

**NOTES**

| No. | Date       | Description                          | Drawn by / Dessiné par | Approved / Approuvé |
|-----|------------|--------------------------------------|------------------------|---------------------|
| F   | 2017/07/27 | ISSUED FOR TENDER                    | KL                     | WT                  |
| E   | 2017/06/03 | ISSUED FOR CIRCULATION               | KL                     | WT                  |
| D   | 2017/03/22 | REVISED 90% CLIENT REVIEW            | KL                     | WT                  |
| C   | 2017/02/15 | 90% DRAWING SUBMISSION CLIENT REVIEW | AJ                     | WT                  |
| B   | 2016/12/07 | 75% DRAWING SUBMISSION CLIENT REVIEW | AJ                     | WT                  |

| Revision / Revision |                                       |
|---------------------|---------------------------------------|
| A                   | Detail number / A Numéro de détail    |
| B                   | Sheet number / B Numéro de la feuille |

Consultant's Name / Nom de l'expert-conseil: **WSP**

Eng. Stamp / Sceau de l'ingénieur: [Stamp]

220, 48 Quarry Park Blvd SE  
 CALGARY, ALBERTA, T2C 5P2  
 PHONE: 403-269-7440 FAX: 403-269-7422 WWW.WSPGROUP.COM

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Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord

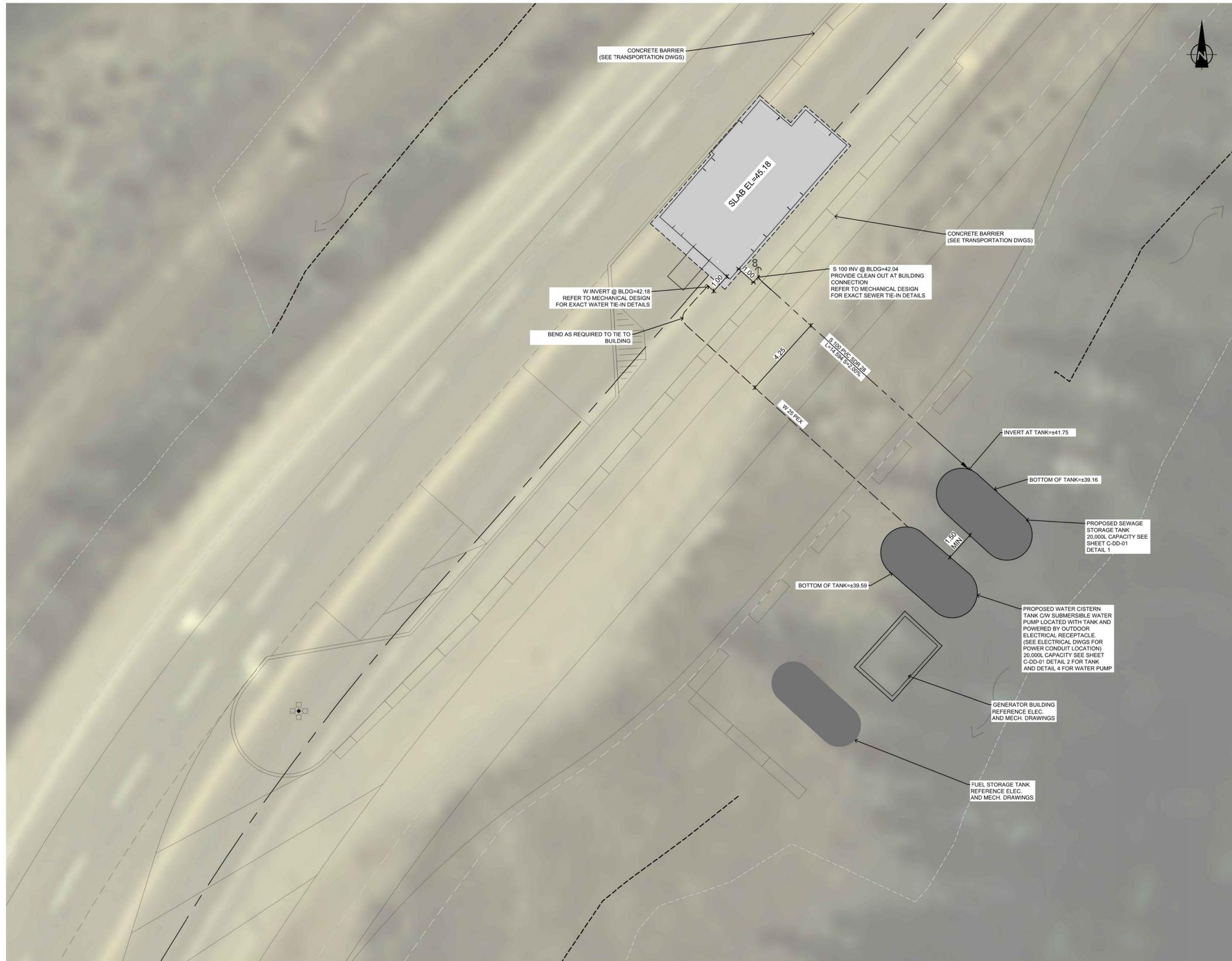


**PERMIT TO PRACTICE**  
**WSP CANADA GROUP LIMITED**  
**PERMIT NUMBER: P08845**  
 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Project Title / Titre du projet:  
**ICEFIELDS PARKWAY GATE**  
**NIBLOCK & DAVID THOMPSON HIGHWAY GATE**  
**BANFF NATIONAL PARK, ALBERTA**

Drawing Title / Titre du dessin:  
**MISCELLANEOUS DETAILS**  
**SHEET 4**

|   |                            |                              |
|---|----------------------------|------------------------------|
| Surveyed by / Arpenté par                 | Drawn by / Dessiné par     | Date                         |
|   | RB                         | 2017/07/27                   |
| Designed by / Concept par                 | Reviewed by / Révisé par   | Scale / Echelle              |
|   | WT                         | NTS                          |
| Client Acceptance / Acceptation du client | Approved by / Approuvé par |                              |
|   |                            |                              |
| Project No. / N° du projet                | Asset No. / N° du bien     | Sheet No. / N° de la feuille |
| FII 907/908                               |                            | 4 of 4                       |
| Drawing Set No. / N° de série du dessin   |                            |                              |
| T-MD-04                                   |                            |                              |



NOTES

LEGEND

- PROPOSED WATER
- PROPOSED SANITARY
- PROPOSED SANITARY CLEAN OUT

| No. | Date       | Description                          | Drawn by<br>Dessiné par | Approved<br>Approuvé |
|-----|------------|--------------------------------------|-------------------------|----------------------|
| 5   | 2017/05/03 | ISSUED FOR TENDER                    | TC                      | DP                   |
| 4   | 2017/03/22 | REVISED 90% CLIENT REVIEW            | EK                      | JW                   |
| 3   | 2017/02/15 | 90% DRAWING SUBMISSION CLIENT REVIEW | TC                      | TK                   |
| 2   | 2016/12/07 | 75% DRAWING SUBMISSION CLIENT REVIEW | TC                      | JW                   |
| 1   | 2016/10/28 | ISSUED FOR 60% SUBMISSION            | TC                      | TK                   |

| Revision / Révision |  |
|---------------------|--|
| A                   | Detail number<br>Sheet number                |
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Consultant's Name  
Nom de l'expert-conseil

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PHONE: 403-269-7440 FAX: 403-269-7422 WWW.WSPGROUP.COM

Eng. Stamp  
Scellé de l'ingénieur

**Canada**

Strategic Asset Management,  
Western and Northern Region

Gestion Stratégique des Biens,  
Région de l'Ouest et du Nord

PERMIT TO PRACTICE  
MMM GROUP LIMITED  
PERMIT NUMBER: P 8845  
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Project title/Titre du projet

**ICEFIELDS PARKWAY GATE  
DAVID THOMPSON HIGHWAY GATE**

BANFF NATIONAL PARK, ALBERTA

Drawing title/Titre du dessin

**DAVID THOMPSON HIGHWAY  
CIVIL WORKS  
SERVICING PLAN**

|   |                          |               |
|---|--------------------------|---------------|
| Surveyed by/Arpenté par                 | Drawn by/Dessiné par     | Date          |
|   | TC                       | 2016/10/25    |
| Designed by/Concept par                 | Reviewed by/Revisé par   | Scale/Echelle |
| TC                                      | TK                       | 1:100         |
| Client Acceptance/Acceptation du client | Approved by/Approuvé par |               |
|   |                          |               |

|                                       |                      |                            |
|---------------------------------------|----------------------|----------------------------|
| Project No./N° du projet              | Asset No./N° du bien | Sheet No./N° de la feuille |
| FII 908/909                           |                      | 01 of 02                   |
| Drawing Set No./N° de série du dessin |                      |                            |
| C-DSP-01                              |                      |                            |

**1** SERVICING PLAN  
D-CSP-01 SCALE 1:100



NOTES

LEGEND

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|-----|------------|--------------------------------------|-------------------------|----------------------|
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| 1   | 2016/10/28 | ISSUED FOR 60% SUBMISSION            | TC                      | TK                   |
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Revision / Révision

|                                     |               |  |
|-------------------------------------|---------------|--|
| A<br>B                              | Detail number | A Numéro de détail                     |
|                                     | Sheet number  | B Numéro de la feuille                 |
| Linear dimensions<br>In millimetres |               | Dimensions linéaires<br>en millimètres |

Consultant's Name  
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PROFESSIONAL ENGINEER  
INGÉNIEUR PROFESSIONNEL

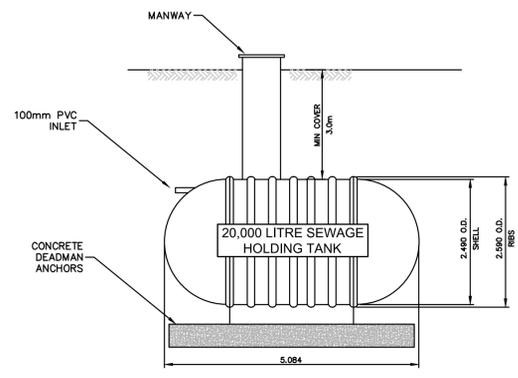
PERMIT TO PRACTICE  
MMM GROUP LIMITED  
PERMIT NUMBER: P 8845  
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

May 03, 2017

Project title/Titre du projet  
**ICEFIELDS PARKWAY GATE  
DAVID THOMPSON HIGHWAY GATE**  
BANFF NATIONAL PARK, ALBERTA

Drawing title/Titre du dessin  
**DAVID THOMPSON HIGHWAY  
CIVIL WORKS  
DETAILS 1**

|   |                          |                            |
|---|--------------------------|----------------------------|
| Surveyed by/Arpenté par                 | Drawn by/Dessiné par     | Date                       |
|   | TC                       | 2016/10/25                 |
| Designed by/Concept par                 | Reviewed by/Revisé par   | Scale/Echelle              |
| TK                                      | TK                       | AS NOTED                   |
| Client Acceptance/Acceptation du client | Approved by/Approuvé par |                            |
|   |                          |                            |
| Project No./N° du projet                | Asset No./N° du bien     | Sheet No./N° de la feuille |
| FII 908/909                             |                          | 02 of 02                   |
| Drawing Set No./N° de série du dessin   |                          |                            |
| C-DD-01                                 |                          |                            |

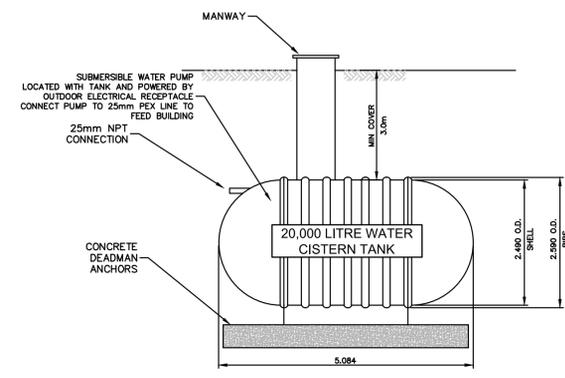


THE CONTRACTOR SHALL PROVIDE A SINGLE-WALL, FIBREGLASS REINFORCED PLASTIC (FRP) WATER STORAGE TANK AS SHOWN ON THE DRAWINGS. THE ONSITE WASTEWATER TANK SHALL BE MANUFACTURED ACCORDING TO APPLICABLE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS AND CANADIAN ASSOCIATION STANDARDS (CSA). THE TANK SIZE, FITTINGS AND ACCESSORIES SHALL BE AS SHOWN ON THE DRAWINGS.

THE TANK SHALL BE DESIGNED FOR UNDERGROUND INSTALLATION, AND SHALL BE TESTED AND INSTALLED ACCORDING TO THE ZCL INSTALLATION MANUAL AND OPERATING GUIDELINES FOR FIBREGLASS UNDERGROUND STORAGE TANKS IN EFFECT AT THE TIME OF INSTALLATION.

CAPACITY AND DIMENSIONS  
TANK SHALL HAVE NOMINAL CAPACITY OF 20,000 LITRES.  
TANK SHALL HAVE NOMINAL OUTSIDE DIAMETER OF 2.49 METRES

1 SEWAGE HOLDING TANK DETAIL  
SCALE NTS

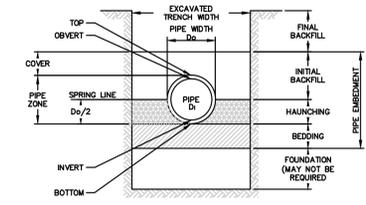


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2 WATER CISTERN TANK DETAIL  
SCALE NTS



TERMINOLOGY

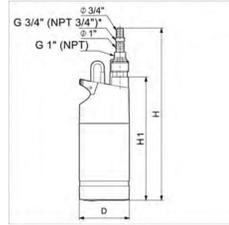
TYPE 1 INSTALLATION

- BEDDING UNDER THE MIDDLE THIRD OF THE PIPE SHALL BE LOOSE, UNCOMPACTED MATERIAL.
- IF A ROCK FOUNDATION, THEN MINIMUM BEDDING THICKNESS IS  $D_o/12$  (NOT LESS THAN 150mm)
- IF  $D_o$  IS GREATER THAN 2400mm, THEN MINIMUM BEDDING THICKNESS IS  $D_o/24$

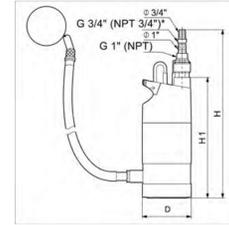
3 BEDDING & BACKFILL-PIPEZONE DETAILS  
SCALE NTS

Dimensions

Model with integrated suction strainer



Model with floating suction strainer



Component Material

|                |                                      |
|----------------|--------------------------------------|
| Cable          | Neoprene HD7RN-F                     |
| O-rings        | NBR                                  |
| Pump housing   | Polypropylene (PP30GF)               |
| Base           | Polypropylene (PP30GF)               |
| Stator housing | Stainless steel (EN 1.4301/AISI 304) |

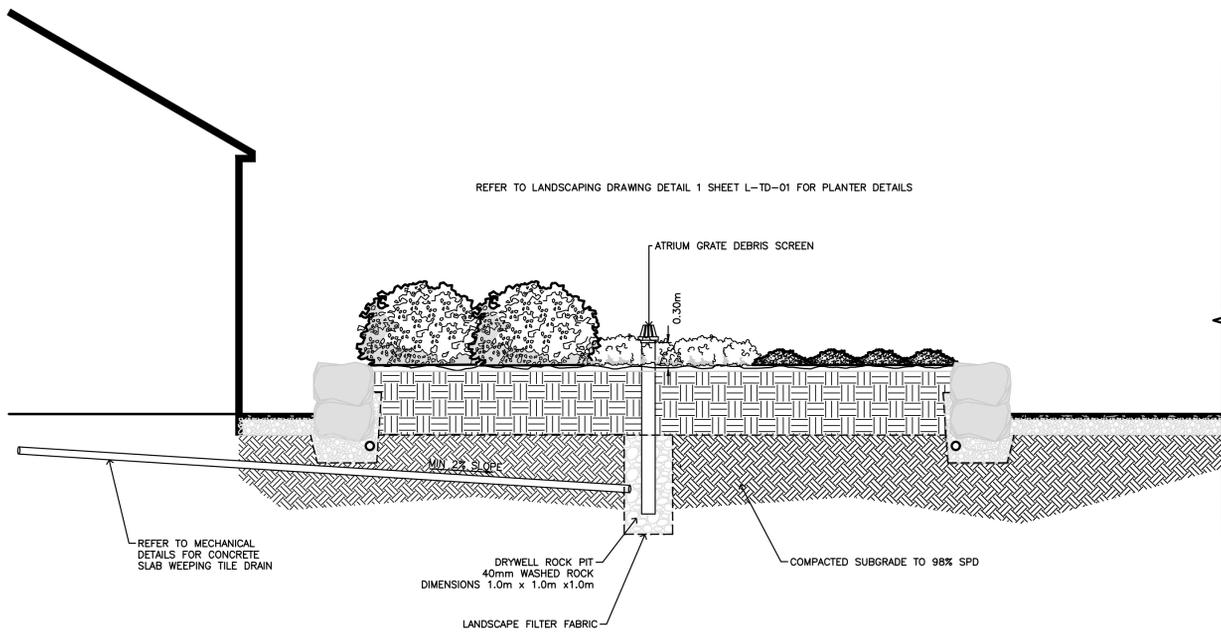
Electrical data

| Pump type | Voltage [V]   | Frequency [Hz] | P1 [kW] | I <sub>FL</sub> [hp] | I <sub>FL</sub> [A] | n [min <sup>-1</sup> ] |
|-----------|---------------|----------------|---------|----------------------|---------------------|------------------------|
| SB 3-45   | 1 x 110 - 120 | 60             | 1.07    | 1.43                 | 9.9                 | 3400                   |

Construction

| Component                  | Material                             |
|----------------------------|--------------------------------------|
| Cover                      | Polypropylene (PP30GF)               |
| Impeller                   | Polypropylene (PP20GF)               |
| Chamber                    | Polypropylene (PP20GF)               |
| Shaft with motor           | Stainless steel (EN 1.4301/AISI 416) |
| Wetted part of shaft       | Stainless steel (EN 1.4301/AISI 304) |
| Strainer <sup>1)</sup>     | Stainless steel (EN 1.4301/AISI 304) |
| Inlet collar <sup>2)</sup> | Stainless steel (EN 1.4301/AISI 304) |

4 SUBMERSIBLE WATER PUMP  
SCALE NTS



5 STANDPIPE DRAIN DETAIL  
SCALE NTS



**1** SERVICING PLAN  
SCALE 1:100



**NOTES**

**LEGEND**

- PROPOSED WATER
- PROPOSED SANITARY
- 3.00 PROPOSED SANITARY CLEAN OUT

|   |            |                                      |    |    |
|---|------------|--------------------------------------|----|----|
| 5 | 2017/05/03 | ISSUED FOR TENDER                    | TC | DP |
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|---------------------|------|-------------------------------------|--|----------------------|
| Revision / Révision |      |                                     |  |                      |
| A                   |      | Detail number<br>Sheet number       | A Numéro de détail<br>B Numéro de la feuille |                      |
|                     |      | Linear dimensions<br>in millimetres | Dimensions linéaires<br>en millimètres       |                      |

Consultant's Name  
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**WSP**

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CALGARY, ALBERTA, T2C 5P2  
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**Canada**

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**Canada**

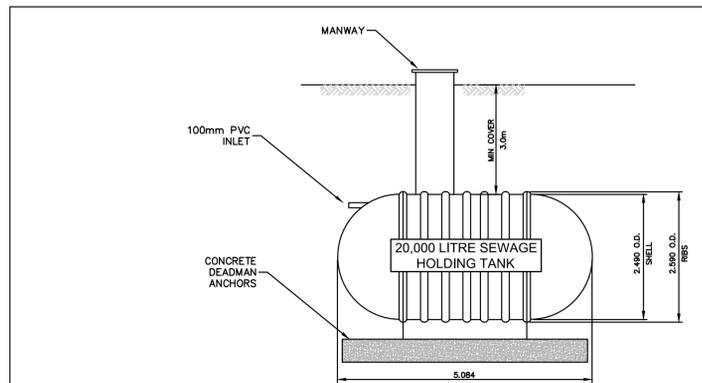
PROFESSIONAL ENGINEER IN ALBERTA  
MCM 03, 2017

PERMIT TO PRACTICE  
MMM GROUP LIMITED  
PERMIT NUMBER: P 8845  
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Project title/Titre du projet  
**ICEFIELDS PARKWAY GATE  
NIBLOCK GATE  
BANFF NATIONAL PARK, ALBERTA**

Drawing title/Titre du dessin  
**NIBLOCK  
CIVIL WORKS  
SERVICING PLAN**

|   |                          |                            |
|---|--------------------------|----------------------------|
| Surveyed by/Arpenté par                 | Drawn by/Dessiné par     | Date                       |
|   | TC                       | 2016/10/25                 |
| Designed by/Conçu par                   | Reviewed by/Révisé par   | Scale/Echelle              |
| TC                                      | TK                       | 1:100                      |
| Client Acceptance/Acceptation du client | Approved by/Approuvé par |                            |
|   |                          |                            |
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| FII 908/909                             |                          | 01 of 02                   |
| Drawing Set No./N° de série du dessin   |                          |                            |
| C-NSP-01                                |                          |                            |

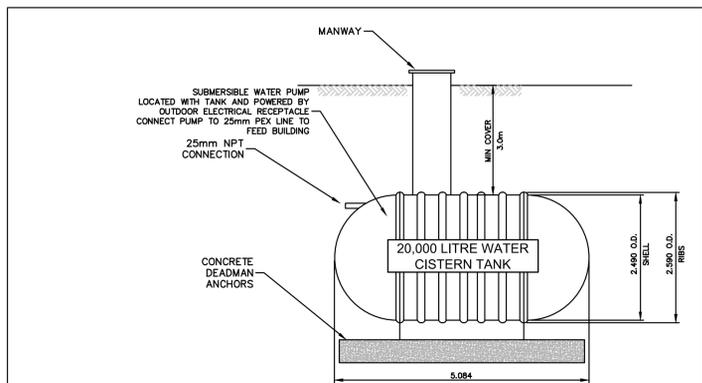


THE CONTRACTOR SHALL PROVIDE A SINGLE-WALL, FIBREGLASS REINFORCED PLASTIC (FRP) WATER STORAGE TANK AS SHOWN ON THE DRAWINGS. THE ONSITE WASTEWATER TANK SHALL BE MANUFACTURED ACCORDING TO APPLICABLE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS AND CANADIAN ASSOCIATION STANDARDS (CSA). THE TANK SIZE, FITTINGS AND ACCESSORIES SHALL BE AS SHOWN ON THE DRAWINGS.

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**CAPACITY AND DIMENSIONS**  
TANK SHALL HAVE NOMINAL CAPACITY OF 20,000 LITRES.  
TANK SHALL HAVE NOMINAL OUTSIDE DIAMETER OF 2.49 METRES

1 SEWAGE HOLDING TANK DETAIL  
C-NSP-01 SCALE NTS



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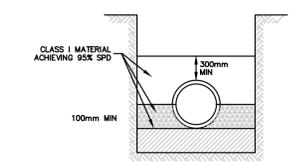
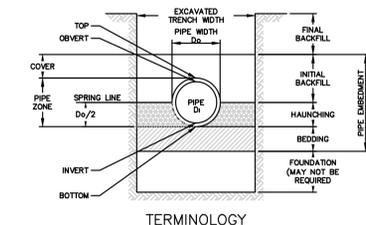
LOCATED WITH TANK AND POWERED BY OUTDOOR ELECTRICAL RECEPTACLE CONNECT PUMP TO 25mm PEX LINE TO FEED BUILDING

25mm NPT CONNECTION

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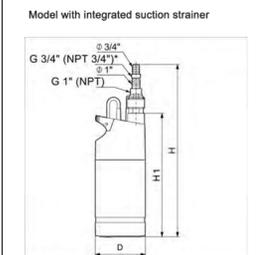
2 WATER CISTERN TANK DETAIL  
C-NSP-01 SCALE NTS



1. BEDDING UNDER THE MIDDLE THIRD OF THE PIPE SHALL BE LOOSE, UNCOMPACTED MATERIAL  
2. IF A ROCK FOUNDATION, THEN MINIMUM BEDDING THICKNESS IS  $D_o/12$  (NOT LESS THAN 150mm)  
3. IF  $D_o$  IS GREATER THAN 2400mm, THEN MINIMUM BEDDING THICKNESS IS  $D_o/24$

3 BEDDING & BACKFILL-PIPEZONE DETAILS  
C-DSP-01 SCALE NTS

**Dimensions**



| Pump type | H [mm] | H1 [mm] | D [mm] |
|-----------|--------|---------|--------|
| SB 3-45   | 560    | 22.05   | 415    |

Length of supply cable: 15 meters (49.21 feet)  
Max. installation depth: 10 meters (32.81 feet)

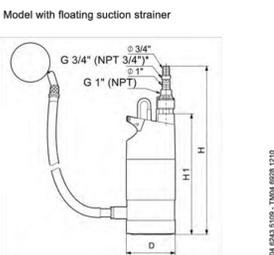
**Electrical data**

Insulation class: IP68.  
Enclosure class: B.

| Pump type | Voltage [V]   | Frequency [Hz] | P1 [kW] | $I_n$ [A] | $n$ [min <sup>-1</sup> ] |
|-----------|---------------|----------------|---------|-----------|--------------------------|
| SB 3-45   | 1 x 110 - 120 | 60             | 1.07    | 1.43      | 9.9                      |

**Construction**

| Component                  | Material                             |
|----------------------------|--------------------------------------|
| Cover                      | Polypropylene (PP30GF)               |
| Impeller                   | Polypropylene (PP30GF)               |
| Chamber                    | Polypropylene (PP30GF)               |
| Shaft with rotor           | Stainless steel (EN 1.4401/AISI 416) |
| Wetted part of shaft       | Stainless steel (EN 1.4301/AISI 304) |
| Strainer <sup>1)</sup>     | Stainless steel (EN 1.4301/AISI 304) |
| Inlet collar <sup>2)</sup> | Stainless steel (EN 1.4301/AISI 304) |



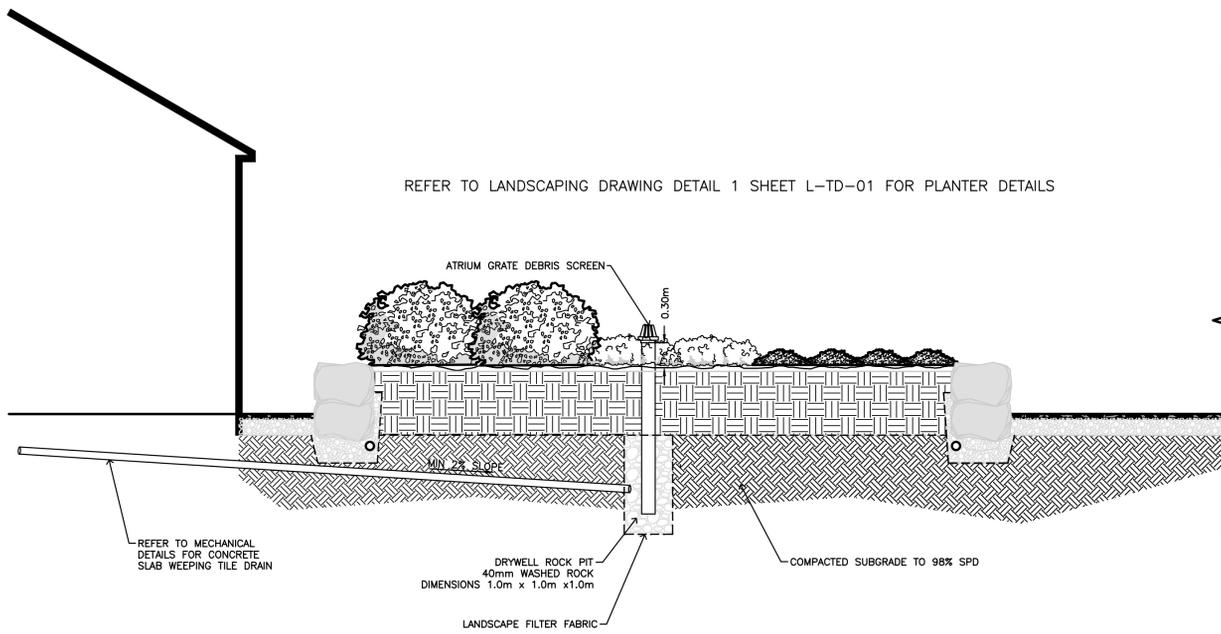
| Component      | Material                             |
|----------------|--------------------------------------|
| Cable          | Neoprene H07RN-F                     |
| O-rings        | NBR                                  |
| Pump housing   | Polypropylene (PP30GF)               |
| Base           | Polypropylene (PP30GF)               |
| Stator housing | Stainless steel (EN 1.4301/AISI 304) |

<sup>1)</sup> Only fitted on models with integrated suction strainer.  
<sup>2)</sup> Only fitted on models with floating suction strainer.

**Approvals and markings**

- The SB pump has the following approvals and markings:
- GOST (Russia)
  - UL/CSA
  - C-lick
  - CE.

4 SUBMERSIBLE WATER PUMP  
C-NSP-01 SCALE NTS



5 STANDPIPE DRAIN DETAIL  
C-NSP-01 SCALE NTS

NOTES

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Revision / Revision

| A             | B                      |
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| Detail number | A Numéro de détail     |
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Linear dimensions  
In millimetres

Dimensions linéaires  
en millimètres

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Nom de l'expert-conseil

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PROFESSIONAL ENGINEER  
INGÉNIEUR PROFESSIONNEL

PERMIT TO PRACTICE  
MMM GROUP LIMITED  
PERMIT NUMBER: P 8845  
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Project title/Titre du projet

**ICEFIELDS PARKWAY GATE  
NIBLOCK GATE  
BANFF NATIONAL PARK, ALBERTA**

Drawing title/Titre du dessin

**NIBLOCK  
CIVIL WORKS  
DETAILS 1**

| Surveyed by/Arpenté par | Drawn by/Dessiné par | Date       |
|-------------------------|----------------------|------------|
| TK                      | TC                   | 2016/10/25 |

| Designed by/Conçu par | Reviewed by/Revisé par | Scale/Echelle |
|-----------------------|------------------------|---------------|
| TK                    | TK                     | AS NOTED      |

Client Acceptance/Acceptation du client Approved by/Approuvé par

| Project No./N° du projet | Asset No./N° du bien | Sheet No./N° de la feuille |
|--------------------------|----------------------|----------------------------|
| FII 908/909              |                      | 02 of 02                   |

Drawing Set No./N° de série du dessin

C-ND-01