LAKE SAKAKAWEA PIPELINE CROSSING REPORT

Appendix 9.1

Detail Lake Crossing Methodology Document

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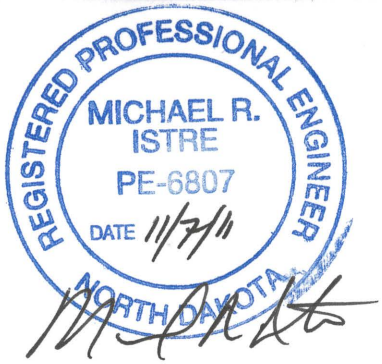
Lake Sakakawea Crossing

Proposed Construction Methodology



Executive Summary

This Proposed Construction Methodology describes the planned work program and sequence of events to install, lower and pre-commission a 12-inch diameter pipeline crossing of Lake Sakakawea as part of the Bakkenlink Pipeline Project.

The planned pipeline installation is based on a conventional pull with strings of pipe welded together in sections on the north shore and then joined into a 13,000 feet (approximate) single pipeline as the pipeline is pulled toward the south shore by a linear winch located on the south shore.

The lowering and protection of the pipeline at the North and South shorelines will be achieved by excavating a trench using long-reach excavators on both banks. The excavators will commence at the shore line and construct a berm adjacent to the pipeline centerline from trench materials and use the berm to walk the excavator out from the shore as determined by site conditions and water depths. After the pipeline is installed, the excavators will reverse the process and transfer the berm material back into the trench and over the pipeline.

Lowering the pipeline beyond the reach of the land-based excavators will be achieved using a pair of Toyo submersible pumps fitted to a purpose-built lowering sled that will extract soil from beneath the installed pipeline and discharge the resulting slurry into the pipeline ditch astern of the sled. The design of the lowering sled will be specific for this project however the concept of the dual Toyo pumps and has been utilized before by several construction groups for pipeline lowering in difficult and environmental sensitive locations. The ability to trail a turbidity mat over the discharge and diffuser is designed to direct the slurry back into the trench to reduce lateral dispersion and provide positive backfill over the lowered pipeline while reducing water column turbidity.

The support equipment for the lowering operation will include a Flexifloat catamaran that will house the power generator for the Toyo pumps. An initial conceptual set of drawings of the lowering system is included in this document and will be supplemented by actual design drawings as the program is developed to fabrication. The operation will include a team, divers vessels, diving equipment, marine and land surveys and instrumentation, an onshore crane, the linear winch and crew, a hold back winch and crew.

The dive team will operate and monitor the lowering operation including pipeline lowering depths and discharge. Both the Flexifloat and the lowering sled will be pulled across the lake by the winch previously used for the pipeline pull. The pull cable will incorporate floatation and will connect to both the water surface pontoon and the sled.

The lowering operation will be performed immediately after the installed pipeline is flooded and after the installed pipeline elevation is surveyed. The Project Team will deploy turbidity monitoring instrumentation at agreed locations with STOP authority in case of the construction activity exceeding an agreed turbidity level above that observed prior to work commencement (the background measurement). Additional lowering passes will be performed until the pipeline reaches the designed depth.

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Protection of the pipeline will be achieved based on a fitness for use criteria. A concrete weight coating system will be utilized to protect the pipeline from dropped objects, e.g. anchors, from the expected maximum size marine traffic. The details of the concrete weight coating system are under design.

Construction Plan Summary

1) Shallow Geotechnical Acquisition Study - Completed
2) Detailed pipeline route Hazard Survey - Completed
3) Mobilization and installation of the Pipe Stringing Station at the North Shore
4) Mobilization and installation of the Pipe Pull Station at the South Shore
5) Excavate beach crossings
6) Weld pipe strings on the North Shore
7) Install the pull cable from South Shore to the North Shore
8) Pipe pull operation
9) Flood pipeline section
10) As-Installed Survey
11) Pipeline Lowering
12) As-Lowered Survey
13) Supplemental Pipeline Lowering (Diver Air Lift)
14) As-Built Survey
15) Placement of supplemental protection (as required)
16) Shore Crossing Reinstatement
17) Hydrostatically test the Crossing Section
18) Prepare for tie-in and weld-on valves.

Construction Plan Details

1.0 Shallow Geotechnical Acquisition Study – Completed

2.0 Detailed pipeline route Hazard and Route Selection Survey - Completed

3.0 Mobilization and installation of the Pipe Stringing Station at the North Shore

3.1 Mobilize equipment, plant, materials and personnel to the North Shore work location

3.2 Conduct Job Safety Analysis (JSA) pre-job meeting

3.3 Perform sufficient earth works and placement of work station footings to allow a safe operation to be performed

3.4 Arrange timbers to create a suitable pipe stringing yard for approximately ten (10) strings of pipe each approximately 1300 feet (32 or 33 double random joints/string) adjacent to the pipeline centerline

3.5 Establish a primary welding station on the centerline approximately 200 feet from the lake shoreline

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4.0 Mobilization and installation of the Pipe Pull Station at the South Shore

4.1 Mobilize equipment, plant, materials and personnel to the South Shore work location

4.2 Conduct Job Safety Analysis (JSA) pre-job meeting

4.3 Construct a suitable land access and level pull site for the placement of the linear line pulling winch (LLPW), wire take-up spools and the Dead Man Anchor (DMA) and hold-back rigging

4.4 Receive and place the LLPW

4.5 Excavate and install the DMA and rigging

4.6 Test pull against the DMA for safety check

5.0 Excavate Beach Crossing (North and South Shorelines)

5.1 After the pulling and welding sites are completed, transfer the excavator and dozer to the respective shore crossing sites

5.2 Excavate a trench from the work sites to the shore line

5.3 Excavate a trench through the shore line and construct a berm wall adjacent to the centerline using the excavated material from the trench and additional material from other locations

5.4 Extend the berm to approximately 100 feet from the shore line

6.0 Welding the pipe strings on the North Shore

6.1 Conduct Job Safety Analysis (JSA) pre-job meeting

6.2 Receive and place the 325 double random joints along the 10 predetermined stringing lines

6.3 Weld and complete NDE of all string sections

6.4 Apply Fusion Bonded Epoxy (FBE) coating to the completed field joints

6.5 Weld a prefabricated pull-head to the first joint

7.0 Installing the pull cable from North Shore to the South Shore

7.1 Conduct Job Safety Analysis (JSA) pre-job meeting

7.2 While the pipe strings are being welded and prepared, float a suitably sized polypropylene rope from the North to the South side of the lake using divers and other marine personnel and equipment

7.3 Attach the polypropylene rope to the wire rope on the South side pulling station and initiate pulling the wire cable to the North Shore (pipe stringing location) using dozers and excavators

7.4 Add floatation to the wire rope to assist progress and reduce pull forces. Meanwhile, divers to ensure that the wire rope alignment is installed under survey control

7.5 Receive the wire cable at the pulling station and attach the wire cable to the pulling head on the leading end of the first pipe string (String #1).

8.0 Pipe pull operation

8.1 Conduct Job Safety Analysis (JSA) pre-job meeting

8.2 Ensure communications between the North and South Shores, the Spotter/Security vessel and the Diving Inspection boat is established and that a redundant system is tested in the event of primary system failure

8.3 The Spotter/Security vessel crew will install markers or buoys during the pull operation to identify a safe boating corridor to cross the pipeline pulling operation. The vessel will provide at-site directions to boaters to ensure the safety of the boating community and will have STOP authority (the pull operation) should a boat inadvertently enter an area that is considered hazardous.

8.4 Attach a hold-back cable to String #1 to ensure that the string does not advance forward in an uncontrolled manner.

8.5 Gradually increase the pull wire tension using the LLPW

8.6 Monitor the movement of the pipe string and maintain detailed open communications with all parties and work sites.

8.7 Pull pipe string until the end of String #1 is at the Line-Up Station.

8.8 Secure the pipe string and slowly lower tension on the LLPW

8.9 Roll String #2 over onto the firing line alignment and line-up with the tail end of String #1

8.10 Complete weld, complete NDE, Inspect and accept NDE

8.11 FBE the complete field joint to provide a continuous protective coating from Sting #1 to String #2

8.12 Jeep the field joint to inspect for holidays in the coating. Repair as necessary.

8.13 When complete and all parties are ready, take up tension on the wire rope again and pull the pipeline until the tail end of String #2 is at the Line-Up Station

8.14 Align String #3 and repeat process of adding strings and pulling

8.15 Between pulls, divers to confirm that the pull head is not digging into the bottom of the trench

8.16 Continue adding strings and pulling until the pull head surfaces at the South shore.

8.17 With assistance from the bull dozer, continue the additional and last pull until the initiation head reaches the target location

9.0 Flood Pipeline Section

9.1 The Pre-Commissioning crew will control flood the lake crossing pipeline section by running a pig train that will include a gauging plate to confirm the pipeline was not damaged during the pull operation.

9.2 The gauging plate will be inspected and accepted by the Chief Inspector

10.0 As-Installed Survey

10.1 Divers will swim the line and perform elevation checks comparing the top of pipe (TOP) to the adjacent natural lake bed.

10.2 Divers will also note the amount of cover (if any) at each survey location

10.3 The Project Engineer will review the results and determine if and where additional lowering is required. The lowering solution will then be initiated based on the results of the diver survey of the flooded pipeline.

11.0 Pipeline Lowering

11.1 Conduct Job Safety Analysis (JSA) pre-job meeting

11.2 Divers will assist the placement (by crane) of the lowering sled (LS) over the installed pipeline on the North side of the lake.

11.3 Divers will partially flood the LS pontoons to stabilize the unit on the bottom.

11.4 Divers will rig-up the Flexifloat Catamaran (FC) and connect the FC to the LS.

11.5 Divers and other marine personnel and equipment will float the polypropylene rope from the North to the South side of the lake

11.6 The polypropylene rope will be attached to the wire rope on the South side pulling station and pulling of the wire cable initiated toward the North Shore using bull dozer and excavators

11.7 Floatation will be added to the wire rope to assist progress and reduce pull forces. Meanwhile, divers will ensure that the wire rope alignment is installed under survey control

11.8 The wire cable will be received at the North Shore and the attached to the yolk connecting both the LS and FC.

11.9 Tension on the pull wire will be increased and the divers will check the LS on bottom alignment and readiness to commence lowering.

11.10 The Toyo pumps will be started and slowly ramped up.

11.11 When the pumps have been operating for several minutes, the pump will be shut down and divers will check the results

11.12 Pulling the LS/FC across the lake will commence with diver checks at regular intervals to confirm trenching success and correct rate of progress

11.13 The rate of progress will be determined by the soil extraction progress and the ability of the pipeline to remain lowered astern of the LS.

11.14 Two Passes of the LS are expected to achieve the design depth.

12.0 As-Lowered Survey

12.1 After recovery of the lowering equipment, divers will again swim the line and perform elevation checks comparing the top of pipe (TOP) to the adjacent natural lake bed.

12.2 Divers will also note the amount of cover (if any) at each survey location

12.3 The Project Engineer will review the results and determine if and where additional lowering is required.

13.0 Supplemental Pipeline Lowering (Diver air-lift)

13.1 As instructed by the Project Engineer, the Dive crew will mobilize to noted locations and perform pipeline lowering operations

13.2 The divers will deploy the hand-held airlift equipment for short sections requiring lowering

13.3 The divers will redeploy the pipeline lowering equipment if the air-lift equipment is considered impractical

13.4 As each identified section is lowered, the divers will resurvey the elevations and advise the Project Engineer of the results

14.0 As-Built Survey

14.1 After the supplemental lowering operation, the divers will again swim the line and perform elevation checks comparing the top of pipe (TOP) to the adjacent natural lake bed.

14.2 Divers will also note the amount of cover (if any) at each survey location

14.3 The Project Engineer will review the results and determine if and where additional lowering is required.

15.0 Placement of Supplemental Protection (as required)

15.1 Based on the length of any section of pipeline that cannot be lowered to the required depth, the Project Engineer will determine the method and material that will be used as supplementary protection.

15.2 Flexible concrete mats will be the preferred protection material and these can be placed at selected locations as determined by protection requirements in areas where there is an increased level of marine traffic.

16.0 Shore Crossing Reinstatement

16.1 Land Surveyors will complete a longitudinal profile of the pipeline from the offshore limit of excavated trench to the work station +/- 200 inshore from the lake shore and confirm depth below natural ground/bed levels

16.2 After the pipeline is flooded, and during remedial lowering and back-filling operations (as needed), initiate back-filling of the shore crossing trenches at both shore lines

16.3 The excavators will transfer the berm material back to the pipeline trench and on top of the pipeline working from offshore to onshore

16.4 Continue the backfilling up to the work stations on both sides and restore the pipeline corridor

17.0 Hydrostatically Test the Crossing Section

17.1 After the as built survey is completed, Contractor will pressure the crossing section and perform an 8 hour hydrostatic test at 1.25 MAOP. This will be the official DOT hydrostatic test for the lake crossing section.

18.0 Prepare for tie-in and weld-on valves

18.1 Demobilize all equipment, materials and plant

18.2 Clean up work sites

18.3 Weld a temporary security cap on the ends of the pipeline section

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Lake Sakakawea Crossing

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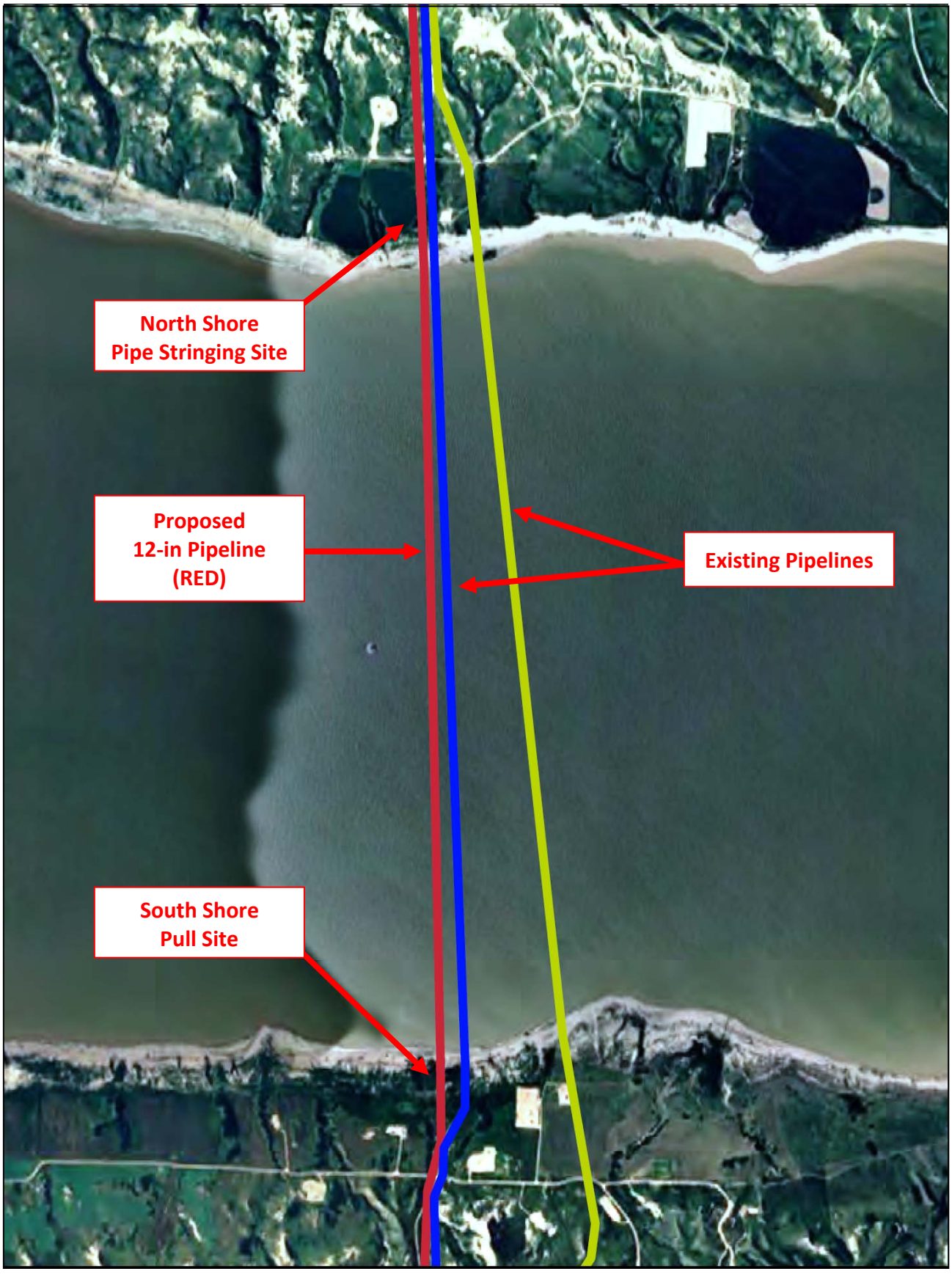

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Proposed Construction Methodology

Establishment of a typical main alignment pull site prior to fabricating the pipe strings. A similar site will be constructed on the north side of the lake.

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Lake Sakakawea Crossing

Proposed Construction Methodology

Track rollers will be installed to support the pipe string on the main pull alignment as it is pulled toward the south shore.

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Proposed Construction Methodology

A pipe offloading operation. After offloading, the double random joints of pipe will be placed in rows for stringing.

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Lake Sakakawea Crossing

Proposed Construction Methodology

Typical pipe welding operation

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Lake Sakakawea Crossing

Proposed Construction Methodology

Typical pipe string fabrication area offset from the main pull alignment

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Lake Sakakawea Crossing

Proposed Construction Methodology

A linear line pulling winch similar to the unit that will be installed on the south shore to pull the pipe across the lake

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Lake Sakakawea Crossing

Proposed Construction Methodology

Typical pipe pull across a body of water. However for the crossing of Lake Sakakawea, the pipe will be pulled used a Controlled Bottom Pull method that will have the pipe on or near to the lake bed.

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Proposed Construction Methodology

Typical shallow water survey launch that can be utilized during pull and lowering work phases to monitor progress and conformity

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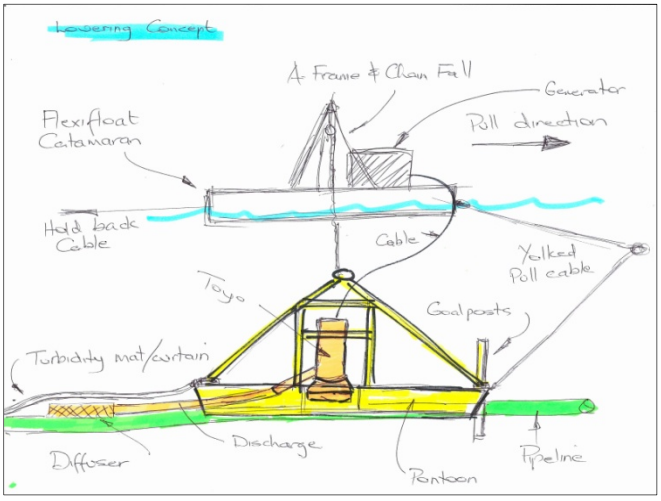
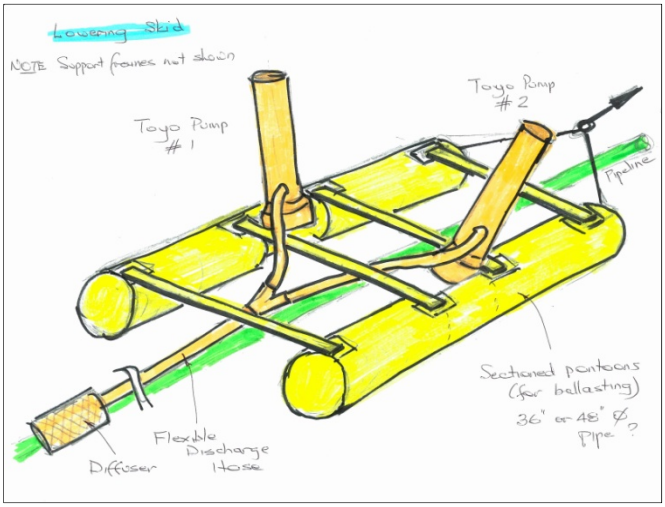
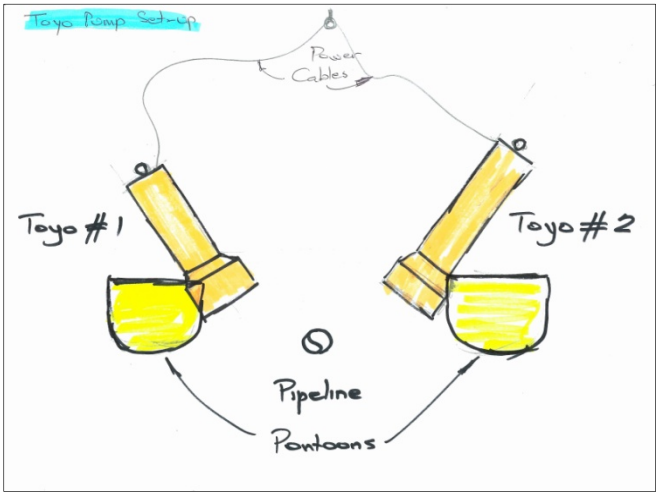
Proposed Construction Methodology







The above three conceptual sketches identify the lowering methodology that will be employed for the lake crossing