a division of Englobe

Final Report for:

SPECIAL AREAS BOARD

RURAL WATER FEASIBILITY STUDY

Date: October 7, 2025
2220-017-00

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a division of Englobe

Special Areas Board Hanna Office
P.O. Box 820
212 – 2 Avenue West
Hanna, AB
T0J 1P0

October 7, 2025
File: N:\2220\017\00\R01\0.0

Attention: Shaune Kovitch
Chair – Special Areas Board

Dear Mr. Kovitch:

Re: Rural Water Feasibility Study

We are pleased to submit the Rural Water Feasibility Study. This report provides an overview of the seven potential service areas considered, including an update to the four areas assessed in MPE's 2012 *Rural Water Feasibility Study*.

We trust that this report will assist in planning and budgeting for future expansion of your rural water delivery systems.

On behalf of MPE a division of Englobe, I want to express our appreciation for the opportunity to assist the Special Areas Board with this study. Please contact the undersigned at 403-219-6300 for any questions that you may have.

Sincerely,

MPE a division of Englobe

Colin McNab, P.Eng.
Calgary Region Manager

CM/vv
Enclosure

CORPORATE AUTHORIZATION

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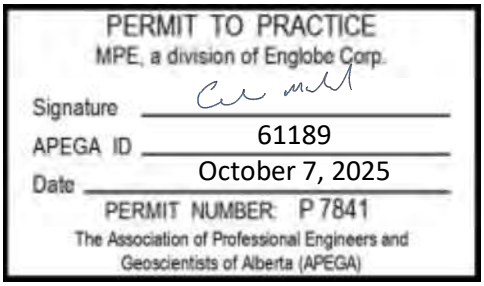
MPE a division of Englobe



October 7, 2025

Colin McNab, P.Eng.
Calgary Region Manager

Professional Seal

Corporate Permit

EXECUTIVE SUMMARY

The Special Areas Board (SAB) is investigating the opportunity to expand rural water systems to provide a secure potable water source to more of its residents. To support this, SAB contracted MPE a division of Englobe (MPE) to assess the viability of rural water line extensions within seven geographic study areas, including updating the analysis completed for four areas as part of MPE's 2012 *Rural Water Feasibility Study*. These areas are:

- Cappon
- Cessford
- Hanna East
- Oyen West
- Scapa
- Watts
- Youngstown

As part of this feasibility study, MPE:

- Identified residences within the study areas
- Assessed existing potable water system capacities
- Developed conceptual engineering designs for potential water line extensions
- Prepared conceptual cost estimates
- Investigated additional funding opportunities
- Facilitated open houses and a survey to obtain public input

Study Areas

The seven study areas were defined based on previous interest, mapping information provided by SAB and MPE's 2012 *Rural Water Feasibility Study*. The proximity to existing potable water systems was also a key consideration for selecting the study areas, as it results in lower upgrade costs. All seven proposed rural water line extensions are supplied water by the Henry Kroeger Regional Water Services Commission (HKRWSC), although in some cases water is also conveyed through other systems.

Conceptual Designs

MPE prepared conceptual designs for the trickle flow water line extensions, including hydraulic assessments to determine pipe sizes and whether booster pump stations were required. A spine and lateral approach was proposed, where a spine pipeline would extend to within 2 miles (3,220 m) of each residence serviced. The individual residences would then be responsible for constructing and operating a lateral to their own cistern either independently or in partnership with adjacent residences. The proposed pipelines are high-density polyethylene (HDPE) ranging in size from 50 mm to 150 mm (2" to 6"). Each residence would be provided with a flow rate of 0.5 Imperial gallons per minute (Igpm) (3,270 L/day), and a minimum system pressure of 150 kPa (22 psi) would be maintained. A summary of the seven conceptual systems can be found in ***Table E.1***.

Table E.1: Conceptual System Summary

Area	Number of 0.5 Igpm Equivalent Services	Pipe Details	Pump Station Required
Cappon	37	16.0 km of 100 mm dia. 27.6 km of 50 mm dia.	Yes
Cessford	8	12.5 km of 50 mm dia.	No
Hanna East	21	28.0 km of 75 mm dia.	No
Oyen West	10	8.0 km of 50 mm dia.	Yes
Scapa	28	19.4 km of 75 mm dia.	Yes
Watts	6	1.5 km of 75 mm dia.	No
Youngstown	65	35.0 km of 150 mm dia.	No

Conceptual Cost Estimates

MPE determined Class 5 cost estimates based on the conceptual designs. The project intends to refine the designs and costs based on users who confirm interest and could provide the necessary funding; therefore, these costs are very high level/approximate. Land acquisition costs have been assumed as 'no-cost', as the proposed alignments follow public right-of-ways (ROWs) or are located on customers' land. A summary of the costs prior to any SAB or grant contributions can be seen in ***Table E.2***. Also included is the cost per equivalent 0.5 Igpm service, which would be the cost per typical residence before any SAB or grant funding.

Table E.2: Conceptual Cost Summary

Area	Number of 0.5 Igpm Equivalent Services	Total Cost	Cost per 0.5 Igpm Equivalent Service
Cappon	37	$5,802,000	$157,000
Cessford	8	$1,412,000	$177,000
Hanna East	21	$3,586,000	$171,000
Oyen West	10	$1,271,000	$128,000
Scapa	28	$2,968,000	$106,000
Watts	6	$283,000	$48,000
Youngstown	65	$7,726,000	$119,000

Grant Opportunities

The proposed rural water line extensions could be financed by a combination of grants, SAB contributions, and user capital. MPE's internal grant team was engaged to analyze potentially applicable grants (current). Also considered was SAB's 2011 policy, *Development of Rural Water Distribution Systems Rural Service Area*, which defines the financial assistance SAB historically provides to rural water users.

Public Input

Following the completion of the conceptual designs and cost estimates, MPE, in collaboration with SAB, conducted three open houses to gather public input. A survey was made available at the open houses and online to gather data on landowners' water systems and their interest in the proposed water line extensions.

Overall, the interest of residents was very strong, with many expressing a need for a secure, high quality, potable water supply. However, the biggest concern for many was cost.

Recommendations

SAB should investigate potential water line extensions further where the cost per connection is potentially within the users' cost threshold after applying grants and SAB contributions. This should include confirming interests and refining pipeline alignments and costs. The study areas which show the most potential are Watts, Hanna East, and Youngstown.

At this stage, for most of the proposed systems, the investment cost per user is several times the cost threshold indicated during the open houses and by the survey. This is a result of the low user density, increasing the conveyance costs significantly. MPE recommends SAB continue exploring further funding opportunities, considering policy changes to simplify tie-ins, and engaging select anchor clients directly.

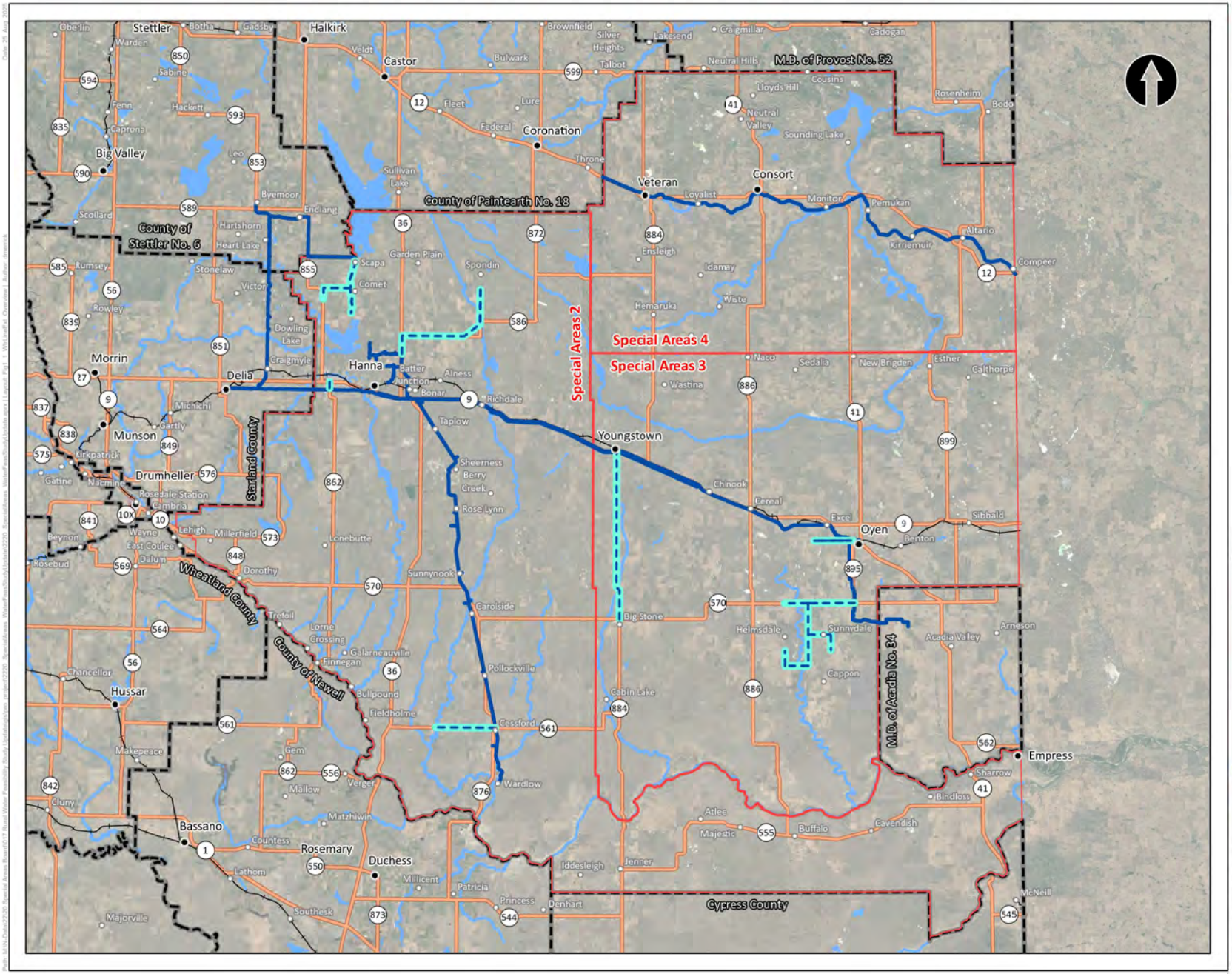
TABLE OF CONTENTS

1 INTRODUCTION

The Special Areas Board (SAB) is interested in extending existing rural potable water lines to service more residents within the Special Areas. Currently, most residents rely on private wells, or haul water to their on-site cisterns. Some of the challenges with these systems include low water yield and poor water quality in wells and frequently hauling water over long distances.

In 2012, MPE a division of Englobe (MPE) investigated four rural water expansions on behalf of SAB in the areas of Cessford, east of Hanna, Scapa, and Watts (MPE, 2012). These areas had been selected based on interest from users and proximity to existing water lines. As part of the 2012 study, MPE prepared conceptual designs of the water line extensions, cost estimates and conducted two open houses to gather public input. At the time, none of the four water line extensions proceeded.

SAB has requested that these four rural water lines be reassessed. There were also three new areas to be explored including Cappon, west of Oyen, and Youngstown. All areas and the approximate proposed waterline extensions are shown in ***Figure 1.1***. As part of this study, MPE prepared conceptual designs for the new water line expansions and reconfirmed the design of the four extensions from the 2012 study. Class 5 cost estimates were prepared and three open houses were conducted in collaboration with SAB to obtain more public input.



a division of Englobe

TITLE
Proposed Water Line Extension - Overview Plan
Rural Water Feasibility Study
Special Areas Board

LOCATION	REVIEW
Special Areas Alberta	Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	1.1	A	25 Aug 2025

1.1 Design Basis

All seven areas investigated in this study would be supplied water from the Henry Kroeger Regional Water Services Commission (HKRWSC), although for some areas water would pass through other systems as well. The HKRWSC sources water from the Red Deer River and treats the water in Hanna before distributing it to communities, water co-ops, and residences in Eastern Alberta. The rural water line extensions are proposed as trickle-feed systems, which rely on 0.5 Imperial gallon per minute (Igpm) flow restrictors at each service connection to limit flows and minimize hydraulic losses. Downstream of the flow restrictor at each residence, there would be a meter for billing purposes and a cistern sized for approximately three days of storage. The cistern would be completed with a float switch to control inflows and a pump to pressurize water for household use (domestic).

MPE conducted a cursory review of the HKRWSC hydraulics to ensure adequate supply would be available to the proposed rural water line expansions. There is sufficient capacity to add most of the proposed water line extensions, although this would require confirmation during detailed design. Adding all seven potential service areas would likely require upgrades to the HKRWSC transmission system. Considerations specific to each system are discussed in **Section 2**.

The 0.5 Igpm (3,270 L/day) design standard has been used on many rural water systems and has been established as providing a reasonable quantity for domestic use. For comparison purposes, in 2021 the average residential use was 195 L/person/day in Alberta (Statistics Canada, 2023). The supplied water is intended for domestic uses only and not for other uses such as farm operations or irrigation.

The proposed water line extensions would consist of high-density polyethylene (HDPE) pipe ranging in size from 50 mm to 150 mm (2” to 6”). Pipe diameters smaller than 50 mm are not recommended in this study given the relatively high hydraulic losses and limited expansion potential. HDPE is suitable for a range of installation methods, including horizontal directional drilling (HDD). The minimum pressure throughout the system should always be greater than 150 kPa (22 psi) to meet provincial guidelines (Government of Alberta, 2012). A conceptual hydraulic analysis was completed for each proposed extension, and where necessary a booster pump station has been proposed. The conceptual booster pump station is envisioned as a prefabricated, reach-in, package with no storage reservoir.

1.2 Spine and Lateral Approach

The proposed water line extensions would be constructed using a spine and lateral approach, as seen in ***Figure 1.2***, to minimize the costs which are distributed equally between all users. This approach entails a spine water line to within 2 miles (3,220 m) of each residence serviced, from where laterals would extend to each residence. The responsibilities for each component are as follows:

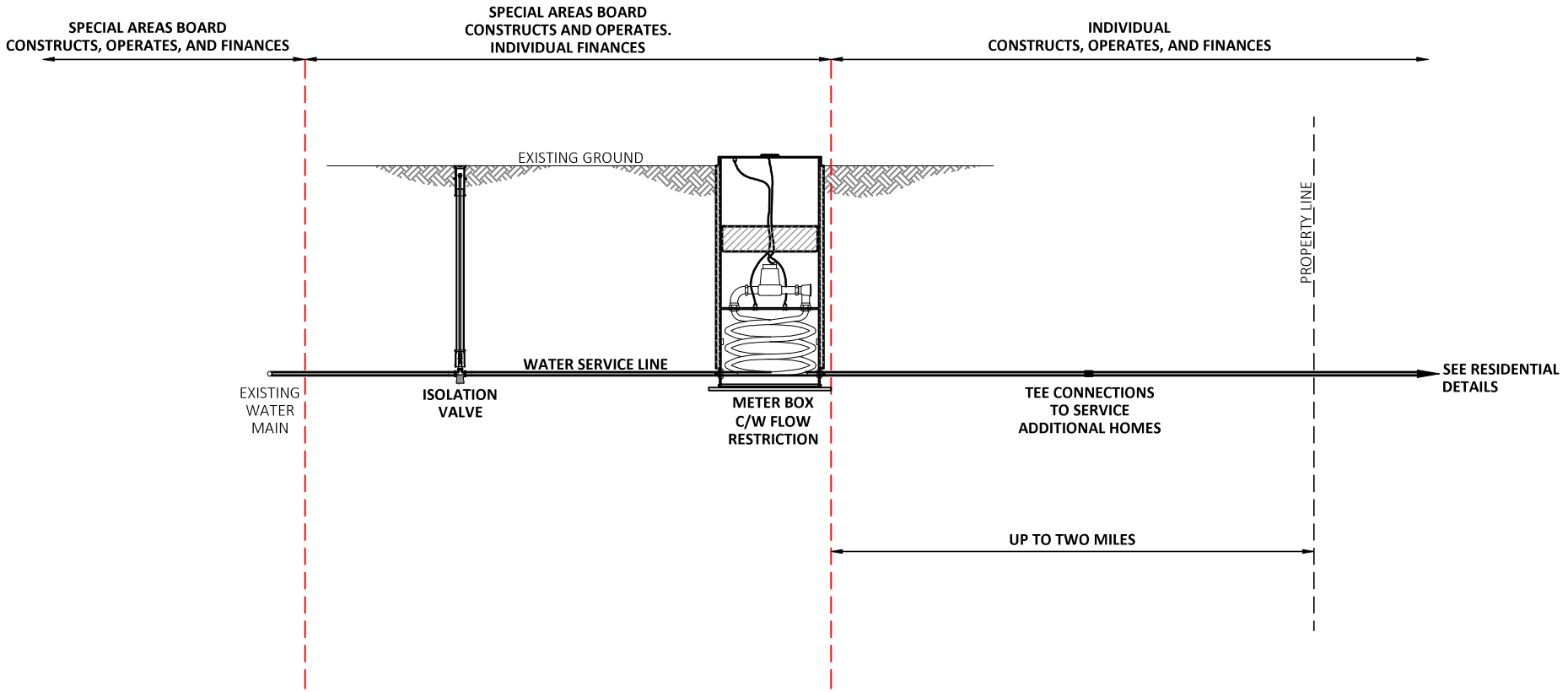
- **Spine:** SAB would own and operate the spine, including any required booster pump stations, and manage the engineering and construction. The spine would be funded by SAB contributions and individual funding spread equally over all users of the respective water line extension. There is also the potential for grant funding to reduce the capital cost on each user. There may be the opportunity for the HKRWSC to own the spine.
- **Meter chamber at lateral tie-in:** SAB would own and operate a service meter chamber where the lateral ties into the spine. Similar to the spine, SAB would oversee engineering and construction for the meter chamber. The meter chamber would be financed entirely by the user(s) serviced by the lateral.
- **Lateral:** The lateral beyond the spine would be entirely the responsibility of the user(s) serviced by the lateral. This includes ownership/operation, engineering, construction, and funding. There is the potential for grant funding, however this would likely involve applications prepared by the respective users.
    - The lateral would have to conform to SAB specifications, so it may be advantageous to prepare a typical design for users.
    - There is the possibility for multiple users to share one lateral, resulting in reduced associated costs per user. However, in this case, additional meters would be required at each user's personal connection for billing purposes.

To summarize, users who wish to be serviced by one of the proposed rural water line expansions would be responsible for the following:

- Funding one equal share of the spine after SAB and grant contributions.
- Funding the meter chamber at their lateral.
- Funding, constructing, and operating their lateral to SAB's specifications.

- Funding, constructing, and operating their residential system including a cistern with a float switch, pump and any modifications to the domestic plumbing system.

Examples of typical configurations for the residential systems can be found in ***Appendix B***.



RURAL WATER UTILITY
SYSTEM RESPONSIBILITIES
NTS

a division of Englobe

SPECIAL AREAS BOARD

RURAL WATER FEASIBILITY STUDY
SYSTEM RESPONSIBILITIES

SCALE: NTS	DATE: APRIL 2025	JOB: 2220-017-00	FIGURE: 1.2

2 WATER LINE EXTENSION OVERVIEW

The seven water line spines are described further in the following sub-sections, including their system details and conceptual cost estimates. Note, the alignments and costs presented are based on the initially assumed number of users and are intended to determine the general feasibility. The intent would be to optimize the systems based on committed users. It has been assumed that the land acquisition will be zero cost, as the projects are constructed on public right-of-ways (ROWs) and on customers' properties. The presented costs are also prior to any grant or SAB contributions, which are discussed in **Section 3**. The Class 5 cost estimates can be found in ***Appendix A***.

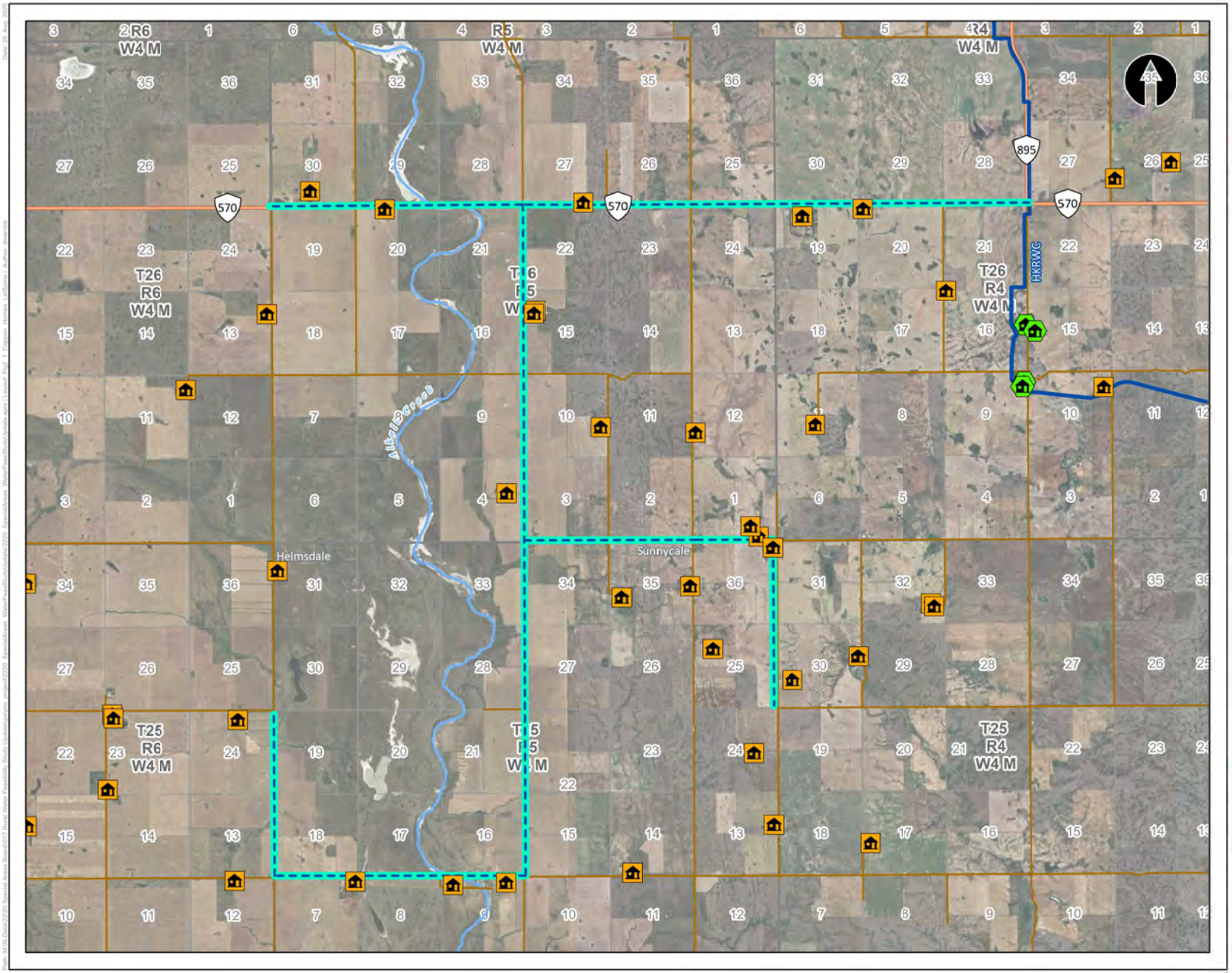
2.1 Cappon

The proposed Cappon rural water line extension is located south of Oyen, and in an area which includes Sunnydale and Helmsdale. The proposed system would tie-in to the HKRWSC east transmission main which extends to Acadia Valley. The tie-in point itself is proposed at the intersection of Highway 895 and Highway 570. An estimated 37 residences could be serviced by the water line extension.

The proposed system would consist of 16.0 km of 100 mm diameter pipe as well as several 50 mm diameter branches with a combined branch length of 27.6 km (***Figure 2.1***). Two branches would cross Alkali Creek, which SAB would manage on behalf of the individual users. This is preferred as water course crossings require additional regulatory considerations under the Government of Alberta's *Code of Practice for Watercourse Crossings* (Government of Alberta, 2019). Based on a conceptual hydraulic analysis, the system would require a booster pump station near the tie-in.

<u>Summary (for 37 connections):</u>

- 16.0 km of 100 mm diameter pipe.
- 27.6 km of 50 mm diameter pipe.
- Booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $5,802,000.
    - Cost per service: $157,000.



TITLE
Proposed Water Line Extension - Cappon
Rural Water Feasibility Study
Special Areas Board

LOCATION
Special Areas
Alberta

REVIEW
Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.1	A	25 Aug 2025

2.2 Cessford

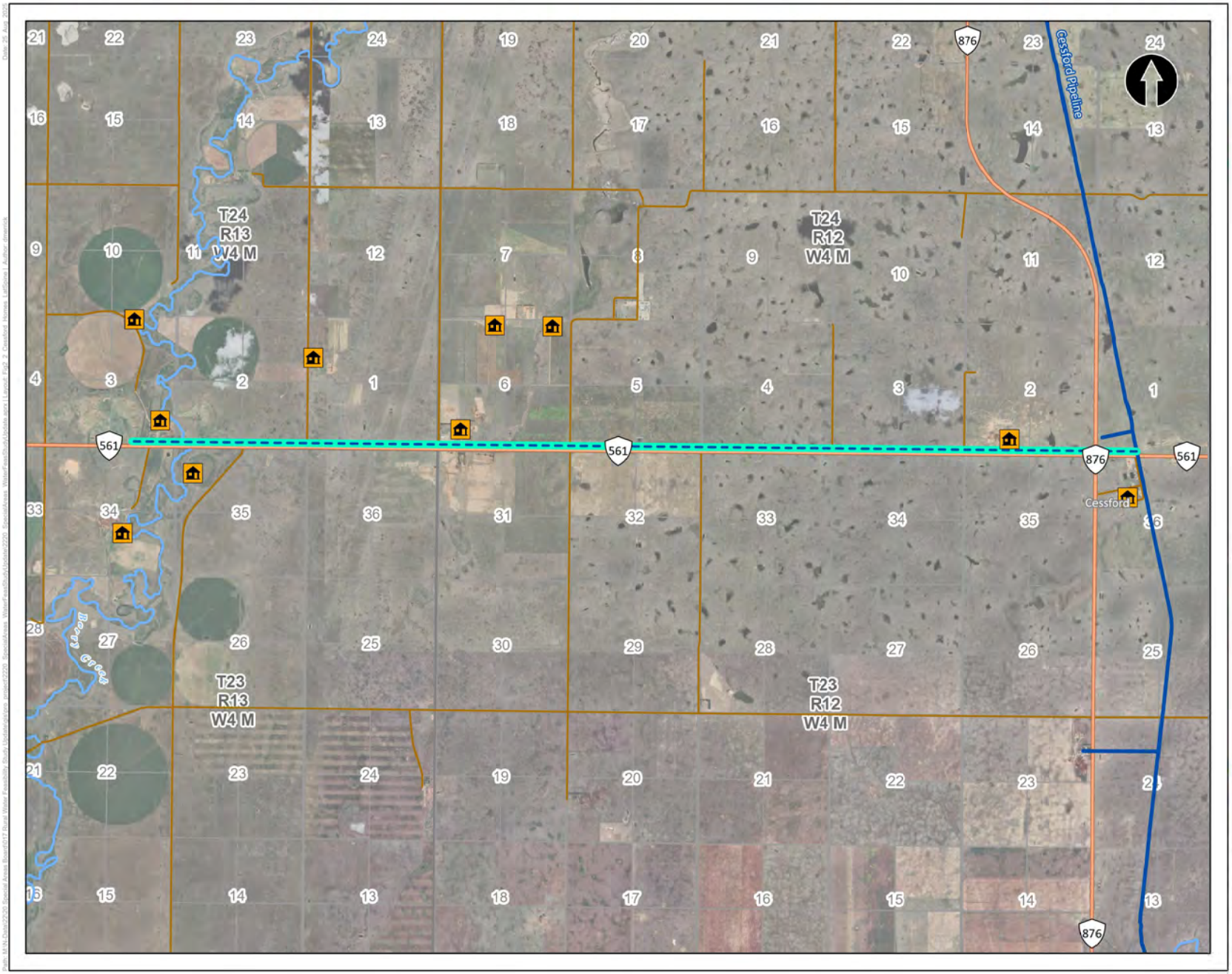
The Cessford and District Water Line was constructed in 2010 and conveys water from the HKRWSC east transfer reservoir to Wardlow (MPE, 2011). Multiple communities and rural users are serviced by the pipeline, including Cessford. The proposed rural water line would tie-in to the Cessford and District Water Line immediately north of Cessford and run west along Highway 561 (***Figure 2.2***). The proposed pipeline extends 12.5 km, ending west of Berry Creek. This would allow for residences on both sides of the creek to be serviced, with SAB managing the water course crossing.

In 2012, MPE considered repurposing an abandoned raw water pipeline from Berry Creek to Cessford and converting it to a potable water system (MPE, 2012). This would avoid the requirement for constructing a new potable water line. However, there is very little information available on the design or condition of this abandoned pipeline which has now been abandoned for at least 13 years. Hence, for the purposes of this study, it has been assumed that a new line would be installed.

Based on the residences in immediate proximity to the proposed rural water line, eight connections have been assumed. A conceptual hydraulic analysis shows that a 50 mm diameter pipe would be sufficient, and no booster pump station would be required.

<u>Summary (for eight [8] connections):</u>

- 12.5 km of 50 mm diameter pipe.
- No booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $1,412,000.
    - Cost per service: $177,000.



Hamlet
Highway
Road
Home
Not Serviced
Existing Waterline
Water Line Extension

0 2,000 m

Scale: 45,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Standard); Google; Google Earth Satellite; Google
2. **Data Sources:** Altalis, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

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TITLE
Proposed Water Line Extension - Cessford
Rural Water Feasibility Study
Special Areas Board

LOCATION	REVIEW
Special Areas Alberta	Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.2	A	25 Aug 2025

2.3 Hanna East

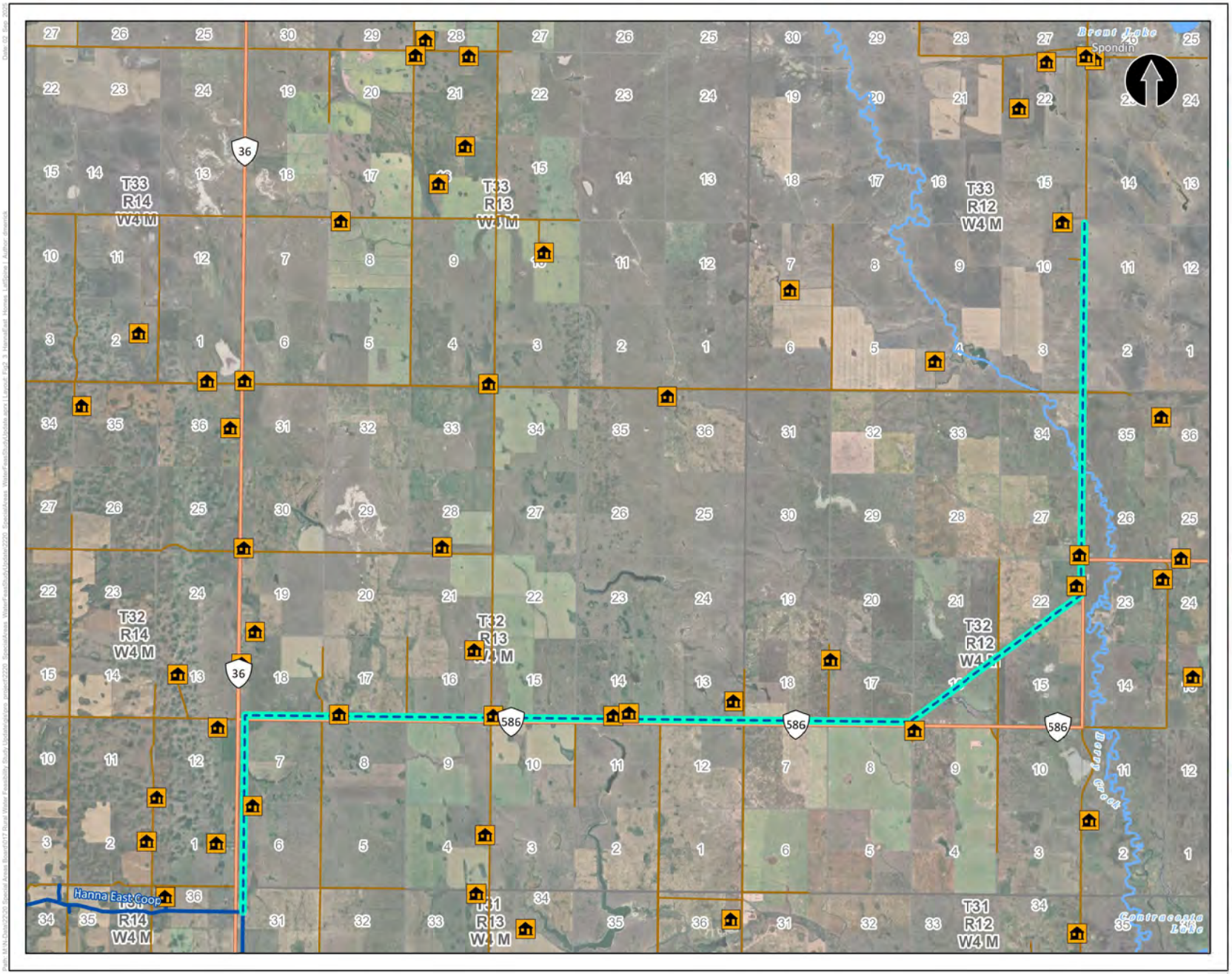
The Hanna East Water Co-op was constructed in 2002 and services rural residences northeast of Hanna (MPE, 2003). The water co-op ties into the HKRWSC east of Hanna near the Highway 9 and Highway 36 intersection. A booster pump station increases the pressure of the water co-op system, which ranges from 25 mm to 100 mm diameter HDPE pipe. The record drawings suggest 25 residences are serviced (MPE, 2003). Furthermore, the original design included capacity for a 10 Igpm (65,400 L/day) truckfill and some additional capacity for future expansion (MPE, 2012).

The proposed rural water line extension would utilize this spare capacity to service additional residents located further to the northeast. The proposed tie-in would be the 75 mm diameter Hanna East Water Co-op line east of Highway 36, just before it crosses the highway (***Figure 2.3***). The water line expansion would extend north along Highway 36, east along Highway 586 and terminate in Spondin. As determined by MPE's previous study, 21 additional residences could be serviced by the existing Hanna East Water Co-op (MPE, 2012). Based on a conceptual hydraulic assessment, a 28.0 km long 75 mm diameter pipe is proposed for the spine and no pump station upgrades are required.

As seen on ***Figure 2.3***, the proposed service area of Hanna East has many potentially interested residents. If there is sufficient interest beyond the assumed 21 services, it may also be viable to upgrade the existing Water Co-op pump station if required.

<u>Summary (for 21 connections):</u>

- 28.0 km of 75 mm diameter pipe.
- No booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $3,586,000.
    - Cost per service: $171,000.



Hamlet
Highway
Road
Home
Not Serviced
Existing Waterline
Water Line Extension

0 2,000 m

Scale: 70,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Standard); Google; Google Earth Satellite; Google
2. **Data Sources:** Altalis, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

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TITLE
Proposed Water Line Extension - Hanna East
Rural Water Feasibility Study
Special Areas Board

LOCATION	REVIEW
Special Areas Alberta	Drawn by DM on 02 Sep 2025

JOB	FIGURE	REV	DATE
2220	2.3	A	02 Sep 2025

2.4 Oyen West

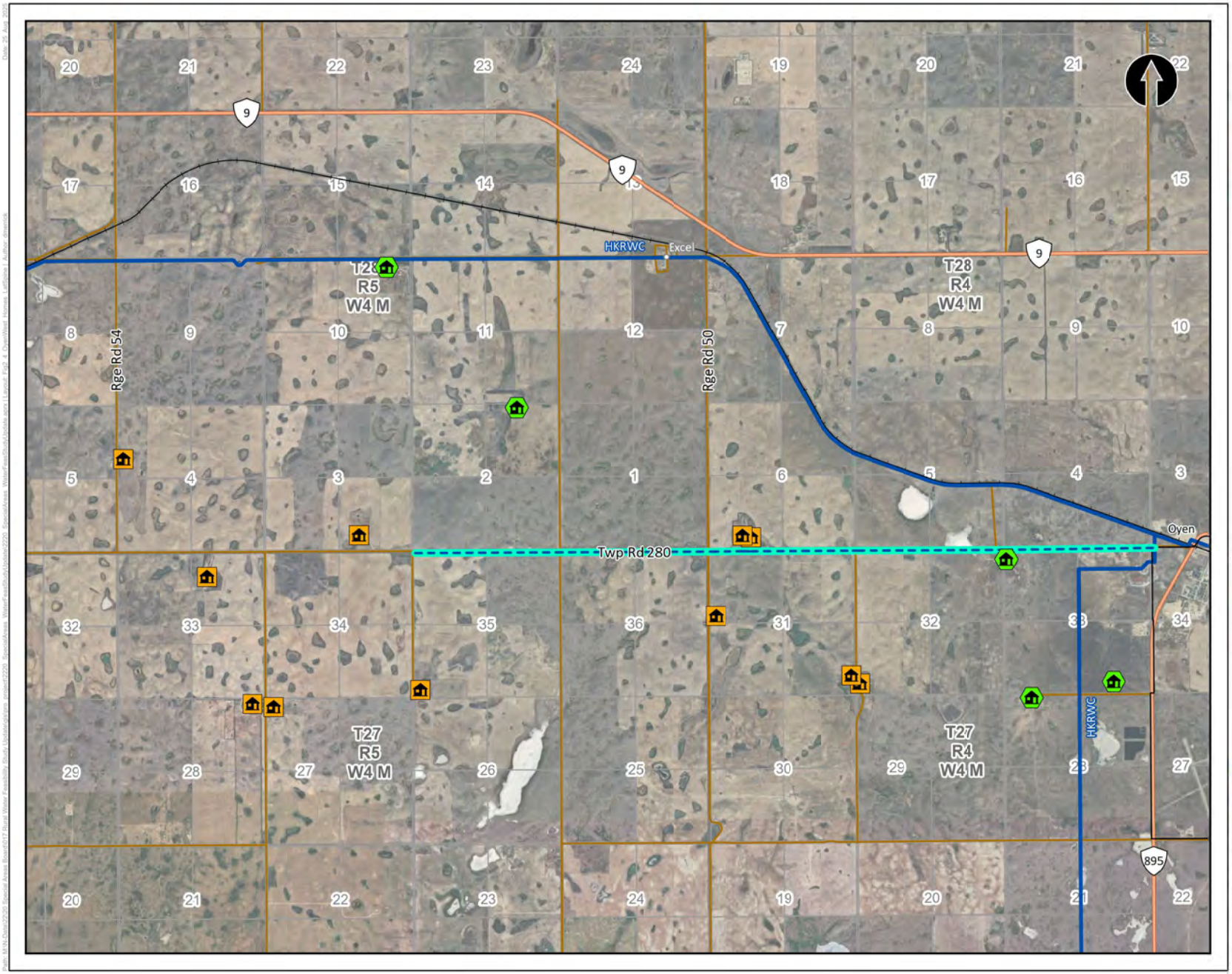
The area west of Oyen contains several residences, which are not currently connected to a potable water system but are relatively close to the HKRWSC east transmission main. The HKRWSC runs through Excel and branches off towards Acadia Valley just west of Oyen. It is proposed to extend a rural water line from this point westward along Township Road 280, as shown on ***Figure 2.4***.

It is estimated that 10 residences could be serviced by this rural water line extension. Based on the conceptual hydraulic analysis, 8.0 km of 50 mm diameter pipe is proposed, and a booster pump station would be required.

MPE is currently investigating a conceptual pump station and storage reservoir on behalf of SAB for the Oyen Water Co-op, which extends from Oyen north to the Highway 9 and Highway 41 intersection. If SAB were to acquire the Oyen Water Co-op and proceed with constructing the pump station and reservoir, it could be designed to also provide the necessary pressure and capacity for the Oyen West rural water line extension.

<u>Summary (for 10 connections):</u>

- 8.0 km of 50 mm diameter pipe.
- Booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $1,271,000.
    - Cost per service: $128,000.



Hamlet
Railway
Municipal Boundary
Home
Not Serviced
Serviced
Existing Waterline
Water Line Extension
Highway
Road

0 500 m
Scale: 40,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Standard); Google; Google Earth Satellite; Google
2. **Data Sources:** Altalis, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

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TITLE
Proposed Water Line Extension - Oyen West
Rural Water Feasibility Study
Special Areas Board

LOCATION
Special Areas
Alberta

REVIEW
Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.4	A	25 Aug 2025

2.5 Scapa

The potential Scapa service area is located northwest of Hanna. SAB currently operates a potable water truckfill in Scapa, which is supplied from a 75 mm diameter pipeline connecting to Endiang with a contracted supply limit of 20 Igpm (130,900 L/day) (MPE, 2012). Endiang is supplied potable water from the Starland County and County of Stettler transmission network, which in turn is supplied water from HKRWSC in the vicinity of Craigmyle.

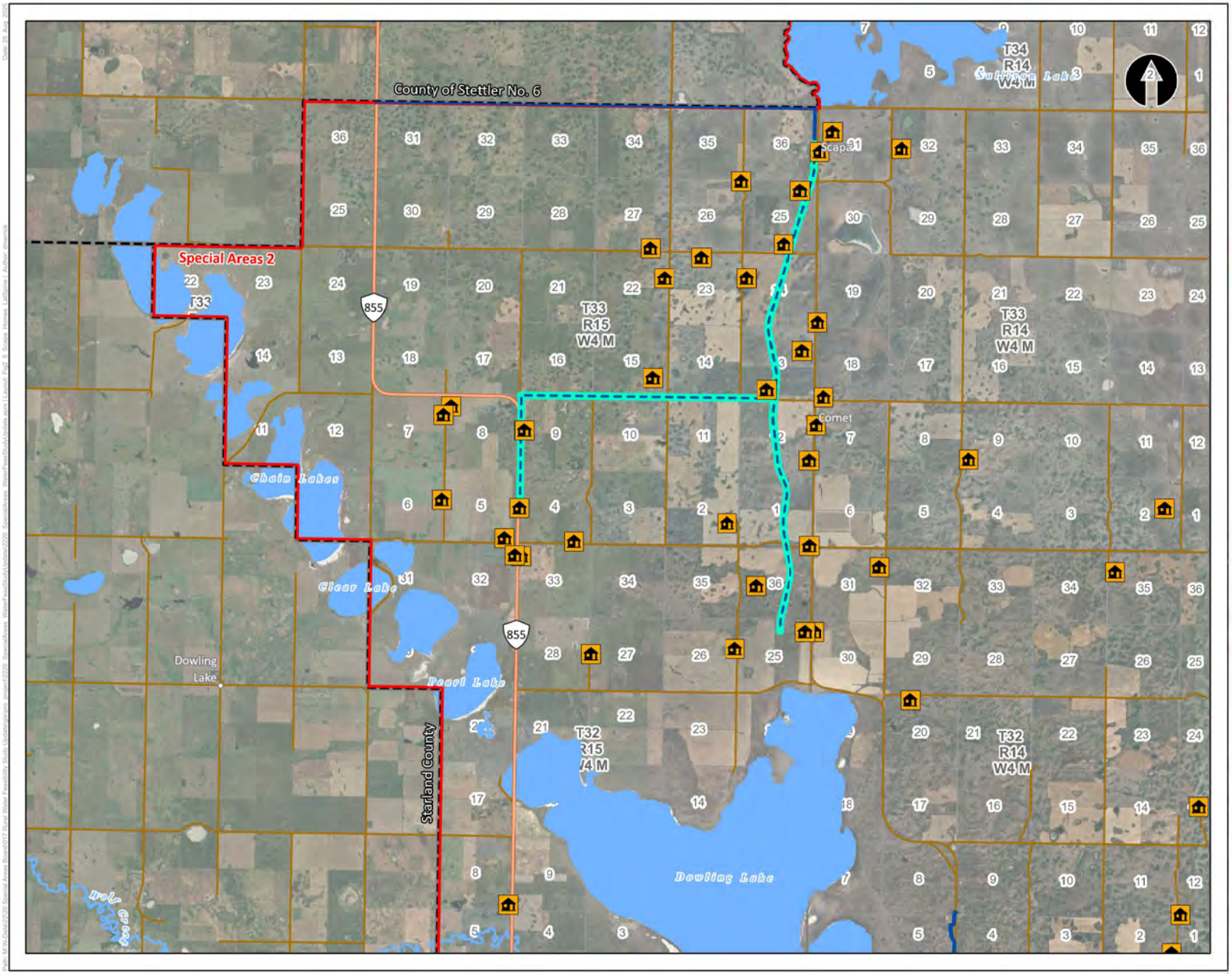
The Scapa system is estimated to be capable of supporting a total of 28 services while still maintaining a reasonable flow for the truckfill (MPE, 2012). Furthermore, the presence of a rural water distribution system will likely reduce the demand on the truckfill. The conceptual design of the spine consists of 19.4 km of 75 mm diameter pipe, as shown on ***Figure 2.5***. Similar to the 2012 study, the alignment follows the abandoned rail ROWs with one major branch towards Highway 855 (MPE, 2012). Since the supply pressure at the Scapa truckfill is assumed to be low, a booster pump station would also likely be required. There may also be the potential to repurpose spare pumps within the truckfill; however, at this stage, it is assumed a new booster pump station would be required.

One risk to the Scapa water line extension is the limited available information on the many upstream systems. Should the design of this project proceed further, it is recommended to investigate key system details, including:

- The alignment and capacity of the supply pipeline from Endiang.
- If the contractual limit of 20 Igpm (130,900 L/day) is hydraulically achievable.
- The estimated truckfill flow rates after implementing the proposed water line extension.

<u>Summary (for 28 connections):</u>

- 19.4 km of 75 mm diameter pipe.
- Booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $2,968,000.
    - Cost per service: $106,000.



- Hamlet
- Railway
- Municipal Boundary
- Special Area Boundary
- M.D. / County Boundary
- Highway
- Road

Home

- Not Serviced
- Serviced
- Existing Waterline
- Water Line Extension

0 2,000 m

Scale: 80,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Standard); Google; Google Earth Satellite; Google
2. **Data Sources:** Altalis, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

a division of Englobe

TITLE
Rural Proposed Water Line Extension - Scapa
Rural Water Feasibility Study
Special Areas Board

LOCATION
Special Areas
Alberta

REVIEW
Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.5	A	25 Aug 2025

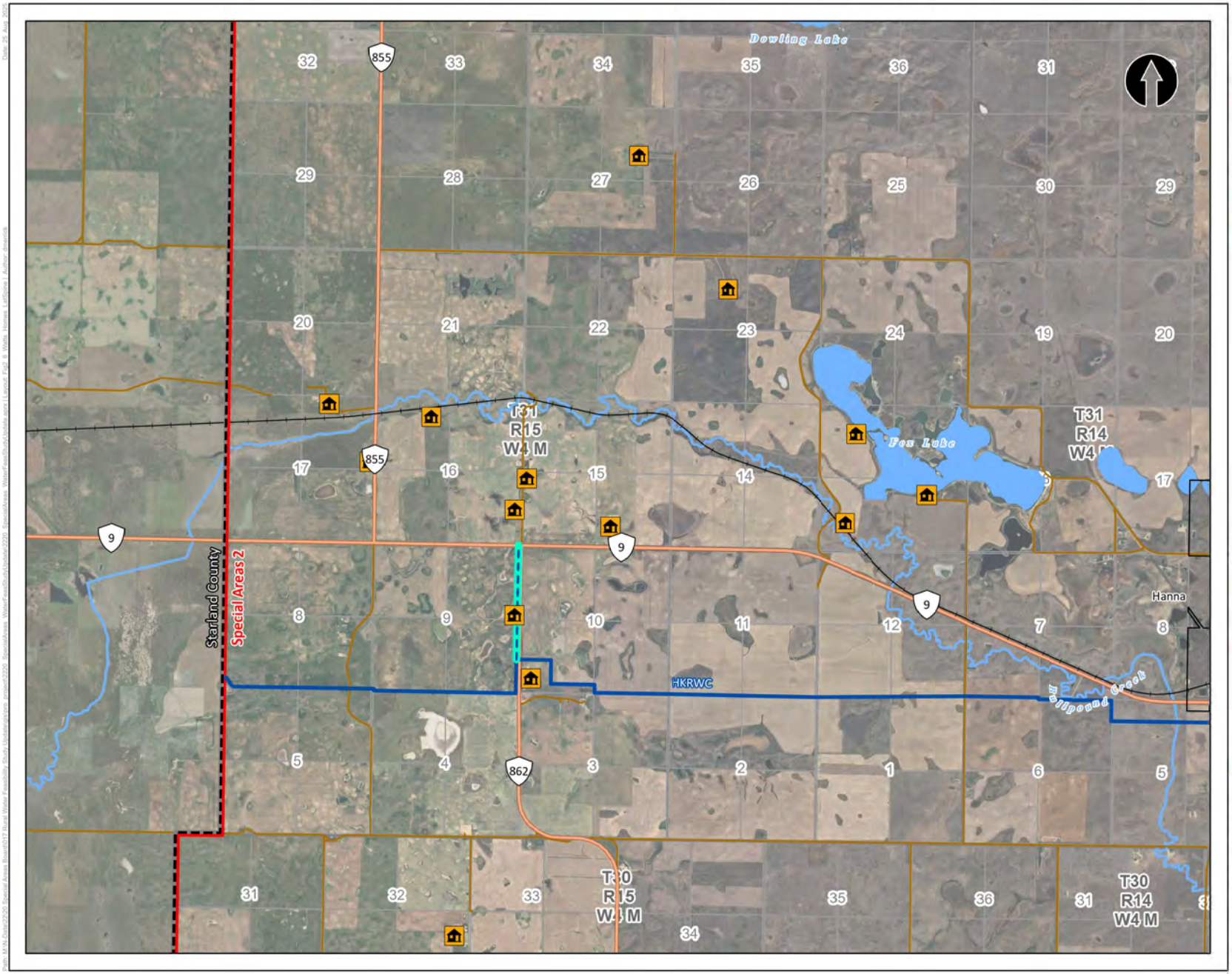
2.6 Watts

Watts is located approximately 10 km west of Hanna and in close proximity to the HKRWSC west transmission main, which supplies water to rural users, Delia, Starland County, and the County of Stettler transmission network.

The proposed water line extension would tie-in directly to the HKRWSC and require no pump station to increase the pressure. The proposed spine consists of 1.5 km of 75 mm diameter piping, which would terminate north of Highway 9 (***Figure 2.6***). This would allow SAB to manage the highway crossing and provide potable water to an estimated six (6) residences.

Summary (for six [6] connections):

- 1.5 km of 75 mm diameter pipe.
- No booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $283,000.
    - Cost per service: $48,000.



- Railway
- Municipal Boundary
- M.D. / County Boundary
- Special Area Boundary
- Highway
- Road

Home

- Not Serviced
- Existing Waterline
- Water Line Extension

0 500 m

Scale: 40,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Mainland); Google; Google Earth Satellite, Google
2. **Data Sources:** Atlas, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

MPE
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TITLE
Proposed Water Line Extension - Watts
Rural Water Feasibility Study
Special Areas Board

LOCATION
Special Areas
Alberta

REVIEW
Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.6	A	25 Aug 2025

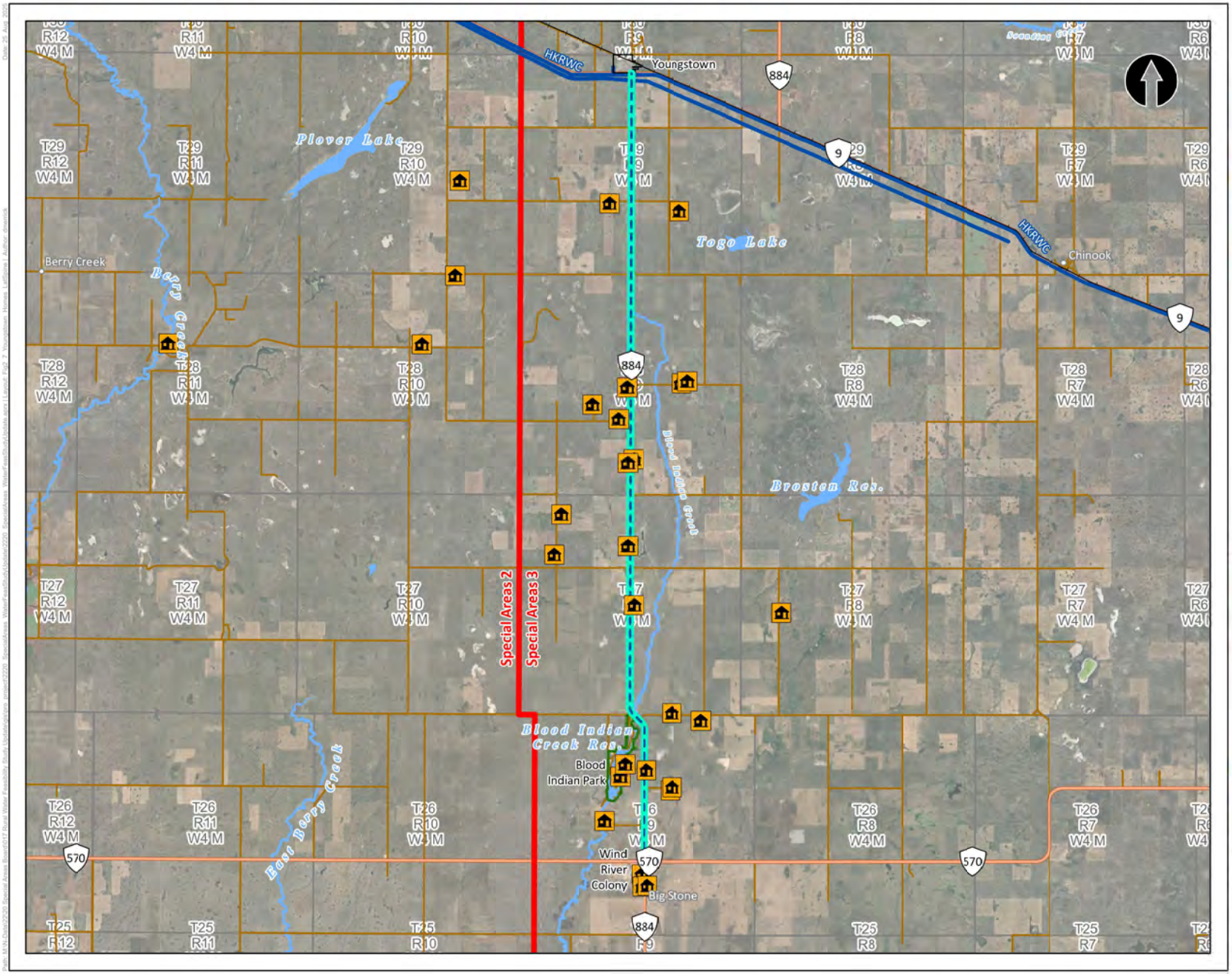
2.7 Youngstown

A potential area for a rural water line extension is along Highway 884, tying into the HKRWSC near Youngstown and following the highway alignment south to Highway 570 (***Figure 2.7***). An estimated 20 residences near Highway 884 could be serviced by this water line. In addition to rural residents, this water line could service the existing campground and facilities in the Blood Indian Park, and the Hutterite Colony located immediately southwest of the Highway 884 and Highway 570 intersection. It is known that this colony has a poor water supply and is actively seeking alternatives. For this study, it has been assumed the Blood Indian Park and the Hutterite Colony require a 10 Igpm (65,400 L/day) and a 12.5 Igpm (81,800 L/day) services, respectively.

To minimize pressure losses and avoid requiring a booster pump station, a 150 mm diameter pipe is proposed along the 35.0 km alignment. If this water line proceeds to further design stages, it is recommended to engage the Blood Indian Park and the Hutterite Colony to determine more precise flow requirements as this has a significant impact on pipe sizing. Alternatively, there is the potential to utilize a 100 mm diameter pipe with a booster station, which should be considered further when more refined flow demands and costs are available.

<u>Summary (for 65 connection equivalents):</u>

- 35.0 km of 150 mm diameter pipe.
- No booster pump station.
- Class 5 cost estimate for the spine:
    - Total cost: $7,726,000.
    - Cost per service (singe residence): $119,000.
    - Cost for Blood Indian Park: $2,378,000.
    - Cost for Hutterite Colony: $2,973,000.



- Hamlet
- Railway
- Municipal Boundary
- Highway
- Road
- Special Area Boundary
- Blood Indian Park Boundary (Approximate)

Home

- Not Serviced
- Existing Waterline
- Water Line Extension

0 5,000 m

Scale: 160,000
(ANSI B 11"x17")

1. **Background Layers:** AlbertaTownshipSystem; Copyright Government of Alberta; Google Road Map (Standard); Google; Google Earth Satellite; Google
2. **Data Sources:** Arcgis, NRCAN, Statistics Canada
3. **Coordinate System:** NAD 1983 UTM Zone 12N

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TITLE
Proposed Water Line Extension - Youngstown
Rural Water Feasibility Study
Special Areas Board

LOCATION
Special Areas
Alberta

REVIEW
Drawn by DM on 25 Aug 2025

JOB	FIGURE	REV	DATE
2220	2.7	A	25 Aug 2025

2.8 Summary

A summary of all seven proposed rural water line extensions can be seen in ***Table 2.1***. As previously stated, the conceptual designs and costs are based on the locations of the potentially interested users and should be updated once residents have committed their interest. With the exception of the Watts area, which is a comparatively short water line, the costs per service are in the range of $100,000 to $175,000 before contributions from SAB or grants. This does not include the lateral and residential system requirements. The large range in costs is a function of many factors including user density, supply pressure, and elevations.

Table 2.1: Proposed Rural Water Line Extension Summary

Area	Number of 0.5 Igpm Equivalent Services	Total Cost	Cost per 0.5 Igpm Equivalent Service
Cappon	37	$5,802,000	$157,000
Cessford	8	$1,412,000	$177,000
Hanna East	21	$3,586,000	$171,000
Oyen West	10	$1,271,000	$128,000
Scapa	28	$2,968,000	$106,000
Watts	6	$283,000	$48,000
Youngstown	65	$7,726,000	$119,000

3 AVAILABLE GRANT FUNDING

As part of this study, MPE's internal grant department investigated available funding streams for the rural water line extensions. Some funding options are available which may assist the SAB or rural water users with the proposed projects. This includes the allocation based Local Government Fiscal Framework (LGFF, formerly the Municipal Sustainability Initiative) or Canada-Community Building Fund (CCBF), the Alberta Community Partnership (ACP), and the Sustainable Canadian Agricultural Partnership in Alberta (SCAP) – Water Program. Some aspects of the proposed projects could be eligible for funding under the Alberta Municipal Water/Wastewater Partnership (AMWWP) or Water for Life (W4L) programs. Finally, there is SAB's own policy for developing rural water systems.

3.1 LGFF and CCBF

The allocation-based LGFF and CCBF provide capital funding to municipalities in support of local projects such as the construction or enhancement of assets related to treating and supplying water. The SAB may choose to allocate a portion of their LGFF or CCBF allocations to support project components related to water distribution system extensions, treated water supply lines, or municipally-owned water meters. Further, the LGFF provides local governments with two years' advance notice of their funding allocation so capital budgets can be planned effectively to support infrastructure priorities. SAB's allocations for 2024, 2025, and 2026 are $2,550,959, $2,916,049, and $2,879,038, respectively.

3.2 ACP

From a planning perspective, SAB could partner with a regional municipality to apply under the 2025/26 ACP in support of a regional water supply infrastructure study. A project of this type would provide the partnership with critical details to make informed decisions on enhanced regional water delivery, including conceptual, preliminary, and detailed designs that will inform capital project costs and priorities. Workplan activities could expand on conceptual engineering and analysis already completed and may include development of infrastructure planning and design concepts, cost estimates, associated recommendations, and the update of related capital plans. The maximum grant available is $200,000 with no cost-share requirement, although this is confirmed each year when the program is extended (typically in the summer). Specific to this study, potential ACP partners for SAB could include Hanna, Youngstown, and Oyen.

3.3 SCAP – Water Program

Under the On-Farm Water Supply Stream of the SCAP – Water Program, rural water users that are eligible primary producers may apply for funding to support standard incentives for new or expanded water source developments. This includes projects such as cisterns or tie-ins to multi-user water supply lines. The maximum grant funding for standard incentive projects is $20,000 per applicant over the program term of April 1, 2023 to March 31, 2028, with a cost-share requirement of 50%. Additional funding of up to $20,000 may be available on a cost-share basis to support special incentive projects such as well decommissioning. For all projects under the SCAP – Water Program, respective applicants (landowners) must speak with a program advisor to confirm eligibility, cost-share, and supporting documentation requirements.

3.4 AMWWP or W4L

Dependent on project scope, some components may be considered under the AMWWP or W4L programs. While water distribution systems are not eligible, enhancements to water treatment facilities to ensure servicing capacity may be eligible but would have to be confirmed with program staff, along with applicant eligibility, prior to application submission. For example, if in the future upgrades to the HKRWSC water treatment plant are required to support additional water line extensions these may be eligible for funding.

3.5 SAB Contributions

The SAB promotes providing rural residents with access to potable water through its policy, *Development of Rural Water Distribution Systems Rural Service Area* (SAB, 2011). This includes funding up to 50% of a project's costs up to a maximum of $15,000 per party. At the discretion of SAB, additional funding can also be considered. Given this policy is from 2011, SAB may wish to consider if the maximum allocation should be increased to reflect inflation.

4 OPEN HOUSES

MPE, in collaboration with SAB staff, conducted three open houses to gather public input on the proposed rural water line extensions. The primary goals included determining where interested users are located and their cost thresholds. Additionally, feedback on technical details and potential improvements was welcomed. Prior to the open houses, residents living close to the proposed water line extensions were mailed an information package, which was also made available online. Open houses were conducted using an informal format with posters displayed for all seven study areas. MPE and SAB staff discussed details of the systems with the public and solicited their feedback. Additionally, residents were invited to complete a questionnaire (hard copy or online) to provide the project team with further information. The open house materials can be found in ***Appendix C***. The open houses conducted were:

- **Hanna:** Held at the Royal Canadian Legion on May 13, 2025, and intended for the Hanna East, Scapa, and Watts areas.
- **Youngstown:** Held at the Youngstown Community Hall on May 14, 2025, and focused on the Cessford and Youngstown areas.
- **Oyen:** Held at the Oyen Seniors Circle on May 15, 2025, and intended for the Oyen West and Cappon areas.

4.1 Response Summary

The attendance of all three open houses was generally positive, with Hanna having the highest attendance. A total of 74 survey responses were obtained during the three open houses and in the following weeks. Overall, the public was very enthusiastic about rural water line expansions, expressing a strong need for a secure supply of high quality potable water. Feedback applicable to multiple proposed water lines included:

- **Cost:** The biggest reservation for many attending the open houses was cost. In MPE's experience, this must be managed closely as a single user backing out of a project can cause a domino effect where the cost burden rises on those remaining until they too cannot afford to participate in the project. Based on the open houses, it is worth considering the following key points and general feedback:
    - **No hidden fees:** As described in **Section 1.2**, a potential user must finance their portion of the spine, a service meter, their lateral, and potentially modifications to their residential plumbing system. The conceptual cost estimates prepared by MPE do not

include the laterals or changes to the residential system. Further engagement with prospective users must be maintained if any of the seven systems proceed.

  - **Alternative financing models:** Some members of the public expressed interest in models where they pay over time, rather than a single lump-sum payment. Potential mechanisms for this (property or local improvement taxes, user fees, loans, etc.) should be considered further by the project team.
  - **Comparing to previous tie-in costs:** Numerous residents referred to connection costs from previous projects that were implemented by SAB. Based on their understanding, it is highly likely that current water line extensions cost significantly more than previous infrastructure projects, due to the inflation of construction costs and the dispersed layout of each new system (i.e. pipe length vs. user density, etc.).

- **Location of water lines within public road ROWs:** Some of the proposed alignments crossed private land or followed abandoned railways and did not remain entirely within public road ROWs. Generally, this was to minimize pipe length and the associated costs. However, several members of the public expressed the concern that this could lead to reliance on their neighbour's permission to tie-in to the water line. If any of the proposed water lines proceed, MPE recommends adjusting the alignment to remain entirely within public road ROWs, or on land that corresponds with an interested user. As a community project, it is also encouraged that all residents along the proposed pipeline alignment tie-in to the system to leverage down the overall project costs.
- **Missing houses:** Several residents were unable to locate their house on the map as a result of outdated and/or incomplete information. Should any of the proposed projects be assessed further, it is recommended to review the area in detail and ensure all residents are accurately captured and their interest, or lack thereof, is documented.

The following sub-sections discuss the feedback received specific to each of the seven rural water expansions investigated in this study. Figures showing how residents rated their water quality are also presented, as a resident's response to this question is most likely to influence their willingness to participate in one of the proposed rural water line projects. An overview map showing the survey responses for water quality was shared with Administration.

4.2 Cappon

Five residents responded to the survey near the proposed Cappon water line extension. Based on the survey responses and conversations at the open house held in Oyen, the water supply in the area is generally not good. This is particularly true near Sunnydale. Residents rely on a mix of water wells and hauling water from the SAB truckfill at the Highway 570 and Highway 895 intersection. Four of the five residents declined to provide how much they would be willing to invest in the system; the fifth indicated a maximum of $13,000.

Several residents from the Cappon area also expressed interest in further truckfills, which could be located at the end of the rural water line, such as near Helmsdale. This has the potential to provide a closer truckfill to those who haul from further away. However, introducing truckfills at the ends of rural water line extensions has the risk of discouraging people from participating in the water line as hauling is made more convenient. This in turn reduces the users contributing financially to the line, which makes the project less likely to proceed.

4.3 Cessford

There were no survey responses from residents close to the proposed Cessford rural water line extension. However, this is not necessarily an indication that the public is not interested in this potential project. The open houses were held relatively far away as a result of covering a vast area with only three open houses.

4.4 Hanna East

The Hanna East area had the highest number of survey responses (14), and based on the open house held in Hanna, generated a lot of interest. Wells are not a suitable source for potable water in this area, with virtually all residents describing experiences with low yield wells and water high in minerals (iron, calcium, salts). Many have tried unsuccessfully to improve their water wells or install treatment systems. As a result, the majority of residents haul water and would be interested in a rural water line expansion. Of the two responses indicating "Good" water quality on one hauls water and would still be interested in the project.

Multiple survey responses indicated a willingness to pay from $20,000 to $50,000 for access to a secure, piped water supply. Other key details from the survey responses include:

- **Spondin:** One response from Spondin indicated no access to potable water. According to the resident, non-potable water from a dugout is pumped to the community centre and the several homes of Spondin.
- **Berry Creek Colony:** One response submitted by a member of the colony indicated they have no wells or any access to water. The colony, which has 30 families, hauls water five times a week.

Overall, the Hanna East water line extension has reasonable potential. There are many interested residents which have indicated a willingness to contribute financially. Spondin and the Berry Creek Colony also present an opportunity for two substantial users, which can make a project more viable by leveraging down costs.

As discussed in **Section 2.3**, the Hanna East Water Co-op likely only has capacity to supply around 10 Igpm without requiring upgrades. It is possible the combined demands of the interested residents, Spondin, and the Berry Creek Colony exceed the water currently available. However, upgrades to the Hanna East Water Co-op or a separate system from HKRWSC could be considered. If this project proceeds, the residents of Spondin and the Berry Creek Colony should be engaged to understand their demands more precisely.

4.5 Oyen West

Two residents responded to the survey within the Oyen West study area. Both previously relied on wells; however, these have recently dried up, therefore, the residents are now forced to haul water. Based on discussions at the Oyen open house, this is a common challenge within the area. The two potential users who responded to the survey indicated a willingness to pay $10,000 to $15,000 to participate in the project.

During the open house, several residents of the area raised the possibility of connecting multiple smaller branches to the HKRWSC east transmission main, as it is relatively close. For example, one branch could head south from the HKRWSC along Range Road 54 and another south along Range Road 50 for the western and eastern residents, respectively. MPE completed a cursory review of this based on experience with the HKRWSC and elevations taken from Google Earth (tolerance of ±7 m) (Google, 2025). This review suggests the eastern branch along Range Road 50 would require a booster pump station to maintain the minimum pressure of 22 psi. The western branch along Range Road 54 may not require a booster pump station; however, the pressures are close to the minimum based on the available topography, and so further investigation is recommended.

During the open houses, one resident also highlighted that the houses on NE 02-TWP 28-RGE 05-W4M and SE 03-TWP 28-RGE 05-W4M are connected to the HKRWSC by a shared 38 mm (1.5”) diameter HDPE line. This line could be extended to service other residences on the western side of the study area. However, before further investigation is conducted, more information on the existing system is required.

4.6 Scapa

Multiple interested residents from the Scapa area attended the open house held in Hanna; eight living close to the proposed rural water line responded to the survey. Several residents from around Dowling Lake also showed potential interest, which is an area that could be explored further. In the Scapa area, homes ranged from having good quality well water to having low yield wells with high iron and sulphates. Several responses indicating "Good" water quality on [redacted] they were hauling water and would still be interested to connect to a rural water line extension. Most residents declined to answer how much they would be willing to invest in the project. The few who did answer provided costs in the order of $10,000 to $50,000.

As outlined in **Section 4.1**, members of the public had concerns with pipe alignments not in public road ROWs, as they would need their neighbour's permission to tie-in to the line. Several potential users expressed this specific to the Scapa area and the section of the water line which follows the abandoned railway ROW. If this project area is considered further, it is recommended to adjust the alignment to remain within the Range Road 150 ROW. A cursory review suggests this adjustment would result in a similar overall pipe length and cost.

4.7 Watts

Within the Watts study area, shown on [redacted] five residents responded to the survey and several came to the open house in Hanna. Generally, homes in this area are supplied by wells which range in quality, with some responses indicating elevated iron, calcium, and magnesium. Some residents also haul water. Despite a range in responses to the water quality question in the survey, all five indicated a desire to participate in a rural water pipeline. Three of the surveys provided cost thresholds which were between $20,000 and $60,000. Considering the spine's conceptual cost estimate of $48,000 per connection before grant and SAB contributions, this means the Watts project may have a relatively high feasibility.

Several people living south of Watts along Highway 862 attended the open house and answered the survey, as seen on [redacted] These residents noted challenges with water quantity and quality. It is understood that quantity and quality concerns extend to their neighbours as well. Two survey responses from this area indicated cost thresholds from $25,000 to $30,000. A cursory review suggests sufficient residences are close enough to Highway 862 to make a water line in this area potentially viable.

4.8 Youngstown

The Youngstown open house saw many potentially interested users from the area around the proposed water line south along Highway 884. In total, 11 residents and several members of the Wind River Colony responded to the survey. This included three residents who live east of the proposed line, as seen on [redacted] These three survey responses all indicated poor groundwater quality and a desire to connect to a rural water line. If this project proceeds, an eastward branch in this vicinity should be investigated.

Along Highway 884 itself, responses generally suggest residents rely on water wells which are of low quality, with low yields and high iron content. There are also some residents who have good quality wells but are still interested in the project. Very few rural residents in the Youngstown study area were willing to share a cost threshold, but those who did generally did not want to invest more than $20,000.

The project team had good discussions with members of the Wind River Colony at the open house in Youngstown. This colony faces significant water challenges as they have many members and poor quality water wells. While members of the colony are interested in the water line, costs are a concern. It is key to understand the water demands of the colony, including possible growth, if this potential water line is analyzed further. As a large water user, the participation of the colony in this project has a significant impact on its viability. This also applies to the Blood Indian Park, which is believed to be another significant potential client. Should the colony and the Blood Indian Park participate in this project, it would have significant potential.

5 RECOMMENDATIONS

There is a strong need for developing rural water line expansions in the Special Areas, as evidenced by the public input gathered at the open houses and in the survey responses. Many rural residents do not have access to a secure, high-quality water supply. However, providing access to trickle feed distribution systems is a significant technical challenge given the large conveyance distances between isolated residences. As a result, the required investment costs for most lines are beyond most individual residents' thresholds. Based on this study, MPE provides the following recommendations:

- **Prepare detailed design for lines with significant potential:** Of the seven potential service areas considered in this study, Watts, Hanna East, and Youngstown appear to have the highest potential. The Watts water line extension has an estimated cost close to the potential users' threshold, and the proposed projects for both Hanna East and Youngstown have generated significant interest. SAB may wish to confirm user interest in those areas and prepare detailed designs and cost estimates for these water line extensions. MPE also recommends engaging Hanna and Youngstown as potential ACP grant partners for these water line extensions, which could help fund the detailed design(s).
- **Engage anchor clients directly:** Rural water line extensions become significantly more viable with larger anchor users as these increase the effective user density. SAB may wish to engage these potential anchor clients directly with the assistance of MPE. Once the anchor clients' demands are understood and an appropriate system is sized, rural residents along the alignment can be engaged to leverage down costs for everyone. Specific to this study, SAB should consider engaging directly with anchor clients on the proposed Hanna East (Spondin residents, Berry Creek Colony) and Youngstown (Wind River Colony, Blood Indian Park) water line extensions.
- **Continue exploring funding opportunities:** New grant programs are often initiated at both the provincial and federal level, therefore SAB should remain current on available programs. SAB may also consider raising the maximum allocation available for rural residents under the policy *Development of Rural Water Distribution Systems Rural Service Area* (SAB, 2011). Finally, alternative financing models should be considered.
- **Adjust policies to simplify tie-ins:** SAB may wish to consider collaborating with HKRWSC to ensure all future connections for individual users can service further residents. This could include requiring landowners tying into systems to follow public road ROWs or at a minimum terminate

the line on a public road ROW. Furthermore, connections should have a diameter of at least 50 mm. Users could be incentivized through a cost compensation scheme once their line is shared.

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APPENDIX A

Class 5 Cost Estimates

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Water Line Extension - Spine Only - Cappon

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	Booster Pump	1	ea	$200,000	$200,000
3	100mm Pipe Supply and Install	16,000	m	$95	$1,520,000
4	50mm Pipe Supply and Install	27,600	m	$75	$2,070,000
5	Service Connections	37	ea	$12,000	$444,000
6	Road and Highway Crossings	12	ea	$9,000	$108,000
7	Water Course Crossings	2	ea	$20,000	$40,000
8	Easement Acquisition (15m wide)	162	acre	$0	$0
		SUBTOTAL			$4,387,000
CONTINGENCY (15%)					$658,000
ENGINEERING (15%)					$757,000
		TOTAL			$5,802,000
Service Connections		**37**			
		Net Cost per Service Connection			**$156,800**

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Water Line Extension - Spine Only - Cessford

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	50mm Pipe Supply and Install	12,500	m	$75	$937,500
3	Service Connections	8	ea	$12,000	$96,000
4	Road and Highway Crossings	1	ea	$9,000	$9,000
5	Water Course Crossings	1	ea	$20,000	$20,000
6	Easement Acquisition (15m wide)	46	acre	$0	$0
		SUBTOTAL			$1,068,000
CONTINGENCY (15%)					$160,000
ENGINEERING (15%)					$184,000
		TOTAL			$1,412,000
Service Connections		**8**			
		Net Cost per Service Connection			**$176,500**

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Water Line Extension - Spine Only - Hanna East

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	75mm Pipe Supply and Install	28,000	m	$85	$2,380,000
3	Service Connections	21	ea	$12,000	$252,000
4	Road and Highway Crossings	6	ea	$9,000	$54,000
5	Water Course Crossings	1	ea	$20,000	$20,000
6	Easement Acquisition (15m wide)	104	acre	$0	$0
		SUBTOTAL			$2,711,000
CONTINGENCY (15%)					$407,000
ENGINEERING (15%)					$468,000
		TOTAL			$3,586,000
Service Connections		**21**			
		Net Cost per Service Connection			**$170,800**

Water Line Extension - Spine Only - Oyen West

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	Booster Pump	1	ea	$200,000	$200,000
3	50mm Pipe Supply and Install	8,000	m	$75	$600,000
4	Service Connections	10	ea	$12,000	$120,000
5	Road and Highway Crossings	4	ea	$9,000	$36,000
6	Easement Acquisition (15m wide)	30	acre	$0	$0
		SUBTOTAL			$961,000
CONTINGENCY (15%)					$144,000
ENGINEERING (15%)					$166,000
		TOTAL			$1,271,000
Service Connections		**10**			
		Net Cost per Service Connection			**$127,100**

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Water Line Extension - Spine Only - Scapa

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	Booster Pump	1	ea	$200,000	$200,000
3	75mm Pipe Supply and Install	19,400	m	$85	$1,649,000
4	Service Connections	28	ea	$12,000	$336,000
5	Road and Highway Crossings	6	ea	$9,000	$54,000
6	Easement Acquisition (15m wide)	72	acre	$0	$0
		SUBTOTAL			$2,244,000
CONTINGENCY (15%)					$337,000
ENGINEERING (15%)					$387,000
		TOTAL			$2,968,000
Service Connections		**28**			
		Net Cost per Service Connection			**$106,000**

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Water Line Extension - Spine Only - Watts

Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	75mm Pipe Supply and Install	1,500	m	$85	$127,500
3	Service Connections	6	ea	$12,000	$72,000
4	Road and Highway Crossings	1	ea	$9,000	$9,000
5	Easement Acquisition (15m wide)	6	acre	$0	$0
		SUBTOTAL			$214,000
CONTINGENCY (15%)					$32,000
ENGINEERING (15%)					$37,000
		TOTAL			$283,000
Service Connections		**6**			
		Net Cost per Service Connection			**$47,200**

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Water Line Extension - Spine Only - Youngstown

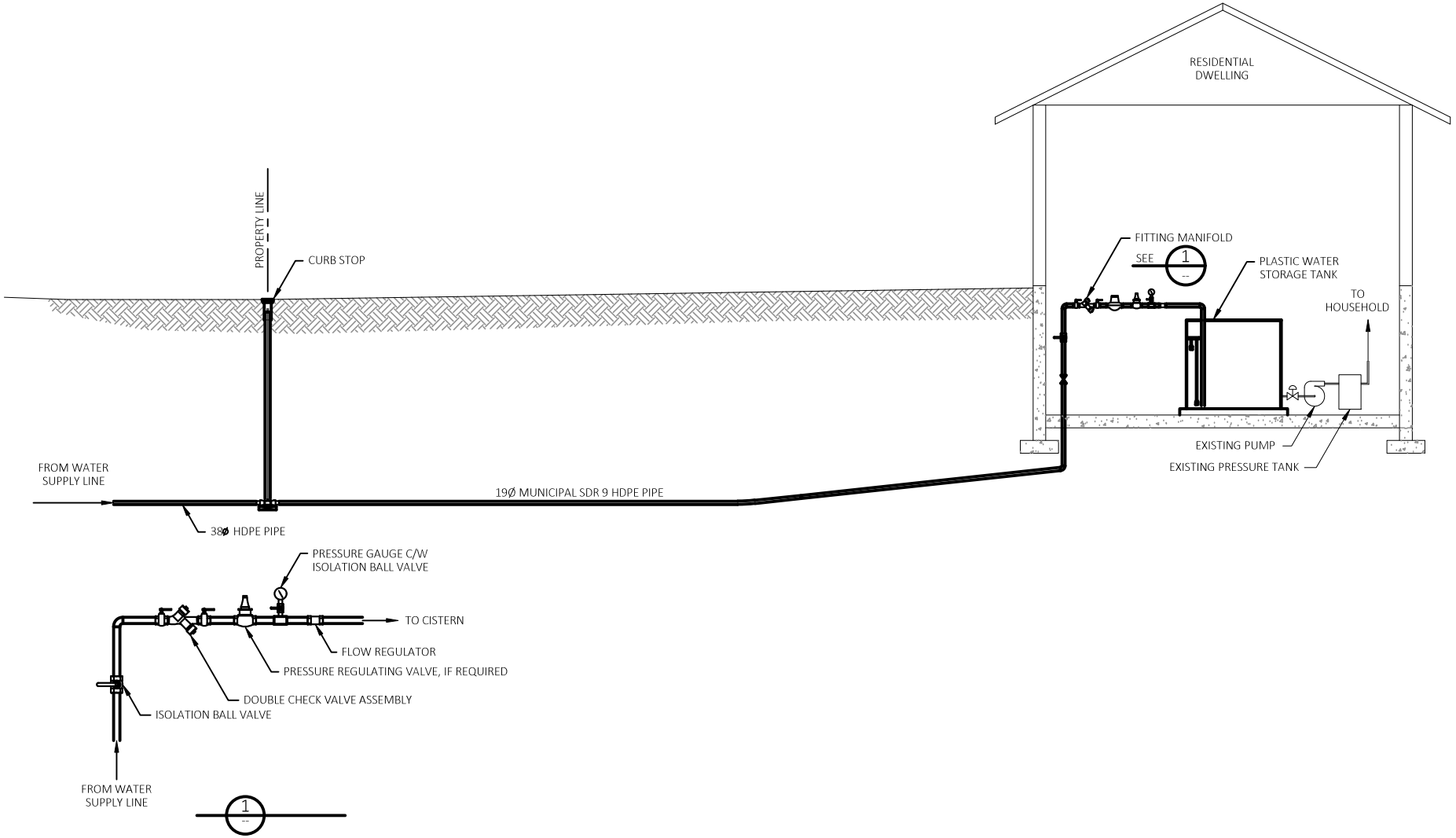
Class 5 Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Hot Tap Connection to HKRWSC	1	ea	$5,000	$5,000
2	150mm Pipe Supply and Install	35,000	m	$140	$4,900,000
3	Service Connections *	65	ea	$12,000	$780,000
4	Road and Highway Crossings	13	ea	$9,000	$117,000
5	Water Course Crossings	2	ea	$20,000	$40,000
6	Easement Acquisition	130	acre	$0	$0
		SUBTOTAL			$5,842,000
CONTINGENCY (15%)					$876,000
ENGINEERING (15%)					$1,008,000
		TOTAL			$7,726,000
Service Connections		**65**	*		
		Net Cost per Service Connection			**$118,900**

*Includes service equivalent for campground (10 services) and spray park (10 services) in Blood Indian Park and Hutterite Colony (25 services)

APPENDIX B

Residential System Typicals



LEGEND:

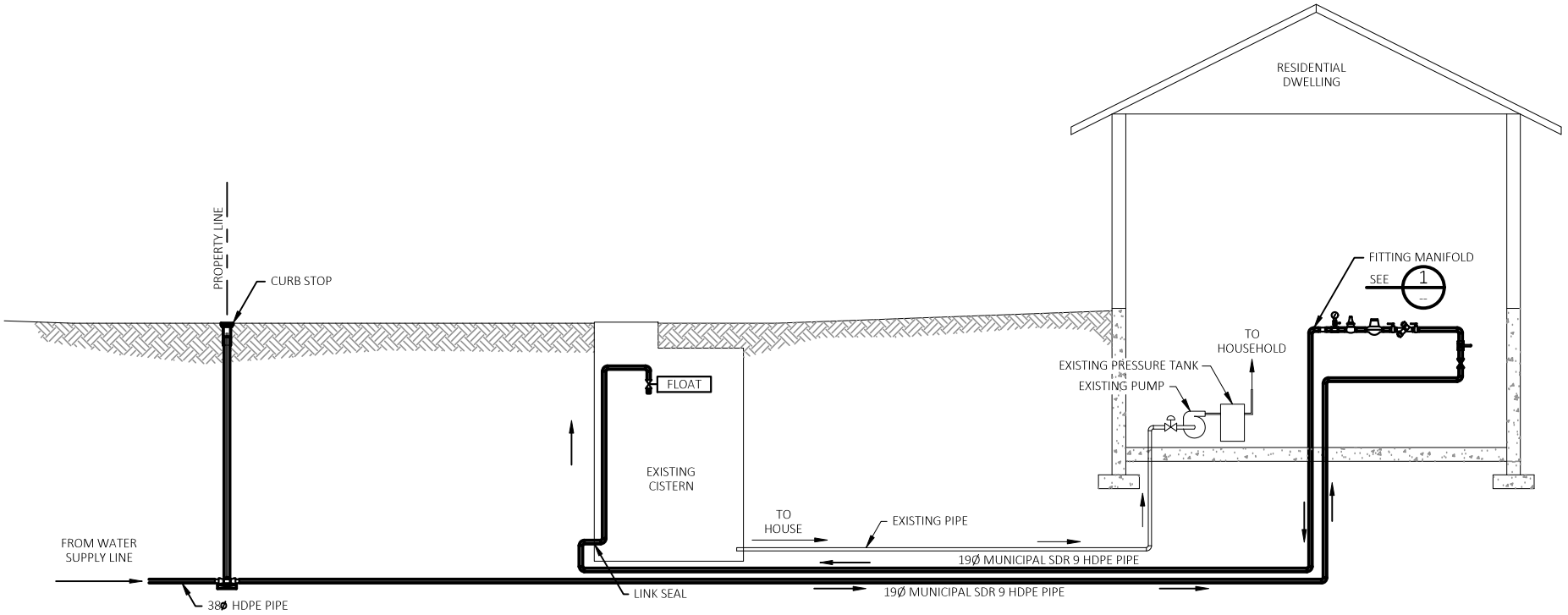
EXISTING

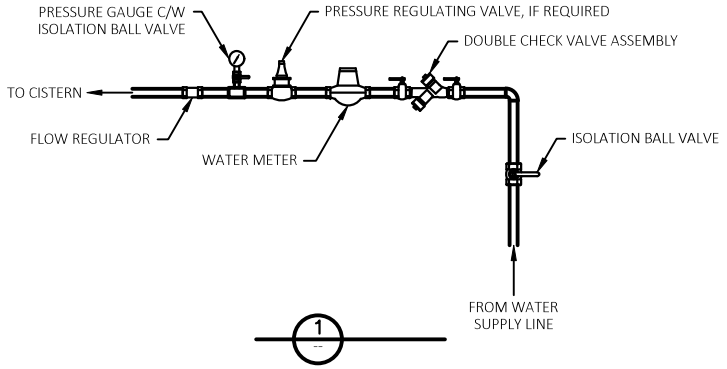
PROPOSED

a division of Englobe

RURAL WATER UTILITY
TYPE 1 SERVICE CONNECTION
WITH METERING AND CISTERN IN HOUSE

SCALE: NTS	DATE: MAR 2025	JOB: 2220-017-00	FIGURE: 1





LEGEND:

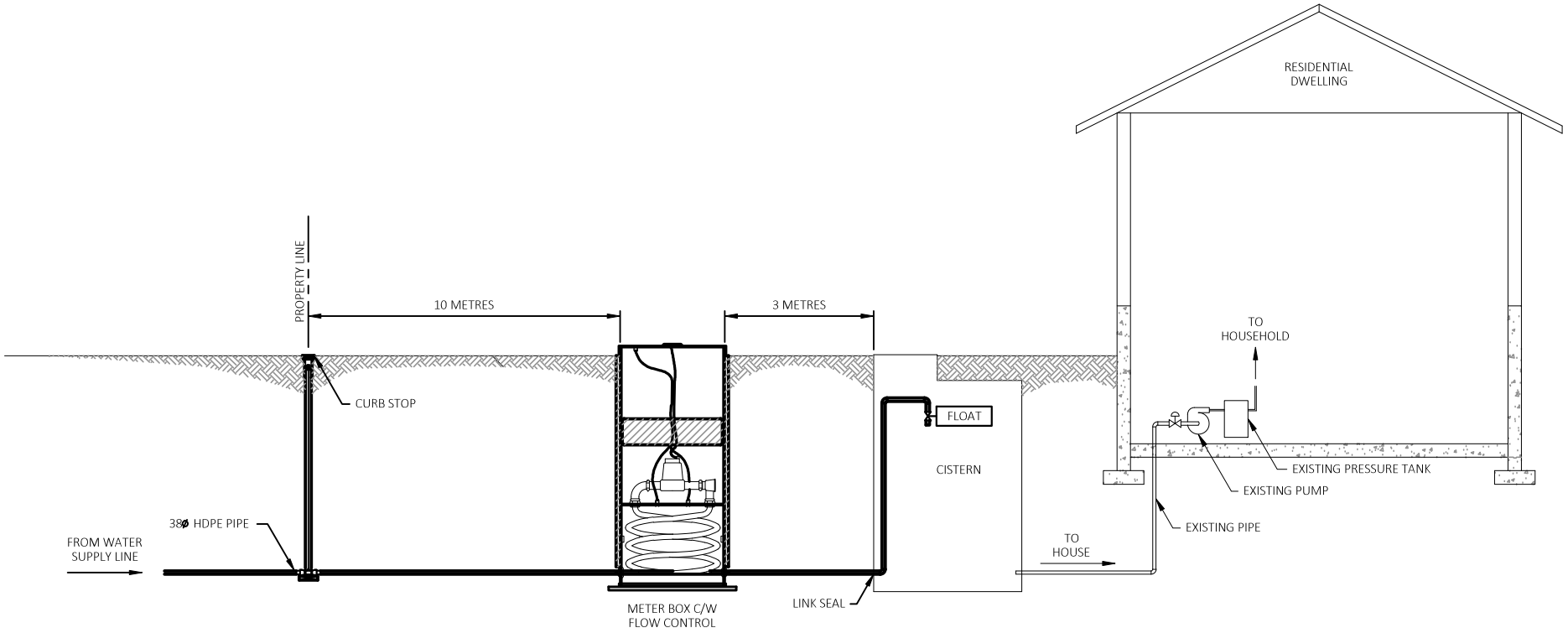
EXISTING ———————

PROPOSED ———————

a division of Englobe

RURAL WATER UTILITY
TYPE 2 SERVICE CONNECTION
WITH METERING IN BASEMENT

SCALE: NTS	DATE: MAR 2025	JOB: 2220-017-00	FIGURE: 2



LEGEND:

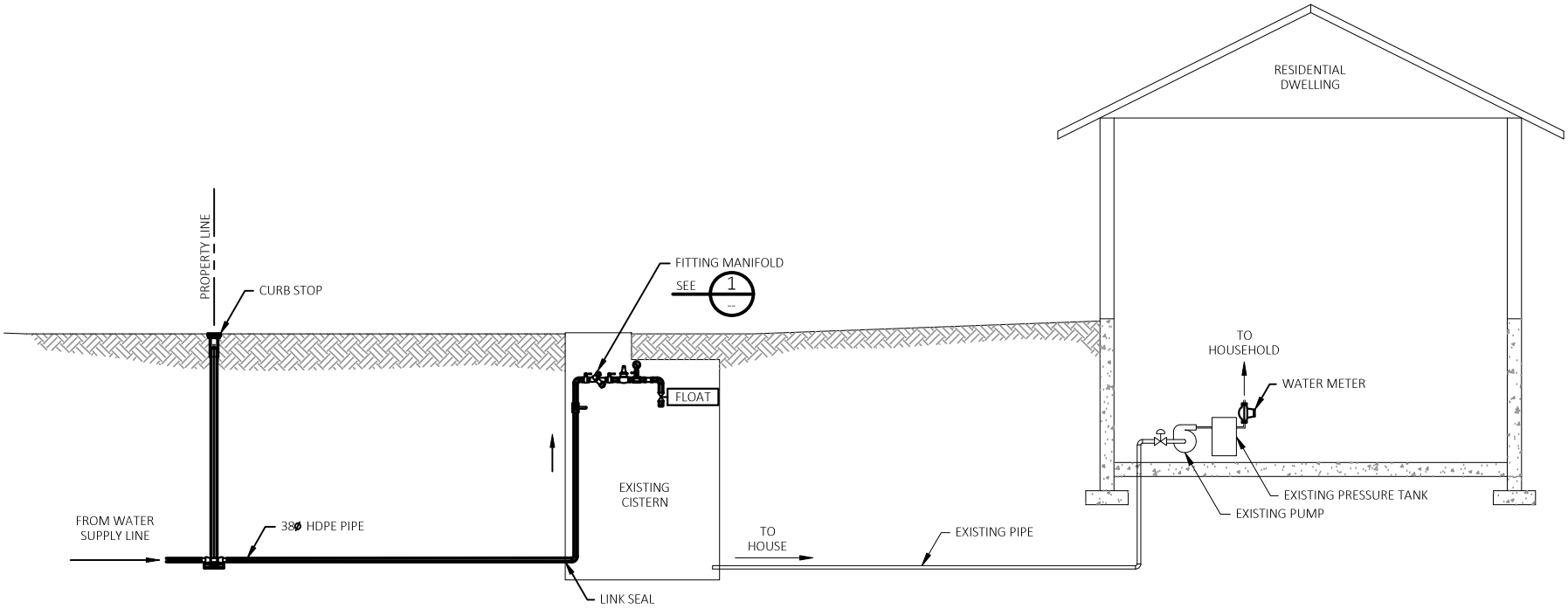
EXISTING

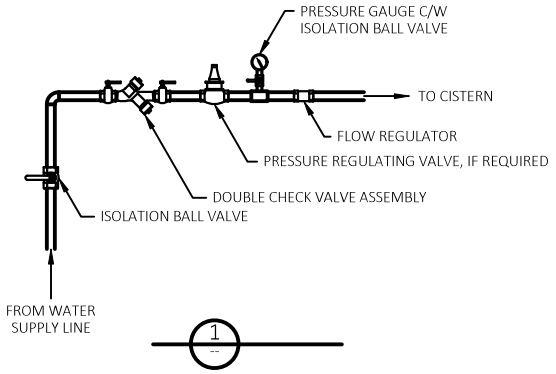
PROPOSED

a division of Englobe

RURAL WATER UTILITY
TYPE 3 SERVICE CONNECTION
WITH METERING MANHOLE

SCALE: NTS	DATE: MAR 2025	JOB: 2220-017-00	FIGURE: 3





LEGEND:

EXISTING ———————

PROPOSED ———————

a division of Englobe

RURAL WATER UTILITY
TYPE 4 SERVICE CONNECTION
WITH METER AT PUMP

SCALE: NTS	DATE: MAR 2025	JOB: 2220-017-00	FIGURE: 4

APPENDIX C

Open House Information Handout and Questionnaire

PROJECT BACKGROUND

Special Areas is investigating opportunities to expand access to potable water throughout the Special Areas, with a focus on extending existing potable water systems.

This investigation has focused on the technical feasibility of extending systems located in:

- Watts area
- Scapa area
- Spondin area (Hanna East Water Co-op)
- Cessford area
- Oyen (west) area
- Cappon area
- Youngstown area

As a part of this feasibility work, Special Areas is engaging with potential users in these areas to better understand the level of interest in future potable water systems. Feedback received through this engagement will help inform future development priorities, including information about cost-sharing and service levels.

If you would like to receive updates on this feasibility work, please send an email to public.input@specialareas.ab.ca.

FREQUENTLY ASKED QUESTIONS

Q: Where will the water come from?

A: The water source for projects being investigated through this feasibility study would be from the Henry Kroeger Regional Water Services Commission (HKRWSC) in Hanna. The HKRWSC currently supplies potable water to the Town of Hanna and HKRWSC has waterlines to the east and west, servicing communities as far east as Oyen and Acadia Valley, west to Craigmyle and Delia, and northwest to Byemoor and Endiang.

Q: How are new potable waterline extensions being designed?

A: New (potential) potable waterline extensions which have been investigated have been designed to build on existing potable waterlines/systems. For each separate project area, new potential potable waterline(s) would extend from the existing (main) waterline. From this extension, new individual services could then be installed.

Areas being investigated for waterline extensions are listed below; maps of each potential waterline extension area have been included in this information package. On these maps, existing waterlines are displayed in a dark blue line, with potential extensions displayed in a teal color with a dotted line. Households which could be serviced are shown in orange.

SCAPA AREA	The current HKRWSC waterline (through Stettler County transmission network) could be extended from Endiang to Scapa, allowing for new waterlines to be installed south of Scapa.
CESSFORD AREA	A new waterline could be constructed west of Cessford along Highway 561. This new extension would connect to the HKRWSC line (Cessford transmission network) located east of Cessford.
WATTS AREA	A new extension could be constructed along Highway 862 towards Highway 9. This new extension would connect to the current HKRWSC water line near Watts.
HANNA EAST AREA	A new waterline could be constructed to service the Hanna East area, heading northeast towards the Spondin region. This waterline would be an extension of the Hanna East Water Co-op (HKRWSC) waterline installed in 2003.
OYEN WEST AREA	The existing HKRWSC waterline extends south at Oyen. A new waterline could be connected from this main, heading west. A booster station and reservoir would likely be required for this extension.
CAPPON AREA	A new waterline could be constructed which would connect to the existing HKRWSC line from the Highway 570 & 895 corner. It would branch out west and south of Cappon in a network to feed several rural users. A booster station and reservoir would likely be required.
YOUNGSTOWN AREA	A new potable water line could be constructed which connects to the existing HKRWSC line at Youngstown at Highway 9, heading south along Highway 884 towards the Wind River Colony. This new waterline would likely require a booster station and reservoir. This system could service several residents along Highway 884 as well as amenities in Blood Indian Park.

Q: When would construction be completed for these projects? How long would it take to complete?

A: No decisions have been made about any of these projects; work being done is intended to better understand the feasibility of projects, including the level of interest from potential users. Funding decisions depend on a number of factors, including available grant funding and overall project costs. This engagement is a part of this feasibility work and is intended to share information about potential projects and identify the level of interest in them.

Generally, if a project is approved and moves into construction, the construction process takes around a year.

Q: How would I be able to connect if a new waterline was constructed?

A: In most cases, a 2" or 3" service main would be installed from the new rural waterline to residences. The line size would be reduced to a 1" service line near the residence property line. A meter vault would be installed on this service line close to the property line.

A farm cistern would be filled from the service line and the household would be supplied from the cistern (tank) via a pressure pump in the cistern. Individual residences would be responsible for the installation of the pipe, cistern, and household pumping system downstream of the meter vault.

Q: How much water would I be able to get if I connected?

A: The meter vault would restrict the flow to 0.5 Imperial gallons per minute (Igal/min). Due to the flow restriction, a cistern would be required to accommodate the daily household water usage.

The average daily household usage in Alberta is 220 Igal/day. At a constant flow of 0.5 Igal/min, each service connection could be supplied with a maximum of 720 Imperial gallon per day (24 hours).

Q: Why only 0.5 Imperial gallon per minute?

A: This design standard has been adopted for previous rural systems to keep the water line systems as affordable as possible. Due to low population density typical for rural areas, water distribution requires long lines that are cost-prohibitive if designed for full pressure and flow (urban-style) delivery. One way to reduce costs is to adopt this "trickle-system" design standard.

With the system feeding into a farm cistern, each household would receive up to 720 Imperial gallons per day.

Q: Would I need to change my existing water systems?

A: In most cases, the household plumbing would not have to change. The treated water being supplied through the HKRWSC (regional waterline) would just replace the existing water source (i.e. well, etc.). However, it is recommended that the system be flushed when switching over.

If the existing source is groundwater from a well, this well supply would have to be physically disconnected from the new piped water connection.

Q: Could I keep my existing well for other purposes?

A: Yes, the groundwater well may be maintained for watering livestock or for yard irrigation if desired. This system would have to be physically separated from the piped water connection.

Q: How much would it cost to connect to a new waterline if it was built? What would be included in that fee?

A: Special Areas continues to investigate how to reduce costs for users for these potential systems, including grant programs like Water for Life and other provincial / federal grant streams.

The total costs of connecting to a new waterline are not yet fully known as they depend on a number of factors that vary for each potential waterline. Right now, it is known that potential connection fees would likely depend on the number of users and the "density" of the group. Another factor is whether the existing system at the tie-in location has sufficient pressure to supply the regional waterline. If a pump is required to boost pressure, the cost significantly increases.

The economics of rural water development are largely impacted by population density or the average amount of pipe required per user. In recent projects where no booster pump is required, the overall system costs were in the order of $120 to $150 per lineal meter ($120,000 to $150,000 per km) of rural distribution system length. Depending on cost sharing levels and service density, initial cost per connection could potentially be greater than $50,000, not including individual extensions and on-property costs.

The landowner would be required to supply and install a cistern (internal or external to a building), complete any pipeline installation to the house, and modify plumbing as required to tie into the home's internal plumbing. Costs vary dramatically depending on the scope of the on-property work, pipeline distance from the curb stop to the home, etc.

Q: Who would be responsible for installation?

A: If a project was to move forward, Special Areas would be responsible for procuring a contractor to complete the main waterline installation. Hook ups to the service line would be the responsibility of the individual property owners / users.

Q: If a project moved ahead, would construction interfere with my farm operations?

A: Installation of waterlines could require working space(s) through farmed areas.

The majority of the pipe length would likely be installed using Horizontal Directional Drill (HDD). This is a trenchless method resulting in minimal disturbance at the surface. Using this method means excavation is only required for small portions of

the installation such as utility/road crossings, tees/elbows and fusing long sections of pipe together. In some cases, these excavation locations are flexible and can be somewhat adjusted to minimize impact at the surface.

Q: If a project moved ahead, would there be surface obstructions that remain after construction was complete?

A: Buried isolation valves, air release valves, and air release manholes are required along the mains. For the most part, every attempt is made to locate these along fence lines or in other locations that do not interfere with future farm operations.

Sometimes pipes are required to diagonally cross fields to keep costs down. If any surface obstructions are expected, these would be reviewed with the landowner prior to construction. Some examples of surface obstructions are shown below.

Photo 1: Automatic air release valve, before backfilling

Photo 2: Manual air release hydrant

Photo 3: Meter vault installation prior to backfill

Photo 4: Flushing hydrant and curb stop complete with cattle guard fence

Q: What would the cost of bulk water be once the system is in operation?

A: Rates for bulk water are set by the Special Areas Board, based on costs charged by HKRWSC. These costs are reviewed each year and published as a part of Policy 04-04A which is posted on the Special Areas Board website.

Currently, costs are set at $4.00/m^3 for potable water with a minimum usage charge of $64.00 per month.

Q: Would there be maintenance required?

A: The meter vaults remain the property of Special Areas and would be inspected regularly. Maintenance of the downstream system (i.e. individual user cisterns, pressure pumps and associated connections) would be the responsibility of the user.

Q: If a project is approved, do I have to sign on right away or can I sign up later?

A: Right now, no decisions have been made about any of these projects. Special Areas and MPE are currently looking at each project's overall technical feasibility and trying to determine the level of local interest in each project from potential users.

If a project was to proceed, discussions with potential users would be an important part of the final design and development process. Availability of grant funding would be an important consideration for determining both overall project costs and potential individual user costs.

Q: How do I find out if a project gets approved; can I sign up to get regular updates?

A: As a part of this feasibility work, findings will be shared with the Special Areas Board. A report on what was heard will be published on the Special Areas website. If you would like to receive updates on this work, you can send an email to public.input@specialareas.ab.ca.

Personal information collected as part of this survey will not be shared by the Special Areas Board or MPE, a division of Englobe (MPE), with any other party.

Legal land location will support the assessment of proximity of interested users and optimize proposed rural water expansion(s).

Name: _____
Mailing Address: _____
Legal Land Location: _____
Phone: _____

BACKGROUND

The Special Areas Board is investigating the feasibility of potential expansions to existing rural waterlines throughout the Special Areas region. As a part of this feasibility work, seven rural areas have been identified which are located near existing systems. These include:

- Watts area
- Scapa area
- Spondin area (Hanna East Water Co-op)
- Cessford area
- Oyen (west) area
- Cappon area
- Youngstown area

As a part of this feasibility work, Special Areas is engaging with potential users in these areas to better understand the level of interest in future potable water systems. Feedback received through this engagement will help inform future development priorities, including information about cost-sharing and service levels.

No decisions have been made about any of these projects; the work being done now is intended to better understand the feasibility of these projects, including the level of interest from potential users. Funding decisions depend on a number of factors, including available grant funding and overall project costs.

If you would like to receive updates on this feasibility work, please send an email to public.input@specialareas.ab.ca, or provide your contact information below:

_____

(Name) (E-mail Address)

QUESTIONNAIRE

Thank you for sharing your feedback on potential waterline extensions. Your feedback will be summarized and shared with the Special Areas Board. Please select all answers which apply.

1. What is your current source for domestic water supply?
Water Wells _____ Trucked In _____ Other _____

2. How would you rate your current domestic water supply?
Good _____ Fair _____ Poor _____
If poor, explain reasons:

3. In the last five (5) to ten (10) years, have there been changes in either the quality or quantity of the water available? If yes, what are these changes?
Yes _____ No _____
If yes, explain changes:

4. Do you currently have a cistern for your domestic water supply?
Yes _____ No _____
If yes, volume:

5. Waterline expansions / future projects would likely be financed through a combination of grants, municipal funding and individual user contributions. Although no decisions related to individual projects have been made at this time, costs for users could potentially exceed $50,000.

Is there a maximum amount you would be comfortable paying (e.g. user costs) for being able to access secure, piped & treated water supply for your household?
Yes, a maximum amount of $ _____ No _____
Prefer not to answer _____

6. The typical standard for regional systems is to provide 0.5 Imperial gallons per minute (Igpm) for each service. Would you be satisfied with 0.5 Igpm, where each connection gets a maximum of 720 Imperial gallons per 24-hour period (i.e. a "trickle-system" for household use)?
Yes _____ No _____

7. Any other comments?