regulations, or municipal bylaws, the provisions of existing laws, regulations and bylaws must prevail.
- .3 Prepare and execute the CEMP as per Clause 1.3 of this Section.
- .4 Should any of the Contractor's activities contravene the requirements of the Contract Documents, report the incident to the Engineer's Environmental Auditor. The Engineer's Environmental Auditor may issue a stop Work order directing the immediate cessation of such activities. The Engineer's Environmental Auditor may itself undertake remedial measures, or may order the Contractor to do so, as deemed necessary. The costs of any work stoppages, and/or remedial works thus undertaken, must be paid by the Contractor.
- .5 Notify the Engineer's Environmental Auditor in writing within 60 minutes, upon the discovery of any hazardous conditions within or immediately adjacent to the Work Site. The Contractor must take suitable precautions to prevent injury to persons, and damage to the environment or property, until the hazardous conditions are remedied or removed by the responsible party.

2 Execution

2.1 Environmental Monitoring and Supervision

- .1 The Engineer's Environmental Auditor shall have the power to direct the Contractor to immediately suspend Work if the results of environmental monitoring indicate that Work is contravening the CEMP, terms and conditions of permits, licenses, and approvals, including, but not limited to:
 - .1 The release of deleterious substances into the environment.
 - .2 Activities which appear to be an infraction of any environmental regulations or requirements.

- .3 Physical degradation of the environment.
- .4 Imminent risk of any such events.
- .2 If the Work is suspended, Work shall not resume without the prior written approval of the QEP. Approval may be conditional upon demonstrations to the satisfaction of all authorities having jurisdiction that the Contractor has taken appropriate steps, and instituted sufficient safeguards, to prevent a repeat of such incidents. The Contractor will not be entitled to additional time or monetary compensation for suspension delays.
- .3 Inspection by, or on behalf of, the Owner does not relieve the Contractor of its sole responsibility for the performance of the Work in accordance with the terms of the Contract and the terms and conditions of permits, licenses, and approval.

2.2 Air Quality and Dust Control

- .1 Control fugitive dust and other airborne emissions generated from the operation and movement of vehicles and machinery, and from the handling and stockpiling of soils and other construction materials in laydown areas.
- .2 Burning of refuse or other construction waste materials is strictly prohibited.
- .3 Properly maintain all equipment to reduce gaseous pollutant emissions.

2.3 Drainage and Sediment Control

- .1 The methods of control, handling, and disposal of erosion, sediment and water are to be by whatever means are necessary and in conformance with this Section to obtain satisfactory working conditions and maintain the progress of the Work.
- .2 Handle and dispose of all sediment, construction and excavation wastes, or other substances deleterious to aquatic life to prevent their entry into the surface water.

2.4 Environmentally Harmful Products

- .1 Store and handle fuels, oils, bitumen, cement, paints, solvents, cleaners, used fuel and oil filters, and other Work materials that may be environmentally harmful, in a way to eliminate leakage and spillage, and to allow containment and recovery in the event of a spill as per the CEMP and Spill Contingency Plan.
- .2 Should the Work involve the storage, handling, or use of any environmentally harmful products, or should hazardous wastes be generated, or be likely to be generated, by the use of such products, include relevant details thereof in the CEMP as per the Spill Contingency Plan. The terms "environmentally harmful products" and "hazardous wastes" are collectively referred to as "hazardous materials" hereinafter.
- .3 The disposal of hazardous waste is to be governed by the Environmental Protection Act, and Guideline for Hazardous Waste Management thereto, and any other relevant regulation to the Act.
- .4 Environmentally harmful products not in use, or earmarked for use, and/or hazardous materials, must be removed promptly from the Work Site by the Contractor.
- .5 All refueling shall take place greater than 30 m from water to the greatest extent possible. In circumstances where this is not possible (i.e., refueling of barge-based cranes and equipment), refueling activities must be isolated from the receiving environment by use of drips trays and spill pads while fueling as per the CEMP and Spill Contingency Plan.

2.5 Solid Non-Hazardous Waste

- .1 Dispose of demolition, land clearing, and construction waste in accordance with the intent of the Mackenzie Valley Resource Management Act and the approved Waste Management Plan.
- .2 Do not dump or burn garbage or any other waste associated with the Work. Should garbage or Work-related waste be dumped, within 60 minutes act to clean-up and remove the waste material to an approved location. The costs of the clean-up and removal of garbage and dumped materials have to be paid by the Contractor.
- .3 The Work Site must be kept in a clean and orderly state. All waste materials shall be placed promptly in bins or similar. No waste shall enter the water.
- .4 Dredged material shall be stockpiled at the designated onshore stockpile sites, in accordance with applicable regulations and legislation.

2.6 Spill Prevention and Emergency Response Planning

- .1 Undertake regular scheduled inspections of all hazardous materials, and equipment containing hazardous materials, for signs of leakage. During such inspections, ensure that all personal protective clothing and equipment, and other emergency response items, are in place and in good working order.
- .2 The Contractor shall have a written Work Site emergency response plan appropriate to the scale of the proposed construction activities as per the CEMP and Spill Contingency Plan. The plan to include:
 - .1 The probability and severity of an adverse effect to health, property, or the environment, of a spill of sewage, chlorinated water, or hazardous materials, used, handled, or stored on the Work Site.
 - .2 Spill / release notification and alerting procedures.
 - .3 Spill containment, recovery, and clean-up procedures.
 - .4 On-site spill / release clean-up materials, equipment, and locations.
 - .5 Names and telephone numbers of persons and organizations that may be contacted in the event of a potential environmental incident.
- .6 The emergency response plan is to be available for inspection by the Engineer's Environmental Auditor and regulatory agency personnel and be posted at conspicuous locations throughout the Work Site.
- .7 Always maintain a readily available supply of suitable spill prevention and emergency response equipment on the Work Site in effective working condition and ensure that personnel are adequately trained in its use to deal with environmental emergency situations.
- .8 In the event of an environmental emergency, notify the Engineer's Environmental Auditor within 60 minutes. If the environmental emergency is a spill to land of a hazardous material in quantities equal to or greater than those in the Spill Contingency Planning and Reporting Regulations, immediately notify the Northwest Territories Spill Line at 1-867-920-8130. Spills of any hazardous material, or any other material, which could be deleterious to fish, must be reported to Environment Canada at 604-666-6100.
- .9 Submit written incident reports to the Engineer's Environmental Auditor within 24 hours of any environmental incident or spill / release. The incident report to identify the reporting organization, date, time, location, hazardous materials involved, source and persons or organizations notified. In

addition, the report must describe how the spill or release occurred, remedial action taken or planned, and actions necessary to prevent recurrence.

2.7 Sedimentation and Water Handling

- .1 Silts and fine materials introduced into water systems can have adverse effects to the aquatic environment. Suspend operations if there is evidence that site water is entering the storm drains or natural drainages, or if surface street runoff surrounding the Work Site is entering the storm drainage system.
- .2 Should water quality criteria for turbidity be exceeded, construction will be stopped until the situation is rectified to the satisfaction of the Engineer's Environmental Auditor.

***** END OF SECTION *****

SECTION 01 41 00

Regulatory Requirements

1230258-P01-01 41 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this specification by any third party. This specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History







Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFP (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConSignID Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConSignID Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	 J. Chen	 D. Leonard	 D. Leonard

Table of Contents

1	General.....	3
2	Codes, Regulations, and Bylaws.....	3
3	Trademarks and Labels.....	3

1 General

- .1 Throughout the Specification (Divisions 01 through 35), references are made to codes and standards to establish minimum acceptable standards of materials and workmanship.
- .2 Perform Work in accordance with the latest published edition at the date of submission of the Bid unless otherwise stated.
- .3 Provide materials and workmanship which meet or exceed the specifically named codes or standard.

2 Codes, Regulations, and Bylaws

- .1 All Work to be executed in accordance with all applicable codes, laws, and regulations of the national, territorial, and municipal building codes, and other Acts, Regulations and Codes pertinent to Place of the Work.
- .2 The Contractor shall take the role of "Principal Contractor" for the Site as defined by the Northwest Territories Workers' Safety and Compensation Board (WSSC) for the duration of the project, from mobilizing until completion of Ready-for-Takeover.
- .3 Give all requisite notices in connection with this Work to the proper authorities necessary for the construction and completion of the Work on land or in the water and deliver to the Engineer all certificates for any branch of the Work for which such certificates may be required in connection with the Contract.
- .4 Comply with all municipal bylaws, including in relation to noise.
- .5 Comply with all Federal and Territorial Acts, Regulations and Codes of Practice so that the Work does not adversely affect the environment of all streams, rivers, lakes, and other bodies of water within the scope of the Contract.
- .6 Refer to Section 01 35 43 - Environmental Procedures for applicable environmental regulations.
- .7 Contractor shall submit a Notice to Shipping prior to mobilizing to Site.
- .8 Contractor will comply with all regulatory requirements and requirements of the Minor Works Order under Transport Canada Navigable Waters Act relating to navigation, including the marking, and lighting of Works.

3 Trademarks and Labels

- .1 Keep intact all trademarks and labels as required by authorities having jurisdiction to enable identification of materials and equipment.

***** END OF SECTION *****

SECTION 01 45 00

Quality Control

1230258-P01-01 45 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertID (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	Testing and Inspection.....	3
2	Inspection and Testing by Engineer	3
3	Rejected Work.....	3
4	Reports.....	3

1 Testing and Inspection

- .1 Unless specified otherwise in individual sections, all testing and inspection shall be carried out by qualified independent testing and inspection agencies approved by the Engineer and paid for by the Contractor.
- .2 Implement a quality control plan to continuously monitor quality of all aspects of the Work. Assign one individual to be responsible for implementation of the quality control plan for the duration of the Work.

2 Inspection and Testing by Engineer

- .1 Give timely notice requesting inspection if Work is designated by the Specification or bylaw for special tests, inspections, or approvals by the Engineer or governing authority.
- .2 The Engineer may order any part of the Work to be examined if such Work is suspected to be not in accordance with the Contract. If, upon examination such Work is found not in accordance with the Contract Documents, correct such Work and pay the cost of examination and correction.
- .3 Inspection and testing by the Engineer or the appointed inspector shall not relax the Contractor's responsibility to execute the Work in accordance with the Contract.
- .4 If defects are revealed during inspection and/or testing, the Engineer or the appointed inspector may perform additional inspection and/or testing to ascertain the full degree of the defect. Correct defects and irregularities as directed by the Engineer at no cost to the authority. Pay costs for retesting and re-inspection.

3 Rejected Work

- .1 Remove defective Work, whether the result of poor workmanship, use of defective Products, or damage, and whether incorporated in the Work or not, which has been rejected by the Engineer as failing to conform to the Contract. Replace or re-execute in accordance with the Contract.
- .2 If, in the opinion of the Contractor, it is not expedient to correct defective Work or Work not performed in accordance with the Contract, provide a detailed Non-Conformance Report complete with a proposed solution to the Engineer for evaluation. If, in the opinion of the Engineer, it is not expedient to correct defective Work or Work not performed in accordance with the Contract, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract, the amount of which shall be determined by the Engineer, after due consultation with the Contractor and the Owner.

4 Reports

- .1 Submit two copies of inspection and test reports promptly to the Engineer.
- .2 Submit two copies of material test certificates as may be requested or as required in individual Specification sections.

***** END OF SECTION ****

SECTION 01 50 13

Temporary Facilities and Control for Dredging

1230258-P01-01 50 13-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History







Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertNo (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with Consigno Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	 J. Chen	 D. Leonard	 D. Leonard

Table of Contents

1	General	3
1.1	Submittals	3
1.2	Installation and Removal	3
1.3	Land Access	3
1.4	Water Access to Dredge Site	3
2	Execution	3
2.1	Preparation	3
2.2	Cleaning	3

1 General

1.1 Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

1.2 Installation and Removal

- .1 Identify areas which have to be graveled to prevent tracking of mud.
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

1.3 Land Access

- .1 Provide and maintain adequate access to and exit from project site.
- .2 Provide snow removal for temporary access throughout period of work.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.
- .4 Repair damage to existing land, roads, vegetation, or structures resulting from Contractor's equipment and operations. Restore to original condition at no additional cost to the Owner.
- .5 Contractor to restrict activities to within areas shown on the Project Drawings.

1.4 Water Access to Dredge Site

- .1 Do not encumber access to the existing marine infrastructure.

2 Execution

2.1 Preparation

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

2.2 Cleaning

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.

- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 00 - Cleaning.
 - .1 Remove construction debris, waste materials, packaging material from work site daily.
 - .2 Clean dirt or mud tracked onto roadways.
 - .3 Store materials resulting from demolition activities that are salvageable.
 - .4 Stack stored new or salvaged material not in construction facilities.

***** END OF SECTION ****



SECTION 01 52 00

Construction Facilities

1230258-P01-01 52 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertIR0 (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
1.1	General	3
1.2	Documents Required	3
2	Temporary Utilities	4
2.1	Power and Lights	4
2.2	Water Supply	4
2.3	Sanitary Facilities	4
2.4	Compressed Air	4
3	Temporary Facilities and Laydown Area	4
3.1	General	4
3.2	Marine Moorage	4
4	Work Areas and Access.....	5
4.1	Work Areas	5
4.2	Access	5
5	Enclosures.....	5
6	Existing Services and Works	5
6.1	Existing Services	5
6.2	Existing Works	6
7	Security	6
8	First Aid.....	6
9	Construction Safety	6
10	Fire Protection.....	7
11	Weather	7
12	Dangerous or Flammable Materials	8
13	Access Roads and Parking Areas.....	8
14	Accommodations	8



1 General

1.1 General

- .1 Refer also to Section 01 11 00 - Summary of Work, for specific requirements associated with construction facilities and temporary control.
- .2 Provide temporary facilities and services required for construction of the Work and as required by the jurisdictional authorities.
- .3 Obtain approval of the Engineer for location, appearance, and arrangement of temporary facilities and services.
- .4 Ensure facilities are kept clean. Paint, improve, or replace as directed by the Engineer.
- .5 On completion of the Work, remove all temporary utilities, buildings, facilities, and foundations, and any debris resulting from such Work.
- .6 Restore areas used for temporary facilities and leave it in a condition satisfactory to the Engineer.
- .7 Provide and maintain all temporary facilities and services required to accomplish the Work in accordance with the construction schedule.
- .8 Prior to mobilizing, submit to the Engineer a list of temporary buildings that the Contractor intends to bring to the Place of the Work.

1.2 Documents Required

- .1 Maintain at Contractor's Work area, one copy each of the following:
 - .1 Contract Documents
 - .2 Contract Drawings
 - .3 Copy of Approved Construction Schedule
 - .4 Specifications
 - .5 Addenda
 - .6 Reviewed Shop Drawings
 - .7 Change Orders
 - .8 Field Work Orders
 - .9 Field Memos
 - .10 Other Modifications to Contract
 - .11 Field Test Reports
 - .12 Letters of Environmental Approval

2 Temporary Utilities

2.1 Power and Lights

- .1 Provide lighting and power facilities as required for the execution of the Work, in accordance with rules and regulations of the Canadian Electrical Code, and the local authority having jurisdiction.
- .2 Local power may not be relied upon. The Contractor must generate all power required to complete the work.
- .3 Whenever any part of the Work is required to be performed at night, Contractor shall provide and maintain, from sunset to sunrise, such lights on or about the Works as the Engineer deems necessary for the proper observation of the Works and performance of the Work; but, in any event, in compliance with any applicable laws and regulations.

2.2 Water Supply

- .1 Provide water as required for construction purposes, no water supply source is available at the Site.
- .2 Prohibit wastage of water.

2.3 Sanitary Facilities

- .1 Sanitary facilities for workforce are not available at the Site. The Contractor shall provide portable facilities as required.
- .2 Maintain facilities in proper sanitary condition.

2.4 Compressed Air

- .1 Provide compressed air as required for construction purposes.

3 Temporary Facilities and Laydown Area

3.1 General

- .1 The Contractor shall use the loadout and staging area, and access roads shown on the Drawings.
- .2 Provide covered Work areas and storage facilities required to protect equipment and materials from weather. Provide storage sheds with security locks to protect materials, equipment, and tools from pilferage and weather.

3.2 Marine Moorage

- .1 The Government of Northwest Territories Marine Transportation Services will be making vessels available for use on the Work as per Section 01 11 00 – Summary of Work.
- .2 Contractor vessels may be moored at the loadout area. The Contractor is ultimately responsible for safe and legal moorage of their equipment and shall provide for temporary moorage of their equipment as required.
- .3 Grounding of marine-based equipment shall not be permitted.

4 Work Areas and Access

4.1 Work Areas

- .1 The entire loadout and staging area is available for the Contractor to use, however relocation of some equipment, and materials from portions of the Site may be required.
- .2 Maintain the worksite in a neat, orderly condition during construction to the satisfaction of the Engineer.

4.2 Access

- .1 Confine construction operations within limits of the designated working areas. Access to and egress from working areas are subject to approval and direction of the Engineer.
- .2 Avoid obstructing access routes. Do not clutter with temporary storage, equipment, or debris, those areas where Work has been completed. Maintain access to all areas served by existing access routes.

5 Enclosures

- .1 Include temporary enclosures for the Work as required to protect it in its entirety or any part of it, against elements, to maintain environmental conditions required for Work within the enclosure, and to prevent damage to materials and equipment stored within.
- .2 Provide enclosures to withstand wind pressures required for the building by authorities having jurisdiction.
- .3 Erect enclosures to permit complete access for installation of Work during the time enclosures remain in place.
- .4 Take precautions to ensure that shoring, Construction Equipment, materials, or any operations, or forces of nature which apply loads to any part of the Work shall not damage the Work.

6 Existing Services and Works

6.1 Existing Services

- .1 The Contractor shall be responsible for obtaining information concerning services, whether below, upon, or above the ground, and for the repair of damage to services caused by the Work of this Contract. Obtain approval of the Owner for methods of protecting services.
- .2 Before commencing Work, establish location and extent of service lines in area of Work and notify the Engineer of findings.
- .3 Where unknown services are encountered, immediately advise the Engineer, and confirm findings in writing.
- .4 Record locations of maintained, re-routed, and abandoned service lines.

6.2 Existing Works

- .1 All existing Works, property, and facilities (public and private) in or adjacent to the construction area shall be adequately always protected by the Contractor from damage or loss of any kind and/or interruption of services.
- .2 All costs connected with the supply and installation adequate protection Works to existing structures and their removal, when no longer required, shall be borne by the Contractor as part of his agreement.
- .3 Any damage to the above-mentioned existing Work or loss resulting from the Contractor's operations and/or his failure to provide and install adequate protection for these Works shall be his responsibility alone and he shall immediately repair or replace such damage or make good such loss at his own expense to the satisfaction of the Engineer.

7 Security

- .1 Be responsible for security of the Work at the Site, from time of commencement at the Place of the Work until the Work is completed and accepted by the Engineer.
- .2 Be responsible for materials, tools, and equipment provided for the Work and protect them from damage, theft, atmospheric corrosion, fire, sabotage, and other foreseeable hazards.
- .3 Be responsible for the security of own tools and equipment.
- .4 Maintain security at all times in the event that construction is shut down due to off shifts, holidays, strikes, or lockouts.
- .5 Provide the Engineer with unrestricted access to the Site through provision of keys.

8 First Aid

- .1 Provide an adequately equipped first aid station in accordance with Health and Safety Plan as per Section 01 35 29.06 – Health and Safety Requirements, territorial workplace safety regulations and other authorities having jurisdiction.
- .2 Place employees in charge of first aid who are familiar with first aid procedures and are certified to practice in the Place of the Work.
- .3 Ensure at least one such employee is available at the Place of the Work during the performance of Work.

9 Construction Safety

- .1 Appoint a responsible person familiar with legislated requirements for construction safety in accordance with Health and Safety Plan as per Section 01 35 29.06 – Health and Safety Requirements. Be familiar with such safety requirements as well as the Owner's safety requirements and ensure that they are enforced.
- .2 Inform the Owner immediately of accidents or potential hazards and be responsible for giving the required notice of accidents to government authorities as required by law.

- .3 Be responsible for general safety and conduct of employees and ensure that:
 - .1 Equipment is operated and maintained only by qualified persons having adequate training and experience.
 - .2 Employees do not trespass beyond boundaries established for Work of this Contract unless required to do so in pursuance of Work of this Contract.
 - .3 All protective personal safety equipment is worn or used in keeping with the hazards of Work being carried out and as required by Occupational Health and Safety Division safety policies and procedures. As a minimum, all personnel shall wear CSA approved safety boots, hard hats, eye protection goggles and high-visibility vests while on Site.
 - .4 Ensure employees are familiar with safety rules and regulations on the Site.
- .4 Remove snow and ice as necessary for safe and adequate performance of the Work.
- .5 Provide suitable barricades around all excavations, openings, and other potentially dangerous areas, and remove the barricades when they are no longer necessary.
- .6 Provide adequate lighting at all excavations, openings, and other potentially dangerous areas during the hours of darkness.
- .7 Pay all costs for providing watching personnel, barriers, fences, warning signs, and audible alarms for the protection of persons and property during performance of the Work.
- .8 Indemnify the Owner from any and all loss or damage sustained by reason of the Contractor's failure to maintain proper barriers or watching.

10 Fire Protection

- .1 Implement fire project in accordance with Health and Safety Plan as per Section 01 35 29.06 – Health and Safety Requirements
- .2 Prohibit open fires on the Site. Remove waste at regular intervals and when directed. Take precautions to avoid fire by spontaneous combustion. Prohibit smoking in areas where flammable materials are in use or stored. Post "NO SMOKING" signs prominently in such areas and see that they are strictly obeyed. Comply with fire regulations of the Owner and of the authorities having jurisdiction.
- .3 Be responsible for fire protection within areas of Work. Provide and maintain in good working order, sufficient firefighting equipment for this purpose including, but not limited to, fire extinguishers, asbestos blankets, and portable fire pumps. Obtain approval of the Owner for the type, capacity, location, and storage of the fighting equipment.
- .4 Assign workers to fire watch while welding, metal cutting, or soldering is in progress and longer where necessary, especially after quitting times, etc. If necessary, use asbestos blankets to protect adjacent areas. Provide appropriate fire extinguishers immediately at hand.
- .5 Familiarize employees with proper use of firefighting equipment.

11 Weather

- .1 No Work shall be undertaken by the Contractor when, in the opinion of the Engineer, the weather is unsuitable or unfavourable for a particular class of Work.

- .2 The Marine Transportation Systems tug captains will make determinations for on-water conditions and hold the right to suspend or re-direct on-water operations due to poor sea state.

12 Dangerous or Flammable Materials

- .1 Contractors shall ensure at all times and at all locations under his control within this Contract that explosive materials, fuels, and all other dangerous or flammable materials are stored, covered, and protected in a manner recognized as standard practices for the particular materials and fluids, but, in any event, in accordance with any applicable laws, regulations, and Spill Contingency Plan as per the CEMP.

13 Access Roads and Parking Areas

- .1 Refer to Section 01 11 00 - Summary of Work.
- .2 Construction equipment and vehicles shall be parked within the Site boundaries for the duration of the Project.

14 Accommodations

- .1 The Contractor is encouraged to utilize local accommodations available within the Town of Hay River for workers. There are multiple types of lodging available.
- .2 If the Contractor is providing their own accommodations, the Contractor shall be responsible for obtaining any and all permits.

***** END OF SECTION *****

SECTION 01 55 26

Traffic Control

1230258-P01-01 55 26-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertID (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General	3
1.1	Reference Standards	3
1.2	Protection of Public Traffic	3
1.3	Informational and Warning Devices	3
1.4	Control of Public Traffic	4
1.5	Operational Requirements	4
2	Execution	4
2.1	Traffic Management Work Plan	4

1 General

1.1 Reference Standards

- .1 Traffic Control Person Code of Practice as issued by the Governments of Northwest Territories and Nunavut.
 - .1 WSCC Worker's Safety Act and Regulations, Northwest Territories.
 - .2 Occupational Health and Safety Regulations, Northwest Territories.

1.2 Protection of Public Traffic

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 When working on travelled way:
 - .1 Place equipment in position to minimize interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .3 Before beginning trucking on community roads, erect suitable signs, and devices in accordance with the Traffic Control Persons Code of Practice.
- .4 Maintain existing roads being used for the haul route and construction vehicles. Maintain the road throughout the construction season including maintaining all culvert crossings. Rectify any damage to public roadways or culverts and repair culvert crossings if damage occurs. Prior to the start of construction, conduct an existing condition survey of the haul route jointly with the Engineer. The existing condition will be recorded with pictures and descriptions.
- .5 Keep travelled way graded, free from potholes and of sufficient width for required number of lanes of traffic.
- .6 Adhere to any Town of Hay River Road weight limit restrictions.

1.3 Informational and Warning Devices

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades, and miscellaneous warning devices to Traffic Control Person Code of Practice.
- .3 Continually maintain traffic control devices in use:
 - .1 Check signs daily for legibility, damage, suitability, and location. Clean, repair or replace to ensure clarity and reflectance.

Remove or cover signs which do not apply to conditions existing from day to day.

1.4 Control of Public Traffic

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped to Traffic Control Person Code of Practice, for situations as follows:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .7 Delays to public traffic due to Contractor's operators: 15 minutes maximum.

1.5 Operational Requirements

- .1 Determine the means for trucking from the loadout area to stockpile sites. If the community roads are used, follow posted speed limits.
- .2 Maintain existing conditions for traffic crossing right-of-way except when required for construction and with approval of the Engineer.
- .3 Adhere to Town of Hay River noise bylaw 2006-REG-11 restrictions including those for Quiet Time between 11 pm to 7 am.

2 Execution

2.1 Traffic Management Work Plan

- .1 Ten days prior to the start of site Work, develop a Traffic Management Plan in accordance with these documents and Northwest Territories Traffic Control Person Code of Practice. Submit the plan to the Engineer and Town of Hay River.
 - .1 Site routing including a map of haul routes, how traffic will be managed, communication protocols between trucks and how the town will be notified of change in work plans.
 - .2 Site map showing location of all haul routes, locations of road widening, pull over / passing locations, and dump sites including signage and signaling plan.
 - .3 Identify types of vehicles to be used and estimated numbers to be used, including time of day.
 - .4 Speed limits and method for enforcing speed limits during construction.
 - .5 Dust control measures.
 - .6 Pedestrian protection measures.

SECTION 01 56 00

Temporary Barriers and Enclosures

1230258-P01-01 56 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with Certifio (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
1.1	Installation and Removal	3
1.2	Hoarding	3
1.3	Guard Rails and Barricades	3
1.4	Access to Site	3
1.5	Public Traffic Flow	3
1.6	Fire Routes	3
1.7	Protection for Off-site and Public Property	3

1 General

1.1 Installation and Removal

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.2 Hoarding

- .1 Design, supply, and maintain hoarding as required to complete the Work.
- .2 Construction area limit fence:
 - .1 It is the Contractor's responsibility to secure the site and to determine the measures and means necessary to do so. Limit any temporary fencing that is installed to the property boundaries. Fencing and or security plans must be reviewed and coordinated with the Engineer and Town of Hay River prior to commencing construction activities.
 - .2 Provide any and all anchoring and/or bracing necessary to maintain any temporary fence and to prevent tipping.

1.3 Guard Rails and Barricades

- .1 Provide as required by governing authorities.

1.4 Access to Site

- .1 Provide and maintain access roads and pedestrian crossings, as may be required for access to Work.

1.5 Public Traffic Flow

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.6 Fire Routes

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.7 Protection for Off-site and Public Property

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible and correct any damage incurred to the satisfaction of the Engineer.

*** END OF SECTION **

SECTION 01 60 10

Materials and Equipment

1230258-P01-01 60 10-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with Certigna (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02). Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
2	Handling and Storage.....	3
3	Protection.....	4
4	Identification of Materials and Equipment.....	4
5	Product Options.....	4
6	Substitutions.....	4
7	Equipment Spares.....	5

1 General

- .1 Ensure uniform pattern and quality of new materials and equipment throughout the job, bearing approval labels of authorities having jurisdiction.
- .2 Material and equipment shall be on hand well in advance of being required.
- .3 Use Products of one manufacturer for equipment or material of same type or classification unless otherwise specified.
- .4 Handle and install manufactured articles, materials, and equipment in strict accordance with manufacturer's instructions unless otherwise specified.
- .5 Remove from the Place of the Work, materials or equipment condemned by the Engineer as not approved for use. Provide and install suitable replacement materials.
- .6 Provide all labour and equipment to unload, transport, and store at the Place of the Work any Owner supplied materials and equipment, unless noted otherwise.
- .7 Whenever available and suitable for use in the project, the Contractor is to utilize locally available materials, equipment, and labour.

2 Handling and Storage

- .1 Carefully offload equipment and materials and place in storage until ready for installation.
- .2 Use the staging and loadout area as designated by the Engineer.
- .3 Use the equipment and techniques for offloading and handling suited to the type of equipment and materials being handled.
- .4 Follow any special handling instructions applicable to the equipment and materials.
- .5 Store packaged materials undamaged, in their original wrappings or containers with the manufacturer's labels and seals intact.
- .6 Remove crating and packing only to the extent necessary to permit inspection of the contents and replace after inspection.
- .7 Store and confine materials and equipment in accordance with the laws, ordinances, and regulations applicable to the storage of such materials and equipment.
- .8 Store equipment and materials not requiring indoor storage, outdoors subject to the following provisions:
 - .1 Protect against weather conditions which may be detrimental to the equipment and materials.
 - .2 Provide adequate supports to prevent the equipment and materials from coming into contact with the ground and arrange such supports as to prevent dimensional distortion of the equipment and materials.
 - .3 Ensure special external surface finishes, sealing faces and edges, or parts having close dimensional tolerances are covered or provided with additional protection as may be required to prevent damage.
 - .4 Seal openings to prevent ingress of dirt.

- .5 Maintain adequate ventilation to prevent condensation of moisture on equipment and materials.
- .9 Make good damages resulting from improper handling or storage to the manufacturer's standard, at no cost to the Owner and subject to final acceptance by the Engineer.

3 Protection

- .1 Protect all equipment and materials from damage during handling and installation.
- .2 Provide waterproofing covers, tarpaulins, temporary walkways, and any other suitable method of protection during and after installation.
- .3 Repair or replace damaged Work caused by failure to provide suitable protection at no cost to the Owner.
- .4 Return Owner supplied equipment in similar condition to that prior to the start of the Work. Make good all damage to the satisfaction of the Owner and Engineer.

4 Identification of Materials and Equipment

- .1 Clearly identify equipment and materials as to the manufacturer and class of quality, with the manufacturer's name or logo and sufficient information such as quality, standards of design and manufacturer, dimensional classification, catalogue, or serial numbers to establish identity of the item in relation to the Contract Documents.
- .2 Ensure equipment and materials are clearly identified in the manufacturer's, Supplier's, and fabricator's shops and yards should it be necessary to protect the Owner's property in the event of bankruptcy.

5 Product Options

- .1 For Products specified only by reference standards, select any Product meeting these standards in accordance with the manufacturer's printed literature.
- .2 For Products specified by naming several Products or manufacturers, select any Product and manufacturer named.
- .3 For Products specified by naming one or more Products but indicating the option of selecting equivalent Products by stating "or equal" after specified Product, submit a request, for any Product not specifically named, as outlined in this section.
- .4 For Products specified by naming only one Product and the manufacturer, there is no option and substitution will not be allowed.

6 Substitutions

- .1 Where the Specifications include an "or equal" clause, substitutions will be considered by the Engineer providing:
 - .1 The materials or Products specified are no longer available.

- .2 The materials or Products proposed are considered by the Engineer as "equivalent" to those specified and will result in a credit to the Contract Price.
- .3 The materials or Products proposed are considered by the Engineer as superior to those specified and will not result in a change to the Contract Price.
- .2 Substitutions may be proposed under the following conditions:
 - .1 Investigate the proposed substitutions and complete data substantiating the proposed substitution as submitted is in accordance with the Specifications.
 - .2 Submit all data relating to changes in construction schedule and relation to other Work.
 - .3 State what effect, if any, the proposed substitution will have on the Contract Price.
 - .4 Give at least the same guarantee for the substitution as for the Product originally specified.
 - .5 Coordinate the installation of the accepted substitution into the Work, assume full responsibility when substitutions affect other Work and make such changes as may be required to complete the Work, including changes to Drawings, at no extra cost to the Owner.
 - .6 All claims are waived for additional costs related to the substitution which consequently become apparent.
- .3 Substitutions to methods or processes described in the Specifications or Drawings, may be proposed for the consideration of the Owner. Ensure such substitutions are in accordance with the following requirements:
 - .1 Clearly indicate how the proposed substitutions would be advantageous to the Owner or in the opinion of the Contractor would improve the operation of the installation.
 - .2 Be responsible for substitutions to methods or processes concerning such Work and ensure that the warranty covering all parts of the Work will not be affected.
 - .3 Defray the cost of all changes in the Work of other Contractors, necessitated by the substituted methods or processes, if accepted.
 - .4 The substituted methods or processes fit into space allotted for the specified methods or processes. Make any Drawing changes required for the substitution at no cost to the Owner.
- .4 Substitutions will not be considered if:
 - .1 They are indicated or implied on Shop Drawings or Product data without formal request.
 - .2 Acceptance will require substantial revisions of the Specification and Drawings.
- .5 Do not substitute materials or methods into the Work unless such substitutions have been specifically approved for the Work, by the Engineer.
- .6 The Contract Price will be adjusted accordingly to any and all credits arising from the substitutions mentioned above.

7 Equipment Spares

- .1 Supply spare parts or ensure that spare parts are easily available for equipment used on the project to minimize equipment downtime.

***** END OF SECTION ****

SECTION 01 71 23

Field Engineering

1230258-P01-01 71 23-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertifiID (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  _____ J. Chen	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  _____ D. Leonard	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  _____ D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General.....	3
1.1	Requirement Include	3
1.2	Qualifications of Surveyor	3
1.3	Setting out the Work	3
1.4	Documentation	4
1.5	Construction Tolerances	4

1 General

1.1 Requirement Include

- .1 Execute, and assume responsibility for, complete field engineering survey services to establish and confirm location of the Work and for measurement of the Work. All surveying is considered to be incidental to the Work and will be paid as a lump sum.
- .2 Provide access to benchmarks and baselines for the Engineer.
- .3 Contractor to complete pre-dredge, post-dredge, and interim multi-beam bathymetric surveys.
- .4 Contractor to survey completed stockpiles.

1.2 Qualifications of Surveyor

- .1 Qualified registered surveyor, registered in the Northwest Territories and acceptable to the Engineer.
- .2 Prior to mobilization, submit the name and address of surveyor to the Engineer.

1.3 Setting out the Work

- .1 Notify the Engineer immediately of any discrepancies or unanticipated conditions that may affect the Work.
- .2 The Contractor shall establish the baseline (or lines) and benchmarks suitable for laying out the Work. The Contractor shall maintain the monuments thereafter. Each benchmark that establishes the baseline shall have two reference points that shall be located so that they are not disturbed by the Contractor. The proposed location of the baseline and reference points shall be approved by the Engineer prior to establishing. Responsibility for accuracy of the established line and points lies with the Contractor. The line and points shall always be available to the Engineer for checking. Such a check by the Engineer shall not relieve the Contractor with respect to the accuracy of these lines and points.
- .3 The Contractor shall be responsible for accurately setting out the Work from the benchmark(s) or reference line(s) and take necessary action to prevent their destruction. Verify figures shown on the Drawings and assume responsibility for any error resulting from failure to exercise such precaution. Be responsible for the alignment, elevations, and dimensions of all parts of the Work and their mutual agreement.
- .4 If, at any time an error appears or arises in the position of levels, grades, dimensions, or alignment of parts of the Work, rectify such error to the satisfaction of the Engineer, at no cost to the Owner. Checking of the position of levels, grades, dimensions, or alignment of parts of the Work by the Engineer does not relieve the Contractor of his responsibility for the correctness thereof.
- .5 Provide the Engineer with reasonable assistance which may be required at any time in checking the Work.
- .6 Establish a baseline survey on Site including a tide gauge so that the proper depth of dredging can be determined.
- .7 Bathymetric surveys shall be conducted in accordance with Canadian Hydrographic Service (CHS) standards for an Exclusive Order Survey, latest edition. Surveys to be processed in accordance with the

relevant CHS standards and present depths based on the project chart datum as defined in the Drawings.

1.4 Documentation

- .1 Maintain a complete, accurate log of control and survey Work as it progresses.
- .2 Provide the survey layout information to the Engineer.
- .3 Provide bathymetric survey data to the Engineer.
- .4 On request of the Engineer, submit documentation to verify accuracy of field engineering Work.

1.5 Construction Tolerances

- .1 Construction tolerances for the Works are detailed in the Specifications and referenced standards. The Contractor is reminded that it is imperative to adhere to these tolerances which will be strictly enforced to ensure the Works meet the required accuracy.

***** END OF SECTION *****



SECTION 01 74 00

Cleaning

1230258-P01-01 74 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History







Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Re-issued for Review	Javin Junfeng Chen <small>Signed with CertiFO (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	 J. Chen	 D. Leonard	 D. Leonard

Table of Contents

1	General.....	3
1.1	Project Cleanliness	3
1.2	Final Cleaning	3

1 General

1.1 Project Cleanliness

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Engineer (typical) or other contractors.
- .2 Remove waste materials from site at regularly scheduled times or to the Hamlet dump site. Do not burn waste materials on site, unless approved by the Engineer.
- .3 Clear snow and ice bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Dispose of waste materials and debris off site.
- .7 Store volatile waste in covered metal containers and remove it from premises.
- .8 Provide adequate ventilation during use of volatile or noxious substances.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.2 Final Cleaning

- .1 When Work is at Substantial Completion, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work as per Appendix K – Construction Contract of the Tender documents.
- .2 Remove waste products and debris other than that caused by others and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris other than that caused by the Engineer or other contractors.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Inspect equipment and ensure specified workmanship and operation.
- .7 Rake clean surfaces of grounds.

***** END OF SECTION ****

SECTION 01 77 00

Closeout Procedures

1230258-P01-01 77 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFD (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	Documents.....	3
2	Inspection / Takeover Procedures	3

1 Documents

- .1 Submit as-built Surveys and post-dredge surveys as specified in other Sections.
- .2 Collect and assemble documents executed by Subcontractors, Suppliers, and manufacturers. Submit material prior to applying for the final certificate for payment. For equipment put into use with the Owner's permission during construction, submit within ten days after start-up.
- .3 Provide warranties and bonds, as required by the Contract Documents, fully executed and notarized.
- .4 Execute transition of performance bond and labour and materials payment bond to warranty period requirements as required by the Contract Documents.
- .5 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due.
- .6 The Engineer will issue a final Change Order reflecting approved adjustments to Contract Price not previously made.

2 Inspection / Takeover Procedures

- .1 Prior to applying for a certificate of Substantial Completion of the Work, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete, defects are corrected, and record drawings are submitted. Notify the Engineer in writing of satisfactory completion of the Work and request an inspection.
- .2 Correct all deficiencies and defects noted during the Engineer's inspection.
- .3 When the Engineer considers deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for certificate of Final Completion of the Work.

***** END OF SECTION *****

SECTION 31 23 00

Excavation and Fill

1230258-P01-31 23 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFIO (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  J. Chen	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small>  D. Leonard
A	23-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General	3
1.1	Summary	3
1.2	Related Sections	3
1.3	References	3
1.4	Quality Assurance	3
1.5	Existing Conditions	3
2	Products	4
2.1	Materials	4
3	Execution	4
3.1	Environmental Protection	4
3.2	Site Preparation	4
3.3	Clearing	4
3.4	Grubbing	5
3.5	Removal and Disposal	5
3.6	Preparation / Protection	5
3.7	Rough Grading	5
3.8	Stockpiling and Dewatering	5
3.9	Excavation	6
3.10	Backfill and Compaction	6
3.11	Surface Restoration	7

1 General

1.1 Summary

- .1 This section describes the requirements for excavations and fill including stockpiling of dredgeate.

1.2 Related Sections

- .1 Section 01 71 23 – Field Engineering
- .2 Section 35 24 00 – Dredging
- .3 Construction Drawings.

1.3 References

- .2 ASTM D1557-12(2021) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³ (2,700 kN-m/m³))

1.4 Quality Assurance

- .1 Prior to mobilizing, submit for review by the Engineer the proposed site preparation plan.
- .2 Do not use fill material until the material has been reviewed by the Engineer.

1.5 Existing Conditions

- .1 Before commencing the Work, establish location of buried services on and adjacent to Site.
- .2 If any buried services are present or suspected to be present within the excavation / fill areas, immediately notify the Engineer for next steps.
- .3 Maintain and protect from damage, water, sewer, gas, electric, telecommunication and other utilities and structures encountered as indicated.
- .4 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by the Engineer.
- .5 Where required for excavation, cut roots or branches as directed by the Engineer.
- .6 Dispose of all surplus spoil from excavations as shown on the Drawings or as directed by the Engineer. Suitability of excavated material for use as backfill shall be governed by Section 2 of this Specification.
- .7 Verify if conditions of substrate are acceptable for rough grading. Inform the Engineer of unacceptable conditions immediately upon discovery. Proceed with grading and stockpiling only after unacceptable conditions have been remedied.

2 Products

2.1 Materials

- .1 Fill:
 - .1 Material that will be used for backfilling and berm construction shall be borrowed or excavated material free of debris, organics, and other materials, approved by the Engineer.
 - .2 Dewatered dredgeate may be used for berm construction if uncontaminated and approved by the Engineer.

3 Execution

3.1 Environmental Protection

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 Site Preparation

- .1 The Contractor shall verify the dimensions of the stockpile sites are as indicated on the Drawings prior to starting the Work.
- .2 Remove obstructions, ice, and snow, from surfaces to be excavated within limits indicated.
- .3 If required for stockpiling, clear and grub the sites.

3.3 Clearing

- .1 Tree clearing activity shall not be conducted unless authorized in writing by the Engineer and shall be done in accordance with the Migratory Bird Convention Act.
- .2 Clearing includes felling, trimming, and cutting of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within cleared areas.
- .3 Cut off brush and scrub as indicated or as directed at a height of not more than 300 mm above ground.
- .4 Remove existing cribwork, guardrails, fences, and structures built of timber and/or metal, culvert pipes of all types and timber box structures within the limits of the Work. Do not remove buildings or their foundations.

- .5 The Contractor shall clear only the width specified or as shown on the Drawings. The Contractor shall be subject to liability if over-clearing occurs.
- .6 All cleared areas shall be kept clear of regrowth for the duration of the Work except in areas where vegetation is required to be re-established to supplement erosion protection, as specified.

3.4 Grubbing

- .1 Remove and dispose of roots larger than 40 mm in diameter, matted roots, and designated stumps from area shown on Contract Drawings.
- .2 Grub out stumps and roots to not less than 150 mm below original ground surface.
- .3 In cuts, a depth of not less than 500 mm below subgrade shall be free of roots greater than 40 mm in diameter.
- .4 Grub out visible rock fragments and boulders greater than 300 mm as measured at widest point, but less than 0.25 m³.
- .5 The Contractor will not be required to grub the stumps of any dangerous trees overhanging the area.

3.5 Removal and Disposal

- .1 Remove all cleared and grubbed materials to an off-site disposal area as approved by the Engineer.
- .2 Burning of material shall not be permitted.

3.6 Preparation / Protection

- .1 Protect existing features as indicated.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in areas to be occupied by new construction, protect existing trees from damage in accordance with the Migratory Bird Convention Act.

3.7 Rough Grading

- .1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.
- .2 Grade ditches to the elevations as indicated on the Drawings.
- .3 The Contractor is responsible for their own survey control and layout, based off the Drawings and local survey monuments.

3.8 Stockpiling and Dewatering

- .1 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries. Install sumps in appropriate locations of the stockpile properties to satisfy water license regulatory requirements and the Construction Environmental Management Plan.
- .2 Retainment berms shall be constructed prior to placement of mass dredgeate. Berm side slopes shall not be steeper than 2H:1V.
- .3 Portions of the dredge material may be considered as contaminated and shall be tested at time of placement in stockpile. Contractor is responsible for organizing dredge materials into geo-referenced

cells at stockpile locations for tracking and recording daily locations along the navigation channel from which material was dredged for purposes of testing and disposal, if required.

- .4 Protect stockpiles from erosion due to rain and wind.
- .5 Stockpiles to be maximum 3.0 m high unless approved by the Engineer.
- .6 At each stockpile site, submit surveys of the site prior to and after stockpiling.
- .7 Stockpile properties shall be developed and utilized as needed based on progress of dredging activity. Owner properties (Areas 1 to 5 on Drawing No. 1230258-P01-DDD-1100) shall be developed and used first and fully. Once these are at capacity, the Landfill properties can be used (Areas 8 to 10 on Drawing No. 1230258-P01-DDD-1101), followed by Town of Hay River Properties (Areas 6 and 7 on Drawing No. 1230258-P01-DDD-1100).

3.9 Excavation

- .1 Excavate lines, grades, widths, elevations, alignments, and dimensions as indicated on Drawings.
- .2 Excavate by hand if necessary to preserve or minimize damage to existing trees, shrubs, building and all similar existing features or facilities.
- .3 Excavation must not interfere with bearing capacity of adjacent foundations.
- .4 Dispose of surplus and unsuitable excavated material at designated location off-site.
- .5 Do not obstruct flow of surface drainage or natural watercourses.
- .6 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by the Engineer.

3.10 Backfill and Compaction

- .1 Maintain excavations free from water and soft materials during placement of backfill to ensure proper compaction of granular materials.
- .2 All backfill shall conform within the tolerances specified to the lines, grades sections and elevations shown on the details and Drawings.
- .3 Do not proceed with backfilling operations until completion of following:
 - .1 Areas to be backfilled to be free from debris, snow, ice, water, and frozen ground.
 - .2 All excavations to receive backfill shall be cleaned of all trash and debris.
 - .3 Materials for use in backfill shall be taken from the excavation, stockpiles, approved borrow areas, cuts or from other sources as approved by the Engineer.
 - .4 Do not use backfill material which is frozen or contains ice, snow, or debris.
 - .5 Place backfill material in uniform layers not exceeding 300 mm loose thickness up. Compact each layer before placing succeeding layer.
 - .6 Common backfill shall be placed above trench backfill up to the original ground level or as shown in the Drawings and details.
 - .7 Compact each backfill layer in accordance with the approved compaction plan submitted and reviewed by the Engineer to achieve an equivalent 95% Modified Proctor Density according to ASTM D1557.

3.11 Surface Restoration

- .1 Upon completion of the Work, remove waste material and debris, trim slopes and correct defects as directed by the Engineer.
- .2 Clean and reinstate affected areas affected by the Work.

***** END OF SECTION *****



SECTION 35 24 00

Dredging

1230258-P01-35 24 00-SPC-0001 Revision B

Disclaimer

This Specification is confidential and for the sole use and benefit of Government of Northwest Territories and is subject to and issued in accordance with the agreement between Government of Northwest Territories and Westmar Advisors Inc. Copying this Specification without the permission of Government of Northwest Territories and Westmar Advisors Inc. is not permitted. Westmar Advisors Inc. accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this Specification by any third party. This Specification may not be relied upon in whole or part, for the benefit of any other person or for any other purpose without the express written permission of Westmar Advisors Inc.

Version History




Rev	Date	Description	Originated By	Reviewed By	Approved By
B	02-June-2023	Issued for Tender	Javin Junfeng Chen <small>Signed with CertiFIO (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 	Daniel Leonard <small>Signed with ConsignIO Cloud (2023/06/02) Verify with verifio.com or Adobe Reader.</small> 
A	03-May-2023	Issued for Review	_____ J. Chen	_____ D. Leonard	_____ D. Leonard

Table of Contents

1	General	3
1.1	Summary	3
1.2	Related Sections	3
1.3	Measurement	3
1.4	Definitions	3
1.5	Submittals	4
1.6	Regulatory Requirements	4
1.7	Site Conditions	4
2	Products	5
2.1	Dredging Equipment	5
3	Execution	5
3.1	Dredging Equipment	5
3.2	Layout and Control of the Work	5
3.3	Protection of Existing Structures	6
3.4	Sounding Surveys	6
3.5	Dredging	6
3.6	Disposal of Dredged Material	7
3.7	Tolerances	7
3.8	Field Quality Control	7

1 General

1.1 Summary

- .1 The Work of this section includes, but is not limited to:
 - .1 Dredge to the depths, lines, grades, and side slopes indicated on the Drawings.
 - .2 Stockpiling of dredged material at the designated onshore locations indicated on the Drawings.
 - .3 Laying out necessary baselines and control points.
 - .4 Performing bathymetric surveys jointly with the Engineer prior to dredging, upon final completion of dredging, and at interim phases as agreed upon between the Contractor and Engineer.
 - .5 Obtaining all permits required to perform the Work other than those obtained by the Owner.
 - .6 Comply with all authorization and permit requirements including those obtained by the Owner.

1.2 Related Sections

- .1 Section 01 71 23 – Field Engineering
- .2 Section 31 23 00 – Excavation and Fill

1.3 Measurement

- .1 Dredging will be measured by in-place measurement using the average end area method, as determined by pre-dredge, post-dredge, and any interim bathymetric surveys.
- .2 Vertical Datum for measurement is as defined on the Drawings.
- .3 Only dredging and stockpiling of material removed from above the sub-grade plane and within the specified side slopes indicated on the Drawings will be measured and paid for.

1.4 Definitions

- .1 Dredging: Excavation of material from the bed of a body of water.
- .2 Grade: Plane above which all material is to be dredged.
- .3 Sub-Grade: Plane at the following depths below and parallel to specified dredge depth.
All Locations: 300 mm.
- .4 Estimated Quantity: Volume of material calculated to be above sub-grade and within maximum dredging tolerances specified for side slopes unless otherwise specified.
- .5 Side Slope: Inclined plane extending from sub-grade at side limit of dredging area to intersect original ground line, with slope expressed as a ratio of horizontal distance to vertical distance.
- .6 Overburden: Soft or loose material comprising mud, silt, clay, sand, gravel, cobbles, and boulders up to 1.5 m³ in volume and any other material not defined as rock or glacial till.
- .7 Hard Pan: Over consolidated silty sand, sandy silt, gravels, cobbles, and boulders, with SPT

- blow counts in excess of 30, which cannot be excavated with a heavy clam bucket or excavator bucket.
- .8 Rock: Solid rock requiring drilling and blasting, including sandstone and conglomerate.
- .9 Obstruction: Solid rock and debris that cannot be handled by standard dredging equipment.

1.5 Submittals

- .1 Submit the proposed surveyor, sounding equipment, and methodology to be employed by the Contractor for approval by the Engineer prior 5 days prior to the start of the pre-dredge survey.
- .2 Submit to the Engineer bathymetric survey Drawings prior to dredging, upon completion of dredging, and after any interim surveys.
- .3 Submit prior to commencing Work, a detailed method statement, including proposed equipment, method of removing, stockpiling, and disposing of dredged material.
- .4 Submit prior to commencing Work, Contractor's dredged material management plan and water management plan.

1.6 Regulatory Requirements

- .1 Comply with all requirements stated in the permits obtained for the Work.
- .2 In order to allow for the issuance of a Navigational Warning (NAVWARN), ten days prior to commencement of Work, notify the local Canadian Coast Guard District Office.
- .3 Ensure that floating equipment used in the Work is marked in accordance with the Regulations for the Prevention of Collisions when located on or in the waterway and does not interfere with navigation.
- .4 Comply with municipal, provincial, and national codes and regulations relating to dredging Work, including Town of Hay River by-laws for noise and allowable hours for operation of equipment.
- .5 No additional payment will be made for delays incurred due to restrictions imposed by the Department of Fisheries and Oceans or other regulatory agencies.
- .6 No additional payment will be made for the provision of silt curtains or other measures required to comply with requirements of environmental regulatory agencies.
- .7 Adhere to the Construction Environmental Management Plan (CEMP).

1.7 Site Conditions

- .1 Be familiar with vessel movements and activities in areas adjacent to the dredging operations. Plan and execute Work in manner that will not interfere with vessel movements and activities.
- .2 Results of the most recent bathymetric surveys are indicated on the Drawings and are available in the reference documents. This data is made available for the Contractor's information and may differ from current Site conditions. Measurement and payment for dredging will be based on bathymetric surveys performed as part of the Work.
- .3 Preliminary sediment analysis is provided for information only.

2 Products

2.1 Dredging Equipment

- .1 Contractor will mobilize equipment to carry out dredging on this project as required and as described below:
 - .1 Mechanical bucket excavators.
 - .2 Front end loaders.
 - .3 On-highway dump trucks sufficient for continuous operation. Truck boxes to be watertight and tailgates to be double secured with chains.
 - .4 Tracked carrier(s).
- .2 Owner supplied equipment and services as per Section 01 11 00 – Summary of Work.
- .3 Contractor must have sufficient equipment available to carry out dredging at two areas simultaneously.
- .4 Contractor shall ensure that spare parts are easily available or otherwise supply spare parts for equipment used on the project to minimize equipment downtime.

3 Execution

3.1 Dredging Equipment

- .1 Perform dredging operations using a mechanical bucket excavator.
- .2 Use barges and trucks for transporting the dredged material to the designated stockpiling sites in the Town of Hay River.
- .3 The contractor shall be familiarized with and adhere to the barge load and operational restrictions provided in the attached documents (TO COME)

3.2 Layout and Control of the Work

- .1 Place and maintain markers for the duration of dredging to define the Work.
- .2 Provide and maintain position fixing and distance measuring equipment to the satisfaction of the Engineer. The Engineer will monitor position fixing and dredging control.
- .3 Establish and maintain a water level gauge visible to the dredge operator so that the proper depth of dredging can be determined.
- .4 Establish and maintain on-land targets for location and definition of designated dredge area limits. Targets should be suitable for control of dredging operations and location of soundings. Remove targets on completion of Work.

3.3 Protection of Existing Structures

- .1 Take all necessary precautions to prevent damage to existing structures in the vicinity of the Work. Do not dredge material from areas within one metre of existing structures unless authorized by the Engineer.
- .2 Make good all damage at no cost to the Owner.

3.4 Bathymetric Surveys

- .1 All bathymetric surveys at the dredge site, specifically required by this Specification for measurement or verification purposes or for the Contractor's own control of dredging activities, will be conducted by the Contractor at the Contractor's own expenses.
- .2 Bathymetric surveys shall be conducted in accordance with Canadian Hydrographic Service (CHS) standards, latest edition. Surveys to be processed in accordance with the relevant CHS standards and present depths based on the project chart datum as defined in the Drawings.
- .3 The surveyor employed by the Contractor shall be experienced in conducting bathymetric surveys and be familiar with the CHS Standards for Hydrographic Surveys.
- .4 Bathymetric Surveys shall be Exclusive Order Surveys with Complete Coverage.
- .5 Establish a baseline survey on Site including a tide gauge so that the proper depth of dredging can be determined.
- .6 A minimum of two complete bathymetric surveys of the dredge site, one pre-dredge (original ground) and one post-dredge will be required.
- .7 Do not dredge until the Engineer and the Contractor have a mutually accepted pre-dredge survey.
- .8 Pre- and post-dredge, and interim surveys will be performed by the Contractor in the presence and with the cooperation of the Engineer. Copies of all raw sounding data will be jointly signed by a representative of the Engineer and Contractor and a copy of the complete reduced data including computer data files shall be provided to the Engineer for review and approval.
- .9 It is recognized that sounders will record the highest point in the sonic cone. No adjustment in quantities will be made for these discrepancies.
- .10 The Engineer reserves the right to undertake verification checks on the survey equipment.
- .11 The Contractor will provide four copies of final as-built sounding plans of the dredge area prepared on AutoCAD. Disks of sounding data containing ASCII text file of x, y, z coordinates of each sounding point will be provided.

3.5 Dredging

- .1 Dredging shall be performed using appropriate equipment to minimize spillage, turbidity and to ensure an accurate dredged slope.
- .2 Dredge the area indicated on the Drawings to the grades, depths, and side slopes indicated on the Drawings referenced to local datum. Any dredging beyond the lines and grades shown on the Drawings performed by the Contractor without the Engineer's approval, shall be at the expense of the Contractor, except as noted in Section 1.3 above. If such over-dredging should, in the opinion of the Engineer, be backfilled in order to complete the Work, such excess backfilling shall be done by and at the expense of the Contractor and to the satisfaction of the Engineer.

- .3 Immediately notify the Engineer upon encountering an object which might be classified as hard pan, rock, or an obstruction. Clearly mark the location of the object, bypass it, and continue dredging.
- .4 Erosion control of the dredged side slopes is the responsibility of the Contractor. The Contractor shall be responsible for all costs to repair erosion damage, including current and wave, to the Work.
- .5 Take all necessary safety and environmental precautions during any dredging.

3.6 Disposal of Dredged Material

- .1 Stockpile dredged material at the designated onshore stockpile location.
- .2 Prepare stockpile locations as indicated on the Drawings and Section 31 23 00 – Excavation and Fill.
- .3 Provide temporary drainage and pumping as necessary to keep site free from water.
- .4 Portions of the dredge material may be considered as contaminated and will be tested after stockpiling. Contractor is responsible for organizing dredge materials into geo-referenced cells at stockpile locations for tracking and recording daily locations along the navigation channel from which material was dredged for purposes of testing at the time of placement, as per the CEMP, and disposal, if required.

3.7 Tolerances

- .1 Dredging shall be performed to the lines, grades and elevations indicated on the Drawings. Unless specified otherwise, the maximum permissible variations in elevation from the prescribed grade and side slopes, measured vertically, shall be +0.0 m and -0.3 m.

3.8 Field Quality Control

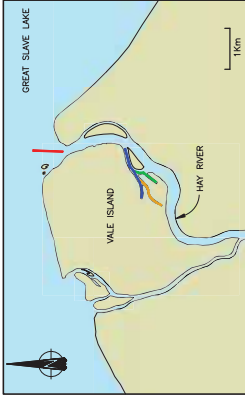
- .1 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved. If sweeping or bathymetric survey indicates that the Work is not in conformance with the Drawings and Specifications, re-dredge as necessary to meet the requirements. No additional payment will be made for re-dredging, re-sweeping, and re-sounding the dredged area.
- .2 Sweeping equipment to consist of a heavy beam suspended from a scow at required grade depth. Beam to be capable of adjustment and calibration.
- .3 Cooperate with the Engineer and Engineer's Environmental Auditor on the inspection of the Work and provide assistance requested. Furnish such boats and survey equipment as the Engineer and Engineer's Environmental Auditor may reasonably request.
- .4 Carry out dredging in strict accordance with the restrictions imposed by the permits and applicable regulations.

***** END OF SECTION *****

Appendix D.1

Drawings





KEY PLAN



PLAN - DREDGE AREA A
1:2000

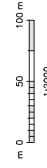
LEGEND:

- EXISTING CHANNEL
- 30m EMERGENCY CHANNEL
- DREDGE WITHIN DREDGING CHANNEL TO 2.4m
- DREDGE CHANNEL SIDE SLOPES

KEYPLAN LEGEND:

- AREA A
- AREA B1
- AREA B2
- AREA B3

AREA NO.	DREDGE AREA VOLUME	OVERDREDGE ALLOWANCE (30.0mm)	TOTAL VOLUME
AREA A	1,782.2m ³	10,235.2m ³	15,571m ³
AREA B1	3,750.5m ³	22,503.0m ³	26,253.5m ³
AREA B2	2,593.5m ³	15,561.0m ³	18,154.5m ³
AREA B3	1,368.6m ³	8,175.6m ³	9,544.2m ³
TOTALS	9,418.8m ³	55,474.8m ³	83,794m ³



NOTES:

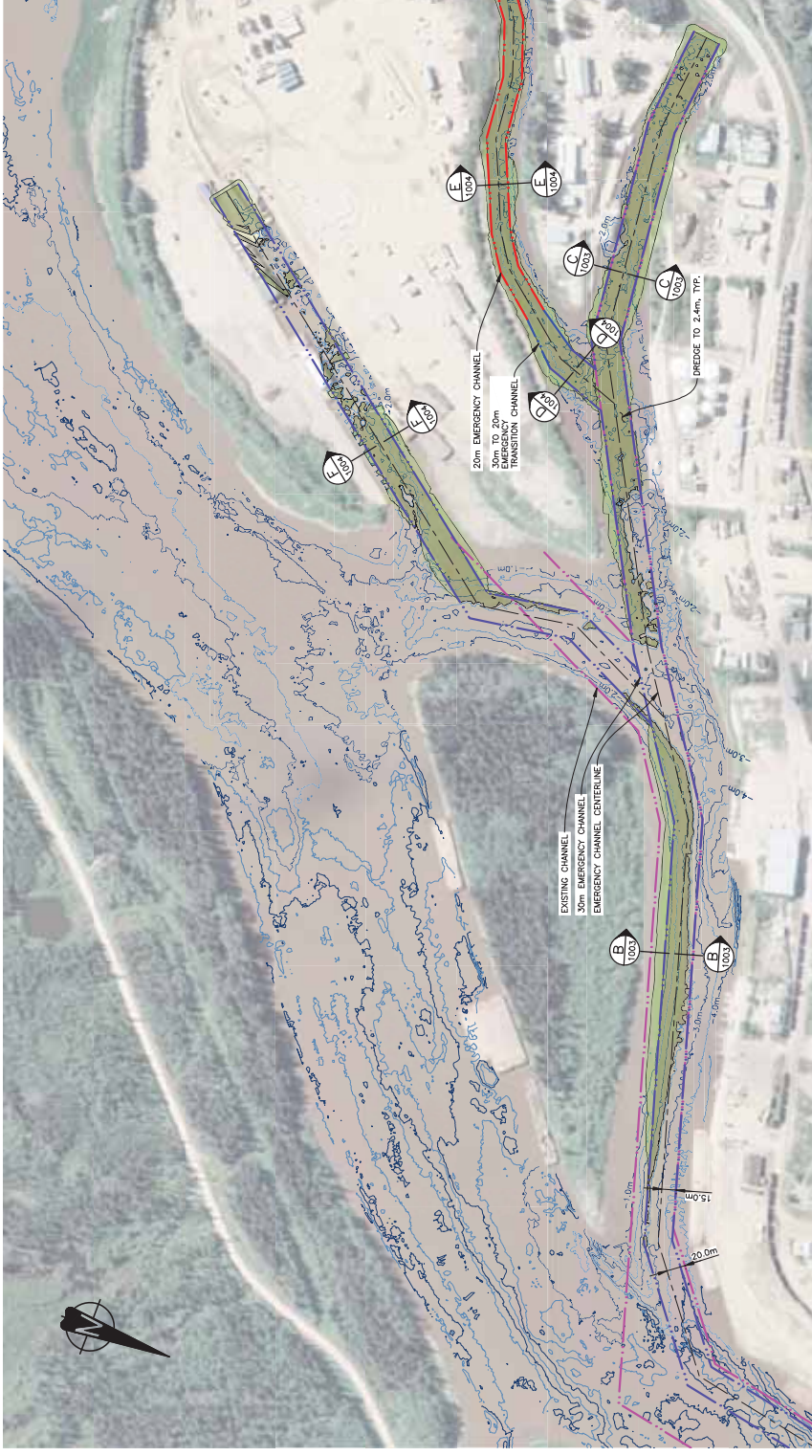
- ESTIMATED VOLUME CALCULATED BASED ON THE SURVEYING SURVEY DATA COMPLETED BY THE CANADIAN COAST GUARD HAY RIVER MULTI TRACK DATA SEPTEMBER 17-21, 2022.
- DREDGE PLAN AND VOLUMES BASED ON 1/6H SIDE SLOPE.
- CHANNEL LAYOUT DERIVED FROM SURVEY DATA COMPLETED BY THE CANADIAN COAST GUARD - HAY RIVER MULTI TRACK DATA SEPTEMBER 17-21, 2022.
- CHART DATUM BASED ON A LOW WATER ELEVATION OF 156.5m ASPIC GEODETIC DATUM.

CLIENT		WESTMAR ADVISORS	
PROJECT		DREDGING PLAN DREDGE AREA A	
DRAWING SCALE		PROJECT NUMBER	
DRAWING NUMBER		DRAWING NUMBER	
SHOWING		1230258	
FOI-1001-1001		E	

FOR TENDER ONLY DO NOT USE FOR CONSTRUCTION Last Saved: Mon, 07/23/2023 09:58:00		PERMITS AND STAMPS	
ISSUE / REVISIONS	ISSUE / REVISIONS	ISSUE / REVISIONS	ISSUE / REVISIONS
NO.	DATE	DESCRIPTION	ISSUE / REVISIONS
A	07/23/2023	ISSUED FOR CLIENT REVIEW	
B	07/23/2023	ISSUED FOR PERMITTING	
C	07/23/2023	ISSUED FOR TENDER	
D	07/23/2023	RE-ISSUED FOR TENDER	
E	07/23/2023	RE-ISSUED FOR TENDER	



KEY PLAN

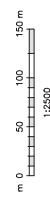


PLAN - DREDGE AREA B1, B2 AND B3
1:2500

- LEGEND:**
- EXISTING CHANNEL
 - 30m EMERGENCY CHANNEL
 - 20m EMERGENCY CHANNEL
 - 30m TO 20m EMERGENCY TRANSITION CHANNEL
 - 20m TO 20m EMERGENCY TRANSITION CHANNEL
 - DREDGE WITHIN DREDGING CHANNEL TO 2.4m
 - DREDGE CHANNEL SIDE SLOPES

- KEYPLAN LEGEND:**
- AREA A
 - AREA B1
 - AREA B2
 - AREA B3

AREA NO.	DREDGE AREA VOLUME	OVERDREDGE ALLOWANCE (300mm)	TOTAL VOLUME
AREA A	1,782,000m ³	5,541m ³	1,557,100m ³
AREA B1	1,023,500m ³	3,070m ³	1,020,430m ³
AREA B2	2,563,500m ³	7,690m ³	2,415,310m ³
AREA B3	1,368,500m ³	4,105m ³	1,227,395m ³
TOTALS	6,743,500m ³	20,406m ³	6,523,094m ³

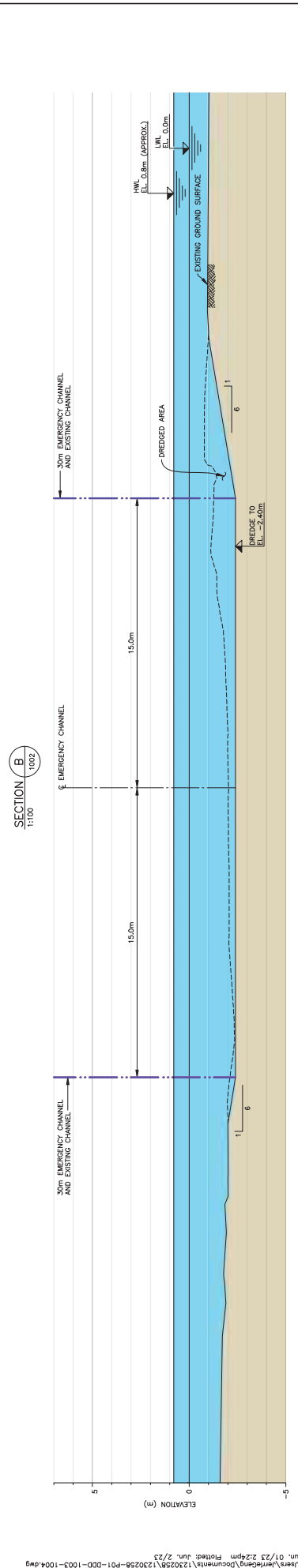
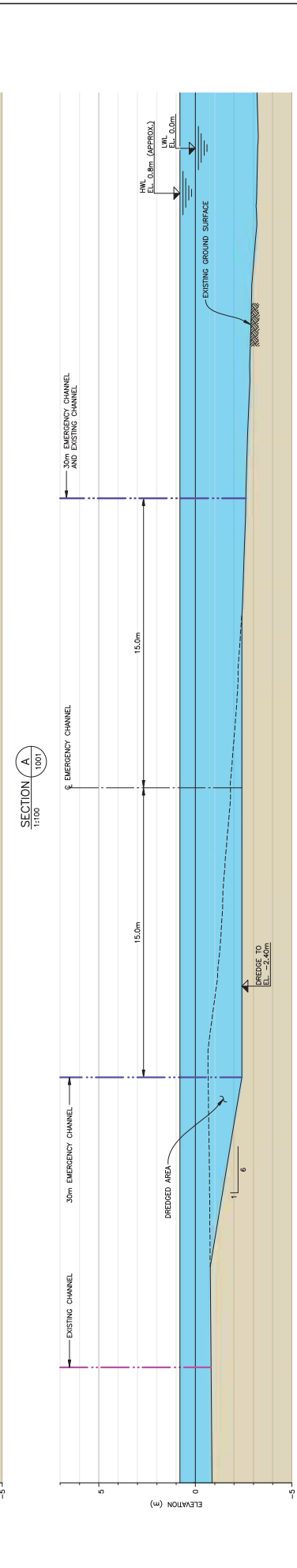
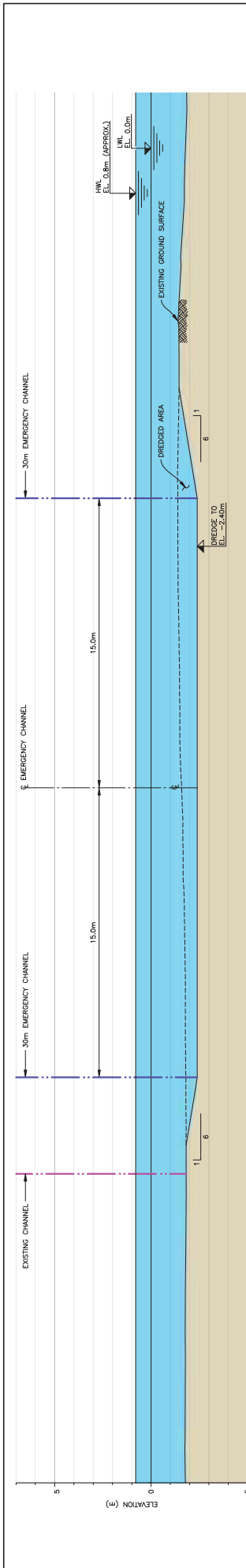


- NOTES:**
- VOLUME CALCULATED BASED ON THE SUBMERSIVE SURVEY DATA COMPLETED BY THE CANADIAN COAST GUARD HAY RIVER MULTI TRACK DATA, SEPTEMBER 17-21, 2022.
 - DREDGE PLAN AND VOLUMES BASED ON 1:6H SIDE SLOPE.
 - CHANNEL LAYOUT DERIVED FROM SURVEY DATA COMPLETED BY THE CANADIAN COAST GUARD - HAY RIVER MULTI TRACK DATA, SEPTEMBER 17-21, 2022.
 - CHART DATUM BASED ON A LOW WATER ELEVATION OF 156.6m ASFC (CELESTIC DATUM).

CLIENT		WESTMAR ADVISORS	
PROJECT		DREDGING PLAN DREDGE AREA B1, B2 AND B3	
PERMITS AND STAMPS		DRAWING NUMBER 1230258	
ISSUE / REVISIONS		DRAWING NUMBER P01-DDD-1002	
ISSUE / REVISIONS		REV. E	
DESCRIPTION		HAY RIVER EMERGENCY DREDGING	
DATE		PROJECT NUMBER 1230258	
DATE		DRAWING NUMBER P01-DDD-1002	
DATE		REV. E	

FOR TENDER ONLY
DO NOT USE FOR CONSTRUCTION
Last Saved: Jun. 27/23 2:25pm

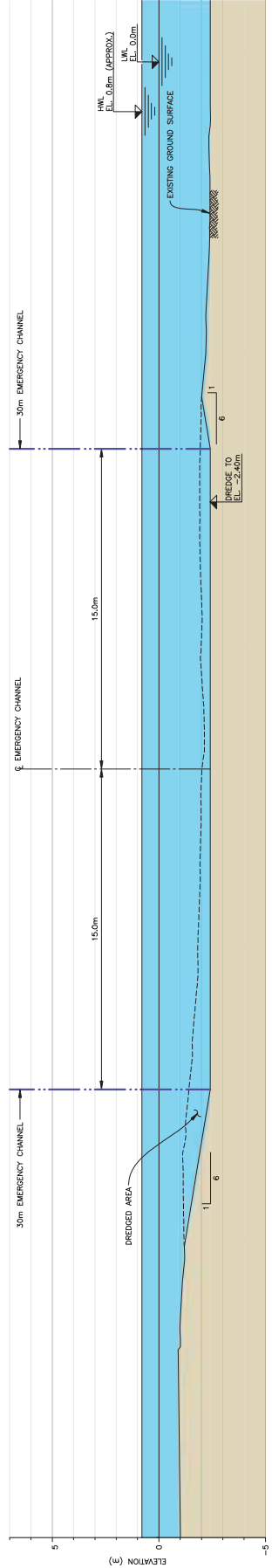
NO.	DATE	DESCRIPTION	ISSUE / REVISIONS	DATE	DESCRIPTION	ISSUE / REVISIONS
E	Jun02/23	RE-ISSUED FOR TENDER				
D	May24/23	ISSUED FOR TENDER				
C	Mar10/23	ISSUED FOR PERMITTING				
B	Mar09/23	ISSUED FOR CLIENT REVIEW				
A	Mar03/23	ISSUED FOR CLIENT REVIEW				



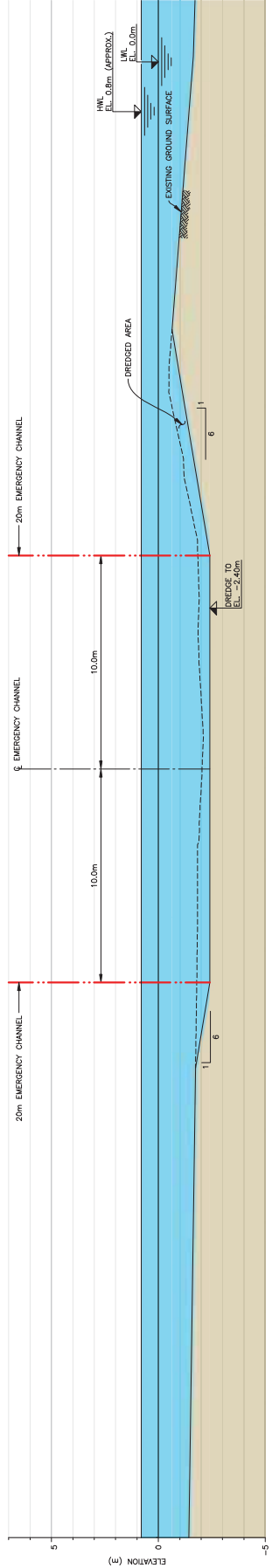
NO.	DATE	DESCRIPTION	ISSUE / REVISIONS	DESIGN	CHKD	APP'D	NO.	DATE	DESCRIPTION	ISSUE / REVISIONS	DESIGN	CHKD	APP'D
D	JUN02/23	RE-ISSUED FOR TENDER		JG	JJC	JJC	DL	DL					
C	MAY24/23	ISSUED FOR TENDER		JG	JJC	JJC	DL	DL					
B	MAY10/23	ISSUED FOR PERMITTING		DP	FM	JJC	DL	DL					
A	MAY09/23	ISSUED FOR CLIENT REVIEW		DP	FM	JJC	DL	DL					

CLIENT: Northwest Territories
 PROJECT: HAY RIVER EMERGENCY DREDGING
 TITLE: DREDGING SECTIONS SHEET 1
 DRAWING SCALE: 1230258
 PROJECT NUMBER: F01-DDD-1003
 REV: D

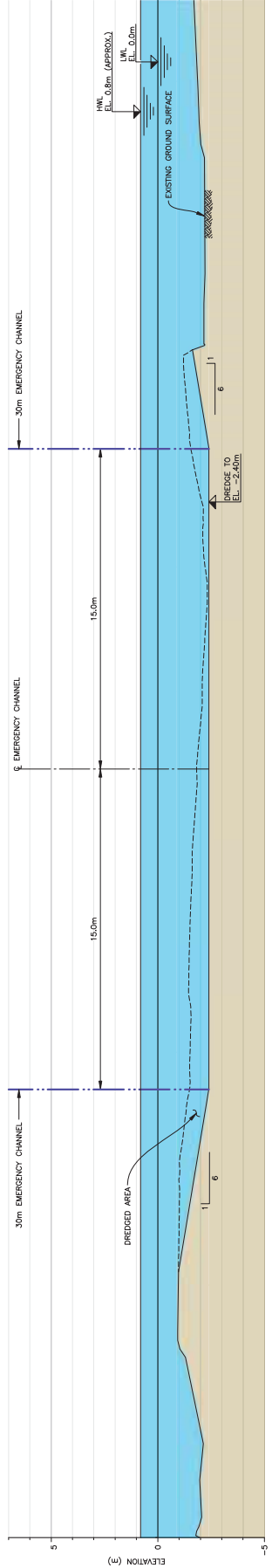
FOR TENDER ONLY
 DO NOT USE FOR CONSTRUCTION
 Last Saved: Jun. 07/23 2:56pm



SECTION D
1:100
1002





SECTION E
1:100
1002

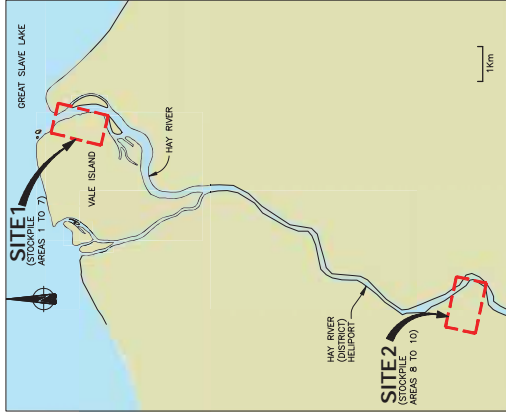


SECTION F
1:100
1002



		CLIENT 	
TITLE DREDGING SECTIONS SHEET 2		PROJECT HAY RIVER EMERGENCY DREDGING	
DRAWING SCALE PROJECT NUMBER 1230258		DRAWING NUMBER F01-DDD-1004	
DRAWING NUMBER 1230258		PROJECT NUMBER F01-DDD-1004	
DRAWING SCALE 1:100		DRAWING NUMBER 1230258	
DRAWING NUMBER 1230258		PROJECT NUMBER F01-DDD-1004	

FOR TENDER ONLY DO NOT USE FOR CONSTRUCTION VALID UNTIL: JUN 07/23 2:25pm		PERMITS AND STAMPS	
NO. DATE A 14/09/23 B 14/09/23 C 14/09/23 D 14/09/23	DESCRIPTION ISSUED FOR CLIENT REVIEW ISSUED FOR TENDER ISSUED FOR TENDER RE-ISSUED FOR TENDER	[DRAWN] [CHKD] [DESIGN] [CHKD] [APP'D] [DATE]	[DRAWN] [CHKD] [DESIGN] [CHKD] [APP'D] [DATE]



KEY PLAN
1:70000

STOCKPILE AREA	APPROXIMATE AREA (m ²)	APPROXIMATE HEIGHT (m)	STOCKPILE VOLUME (m ³)
1	5700	3	14800
2	1200	3	2700
3	8620	3	21900
4	2800	3	6900
5	3360	3	8500
6	1925	3	4600
7	3025	3	7600
TOTAL AVAILABLE:			67000

LEGEND:

- EXISTING CHANNEL
- 30m EMERGENCY CHANNEL
- GOVERNMENT OF NORTHERN TERRITORIES PROPERTY
- TOWN OF HAY RIVER PROPERTY
- LANDFILL PROPERTY

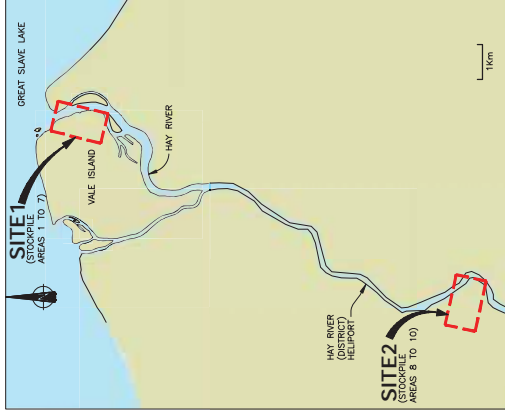
NOTES:

1. IMPLEMENT SUFFICIENT EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND SEDIMENTATION OF THE STOCKPILE. INSTALL SAMPS IN APPROPRIATE LOCATIONS OF THE STOCKPILE PROPERTIES TO SATISFY WATER LICENSE REGULATORY REQUIREMENTS.
2. RETAINMENT BERMS SHALL BE CONSTRUCTED PRIOR TO PLACEMENT OF DREDGE MATERIAL. BERMS SHALL BE CONSTRUCTED WITH A MINIMUM SIDE SLOPES NOT STEEPER THAN 2H:1V.
3. RETAINMENT BERMS MATERIAL MAY BE BORROW OR EXCAVATED MATERIAL OR DOWATERED DREDGE APPROVED BY THE ENGINEER. LOCATIONS WHERE WATER EXISTS THE STOCKPILE LOCATION.
4. APPROVED TURBIDITY CONTROL SYSTEMS SHALL BE INSTALLED AT PORTIONS OF THE DREDGE MATERIAL MAY BE CONSIDERED AS CONTAMINATED AND SHALL BE TESTED FOR CONTAMINATING MATERIALS INTO GEO-REFERENCED CELLS AT STOCKPILE LOCATIONS FOR EROSION CHANNEL FROM WHICH MATERIAL WAS DREDGED FOR PURPOSES OF TESTING AND DISPOSAL.
6. PROTECT STOCKPILES FROM EROSION DUE TO RAIN AND WIND.

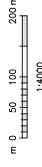
		TITLE GENERAL ARRANGEMENT STAGING AREA AND STOCKPILE SITES	
CLIENT Northern Territories		PROJECT HAY RIVER EMERGENCY DREDGING	
FOR TENDER ONLY DO NOT USE FOR CONSTRUCTION Last Saved: Mon, 02/23/2020 12:28:00		PERMITS AND STAMPS	
NO. DATE	DESCRIPTION ISSUE / REVISIONS	DESIGN [DRAWN] [CHK'D] [REVISION] [CHK'D] [APP'D]	DATE
D JUN02/23 RE-ISSUED FOR TENDER	JG JJC JJC DL DL	[] [] [] []	DL
C MAR24/23 ISSUED FOR TENDER	JS JJC JJC DL DL DL	[] [] [] [] []	DL
B MAR31/23 ISSUED FOR PERMITTING	DP FM JJC DL DL DL	[] [] [] [] []	DL
A MAR13/23 ISSUED FOR CLIENT REVIEW	DP FM JJC DL DL DL	[] [] [] [] []	DL



GENERAL ARRANGEMENT
1:4000



KEY PLAN
1:770000



STOCKPILE AREA	PLAN AREA (m ²)	STOCKPILE HEIGHT (m)	STOCKPILE VOLUME (m ³ , APPROX)
8	1586	3	1000
9	1120	3	2500
10	1120	3	2500
TOTAL AVAILABLE:			7500

LEGEND:

- EXISTING CHANNEL
- CON. EROSION CONTROL CHANNEL
- TOWN OF NORTHWEST TERRITORIES PROPERTY
- TOWN OF HAY RIVER PROPERTY
- LANDFILL PROPERTY

NOTES:

- IMPLEMENT SUFFICIENT EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND SEDIMENTATION FROM OCCURRING. INSTALL SLOES IN APPROPRIATE LOCATIONS OF THE STOCKPILE PROPERTIES TO SATISFY WATER LICENSE REGULATORY REQUIREMENTS.
- RETAINMENT BERMS SHALL BE CONSTRUCTED PRIOR TO PLACEMENT OF MATERIAL. BERMS SHALL BE AT LEAST 1.0m HIGH AND WITH SIDE SLOPES NOT STEEPER THAN 2H:1V.
- RETAINMENT BERMS MATERIAL MAY BE BORROW OR EXCAVATED MATERIAL OR DREDGED DREDGATE APPROVED BY THE ENGINEER. LOCATIONS WHERE WATER EXISTS THE STOCKPILE.
- APPROVED TURBIDITY CONTROL SYSTEMS SHALL BE INSTALLED AT PORTIONS OF THE DREDGE MATERIAL MAY BE CONSIDERED AS CONTAMINATED AND RESPONSIBLE FOR PREVENTING CONTAMINATED MATERIALS FROM BEING DISCHARGED INTO GEO-REFERENCED CELLS AT STOCKPILE LOCATIONS FOR EROSION CONTROL. MATERIALS SHALL BE STORED IN A DEDICATED CHANNEL FROM WHICH MATERIAL WAS DREDGED FOR PURPOSES OF TESTING AND DISPOSAL.
- PROTECT STOCKPILES FROM EROSION DUE TO RAIN AND WIND.

<p>WESTMAR ADVISORS</p>	<p>GENERAL ARRANGEMENT LANDFILL STOCKPILE SITES</p>		<p>PROJECT NUMBER 1230258</p>	<p>DRAWING NUMBER F01-DDD-1101</p>	<p>REV. A</p>																														
<p>HAY RIVER EMERGENCY DREDGING</p>																																			
<p>FOR TENDER ONLY DO NOT USE FOR CONSTRUCTION Last Saved: Mon, 02/23/2020</p>																																			
<p>PERMITS AND STAMPS</p>																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>ISSUED FOR TENDER</th> <th>DESCRIPTION</th> <th>ISSUE / REVISIONS</th> <th>DESIGN (CHKD)</th> <th>DESIGN (CHKD)</th> <th>APP'D (CHKD)</th> <th>DATE</th> <th>DATE</th> <th>ISSUE / REVISIONS</th> <th>DESIGN (CHKD)</th> <th>DESIGN (CHKD)</th> <th>APP'D (CHKD)</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>JUN02/23</td> <td>ISSUED FOR TENDER</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						NO.	DATE	ISSUED FOR TENDER	DESCRIPTION	ISSUE / REVISIONS	DESIGN (CHKD)	DESIGN (CHKD)	APP'D (CHKD)	DATE	DATE	ISSUE / REVISIONS	DESIGN (CHKD)	DESIGN (CHKD)	APP'D (CHKD)	DATE	A	JUN02/23	ISSUED FOR TENDER												
NO.	DATE	ISSUED FOR TENDER	DESCRIPTION	ISSUE / REVISIONS	DESIGN (CHKD)	DESIGN (CHKD)	APP'D (CHKD)	DATE	DATE	ISSUE / REVISIONS	DESIGN (CHKD)	DESIGN (CHKD)	APP'D (CHKD)	DATE																					
A	JUN02/23	ISSUED FOR TENDER																																	

Appendix D.2

Barge Drawings, Specifications, and Photographs





B A R G E S P E C S

L I G H T W E I G H T S O F B A R G E S

<u>Series Type</u>	<u>Light Draft</u>	<u>Mould Depth</u>	<u>Dimensions - Outer</u>	<u>Loadg</u>	<u>Loadg Sq Ftg</u>		
1800 Hse/B1k	33"	13'0"	210x56	165x48	7,920	1501 - 1508	680 tons
1800 Dk/B1k	30"	13'0"	210x56	165x48	7,920	1509 - 1528	648 tons
1500 Dk/B1k	21"	9'6"	250x56	230x50	11,500	1000 - 1024	378 tons
1000 Dk/B1k	18"	7'6"	200x50	173x44	7,612	800 - 802	238 tons
800 Dk/B1k	14"	7'1"	175x50	155x46	7,130	750 - 751	220 tons
750 Dk/B1k	14"	6'5"	194x40	170x34	5,780	600 - 609	147 tons
750 Crane	24"	6'5"	194x40			610 - 635	153 tons
700 Camp	32"	7'1"	155x45			650	160 tons
650 Dk/B1k	14"	6'8"	148x34	120x28	3,360	452 - 451	120 tons
600 Dk/B1k	14"	7'0"	150x35	126x31	3,906	450	110 tons
500 House	14"	5'8"	150x35	126x29	3,654	500 - 502	156 tons
400 Dk/House	12"	7'2"	120x30	100x24	2,400	400 - 404	85 tons
300 House	12"	5'8"	120x35	100x29	2,900	405 - 435	97 tons
200 Deck	12"	6'1"	115x28	95x22	2,090	350 - 352	133 tons
100 Dk/B1k	12"	4'8"	100x27	80x21	1,680	201	79 TONS
LL28 Dk/B1k	12"	4'8"	100x27	80x21	1,680	100	69 TONS
AS1&2 Dk/B1k	26"	12'6"	175x44	150x38	5,700		
AS3 Dk/B1k	36"	11'2"	203x34	183x28	5,124		
NTU Utility	18"	7'0"	124x50	100x44	4,400	NTU	250 TONS

BARGE 750, 751, 752

4.

TANK NUMBER

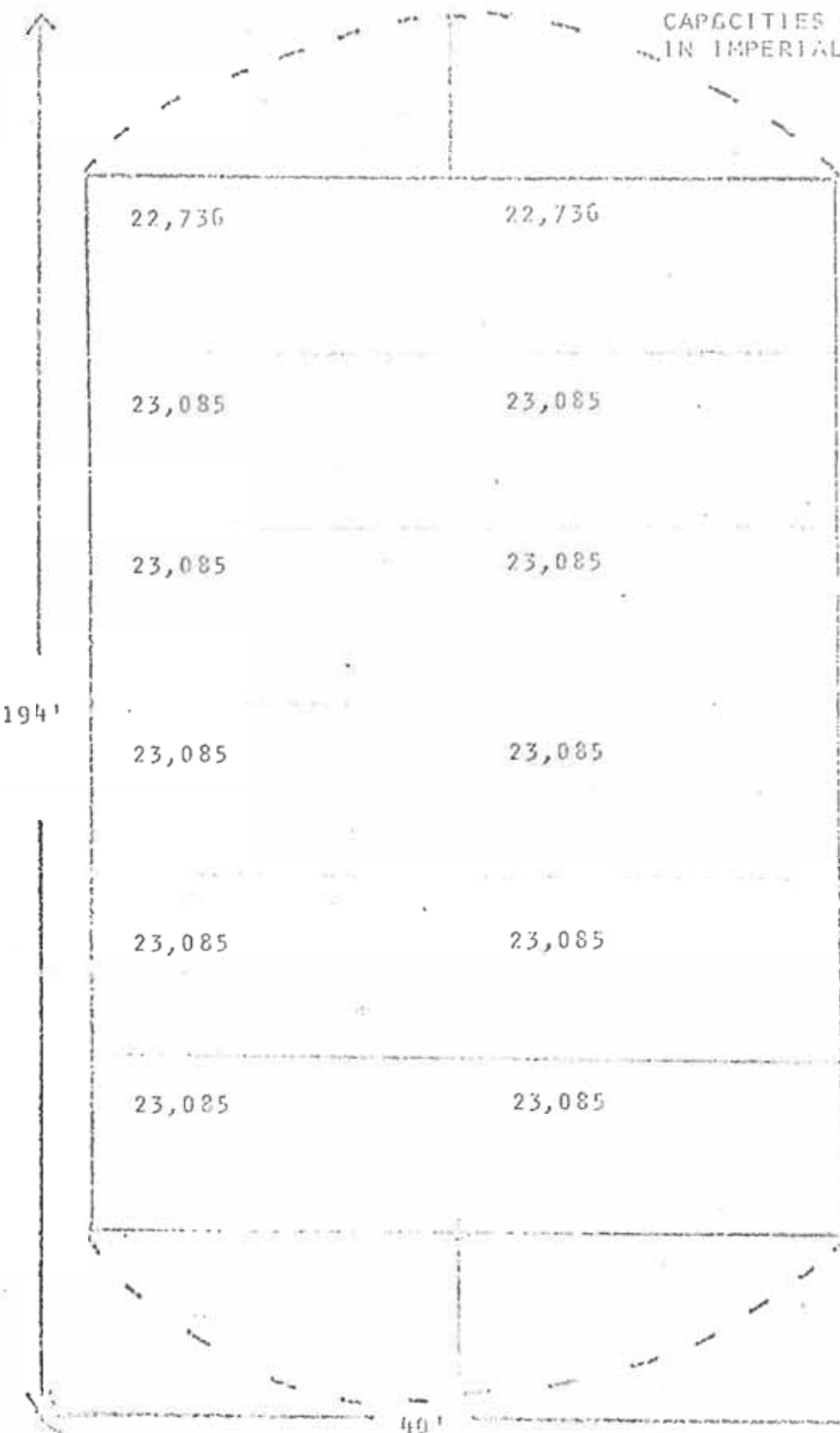
No. 1 - Port & Starboard

In.	0'	1'	2'	3'	4'	5'	6'	7'
0		3,152	6,416	9,680	12,944	16,208	19,472	22,736
1/8	28	3,186	6,450	9,714	12,978	16,242	19,506	22,770
1/4	56	3,220	6,484	9,748	13,012	16,276	19,540	22,804
3/8	85	3,254	6,518	9,782	13,046	16,310	19,574	22,838
1/2	114	3,288	6,552	9,816	13,080	16,344	19,608	22,872
5/8	144	3,322	6,586	9,850	13,114	16,378	19,642	22,906
3/4	174	3,356	6,620	9,884	13,148	16,412	19,676	22,940
7/8	205	3,390	6,654	9,918	13,182	16,446	19,710	22,974
1	237	3,424	6,688	9,952	13,216	16,480	19,744	
1/8	267	3,458	6,722	9,986	13,250	16,514	19,778	
1/4	297	3,492	6,756	10,020	13,284	16,548	19,812	
3/8	327	3,526	6,790	10,054	13,318	16,582	19,846	
1/2	358	3,560	6,824	10,038	13,352	16,616	19,880	
5/8	389	3,594	6,858	10,122	13,386	16,650	19,914	
3/4	420	3,628	6,892	10,156	13,420	16,684	19,948	
7/8	451	3,662	6,926	10,190	13,454	16,718	19,982	
1	482	3,696	6,960	10,224	13,488	16,752	20,016	
1/8	513	3,730	6,994	10,258	13,522	16,786	20,050	
1/4	544	3,764	7,028	10,292	13,556	16,820	20,084	
3/8	575	3,798	7,062	10,326	13,590	16,854	20,118	
1/2	606	3,832	7,096	10,360	13,624	16,888	20,152	
5/8	638	3,866	7,130	10,394	13,658	16,922	20,186	
3/4	670	3,900	7,164	10,428	13,692	16,956	20,220	
7/8	702	3,934	7,198	10,462	13,726	16,990	20,254	
1	734	3,968	7,232	10,496	13,760	17,024	20,288	
1/8	766	4,002	7,266	10,530	13,794	17,058	20,322	
1/4	798	4,036	7,300	10,564	13,828	17,092	20,356	
3/8	830	4,070	7,334	10,598	13,862	17,126	20,390	
1/2	862	4,104	7,368	10,632	13,896	17,160	20,424	
5/8	894	4,138	7,402	10,666	13,930	17,194	20,458	
3/4	926	4,172	7,436	10,700	13,964	17,228	20,492	
7/8	958	4,206	7,470	10,734	13,998	17,262	20,526	
1	991	4,240	7,504	10,768	14,032	17,296	20,560	
1/8	1,023	4,274	7,538	10,802	14,066	17,330	20,594	
1/4	1,055	4,308	7,572	10,836	14,100	17,364	20,628	
3/8	1,088	4,342	7,606	10,870	14,134	17,398	20,662	
1/2	1,121	4,376	7,640	10,904	14,168	17,432	20,696	
5/8	1,154	4,410	7,674	10,938	14,202	17,466	20,730	
3/4	1,187	4,444	7,708	10,972	14,236	17,500	20,764	
7/8	1,220	4,478	7,742	11,006	14,270	17,534	20,798	
1	1,253	4,512	7,776	11,040	14,304	17,568	20,832	
1/8	1,286	4,546	7,810	11,074	14,338	17,602	20,866	
1/4	1,319	4,580	7,844	11,108	14,372	17,636	20,900	
3/8	1,352	4,614	7,878	11,142	14,406	17,670	20,934	
1/2	1,385	4,648	7,912	11,176	14,440	17,704	20,968	
5/8	1,418	4,682	7,946	11,210	14,474	17,738	21,002	
3/4	1,452	4,716	7,980	11,244	14,508	17,772	21,036	
7/8	1,486	4,750	8,014	11,278	14,542	17,806	21,070	
1	1,520	4,784	8,048	11,312	14,576	17,840	21,104	
1/8	1,554	4,818	8,082	11,346	14,610	17,874	21,138	
1/4	1,588	4,852	8,116	11,380	14,644	17,908	21,172	
3/8	1,622	4,886	8,150	11,414	14,678	17,942	21,206	
1/2	1,656	4,920	8,184	11,448	14,712	17,976	21,240	
5/8	1,690	4,954	8,218	11,482	14,746	18,010	21,274	
3/4	1,724	4,988	8,252	11,516	14,780	18,044	21,308	
7/8	1,758	5,022	8,286	11,550	14,814	18,078	21,342	
1	1,792	5,056	8,320	11,584	14,848	18,112	21,376	
1/8	1,826	5,090	8,354	11,618	14,882	18,146	21,410	
1/4	1,860	5,124	8,388	11,652	14,916	18,180	21,444	
3/8	1,894	5,158	8,422	11,686	14,950	18,214	21,478	
1/2	1,928	5,192	8,456	11,720	14,984	18,248	21,512	
5/8	1,962	5,226	8,490	11,754	15,018	18,282	21,546	
3/4	1,996	5,260	8,524	11,788	15,052	18,316	21,580	
7/8	2,030	5,294	8,558	11,822	15,086	18,350	21,614	
1	2,064	5,328	8,592	11,856	15,120	18,384	21,648	
1/8	2,098	5,362	8,626	11,890	15,154	18,418	21,682	
1/4	2,132	5,396	8,660	11,924	15,188	18,452	21,716	
3/8	2,166	5,430	8,694	11,958	15,222	18,486	21,750	
1/2	2,200	5,464	8,728	11,992	15,256	18,520	21,784	
5/8	2,234	5,498	8,762	12,026	15,290	18,554	21,818	
3/4	2,268	5,532	8,796	12,060	15,324	18,588	21,852	
7/8	2,302	5,566	8,830	12,094	15,358	18,622	21,886	
1	2,336	5,600	8,864	12,128	15,392	18,656	21,920	
1/8	2,370	5,634	8,898	12,162	15,426	18,690	21,954	
1/4	2,404	5,668	8,932	12,196	15,460	18,724	21,988	
3/8	2,438	5,702	8,966	12,230	15,494	18,758	22,022	
1/2	2,472	5,736	9,000	12,264	15,528	18,792	22,056	
5/8	2,506	5,770	9,034	12,298	15,562	18,826	22,090	
3/4	2,540	5,804	9,068	12,332	15,596	18,860	22,124	
7/8	2,574	5,838	9,102	12,366	15,630	18,894	22,158	
1	2,608	5,872	9,136	12,400	15,664	18,928	22,192	
1/8	2,642	5,906	9,170	12,434	15,698	18,962	22,226	
1/4	2,676	5,940	9,204	12,468	15,732	18,996	22,260	
3/8	2,710	5,974	9,238	12,502	15,766	19,030	22,294	
1/2	2,744	6,008	9,272	12,536	15,800	19,064	22,328	
5/8	2,778	6,042	9,306	12,570	15,834	19,098	22,362	
3/4	2,812	6,076	9,340	12,604	15,868	19,132	22,396	
7/8	2,846	6,110	9,374	12,638	15,902	19,166	22,430	
1	2,880	6,144	9,408	12,672	15,936	19,200	22,464	
1/8	2,914	6,178	9,442	12,706	15,970	19,234	22,498	
1/4	2,948	6,212	9,476	12,740	16,004	19,268	22,532	
3/8	2,982	6,246	9,510	12,774	16,038	19,302	22,566	
1/2	3,016	6,280	9,544	12,808	16,072	19,336	22,600	
5/8	3,050	6,314	9,578	12,842	16,106	19,370	22,634	
3/4	3,084	6,348	9,612	12,876	16,140	19,404	22,668	
7/8	3,118	6,382	9,646	12,910	16,174	19,438	22,702	

TANK NUMBERS

No. 2,3,4,5 & 6 - Port & Starboard

In.	0'	1'	2'	3'	4'	5'	6'	7'
0		3,285	6,585	9,885	13,185	16,485	19,785	23,085
1/8	30	3,319	6,619	9,919	13,219	16,519	19,819	23,119
1/4	65	3,354	6,654	9,954	13,254	16,554	19,854	23,154
3/8	99	3,388	6,688	9,988	13,288	16,588	19,888	23,188
1/2	134	3,423	6,723	10,023	13,323	16,623	19,923	23,223
5/8	167	3,457	6,757	10,057	13,357	16,657	19,957	23,257
3/4	201	3,491	6,791	10,091	13,391	16,691	19,991	23,291
7/8	236	3,526	6,826	10,126	13,426	16,726	20,026	23,326
1	270	3,560	6,860	10,160	13,460	16,760	20,060	
1/8	303	3,594	6,894	10,194	13,494	16,794	20,094	
1/4	337	3,629	6,929	10,229	13,529	16,829	20,129	
3/8	371	3,663	6,963	10,263	13,563	16,863	20,163	
1/2	405	3,698	6,998	10,298	13,598	16,898	20,198	
5/8	439	3,732	7,032	10,332	13,632	16,932	20,232	
3/4	473	3,766	7,066	10,366	13,666	16,966	20,266	
7/8	507	3,801	7,101	10,401	13,701	17,001	20,301	
2	541	3,835	7,135	10,435	13,735	17,035	20,335	
1/8	575	3,869	7,169	10,469	13,769	17,069	20,369	
1/4	609	3,904	7,204	10,504	13,804	17,104	20,404	
3/8	643	3,938	7,238	10,538	13,838	17,138	20,438	
1/2	677	3,973	7,273	10,573	13,873	17,173	20,473	
5/8	711	4,007	7,307	10,607	13,907	17,207	20,507	
3/4	745	4,041	7,341	10,641	13,941	17,241	20,541	
7/8	779	4,076	7,376	10,676	13,976	17,276	20,576	
3	813	4,110	7,410	10,710	14,010	17,310	20,610	
1/8	847	4,144	7,444	10,744	14,044	17,344	20,644	
1/4	881	4,179	7,479	10,779	14,079	17,379	20,679	
3/8	915	4,213	7,513	10,813	14,113	17,413	20,713	
1/2	949	4,248	7,548	10,848	14,148	17,448	20,748	
5/8	983	4,282	7,582	10,882	14,182	17,482	20,782	
3/4	1,017	4,316	7,616	10,916	14,216	17,516	20,816	
7/8	1,051	4,351	7,651	10,951	14,251	17,551	20,851	
4	1,086	4,385	7,685	10,985	14,285	17,585	20,885	
1/8	1,120	4,419	7,719	11,019	14,319	17,619	20,919	
1/4	1,154	4,454	7,754	11,054	14,354	17,654	20,954	
3/8	1,188	4,488	7,788	11,088	14,388	17,688	20,988	
1/2	1,222	4,522	7,822	11,122	14,422	17,722	21,022	
5/8	1,256	4,557	7,857	11,157	14,457	17,757	21,057	
3/4	1,290	4,591	7,891	11,191	14,491	17,791	21,091	
7/8	1,325	4,626	7,926	11,226	14,526	17,826	21,126	
5	1,360	4,660	7,960	11,260	14,560	17,860	21,160	
1/8	1,394	4,694	7,994	11,294	14,594	17,894	21,194	
1/4	1,428	4,729	8,029	11,329	14,629	17,929	21,229	
3/8	1,462	4,763	8,063	11,363	14,663	17,963	21,263	
1/2	1,496	4,798	8,098	11,398	14,698	17,998	21,298	
5/8	1,530	4,832	8,132	11,432	14,732	18,032	21,332	
3/4	1,564	4,866	8,166	11,466	14,766	18,066	21,366	
7/8	1,599	4,901	8,201	11,501	14,801	18,101	21,401	
6	1,634	4,935	8,235	11,535	14,835	18,135	21,435	
1/8	1,668	4,969	8,269	11,569	14,869	18,169	21,469	
1/4	1,702	5,004	8,304	11,604	14,904	18,204	21,504	
3/8	1,736	5,038	8,338	11,638	14,938	18,238	21,538	
1/2	1,770	5,072	8,372	11,672	14,972	18,272	21,572	
5/8	1,804	5,107	8,407	11,707	15,007	18,307	21,607	
3/4	1,838	5,141	8,441	11,741	15,041	18,341	21,641	
7/8	1,873	5,176	8,476	11,776	15,076	18,376	21,676	
7	1,908	5,210	8,510	11,810	15,110	18,410	21,710	
1/8	1,942	5,244	8,544	11,844	15,144	18,444	21,744	
1/4	1,976	5,279	8,579	11,879	15,179	18,479	21,779	
3/8	2,010	5,313	8,613	11,913	15,213	18,513	21,813	
1/2	2,044	5,348	8,648	11,948	15,248	18,548	21,848	
5/8	2,078	5,382	8,682	11,982	15,282	18,582	21,882	
3/4	2,112	5,416	8,716	12,016	15,316	18,616	21,916	
7/8	2,147	5,451	8,751	12,051	15,351	18,651	21,951	
8	2,182	5,485	8,785	12,085	15,385	18,685	21,985	
1/8	2,216	5,519	8,819	12,119	15,419	18,719	22,019	
1/4	2,250	5,554	8,854	12,154	15,454	18,754	22,054	
3/8	2,284	5,588	8,888	12,188	15,488	18,788	22,088	
1/2	2,318	5,623	8,923	12,223	15,523	18,823	22,123	
5/8	2,352	5,657	8,957	12,257	15,557	18,857	22,157	
3/4	2,386	5,691	8,991	12,291	15,591	18,891	22,191	
7/8	2,421	5,726	9,026	12,326	15,626	18,926	22,226	
9	2,456	5,760	9,060	12,360	15,660	18,960	22,260	
1/8	2,490	5,794	9,094	12,394	15,694	18,994	22,294	
1/4	2,524	5,829	9,129	12,429	15,729	19,029	22,329	
3/8	2,558	5,863	9,163	12,463	15,763	19,063	22,363	
1/2	2,592	5,898	9,198	12,498	15,798	19,098	22,398	
5/8	2,626	5,932	9,232	12,532	15,832	19,132	22,432	
3/4	2,660	5,966	9,266	12,566	15,866	19,166	22,466	
7/8	2,695	6,001	9,301	12,601	15,901	19,201	22,501	
10	2,730	6,035	9,335	12,635	15,935	19,235	22,535	
1/8	2,764	6,069	9,369	12,669	15,969	19,269	22,569	
1/4	2,799	6,104	9,404	12,704	16,004	19,304	22,604	
3/8	2,833	6,138	9,438	12,738	16,038	19,338	22,638	
1/2	2,868	6,173	9,473	12,773	16,073	19,373	22,673	
5/8	2,902	6,207	9,507	12,807	16,107	19,407	22,707	
3/4	2,936	6,241	9,541	12,841	16,141	19,441	22,741	
7/8	2,971	6,276	9,576	12,876	16,176	19,476	22,776	
11	3,005	6,310	9,610	12,910	16,210	19,510	22,810	
1/8	3,040	6,344	9,644	12,944	16,244	19,544	22,844	
1/4	3,075	6,379	9,679	12,979	16,279	19,579	22,879	
3/8	3,110	6,413	9,713	13,013	16,313	19,613	22,913	
1/2	3,145	6,448	9,748	13,048	16,348	19,648	22,948	
5/8	3,180	6,482	9,782	13,082	16,382	19,682	22,982	
3/4	3,215	6,516	9,816	13,116	16,416	19,716	23,016	
7/8	3,250	6,551	9,851	13,151	16,451	19,751	23,051	



CAPACITIES AT 7'0" DEPTH
IN IMPERIAL GALLONS

22,736	22,736
23,085	23,085
23,085	23,085
23,085	23,085
23,085	23,085
23,085	23,085
23,085	23,085

DECK LOAD AREA

34' X 170'
5780 SQ. FT.

DECK LOAD
@ 150#/SQ. FT.

434 TONS

BARGE MINIMUM

435 TONS

TOTAL GALLONAGE AT DRAUGHT

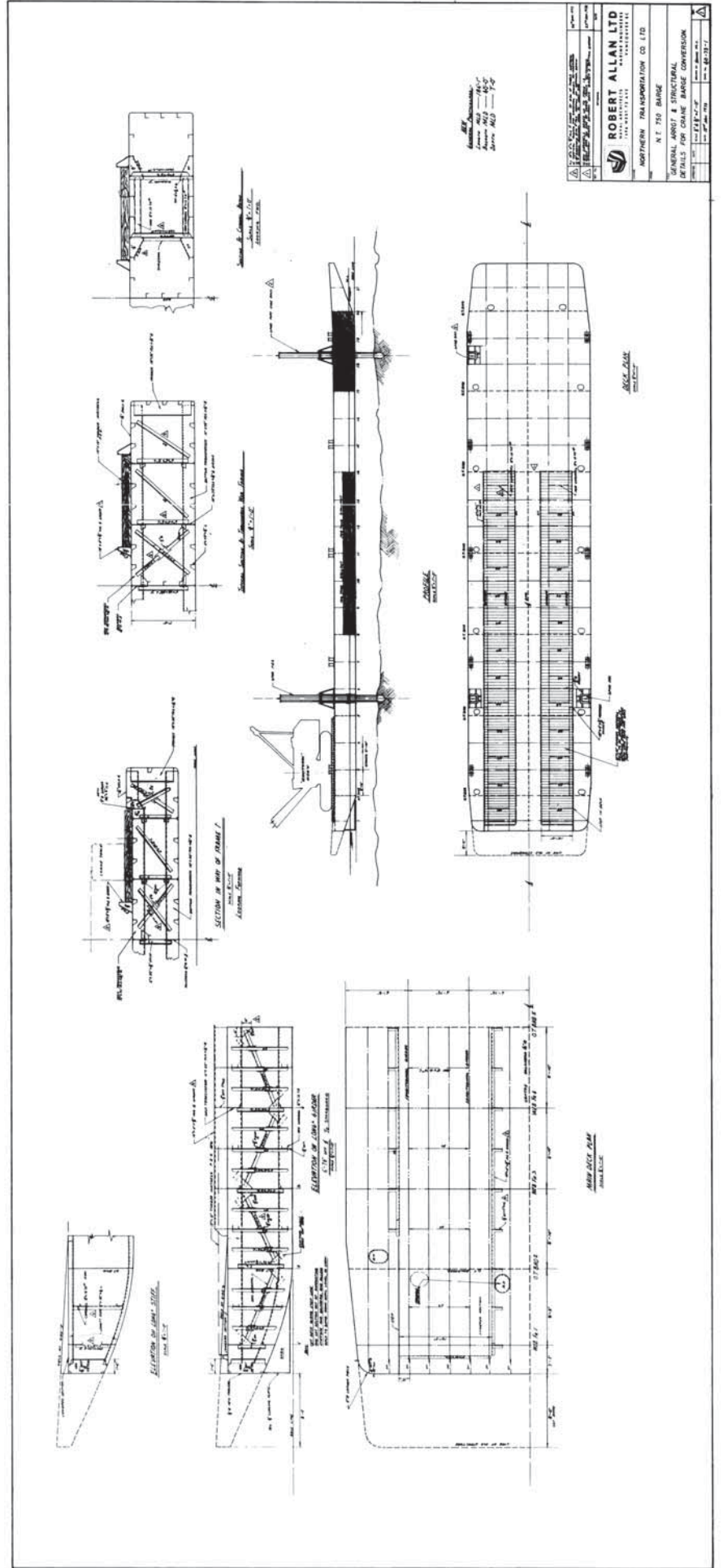
4'0" - 153,570

4'6" - 180,687

5'0" - 208,750

#BASED ON P-50
DIESEL AT 6.15
LBS/GALLON

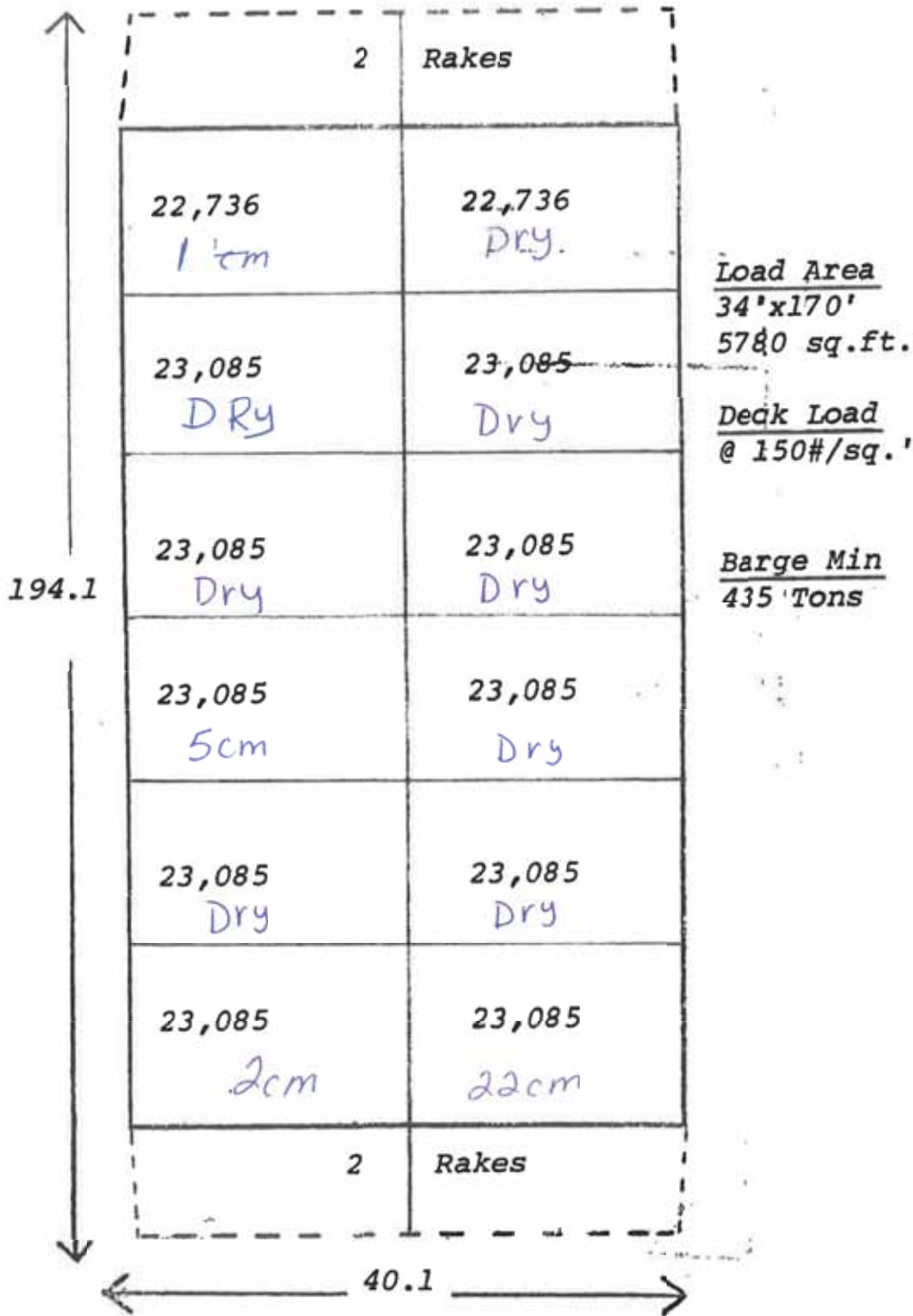
56.7m
186'1"



<p>ROBERT ALLAN LTD INCORPORATED IN CANADA</p> <p>NORTHWEST TRANSPORTATION CO. LTD. GENERAL CONSULTING ENGINEERS DETAILS FOR CRANE BARGE CONVERSION</p>	<p>Scale: 1/4" = 1'-0"</p> <p>Sheet No. 101-101-1</p>
--	---



750
750-751-752



Load Area
34'x170'
5780 sq.ft.

Deck Load
@ 150#/sq.'

Barge Min
435 Tons

Barge Depth: 6'5"
Light Draft: 14½"



northern transportation company limited

LOADING GUIDANCE DATA SHEETS



SERIES 1000

DECK CARGO / OIL BARGES

PREPARED BY:



ROBERT ALLAN LTD

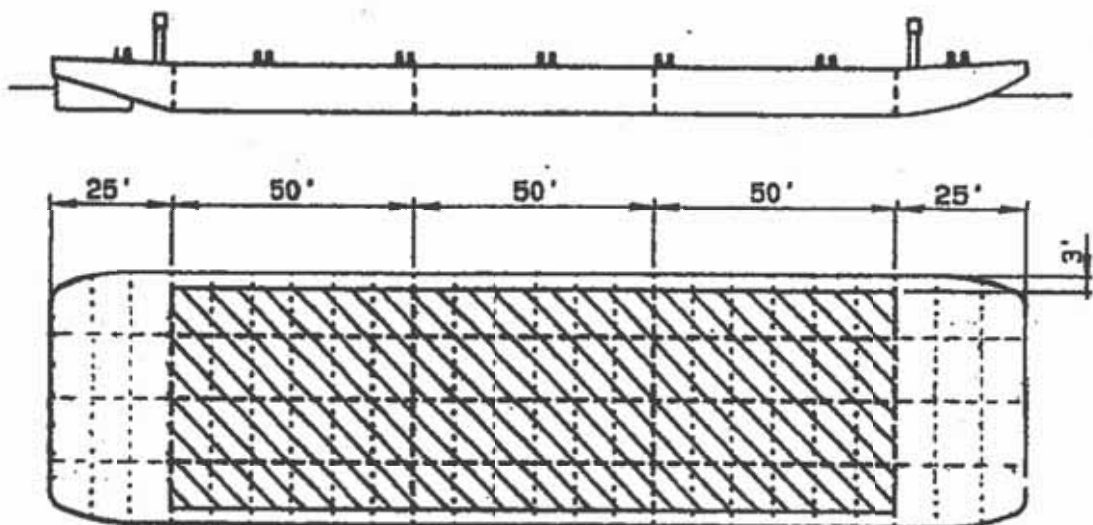
NAVAL ARCHITECTS
500-1380 BURRARD ST.

MARINE ENGINEERS
VANCOUVER, BC

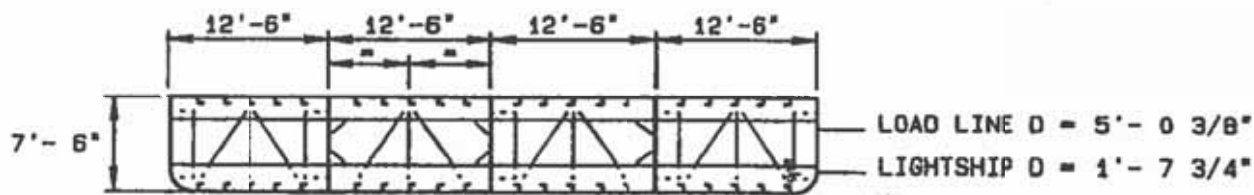


northern transportation company
limited

SERIES 1000 BARGES LOAD AREA



SPACING OF LONGITUDINALS 24 inches
SPACING OF WEB FRAMES 100 inches



PARTICULARS:

Length o.a.	200 ft
Breadth mld	50 ft
Depth mld	7 ft 6 in
Lightship Draft (S.W.)	1'- 7 3/4"
Load Line Draft (S.W.)	5'- 0 3/8"
Deadweight at Load L.Draft	1005 T



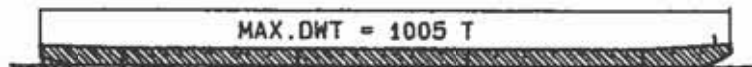
ROBERT ALLAN LTD

SERIES 1000

NOTICE TO THE MASTER:
 IN ANY CASE IT MUST BE ASSURED THAT CALCULATED BENDING MOMENT
 DOES NOT EXCEED THAT ASSIGNED BY LRS, WHICH IS EQUAL TO 5376 T ft

LIMITATIONS OF DISTRIBUTING MAX.DEADWEIGHT:

NOTE: DUE TO LIMITED STILL WATER BENDING MOMENT ASSIGNED, WHEN
 MAXIMUM DEADWEIGHT IS LOADED IT MUST BE DISTRIBUTED
 UNIFORMLY OVER ENTIRE LENGTH OF THIS VESSEL.



SPECIFIC LOCAL STRUCTURAL LIMITATIONS:

MAX.LOCAL LOAD UNIFORMLY DISTRIBUTED ON DECK PLATE 0.77 T (0.70 t)/sq ft (STRUCTURAL STRENGTH GOVERNS)
 MAX.TOTAL LOAD UNIFORMLY DISTRIBUTED 0.12 T (0.11 t)/sq ft (BENDING MOMENT GOVERNS)



MAX.LOCAL LOAD UNIFORMLY DISTRIBUTED ON DECK LONGITUDINAL 1.05 T (0.98 t)/ft



POINT LOAD ON DECK LONGITUDINAL (MAX.IN THE SPAN) 5.87 T (5.32 t)



LOAD DISTRIBUTED UNIFORMLY ON WEB FRAME 5.28 T (4.79 t)



POINT LOAD ON WEB FRAME (MAX.BETWEEN TWO BHDs) 18.5 T (18.0 t)



MAX.LOCAL LOAD DISTRIBUTED UNIFORMLY ON LONGITUDINAL BHD 0.72 T (0.65 t)/ft



MAX.LOAD DISTRIBUTED UNIFORMLY ON TRANSVERSE BHD 32.3 T (29.3 t)/ft



LOCAL LOAD ON LONGITUDINAL BHD AND TRANSVERSE BHD OR WEB FRAME CROSSING 108 T (98 t)



MAX.TOTAL LOAD ON HULL END WHEN GROUNDED
 1000 T (908 t)

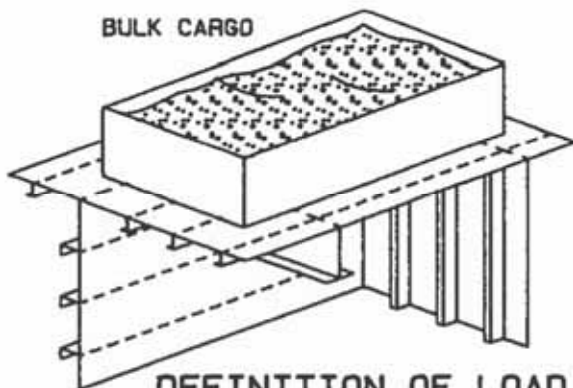


SUBJECT TO LOCAL
 STRUCTURAL LIMITATIONS
 AS DEFINED ABOVE

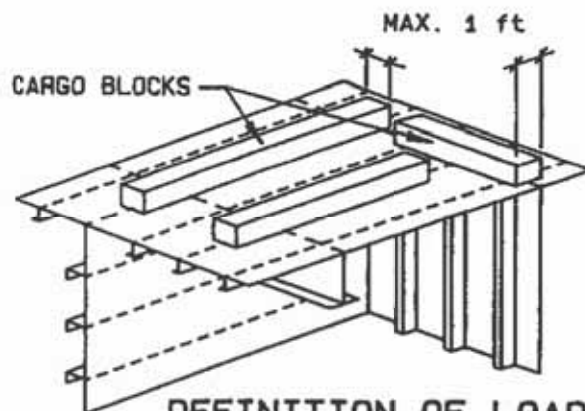
NOTE: T refers to SHORT TON 2000lb
 (t) refers to METRIC TONNES 1000kg



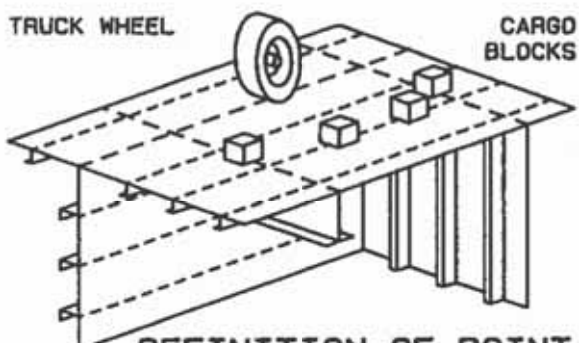
ROBERT ALLAN LTD



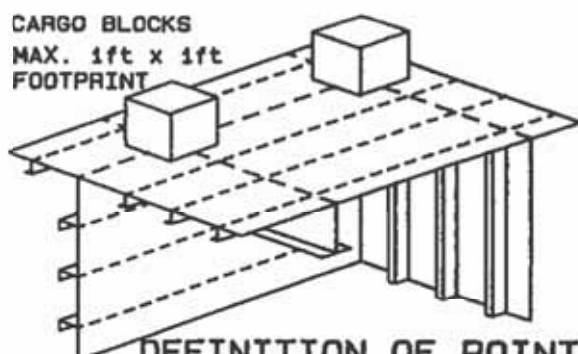
DEFINITION OF LOAD
UNIFORMLY DISTRIBUTED
ON DECK PLATE



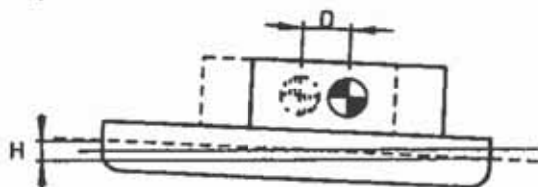
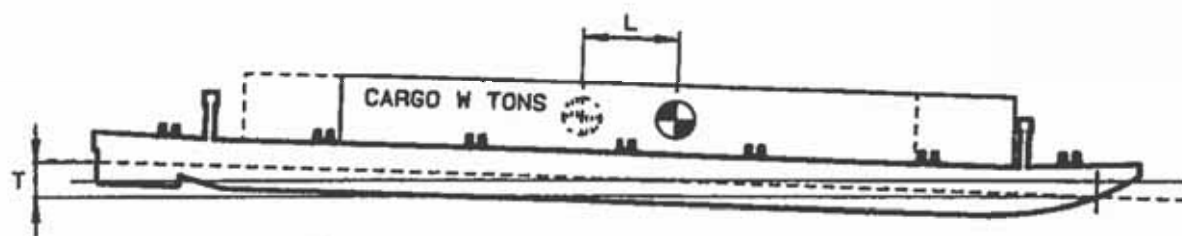
DEFINITION OF LOAD
DISTRIBUTED UNIFORMLY
ON BULKHEAD, WEB FRAME
OR DECK LONGITUDINAL



DEFINITION OF POINT
LOAD ON BHD, WEB FRAME
OR DECK LONGITUDINAL



DEFINITION OF POINT
LOAD ON BHDs OR BHD AND
WEB FRAME CROSSING



TO CORRECT TRIM T inches:

$$L = \frac{T \times MCT1''}{W}$$

TO CORRECT HEEL H inches:

$$D = \frac{H \times MCH1''}{W}$$

CALCULATING CHANGE OF TRIM AND HEEL

TRIM AND HEEL CAN BE CORRECTED BY SHIFTING CARGO OR
PART OF CARGO OF GIVEN WEIGHT 'W' OVER DISTANCE 'L' OR 'D'

FOR MORE DETAILED CALCULATION REFER TO TRIM & STABILITY BOOK

SERIES 1000, AT 5ft DRAFT:

MOMENT TO CHANGE TRIM 1":
MCT1" = 440 T ft/in

MOMENT TO CHANGE HEEL 1":
MCH1" = 87 T ft/in

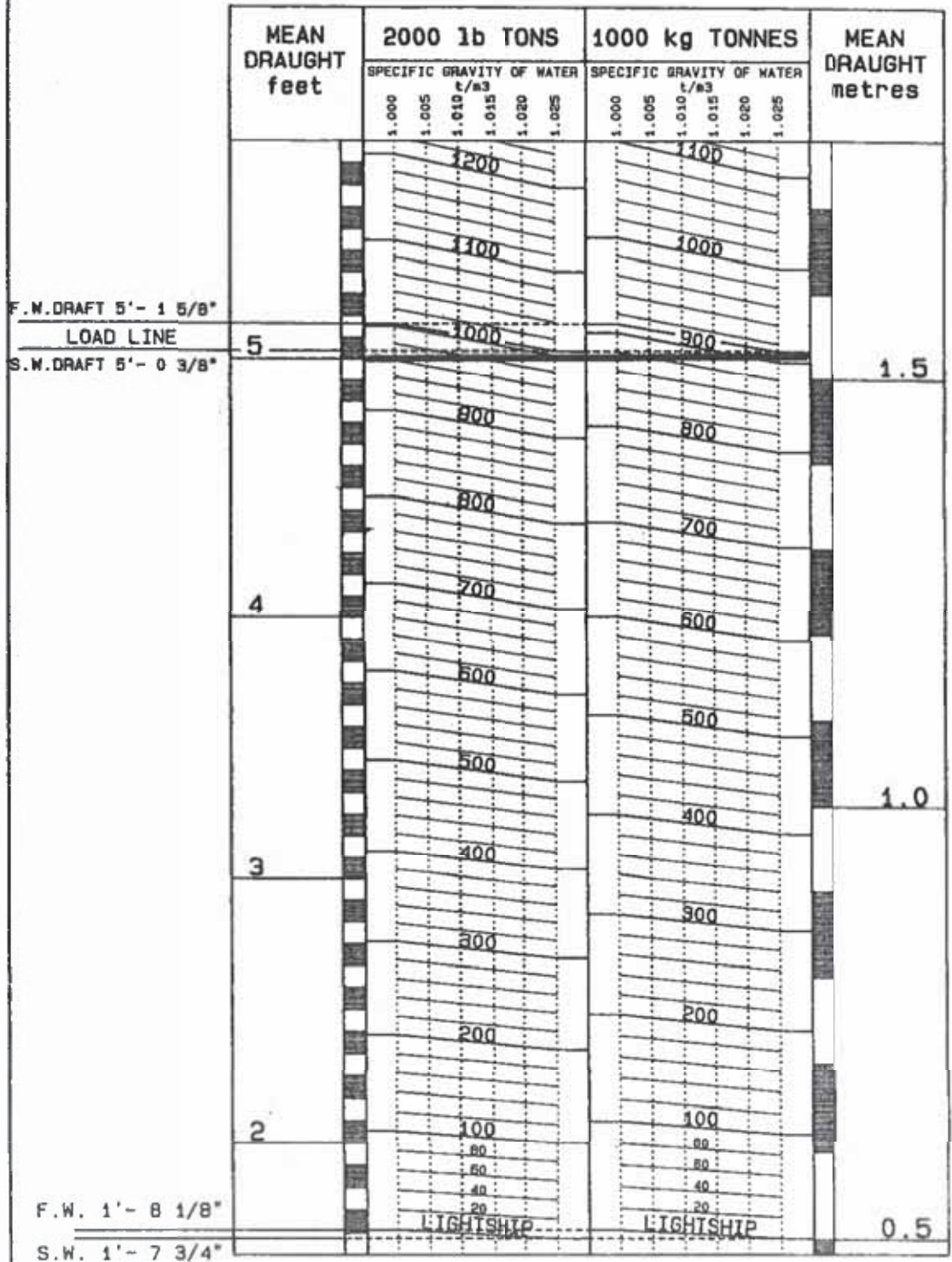


ROBERT ALLAN LTD



northern transportation company limited
1000 SERIES BARGES

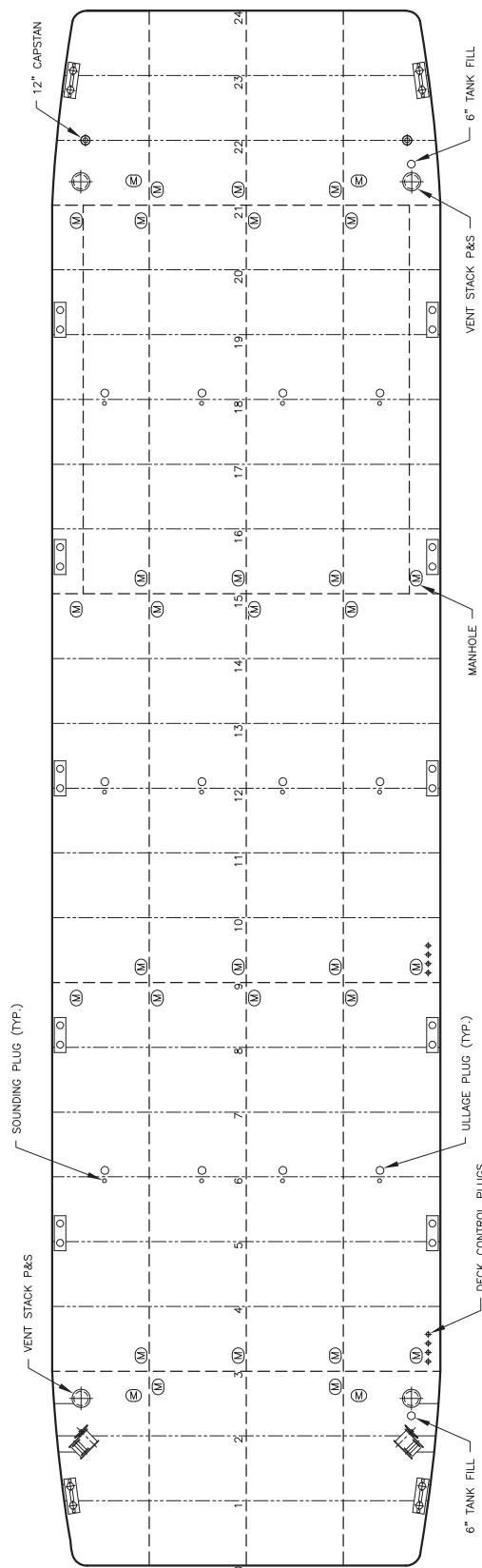
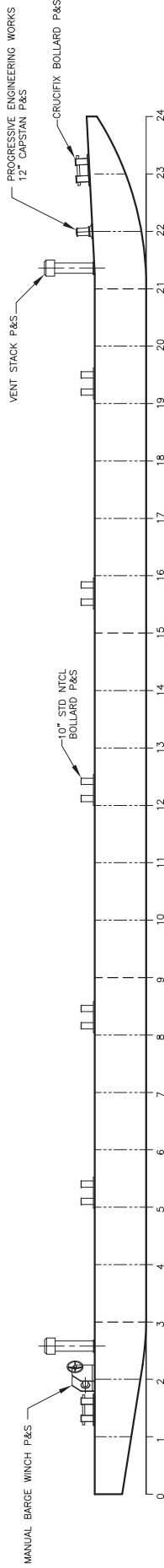
DEADWEIGHT SCALE



ROBERT ALLAN LTD

PRINCIPAL PARTICULARS:

200' 0"
 LENGTH OVERALL
 50' 0"
 BREADTH MOULDED
 7' 6"
 DEPTH MOULDED
 5' 0"
 DESIGNED DRAFT
 1020 TONS
 DEADWEIGHT @ 5'0" DRAFT
 620 TONS APPROX.
 GROSS TONNAGE



TITLE		GENERAL ARRANGEMENT	
SCALE		1000 SERIES BARGE	
1/16" = 1'-0"	PROJECT No.	DWG. No.	SHEET
	204-144	30000	3 OF 3
REV.			0
ROBERT ALLAN LTD.			

Appendix D.3

Barge Stability Reports (TO COME)



Appendix D.4

Draft Environmental Management Reports



REPORT

Government of Northwest Territories Department of Infrastructure

Hay River Harbour Restoration – Monitoring Plan 2023-8356



MARCH 2023

CONFIDENTIALITY AND © COPYRIGHT FOR THIS REPORT

This document is for the sole use of the addressee and Associated Environmental Consultants Inc. The document contains proprietary and confidential information that shall not be reproduced in any manner or disclosed to or discussed with any other parties without the express written permission of Associated Environmental Consultants Inc. Information in this document is to be considered the intellectual property of Associated Environmental Consultants Inc. in accordance with Canadian copyright law.

This report was prepared by Associated Environmental Consultants Inc. for the account of Government of Northwest Territories Department of Infrastructure. The material in it reflects Associated Environmental Consultants Inc.'s best judgement, in the light of the information available to it, at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Associated Environmental Consultants Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

