

ADDENDUM NO. 1

CONTRACT NO. 2023-4010

Grading, Drainage, Granular Base, Hot Mix Paving, Electrical and Structures - Fenelon Falls
Maintenance Patrol Yard (MPY 249) Southeast Quadrant of Glenarm Road and Country Lane

0 km

Eastern Region

The following will now form part of the Special Provisions of the contract and amends the applicable information contained in the original contract tendering documents.

TENDER

ITEM NO. 9 - Granular B, Type I

The quantity for this item is revised to read 1,355.

ITEM NO. 31 - Geotextile

The quantity for this item is revised to read 3,444.

ITEM NO. 81 - Temporary Office Facility

This item is added to the tender.

The quantity for this item is 100 %.

The Spec Code is 9999-0003.

ITEM NO. 82 - Geosynthetic Clay Liner

This item is added to the tender.

The quantity for this item is 2,287.

The Spec Code is 9999-0260.

The Contractor shall substitute the attached copies of the tender item list in the tender documents when submitting his bid.

SPECIAL PROVISIONS (NEW)

NMS DIVISION 9 SPECIFICATIONS

Special Provision

The following Division 9 National Master Specifications are included in this Contract.

NMS 092216.13 – NON-STRUCTURAL METAL STUD FRAMING

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 09 29 00: Gypsum board.

1.2 REFERENCES

- .1 ASTM C645-00 Standard Specification for Nonstructural Steel Framing Members.
- .2 CAN/CGSB-1.210-93, Quick Drying Alkyd Primer for Structural Steel.

Part 2 Products

2.1 MATERIALS

- .1 Non-load bearing Standard Channel Stud Framing:
 - .1 Fabricate to ASTM C645, stud size as required for wall thicknesses indicated on the Wall Schedule, roll formed from standard duty 0.53 mm (.021") (25ga) thickness electro-galvanized steel sheet; for screw attachment of gypsum board. Knock-out service holes at 460 mm (18") centres or to manufacturer's standard.
 - .2 Provide heavy gauge 0.914 mm (0.036") (20 ga) thickness studs where requirements.
 - .3 Floor and ceiling tracks: to ASTM C645 in widths to suit stud sizes, 32 mm (1 1/4") flange height.
 - .4 Provide special "C-H" shaped steel studs for shaft wall systems as indicated on the Drawings.
 - .5 Provide deflection track at all walls that extend to underside of roof deck.

2.2 ACCESSORIES

- .1 Metal channel stiffener: 40 mm (1 5/8") size, 1.4 mm (0.06") thick cold rolled steel, coated with rust inhibitive coating.

Part 3 Execution

3.1 ERECTION

- .1 Align partition tracks at floor and ceiling or underside of structure and secure at 600 mm (24") oc maximum.
- .2 Install dampproof course under stud shoe tracks of partitions on slabs on grade.
- .3 Place studs vertically at 400 mm (16") oc and not more than 50 mm (2") from abutting walls, and at each side of openings and corners.
- .4 Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .5 Erect metal studding to tolerance of 1:1000.
- .6 Attach studs to bottom and ceiling tracks using screws.
- .7 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

- .8 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .9 Provide two studs or heavy gauge single jamb studs extending from floor to ceiling at each side of opening wider than stud centres specified. Secure studs together using column clips or other approved means.
- .10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .11 Frame openings and around built-in equipment, cabinets and access panels on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .12 Provide 40 mm (1 5/8") stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .13 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .14 Extend partitions to u/s structure except where noted otherwise on drawings.
- .15 Maintain clearance under beams and structural slabs where there is potential for deflection in order to avoid transmission of structural loads to studs.

NMS 092900 – GYPSUM BOARD

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 06 10 11 – Rough Carpentry.
- .2 Section 07 21 16 – Blanket Insulation.
- .3 Section 07 92 00 – Joint Sealants.
- .4 Section 09 22 16.13 – Non-Structural Metal Stud Framing.

1.2 REFERENCES

- .1 **Canadian General Standards Board (CGSB)**
 - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .2 **Underwriters Laboratories of Canada (ULC)**
 - .1 CAN/ULC-S102-1988, Surface Burning Characteristics of Building Materials and Assemblies.
- .3 **American Society for Testing and Materials (ASTM)**
 - .1 ASTM A653/A653M-00 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

- .2 ASTM C36/C36M-99e1 Standard Specification for Gypsum Wallboard.
- .3 ASTM C79/C79M-00 Standard Specification for Gypsum Sheathing Board.
- .4 ASTM C442/C442M-99a Standard Specification for Gypsum Backing Board, Gypsum Coreboard and Gypsum Shaftliner Board.
- .5 ASTM C475-94 Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .6 ASTM C514-96 Standard Specification for Nails for the Application of Gypsum Board.
- .7 ASTM C630/630M-00 Standard Specification for Water-Resistant Gypsum Backing Board.
- .8 ASTM C645-00 Standard Specification for Nonstructural Steel Framing Members.
- .9 ASTM C840-99a Standard Specification and Finishing of Gypsum Board.
- .10 ASTM C954-00 Standard Specification for Steel Drill Screws for the Application of Gypsum Board.
- .11 ASTM C960/C960M-97 Standard Specification for Predecorated Gypsum Board.
- .12 ASTM C1002-00 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .13 ASTM C1047-99 Accessories for Gypsum Wallboard and Gypsum Veneer.
- .14 ASTM C1280-99 Standard Specification for Application of Gypsum Sheathing Board.
- .15 ASTM C1178C1178M-99 Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel.

1.3 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10°C, maximum 21°C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.

Part 2 Products

2.1 GYPSUM AND CEMENT BOARDS

- .1 Gypsum board products are listed following. Where thicknesses are indicated, these are minimums. Provide products in all thicknesses listed or indicated on the Drawings. Equivalent product substitutions will be considered for approval by Contract Administrator.
- .2 **Abuse Resistant Board:** to ASTM C36/C36M for Abuse Resistant Gypsum Wallboard, 15.9 mm (5/8") thick, 1200 mm (4 ft) wide x maximum practical length, ends square cut, edges tapered or tapered with rounded edge. Acceptable materials:
 - .1 Sheetrock® Brand AR Firecode® X Panels.
- .3 **Fire Rated Shaftwall:** to ASTM C36/C36M for Fire Resistant gypsum wallboard, High-performance panels have a non-combustible core encased in a water-resistant 100% recycled green face and back paper, Underwriters Laboratories (UL)/Underwriters Laboratories Canada (ULC) Classified for fire resistance, 25.4mm (1") thick, 610 mm (2 ft) wide x maximum practical length, ends square cut, bevelled edges. Acceptable materials:
 - .1 Sheetrock® Gypsum Liner Panels by CGC.
- .4 **Fire Rated Board:** to ASTM C36/C36M, Type X, for Fire Resistant Gypsum Wallboard, 15.9 mm (5/8") thick, 1200 mm (4 ft) wide x maximum practical length, ends square cut, edges tapered or tapered with rounded edge. To be used in fire rated rooms. Acceptable products:
 - .1 Sheetrock® Brand AR Firecode® X Panels.
 - .2 Contract Administrator approved equivalent.
- .5 **Moisture Resistant/Abuse -Resistant Gypsum Panels:** to ASTM C840, high impact resistant panels with a heavy natural finish paper on the face side and a strong liner paper on the back and reinforced folded paper edges, 15.9 mm (5/8") thick, Type 'X', 1200 mm (4 ft) wide x maximum practical length, ends square cut, edges tapered or tapered with rounded

edge. To be used in washrooms, locker rooms, electrical and mechanical rooms. Acceptable products:

- .1 Fibreock Aqua Tough Brand Panels, Abuse/Moisture - Resistant panels by CGC Canadian Gypsum Company.
 - .2 Contract Administrator approved equivalent.
- .6 **Tile Backer Board:** to ASTM C1278 for Fiber Reinforced Gypsum Panel, 15.9 mm (5/8") thick, 1200 mm (4 ft) wide x maximum practical length, ends square cut, edges tapered or tapered with rounded edge. To be used in instances behind tile. Acceptable products:
- .1 Fiberock® Brand Tile Backer Board.
 - .2 Contract Administrator approved equivalent.
- .7 **General:** Door frames are designed for use with specific gypsum board thicknesses. Where alternate thicknesses are proposed, co-ordinate appropriate revisions to frame sizes and advise the Contract Administrator.

2.2 METAL FURRING AND SUSPENSION SYSTEMS

- .1 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C645, galvanized.
- .2 Drywall furring channels: 22 x 67 mm (7/8" x 2 5/8") size, 0.46 mm (26 ga) core thickness galvanized steel channels for screw attachment of gypsum board.
- .3 Provide special resilient channel design where indicated.

2.3 FASTENINGS AND ADHESIVES

- .1 Nails, screws and staples (standard light duty applications): to ASTM C514.
- .2 Nails, screws and staples (heavy duty applications with steel drill screws): to ASTM C954.
- .3 Steel drill screws: to ASTM C1002.
- .4 Stud adhesive: as recommended by the gypsum board manufacturer and conforming to CAN/CGSB 71.25.
- .5 Laminating compound: as recommended by the gypsum board manufacturer, asbestos-free.

2.4 ACCESSORIES

- .1 Casing beads, corner beads, control joints and edge trim fill type: to ASTM C 1047, 0.46 mm (26 ga) base thickness commercial grade sheet steel with Z275 zinc finish; perforated flanges; one piece length per location.
- .2 **Joint compound:** to ASTM C475, asbestos free. Acceptable products:
 - .1 Gyproc Joint Compound by Domtar.
 - .2 Contract Administrator approved equivalent.
- .3 **Joint reinforcing tape:** Purpose made, paper material perforated, 50 mm (2") wide with chamfered edges. Acceptable products:
 - .1 Perf-A-Tape by CGC.
 - .2 Contract Administrator approved equivalent.
- .4 **Vapour Retarder:** Polyethylene to CAN/CGSB-51.34.

Part 3 Execution

3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where

specified otherwise.

- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm (6") of each corner and at maximum 600 mm (24") around perimeter of fixture.
- .4 Install work level to tolerance of 1:1200.
- .5 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers and grilles,
- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Furr openings and around built-in equipment, cabinets and access panels on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .10 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.2 RESILIENT FURRING

- .1 Erect drywall resilient furring transversely across studs and joists or between the layers of gypsum board, spaced maximum 600 mm (24") oc and not more than 150 mm (6") from ceiling/wall juncture except when wall is indicated to be carried to u/s structure in which case furring shall be carried to u/s structure also. Secure to each support with 38 mm (1.5") common nail or 25 mm (1") drywall screw.
- .2 Install 150 mm (6") continuous strip of 12.7 mm (1/2") gypsum board along base of partitions where resilient furring installed.

3.3 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- .2 Apply single and double layer gypsum board to metal furring or framing using screw fasteners for first layer, laminating adhesive or screw fasteners for second layer. Maximum spacing of screws 300 mm (12") oc.

3.4 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm (6") oc using contact adhesive for full length.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.

- .5 Construct control joints of preformed units or two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
- .6 Provide continuous polyethylene dust barrier behind and across control joints.
- .7 Locate control joints where indicated and at changes in substrate construction. Locate also at approximate 10 m (32 ft) spacing on long corridor runs at approximate 15 m (50 ft) spacing on ceilings.
- .8 Install control joints straight and true.
- .9 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .10 Install expansion joint straight and true.
- .11 Install access doors to electrical and mechanical fixtures specified in respective Sections. Rigidly secure frames to furring or framing systems.
- .12 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .13 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .14 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .15 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .16 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

NMS 093013.13 – PORCELAIN TILING

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 03 30 00 – Cast-In-Place Concrete.
- .2 Section 07 92 00 – Joint Sealers.
- .3 Section 09 29 00 – Gypsum Board.

1.2 REFERENCES

- .1 ASTM C136-96a Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .2 ASTM C207-91(1997) Standard Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM C847-95(2000) Standard Specification for Metal Lath (wire mesh).

- .4 ASTM C920-98e1, Standard Specification for Elastomeric Joint Sealants.
- .5 CSA A3000-98 Portland Cement/Masonry Cement/Blended Hydraulic Cement.
- .6 CAN/CGSB-8.1-88 Sieves, Testing, Woven Wire, Inch Series.
- .7 CAN/CGSB-8.2-M88 Sieves, Testing, Woven Wire, Metric.
- .8 CAN/CGSB-19.22-M89 Mildew Resistant Sealing Compound for Tubs and Tiles.
- .9 CAN/CGSB-51.34-M86 Vapour Barrier, Sheet, for Use in Building Construction.
- .10 CAN/CGSB-75.1-M88 Tile, Ceramic.
- .11 CGSB 71-GP-22M-78 Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .12 CGSB 71-GP-29M-79 Adhesive, Elastomeric, for Installation of Quarry Tiles.
- .13 CGSB 71-GP-30M-79 Adhesive, Epoxy and Modified Mortar Systems, for Installation of Quarry Tiles.
- .14 Terrazzo Tile and Marble Association of Canada (TTMAC) Specification Guide 09300, Tile Installation Manual 2000.

1.3 SAMPLES

- .1 Submit duplicate 300 x 300 mm (12" x12") sample panels of each type, colour, texture, size, and pattern of tile, in accordance with Section 01 33 00 – Submittals.

1.4 MAINTENANCE MATERIALS

- .1 Provide one full carton of each type and colour of tile required for project. Store in fully labeled boxes on site where directed by the Owner.
- .2 Maintenance material to be of same production run as installed material.

1.5 PROTECTION

- .1 Prohibit traffic over completed work for 24 hours.

1.6 WARRANTY

- .1 Submit manufacturer's written warranty against material defects and normal wear for a period of 25 years.

1.7 ENVIRONMENTAL CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 deg C for 48 hours before, during, and 48 hours after, installation.

Part 2 Products

2.1 GENERAL

- .1 All ceramic floor and wall tiles are to conform to CAN/CGSB-75.1.
- .2 Tiles are indicated by type on the Drawings and correspond to types specified in this Section.
- .3 Products listed in this Section are to be considered a base bid. Final selection of tiles to be made by the Contract Administrator at a later date.

- .4 Compatibility: The tile manufacturer shall ensure and report in writing to the Contract Administrator on the compatibility of all products specified under this Section.

2.2 CERAMIC TILE

- .1 102mm x 406mm (4"x16") Colour & Dimension by Olympia Tile. Colour: Dusk. Finish: Bright. Base: matching 100mm (4") high.
- .2 Consultant approved equivalent.

2.3 MORTAR AND ADHESIVE MATERIALS

- .1 Portland cement and Sand: to CSA A3000.
- .2 Hydrated lime: to ASTM C207.
- .3 Standard latex additive: synthetic liquid latex additive formulated for use in modifying portland cement mortar in thick set applications, as recommended by the tile manufacturer.
- .4 High strength latex additive: synthetic liquid latex additive formulated for use in modifying portland cement mortar used as a bond coat, as recommended by the tile manufacturer.
- .5 Water: potable and free of minerals which are detrimental to mortar and grout mixes.

2.4 BOND COATS

- .1 For wall tile: Type 1 Organic bond coat: mastic or rubber type used on interior walls (only) and floors where water resistance is required to CGSB 71-GP-22M, Type 1 and ANSI A136.1, Type1.

2.5 GROUT

- .1 For floor and wall Tile: (small joints) unsanded, narrow joint grout incorporating portland cement. Acceptable products:
 - .1 TA 610 Wall Grout by TEC.
 - .2 Ceramic-Mosaic Grout by L&M Ceramo.
 - .3 Flextile Grout by Flextile.
 - .4 550 Power Grout by TEC
 - .5 Contract administrator approved equivalent.
- .2 Latex Grout Additives: synthetic liquid latex additive used to modify portland cement grout, as recommended by the grout manufacturer.
- .3 Grout preparation: to manufacturers instructions.
- .4 Grout Colours: TEC grout colour selected from manufacturer's standard colours.
- .5 Where floor tile is to be installed on stairs and ramps, incorporate a metallic grit material in epoxy grout material to act as non-slip surface. See Drawings for locations.

2.6 ACCESSORIES

- .1 Base Cap and Corners: Extruded anodized aluminum trim designed for 9.5mm (3/8") thick tile. Acceptable products:
 - .1 Schluter-Rondec Model RO100AE by Schluter Systems Canada Inc.
 - .2 Contract administrator approved equivalent.
- .2 Sealants: See Section 07 92 00 - Joint Sealers, for types.

2.7 MORTAR AND ADHESIVE MIXES

- .1 Bond or setting coat: 1 part portland cement, 1/3 part hydrated lime, 1 part water, or organic bond coat premixed by the manufacturer.
- .2 Measure mortar ingredients by volume.
- .3 Dry set mortar: mix to manufacturer's instructions.

Part 3 Execution

3.1 GENERAL

- .1 Tile installation to be in accordance with detail numbers listed in TTMAC Specification Guide 09300, Installation Manual published by Terrazzo, Tile and Marble Association of Canada.

3.2 WORKMANSHIP

- .1 Apply wall tile or backing coats to clean and sound surfaces.
- .2 Fit wall tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even.
- .3 Maximum surface tolerance 1:800.
- .4 Make joints between tile uniform, approximately 1.5mm (1/16") wide for wall tile, plumb, straight, true, even and flush with adjacent tile. Ensure that sheet layout is not visible after installation when mosaic tile is specified. Align patterns if a pattern is specified.
- .5 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .6 Sound tiles after setting and replace hollow- sounding units to obtain full bond.
- .7 Make internal angles square; external angles to be rounded.
- .8 Use round or bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.
- .9 Install divider strips at junction of tile flooring and dissimilar materials. At doors, locate joint so that strips are hidden when door is in a closed position.
- .10 Allow minimum 24 hours after installation of tiles, before grouting.
- .11 Clean tile surfaces after installation and grouting cured.
- .12 Control Joints:
 - .1 Confirm locations of control joints with the Contract Administrator before installation.
 - .2 Provide control joints at 6m (20 ft) in each direction and where indicated.
 - .3 Make joint width same as tile joints.
 - .4 Utilize prefabricated rigid PVC control joint material specified above and install as directed by the manufacturer.
 - .5 Keep building expansion joints free of mortar and grout.

3.3 FLOOR TILE

- .1 Install using a thin set organic bond coat application with a Portland cement grout in accordance with TTMAC Detail No. 303W-97. All joints to be 1.5mm (1/16") maximum width.

NMS 095113 – ACOUSTIC PANEL CEILINGS

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 09 53 23 – Metal Acoustic Ceiling Suspension Assemblies.
- .2 Division 15 – Sprinklers and air handling.
- .3 Division 16 – Lighting and communications.

1.2 REFERENCES

- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.
- .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .3 CAN/ULC-S102-1988, Surface Burning Characteristics of Building Materials and Assemblies.
- .4 CSA B111-1974, Wire Nails, Spikes and Staples.

1.3 SAMPLES

- .1 Submit duplicate 600 x 600 mm (24" x 24") samples of each type of acoustical unit and each type of open cell wire unit in accordance with Division 1.

1.4 REGULATORY REQUIREMENTS

- .1 Fire-resistance rated floor/ceiling of/ceiling assembly: certified by a Canadian Certification Organization accredited by Standards Council of Canada.

1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Permit wet work to dry before commencement of installation.
- .2 Maintain uniform minimum temperature of 15 deg C and humidity of 20 to 40% before and during installation.
- .3 Store materials in work area 48 hours prior to installation.

1.6 MAINTENANCE MATERIALS

- .1 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for the project, to the nearest full carton.
- .2 Materials to be same production run as installed materials.

Part 2 Products

2.1 MANUFACTURERS

- .1 Acoustical panels and tiles manufactured by the following companies are recommended for use on this project. Products specified are based on Armstrong; other manufacturers listed will be considered suitable if specifications can be met:

- .1 Armstrong World Industries, Mississauga, Ontario.
- .2 Domtar Construction Materials Inc., Montreal, P.Q.
- .3 Canadian Gypsum Company Limited, Toronto, Ontario.

2.2 MATERIALS

- .1 All acoustic ceiling panels on this project shall conform to CAN/CGSB-92.1.
- .2 Panels to be suitable for installation in an exposed tee suspended grid system.
- .3 Panels are identified on the Drawings by Type, and are described below.

2.3 CEILING PANELS

- .1 PANEL TYPE ACT:
 - .1 Construction: mineral fiberboard with a factory applied vinyl latex paint finish.
 - .2 Flame spread rating: 25 or less.
 - .3 Edge type: square, suitable for use in standard 15/16" wide suspended exposed tee grid.
 - .4 Texture: medium
 - .5 Colour: white
 - .6 Size: 610 x 1220 x 16 mm (24 x 48 x 5/8").
 - .7 Acceptable products:
 - .1 Cortega, Second Look II, 2767.

2.4 ACCESSORIES

- .1 Adhesive: as recommended by acoustic unit manufacturer.
- .2 Staples, nails and screws: to CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.
- .3 Hold down clips: purpose made clips to secure tile to suspension system approved for use in fire-rated systems.

Part 3 Execution

3.1 EXAMINATION

- .1 Do not install acoustical panels and tiles until work above ceiling has been inspected by the Contract Administrator.

3.2 INSTALLATION

- .1 Install acoustical panels and tiles in ceiling suspension system as recommended by the manufacturer.
- .2 In fire rated ceiling systems and vestibule areas secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to Certification Organization's design requirements.

3.3 INTERFACE WITH OTHER WORK

- .1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

NMS 095223 – METAL ACOUSTIC CEILING SUSPENSION ASSEMBLIES

Special Provision

Part 1 General

1.1 REFERENCES

- .1 ASTM C635-00 Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
- .2 ASTM C636-96 Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- .3 ASTM C645-00 Standard Specification for Non-structural Steel Framing Members.

1.2 DESIGN CRITERIA

- .1 Maximum deflection: 1/360th of span to ASTM C635 deflection test.

1.3 REGULATORY REQUIREMENTS

- .1 Fire-resistance rated suspension system: certified by a Canadian Certification Organization accredited by Standards Council of Canada.

Part 2 Products

2.1 MATERIALS

- .1 **Intermediate Duty system** to ASTM C635.
- .2 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
- .3 Non Fire Rated Suspension System:
 - .1 For square edge and tegular edge tile, two directional exposed tee bar grid.
Acceptable products:
 - .1 Lance-Lock 900 BEH by Bailey Metal Products Ltd.
 - .2 DONN DXL Exposed Tee System by CGC Inc.
 - .3 Contract Administrator approved equivalent.
- .4 Exposed tee bar grid components:
 - .1 Shop painted satin sheen, white colour. Components die cut. 1 ½" intermediate duty tees with double web, rectangular bulb and rolled cap on exposed face.
 - .2 Provide standard 23.8 mm (15/16") exposed cap face width.
 - .3 See Section 09 51 13 - Acoustical Ceilings, for Acoustic Tile types. See the Drawings for location and extent of each type of tile.
 - .4 Provide cross tee with rectangular bulb, web extended to form positive interlock with main tee webs, lower flange extended and offset to provide flush intersection.
 - .5 Components to satisfy requirements of ULC where used in fire rated ceilings. See Drawings for locations of fire rated ceilings.
- .5 Hanger wire: galvanized soft annealed steel wire, minimum 3.6 mm (8 gauge) purpose made for access tile ceilings to ULC tested design requirements for fire rated assemblies, if indicated.
- .6 Tie wire: similar to hanger wire, 1.2 mm (0.047") (18 gauge) minimum.
- .7 Carrying channels: 38 mm (1.5") channel, galvanized steel.

- .8 Accessories: splices, clips, wire ties, retainers and flush and reveal wall mouldings to complement suspension system components, as detailed. If not detailed, as recommended by system manufacturer.

Part 3 Execution

3.1 INSTALLATION

- .1 Install suspension system to grid sizes indicated in accordance with ASTM C636 to ULC tested design requirements and to manufacturer's instructions.
- .2 Install suspension system to a 600 x 1200 mm (2 ft x 4 ft) grid except where other sized grids are indicated.
- .3 Do not erect ceiling suspension system until work above ceiling has been inspected by the Contract Administrator.
- .4 Lay out with border units not less than 50% of standard unit width in accordance with reflected ceiling plan.
- .5 Ensure suspension system is co-ordinated with location of related components.
- .6 Install wall mold to provide correct ceiling height. Finished ceiling system to be level within 1:1000.
- .7 Super-imposed loads such as diffusers, light fixtures, grilles and speakers are not to be carried on the ceiling suspension system. Obtain the weights of all such fixtures and install extra suspension hangers independent of the ceiling suspension system to support them.
- .8 Support light fixtures and diffusers independently from ceiling suspension system with additional ceiling suspension hangers within 150 mm (6") of each corner and at maximum 600 mm (24") around perimeter of fixture.
- .9 Interlock cross member to main runner to provide rigid assembly.
- .10 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.
- .11 Install free-form edging system to ceiling heights and layout indicated.

3.2 EXPANSION JOINTS

- .1 Provide if indicated on reflected ceiling plans.
- .2 Erect two main runners parallel, 25 mm (1") apart, on building expansion joint line. Lay in strip of acoustic tile/board, painted black, 25% narrower than tight fit.
- .3 Supply and install "Z" shaped metal trim pieces at each side of expansion joint. Design to accommodate plus or minus 25 mm (1") movement and maintain visual closure. Finish metal components to match adjacent exposed metal trim. Provide backing plates behind butt joints.

3.3 CLEANING

- .1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

NMS 096516 – RESILIENT SHEET FLOORING

Special Provision

Part 1 General

1.1 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM F1303-04 (2021), Standard Specification for Sheet Vinyl Floor Covering with Backing.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for resilient sheet flooring and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Samples:
 - .1 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long edge strips.
- .3 Seam Layout Diagram:
 - .1 Provide seam layout diagram for consultant approval prior to lay in.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Materials:
 - .1 Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide 9 m2 of each colour, pattern and type flooring material required for project for maintenance use.
 - .3 Extra materials one piece and from same production run as installed materials.
 - .4 Identify each roll of sheet flooring and each container of adhesive.
 - .5 Deliver to Owner, upon completion of the work of this section.
 - .6 Store where directed by Owner.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.5 SITE CONDITIONS

- .1 Install resilient products after other finishing operations, including painting, have been completed.
- .2 Maintain ambient temperatures within range recommended by Tarkett, but not less than 65 deg F (18 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products

during the following time periods:

- .1 48 hours before installation.
 - .2 During installation.
 - .3 48 hours after installation.
- .3 Maintain the ambient relative humidity between 40% and 60% during installation.
- .4 Until Substantial Completion, maintain ambient temperatures within range recommended by Tarkett, but not less than 13 deg C or more than 29 deg C.

Part 2 Products

2.1 MATERIALS

- .1 Heterogenous Vinyl Sheet Flooring
- .2 Products:
 - .1 Tarkett Acczent 27818 Washed Oak Natural
 - .2 Tarkett iQ Granit Safe.T 21153 507 Light Sand WB
- .3 Cove Filler Strip: Tarkett CFS-00-A.
- .4 Cove Cap: Tarkett, profile compatible with vinyl sheet flooring, colour as selected by Consultant from full range of industry colours.
- .5 Rubber wall base; 102 mm (4"), standard toe, Johnsonite Sandstorm.
- .6 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
 - .1 Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.
 - .2 Adhesives: As recommended by Tarkett to meet site conditions
 - .1 Tarkett 925 Resilient Flooring Adhesive
 - .2 Tarkett 975 Two-Part Urethane Adhesive
 - .3 Tarkett RollSmart Adhesive
 - .4 Cold Weld Liquid
- .7 Sub-floor filler and leveller: as recommended by flooring manufacturer for use with their product.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- .2 Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- .3 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- .1 Prepare substrates according to Tarkett written instructions to ensure proper adhesion of Resilient Flooring.
- .2 Prepare concrete substrates in accordance with ASTM F 710.
- .3 Concrete floors must be free of dust, solvent, paint, wax, oil, grease, residual adhesive,

adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitence, mold, mildew, and other foreign materials that may affect dissipation rate of moisture from the concrete, discoloration or adhesive bonding.

- .4 Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
- .5 Perform moisture testing as recommended by manufacturer. Proceed with installation only after substrates have been tested and meet the minimum requirements from the manufacturer in accordance with ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride or ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- .6 A pH test for alkalinity must be conducted on the concrete floor prior to installation with results between 7 and 9. If the test results are not within the acceptable range, then installation must not proceed until the problem has been corrected.
- .7 Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- .8 Floor covering shall not be installed over expansion joints.
- .9 Do not install resilient products until they are same temperature as the space where they are to be installed.
- .10 Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- .11 Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 APPLICATION: FLOORING

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.
- .2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 Lay flooring with seams as per reviewed seam layout diagram. Border widths minimum 1/3 width of full material.
- .4 Run sheets in direction of traffic. Double cut sheet joint and continuously seal heat weld according to manufacturer's printed instructions.
- .5 Heat weld seams of sheet flooring in accordance with manufacturer's printed instructions.
- .6 As installation progresses, roll flooring with 45 kg three-section roller to ensure full adhesion.
- .7 Cut flooring around fixed objects.
- .8 Continue flooring over areas which will be under built-in furniture.
- .9 Continue flooring through areas to receive movable type partitions without interrupting floor

pattern.

- .10 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

3.4 APPLICATION: INTEGRAL COVE BASE

- .1 Lay out base to keep number of joints at minimum.
- .2 Clean substrate and prime with one coat of adhesive.
- .3 Provide cove filler strip, fillet joint inside and outside corners.
- .4 Apply adhesive to back of base.
- .5 Set base against wall and floor surfaces tightly by using 3 kg hand roller.
- .6 Install straight and level to variation of 1:1000.
- .7 Heat weld base in accordance with manufacturer's printed instructions.
- .8 Net fit flooring material into cove cap.
- .9 Provide tamper-resistant sealant along top edge of cove cap.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Perform the following operations immediately after completing resilient product installation:
 - .1 Remove adhesive and other blemishes from exposed surfaces.
 - .2 Sweep and vacuum surfaces thoroughly.
 - .3 Damp-mop surfaces to remove marks and soil.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
 - .1 Clean flooring surfaces to flooring manufacturer's printed instructions.

3.6 PROTECTION

- .1 Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
 - .1 No traffic for 24 hours after installation.
 - .2 No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- .2 Wait 72 hours after installation before performing initial cleaning.
- .3 A regular maintenance program must be started after the initial cleaning.

NMS 096700 – EPOXY FLOOR FINISH

Special Provision

Part 1 General

1.1 ENVIRONMENTAL CONDITIONS

- .1 Ensure that minimum ambient and surface temperatures are 16C (60F) at time of application and maintained for curing period.
- .2 Ensure that work areas are properly ventilated.
- .3 Observe health and safety regulations including use of approved respirators, safety goggles and impervious gloves as required.

1.2 STORAGE

- .1 Store materials in original containers at minimum 16C (60F) in clean, dry area. Avoid excessive heat and do not freeze.

1.3 QUALITY ASSURANCE

- .1 Use only skilled personnel with proven quality experience to expediently complete the work under this Section in an efficient and workmanlike manner.
- .2 Report to the Contract Administrator in writing, defective surfaces prepared by other trades which affect the work of this Section. Commencement of work shall imply acceptance of surfaces.
- .3 Ensure that sufficient material, labour and finishers are available to maintain continuous placement of epoxy finishes over entire area once application commences.
- .4 Apply epoxy finishes only on clean, sound, properly prepared substrates.

1.4 SAMPLES

- .1 Submit material samples of manufacturer's complete range of standard colours for floor finishes and sealants, as requested by Contract Administrator.

1.5 PROTECTION

- .1 Post legible signs at all points of entry to areas in which work of this Section is being applied, to warn against smoking and the use of open flame, such as torches, matches and lighters.
- .2 Erect suitable barriers to prevent traffic and other trades from working in areas during application of coatings.

Part 2 Products

2.1 ACCEPTABLE SYSTEMS

- .1 Epoxy systems specified are based on products of STONHARD Inc.
- .2 Comparable epoxy systems of following manufacturers conforming to the requirements of this Section are acceptable:
 - .1 Armorproxy Commercial FB—801.
 - .2 Contract Administrator-approved equal.

2.2 SYSTEMS

- .1 Stoneshield ESD:
 - .1 Standard Primer: two-component, penetrating, epoxy primer.
 - .2 Stoneshield Conductive Undercoat: two component, conductive epoxy formulation consisting of resin and curing agent.
 - .3 Stoneshield ESD Aggregate: brightly coloured, quartz broadcast aggregate combined with conductive element.
 - .4 Stoneshield Conductive Sealer: three-component, high performance, conductive, UV resistant, clear epoxy sealer.
 - .5 Thickness: nominal thickness of 3/16 in./5 mm.
 - .6 Colour: Selected from manufacturer's standard colour range.

2.3 ACCESSORIES

- .1 Cap strip, flooring manufacturer's standard, 100 mm (4") high as indicated.
- .2 Plastic filler; for sealing joints between top of wall base or integral cove cap and irregular wall surfaces: Low VOC, plastic filler applied according to flooring manufacturer's recommendations.
- .3 Fillet support strip; cove base: minimum radius of 25 mm (1") of metal or plastic, flooring manufacturer's standard.
- .4 Rubber wall base; 102 mm (4"), standard toe, refer to Colour Schedule for colour.

2.4 SEALANTS

- .1 Control Joint Sealant, to suit application, as recommended by epoxy system manufacturer, at control joints and junction with other surfaces and finishes.
- .2 Colour: to match samples approved by Contract Administrator.

Part 3 Execution

3.1 SURFACE PREPARATION

- .1 Allow concrete substrates to cure at least 28 days prior to commencing work.
- .2 Prepare concrete surfaces in strict accordance with recommendations of the epoxy coating manufacturer.
- .3 Prepare concrete floors by utilizing a self-contained dust controlled machine, such as Blast-Trac, to produce a dry, clean, rough surface profile prior to epoxy application, to CSP 4-6 or other method approved by manufacturer.
- .4 For concrete stair treads, landings, and other concrete surfaces inaccessible to shot-blasting preparation, use abrasive grinding methods recommended by epoxy system manufacturer to provide required surface profile prior to epoxy application.
- .5 Site Fabricated Epoxy Cove Wall Base Installation
 - .1 For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
 - .2 Provide top edge resilient cove caps for integral flash cove applied according to the manufacturer's recommendations. Install straight and level to variation of 1:1000. Scribe and fit to door frames and other obstructions. Joints shall be tightly fitted, straight and vertical, and not less than 610 mm (24") from corners. Provide joints in base over substrate control joints.
 - .3 Provide a fillet support strip for integral cove base.

3.2 APPLICATION

- .1 Use application methods and procedures in strict accordance with the product manufacturer's directions.
- .2 Apply coatings to produce smooth surface, uniform in sheen, colour and finish, free from marks, dirt, particles, runs, holes, airpockets and other defects.

3.3 SEALANTS

- .1 Apply sealants only on clean, sound, properly prepared substrates.
- .2 Prime substrates, mix and apply sealants in accordance with manufacturer's directions.

NMS 099100 – PAINTING

Special Provision

Part 1 General

1.1 REFERENCES

- .1 Canadian Painting Contractors' Architectural Painting Specifications Manual, latest revision, available from the Ontario Painting Contractors Association (OPCA) and referenced herein as the OPCA Manual.
- .2 National Standard of Canada CAN/CGSB-85.100-93, Painting.
- .3 National Standard of Canada CAN/CGSB-85.10-99, Protective Coating for metals.

1.2 WORK INCLUDED

- .1 General:
 - .1 Furnish all materials and equipment and provide all labour required to complete the interior painting section of the Contract including all priming, retouching work, cleaning and completion.
 - .2 Notify appropriate trades when fixtures, doors or hardware are required to be removed and later replaced by that trade in order to enable the proper execution and completion of the work of this Section.
 - .3 In areas indicated as unfinished on the Drawings, painting or decorating is not required with the exception of all wood, and corrosive metal surfaces, (including mechanical and electrical equipment, piping, conduits, and fittings, as well as all pipe insulation overs).
 - .4 On areas where painting or finishing is indicated in the Drawings, all surfaces and objects within the room or area to be painted or finished, except where expressly indicated or specified otherwise.
 - .5 Include painting of steel treads and all steel plates.
- .2 Priming work:
 - .1 In general, the priming of metal is specified as a shop coat. All wood or metal to be painted, varnished, stained, or enameled and not specified to have a shop coat shall be primed at the site, in accordance with the recommendations of the Coating Manufacturer and to the approval of the Contract Administrator.
 - .2 Screwheads, holes and other defects in metalwork shall be neatly filled with mineral filler. Nail holes, cracks and other defects in work, other than metalwork, shall be neatly puttied to match finish intended. All such work shall be carried out after the priming coat is dry and before the second coat is applied.

- .3 Mechanical and Electrical Equipment:
 - .1 All mechanical and electrical equipment to be finish painted by the manufacturer in plant.
- .4 Retouching work:
 - .1 Make a close inspection of all surfaces decorated prior to completing this work.
 - .2 Ensure that all surfaces decorated are properly and perfectly retouched where damaged.
 - .3 The job shall be turned over to the Owner in perfect condition, free of all spattering, fingermarks, rust, water marks, scratches, and blemishes.
- .5 Cleaning and completion:
 - .1 Sweep rooms to be worked in broom clean, and maintain the areas being worked in in this condition while work of this trade is being done.
 - .2 All oily rags and other waste must be removed from the building every night, under no circumstances will they be allowed to accumulate.
 - .3 Upon completion, all spots, stains and other disfigurement resulting from this work shall be removed and the premises left clean, and free from all dirt and debris.

1.3 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to requirements of OPCA Manual.

1.4 QUALITY ASSURANCE

- .1 Retain purchase orders, invoices and other documents to prove that all materials utilized in this contract meet requirements of the specifications. Produce documents when requested by Engineer.
- .2 Standard of Acceptance:
 - .1 Walls. No defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings. No defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

Part 2 Products

2.1 MATERIALS

- .1 Acceptable products: Per Chapter 5 of OPCA Manual and as listed.
- .2 Provide highest grade, first line quality of the manufacturer.
- .3 Paint and coating materials for each system to be products of a single manufacturer.

2.2 COLOURS

- .1 The Contract Administrator will provide Colour Schedule after contract award. Selection of colours will be from manufacturers full range of colours.

Part 3 Execution

3.1 PREPARATION

- .1 Prepare surfaces to receive paint and coatings per Chapter 3 of OPCA Manual.

3.2 APPLICATION

- .1 Sand and dust between each coat to remove defects visible from distance up to 1.5m (5ft).
- .2 Finish closets and alcoves the same as adjoining surfaces of rooms.

3.3 MECHANICAL AND ELECTRICAL EQUIPMENT

- .1 Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas as well as inside cupboards and cabinet work. Colour and texture to match adjacent surfaces, except as noted otherwise. Coordinate with mechanical trades applying banding and labeling after pipes have been painted.
- .2 Paint gas piping gas standard yellow where visible in service spaces and on roof/walls exterior.
- .3 Paint surface inside of duct work and elsewhere behind grilles where visible using primer and one coat of matte black paint.
- .4 Paint both sides and edges of plywood backboards for equipment before installation.
- .5 Leave factory finished equipment in original finish except for touch-up as required, as paint conduits, mounting accessories and other unfinished items.

3.4 FIELD INSPECTION

- .1 Examine surfaces scheduled to receive finishes specified under this Section for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work and report any discrepancies or unacceptable surfaces to the Contract Administrator. If any such defective work is painted over, such areas shall be removed and repaired at no extra expense to the Owner.
- .2 Do not proceed with paint or coating application until conditions are suitable.
- .3 Material shall not be applied on surfaces where moisture content is in excess of 12 per cent as measured on a moisture meter.
- .4 All work where a coat of material has been applied must be inspected and approved by the Contract Administrator before application of the succeeding coat, otherwise no credit for the coat applied will be given, and the Contractor automatically shall assume the responsibility to recoat the work in question.
- .5 Arrange to have the painting operations of the Contract inspected by a representative of the Paint Manufacturer.

3.5 PAINTING AND COATING SYSTEMS

- .1 System references listed are based on Chapters 4A (Exterior) and 4B (Interior) of OPCA Manual and are Premium Grade, unless noted otherwise.

3.6 EXTERIOR PAINTING

- .1 Steel pipe railings, vehicle bumper posts, miscellaneous support brackets for electrical signal lights and sign supports:
 - Prime: by fabricator
 - Touch-up: spot prime Alkyd Rust Paint Moore Primer 163.
 - Finish: two coats Moorestyle 589 Alkyd gloss enamel.

- .2 Roof hatch, interior and exterior surfaces of cover and curb:
Prime: by fabricator
Touch-up: spot prime Alkyd Rust Paint Moore Primer 163.
Finish: two coats Moorestyle 589 Alkyd gloss enamel.
- .3 Hollow metal doors and frames:
Prime: one coat Alkyd Rust Paint Moore Primer 163.
Finish: two coats Moorestyle 589 Alkyd gloss enamel.
- .4 Insulated ductwork and piping:
Prime and finish: two coats Moorestyle 564, acrylic flat latex.
- .5 Gas piping:
Prime: one coat Alkyd Rust Paint Moore Primer 163.
Finish: two coats Moorestyle 589 Alkyd gloss enamel.

3.7 INTERIOR PAINTING

- .1 Galvanized steel roof deck surfaces (when exposed to view):
Prime: one coat Moore 023, galvanized metal primer, sealer
Finish: one coat Moorespec 591, acrylic latex flat.
- .2 All exposed structural steel framing, including beams, columns, anchors etc. (when exposed to view);
Prime: by fabricator
Touch-ups: Moorespec 163, alkyd flat primer.
Finish: two coats Moore 599, alkyd semi-gloss.
- .3 Insulated ductwork and piping: Prime and finish: two coats Moorestyle 564, acrylic latex flat.
- .4 Galvanized ductwork (where exposed in areas with no ceiling):
Prime: one coat Moorespec 563 primer
Finish: one coat Moorespec 556 top coat.
- .5 Block masonry:
Prime: Moorespec 595, latex block filler to fill voids
Finish: two coats Moorespec 556 Alkyd interior eggshell.
- .6 Hollow metal doors and frames:
Prime: one coat primer 163.
Finish: two coats Moorespec 599 alkyd semi-gloss.
- .7 Drywall partitions:
Prime: one coat Moorespec 586 acrylic primer sealer.
Finish: two coats Moorespec 556 alkyd eggshell.
- .8 Drywall ceilings:
Prime: one coat Moorespec 586, acrylic primer sealer
Finish: two coats Moorespec 591 acrylic latex flat.
- .9 Wood, where natural finish indicated:
Stain: one coat Wood Stain
Filler: one coat Filler Sealer
Sealer: two coats Clear
Finish, Urethane Satin.

- .10 Metal fabrications including:
 - .1 Exposed metal lintels and equipment supports, miscellaneous metal, bench supports.
 - .2 Steel ladders.
 - .3 Steel pipe railings.
 - Prime: by fabricator
 - Touch-up: Moorespec 163 primer
 - Finish: two coats Moorestyle 579, Alkyd Gloss enamel.

TEMPORARY OFFICE FACILITY - Item No. 81

Special Provision

1.0 SCOPE

Under this tender item, the Contractor shall supply, furnish, maintain, secure, and remove a field office, for the sole use of the Owner's Contract Administrator (CA) and staff, from initial site mobilization to 30 calendar days beyond the completion of all Work.

The field office shall be fully operational by April 1, 2025. If the office is not fully operational by this date, no Work will be permitted on site unless previously agreed to by the Contract Administrator.

2.0 LOCATION

Prior to commencement of work on this tender item, the Contractor shall receive approval from the Contract Administrator for the location of the field office which shall be located within the Working Area. There must be adequate parking for CA staff vehicles in close proximity to the field office.

If the Contractor chooses to provide a mobile site office, they shall ensure that the office is installed level (including all required blocking) with adequate stairs to provide access. The Contractor shall provide a compacted granular surface 10.0m x 6.0m x 0.3m (minimum) adjacent to the field office that is suitable for parking which connects to the site access.

3.0 FIELD OFFICE REQUIREMENTS

The field office shall have a minimum floor area of 25 m² with a minimum inside clearance of 2.0 m and have a minimum width of 2.5 m. The field office shall be detached from any other site office(s) and be in compliance with Ministry of Labour requirements.

All exterior doors shall be solid core including passage sets and a 25 mm dead bolt capable of being locked, with 4 keys to be supplied to the Contract Administrator. The field office shall have a minimum of 2 windows, each a minimum of 0.5 m² in size, with insect screens and horizontal sliders capable of opening, and shall be secure.

The inside of the field office shall be moisture tight and shall have adequate heating/cooling and ventilation equipment capable of maintaining the interior temperature at 21°C year-round. The field office shall be equipped with overhead lighting capable of providing a well-lit work area satisfactory to the Contract Administrator (typical lighting of an office setting).

4.0 FIELD OFFICE EQUIPMENT

The Contractor shall furnish the site office with the following minimum equipment:

- (3) desks (1.5 – 2.0m²)
- (4) chairs
- (2) standard size folding tables
- (1) Fire extinguisher mounted at each entrance
- (1) Laser "wireless" printer capable of scanning, printing, and copying. (colour)

- (1) high speed internet connection with wireless capabilities
- (1) hot/cold potable water
- (1) all current health and safety bulletin requirements and a First Aid kit including portable eye wash kit.

5.0 UTILITIES AND SANITARY FACILITIES

The Contractor shall provide and maintain within the field office adequate electrical power facilities for the sole use of the Contract Administrator. If unable to secure a connection with local electrical power distributor, the Contractor shall provide and maintain (including fuel) a generator large enough to provide continuous power to all field office equipment. It is expected that the field office will be operational while the Contractor has staff working on-site and/or during normal business hours.

It is the responsibility of the Contractor to provide and maintain adequate sanitary facilities for the exclusive use of the Owner's Contract Administration staff. The sanitary facility shall be fully accessible and located in close proximity of the field office and shall comply with the Occupational Health and Safety Act. A disposal bin for garbage removal shall be provided on-site and maintained by the Contractor.

The Contractor shall service, maintain and carry insurance on the field office and contents and provide evidence of insurance to the Owner before work commences.

6.0 REMOVAL OF FIELD OFFICE

The Contractor shall remove the field office and associated facilities, clean-up and reinstate the area(s) affected by the work included within this tender item as instructed by the Contract Administrator.

7.0 MEASUREMENT FOR PAYMENT – NOT USED

8.0 BASIS OF PAYMENT

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, Materials, maintenance, service connections (including monthly utility fees), and supplies required to do the work.

Payment shall be according to the following schedule:

25% Supply and Installation Year 1
5% Removal Year 1
25% Supply and Installation Year 2
5% Removal Year 2
40% Pro-rated over the length of the project

GEOSYNTHETIC CLAY LINER - Item No. 82

Special Provision

1.0 SCOPE

This specification describes the requirements for the manufacturing, supply and installation of a reinforced Geosynthetic Clay Liner (GCL) in conjunction with the required excavation and fill placement as detailed in the Contract Documents.

2.0 REFERENCES

American Society for Testing and Materials (ASTM)

ASTM D4632, Standard Test Method for Grab breaking Load and Elongation of Geotextiles

ASTM D4643, Determination of Moisture Content of Soil by the Microwave Oven Method
ASTM D5261, Test Method for Measuring Mass per Unit Area of Geotextiles
ASTM D5887, Measurement of Index Flux through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter
ASTM D5890, Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners
ASTM D5891, Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners
ASTM D5993, Standard Test Method for Measuring Bentonite Mass per Unit Area of Geosynthetic Clay Liners
ASTM D6496, Standard Test Method for Determining Average Bonding Peel Strength Between Top and Bottom Layers of Needle-Punched Geosynthetic Clay Liners
ASTM D6768, Standard Test Method for Tensile Strength of Geosynthetic Clay Liners

3.0 DEFINITIONS – N/A

4.0 DESIGN AND SUBMISSION REQUIREMENTS

4.01 Submission Requirements

4.01.01 Working Drawings

At least three (3) weeks prior to the use of the geosynthetic clay liner, the Contractor shall submit to the Contract Administrator six (6) copies of the Working Drawings and a method statement signed and sealed by the design Engineer and design-check Engineer.

4.01.02 Quality Test Certificates

Prior to installation of the geosynthetic clay liner, the Contractor shall submit quality test certification for each production lot supplied from a laboratory accredited by the Standards Council of Canada. The quality test certificates shall demonstrate compliance with all requirements of this special provision (see Tables 1 and 2)

4.01.03 Delivery, Storage, Handling, and Protection Procedure

At least 3 weeks before the commencement of work, the Contractor shall submit to the Contract Administrator the method of delivery, storage, handling and protection from damage by weather, traffic, construction staging and other causes as per the geosynthetic clay liner manufacturer's requirement.

A Manufacturer's Certificate of Conformance and a separate report shall be submitted to the Contract Administrator at least three (3) weeks prior to the delivery of each geosynthetic clay liner.

This report shall include the following information:

- Name of the manufacturer
- Product name
- Roll numbers and identification
- Mill test data
- Sampling procedures and frequency
- Results of quality control tests including description of test methods

Upon request, documentation describing the manufacturer's Quality Control program shall be made available to the Contract Administrator.

The delivery of each geosynthetic clay liner, shall not proceed until a Notice to Proceed has been received from the Contract Administrator.

4.02 As-Built Drawings

As-built drawings shall be submitted to the Contract Administrator in a reproducible format prior to Contract Completion.

The as-built drawings shall be dated and bear the seal and signature of the design check Engineer and

design Engineer.

5.0 MATERIALS

The geosynthetic clay liner shall not be used unless it meets the requirements of Table 1.

TABLE 1 MINIMUM REQUIRED PROPERTIES		
Property	ASTM Test Method	Specified Value
<u>Geotextiles</u>		
Upper Non-Woven Cover:		
Mass/Unit Area	D5261	200 g/m ² MARV
Lower Woven Carrier:		
Mass/Unit Area	D5261	105 g/m ² MARV
<u>Bentonite</u>		
Swell Index	D5890	Minimum 20 ml/2 g
Moisture Content	D4643	Maximum 12 %
Fluid Loss	D5891	Maximum 20 ml
Material (sodium bentonite)	XRD	90% montmorillonite
<u>GCL Product</u>		
Bentonite Mass/Unit Area	D5993	Minimum 3,600 g/m ²
Tensile Strength	D6768	Minimum 5kN/m MARV
Peel Strength	D4632 * or D6496	Minimum 93N Minimum 610 N/m
Index Flux	D5887	Maximum 1x10 ⁻⁸ m ³ /m ² /s
Permeability	D5887	Maximum 5x10 ⁻⁹ cm/s

*Modified ASTM D4632 to use a 100 mm wide grip.

TABLE 2 REQUIRED PRE-SHIPING TESTING OF GCL		
Property	ASTM Test Method	Specified Frequency
Geotextile Mass/Unit Area	D5261	1 per 4,000 m ²
Swell Index; Fluid Loss	D5890, D5891	1 per shipment or per 50,000 kg max.
Moisture Content	D4643	1 per 4,000 m ²
Bentonite Mass/Unit Area	D5993	1 per 4,000 m ²
GCL Tensile	D6768	1 per 10,000 m ²
GCL Peel Tensile	D4632 or D6496	1 per 10,000 m ²
GCL Index Flux	D5887	1 per 10,000 m ²
Permeability	D5887	1 per 10,000 m ²

The geotextile components shall be non-woven, needle punched and woven polypropylene or polyester material with Typical and Minimum Average Roll Values (MARV) meeting or exceeding the criteria specified Table 1.

The bentonite shall consist of montmorillonite (sodium bentonite).

The geosynthetic clay liner product shall retain their structure during handling, placement and long-term service.

The geosynthetic clay liner shall be resistant to acid and alkali action, micro-organisms and insects and ultraviolet degradation.

The geosynthetic clay liner shall be supplied in rolls of minimum 4.5 metre continuous width.

The minimum roll length shall be equal to the Manufacturer's standard minimum length.

During shipping and on-site storage, the geosynthetic clay liner shall be protected at all times against exposure from sun; moisture, contamination by mud, dust, dirt; puncture; tearing and any other damaging or deleterious conditions.

Each geosynthetic clay liner roll shall have waterproof labels in two separate locations, which contains the following information:

- Manufacturer's name,
- Production Identification,
- Lot Number,
- Roll Number,
- Roll Weight, and
- Roll Dimensions.

6.0 EQUIPMENT - Not Used

7.0 CONSTRUCTION

7.01 General

The geosynthetic clay liner shall be installed and covered as specified in the Contract Documents.

7.01.01 Placement of the Geosynthetic Clay Liner

The placement of the geosynthetic clay liner shall be undertaken under the supervision of the Contractor's Engineer.

The manufacturer's representative shall be on site to oversee installation of the geosynthetic clay liner at the commencement of the installation.

7.02 Delivery, Storage and Handling

The product shall be suitably marked to identify its type, number and the manufacturer's name or trademark.

The Contractor shall handle the geosynthetic clay liner in such a manner as to avoid damage.

The Contractor shall protect the geosynthetic clay liner from exposure to sunlight to avoid ultraviolet degradation as per manufacturer's recommendation.

Protection of materials and works from damage by weather, traffic, construction staging, fire or vandalism and other causes shall be the responsibility of the Contractor.

7.03 Foundation Excavation/Dewatering

Foundation excavation shall be carried out to the design elevations shown on the drawings. Any softened, loosened or deleterious materials at the foundation footing elevation shall be sub-excavated and replaced with Granular A or Granular B material meeting the requirements of OPSS 1010.

The Contractor shall maintain the subgrade surface in suitable condition in accordance with OPSS 206 throughout the installation period.

A dewatering and/or temporary flow passage system shall be designed to control water and the flow of water into the excavation, prevent disturbance of the foundation, permit the replacement of any sub-excavated soils, placement of bedding and the GCL in the dry, and complete the excavating and backfilling for cover / ballast placement. Working Drawings for the dewatering system to be prepared by a specialist dewatering company shall be according to OPSS 517 and SP517F01. The dewatering system shall be constructed and operated according to the Working Drawings. Unwatering shall be carried out as necessary.

Activation and deactivation of the dewatering and temporary flow passage system, if applicable, shall be according to OPSS 517.

The dewatering system shall be continuously operational to control buoyancy forces and avoid "uplift" of the liner until such forces can be resisted by soil cover / ballast self-weight, to keep excavations stable and dry, to avoid erosion impacts from the release of accumulated water, and to keep the work area in the condition required to complete the associated work as specified in the Contract Documents. The groundwater level should be drawn down to 1 m below the base of the excavation over the entire pond footprint (i.e., 1 m below the bottom of the pond liner). The dewatering system shall remain continuously operational until such time as the perimeter ditch and sub-drain surrounding the stormwater management pond are installed as per the Contract Documents and are fully operational such that surrounding groundwater levels have stabilized.

When a temporary flow passage system is to remain operational through a seasonal shutdown period, the Contractor shall be responsible for any maintenance or repair costs due to the system during the seasonal shutdown period.

Temporary erosion and sediment control measures, including controlling the discharge of water, shall be according to OPSS 805. Measures not specified in OPSS 805 shall be according to the Working Drawings. Temporary erosion and sediment control measures and cover material to protect exposed soils, as required by the Working Drawings, shall be installed as soon as is practical.

7.04 Installation of Geosynthetic Clay Liner Blocks

The Contractor shall:

1. Install the geosynthetic clay liner as indicated by the manufacturer and as detailed on the Contract Documents.
2. Place panels from the lowest elevation towards the highest elevation.
3. Overlap all geosynthetic clay liner panels. Along the width of the mat, the overlap of side joints shall be a minimum of 300 mm, or as specified by the manufacturer. The edges of the geosynthetic clay liner panels should be adjusted to smooth out any wrinkles or creases, in order to maximize contact with the underlying panel.
4. Remove any soil or other deleterious material present in the overlap zone.
5. Place or pour a fillet of bentonite or other sealing material recommended by the manufacturer and acceptable to the Contract Administrator, in a continuous manner along the overlap zone at a rate of at least 1800 grams per lineal metre (0.25 pounds per lineal foot) to seal the overlaps. The bentonite used in the overlap areas shall meet the specifications for the bentonite used in manufacture of the geosynthetic clay liner as specified.
6. Cut the geosynthetic clay liner using a utility blade in a manner recommended by the manufacturer and exercise due care to prevent damage to any underlying or adjacent liner system components during cutting.
7. Replace or properly repair any geosynthetic clay liner damaged by stones or other foreign objects, or installation activities.
8. Repair any holes or tears in the geosynthetic clay liner by placing a geosynthetic clay liner patch over the hole, overlapping the edges of the hole or tear by at least 600 mm in all directions. Bentonite shall be applied between the geosynthetic clay liner and the patch in the overlap area, as per the manufacturer's specifications. Patches shall NOT be nailed or stapled.
9. Remove any soil or other material which may have penetrated the torn geosynthetic clay liner.
10. Place only the amount of geosynthetic clay liner which can be covered with earth material within the same day.
11. Install the geosynthetic clay liner in a way that reduces the potential for hydration of the mat prior to completion of construction of the overlying cover soil.
12. Remove the geosynthetic clay liner and replace with new material if it becomes hydrated before the overlying earth material is placed.
13. In the presence of wind, sufficiently weight all geosynthetic clay liner with sandbags or the equivalent. Install such sandbags during placement and maintain in place until replaced with cover material.
14. Provide temporary ballast as necessary to prevent movement of the geosynthetic clay liner both in storage and as placed due to windy conditions.
15. Geosynthetic clay liner shall not be installed in standing water, snow or ice.
16. Geosynthetic clay liner shall not be installed during precipitation, high winds or other conditions that may cause rapid hydration of or damage to the geosynthetic clay liner.
17. Cover material shall be installed in such a manner that equipment does not drive directly on the liner material.

7.05 Permanent Cover Materials

A Request to Proceed shall be submitted to the Contract Administrator prior to the placement of any permanent cover materials.

No permanent cover materials shall proceed until a Notice to Proceed has been received from the Contract Administrator.

8.0 QUALITY ASSURANCE

The Contract Administrator reserves the right to conduct random inspections of the work to assess the acceptability of the work in accordance with the requirements outlined in this specification.

9.0 MEASUREMENT FOR PAYMENT

Measurement is by Plan Quantity, as may be revised by Adjusted Plan Quantity, in square metres following the contours of the subgrade.

10.0 BASIS OF PAYMENT

Payment at the contract price for the above tender item shall be full compensation for all labour, equipment and material to do the work.

CONTRACT DRAWINGS

The following drawing sheet(s) are cancelled and replaced as indicated:

Cancelled	Replaced By
21	21A
22	22A
29	29A

The following drawing sheet(s) are added:

N/A

QUANTITY SHEETS

The following quantity sheet(s) are cancelled and replaced as indicated:

Cancelled	Replaced By
5	5-1
14	14-1
26 to 33	26-1 to 26-8

The following quantity sheet(s) are added:

39 and 40

for
Leonard Niyonkuru
Team Lead
Contract Tendering
Section 5 December 2024

TENDER ITEM LIST

Site Work

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
1	0201-0015	Clearing	m2 (P)	1,035		
2	0201-0075	Grubbing	m2 (P)	1,035		
3	0206-0010	Earth Excavation, Grading	m3 (P)	11,075		
4	0305-0015	Granular Sealing (m2)	m2 (P)	625		
5	0308-0010	Tack Coat	m2 (P)	9,623		
6	0313-1373	Superpave 12.5	t	1,291		
7	0313-1376	Superpave 19.0	t	1,291		
8	0314-0071	Granular A	t	32,237		
9	0314-0130	Granular B, Type I	t	1,355		
10	0314-0190	Granular B, Type II	t	7,085		
11	0314-0390	Granular B, Type III	t	14,260		
12	0351-0010	Concrete Sidewalk	m2 (P)	287		
13	0351-0012	Tactile Walking Surface Indicators for Concrete Sidewalk Ramps	each set (P)	1		
14	0353-0011 SP	Concrete Curb and Gutter	m (P)	93		
15	0355-0010	Interlocking Concrete Pavers	m2 (P)	137		
16	0399-3415	Clear Stone	t	90		
17	0405-0010	Pipe Subdrains	m (P)	335		
18	0405-0015	Closed-Circuit Television (CCTV) Inspection	m	59		
19	0407-0020 SP	600 mm x 1200 mm Maintenance Holes, Catch Basins, and Ditch Inlets	each (P)	1		
20	0407-0040	1200 mm Maintenance Holes, Catch Basins, and Ditch Inlets	each (P)	2		
21	0410-0200	200 mm Pipe Sewer	m (P)	43		
22	0410-0300	300 mm Pipe Sewer	m (P)	16		
23	0410-4500	Concrete Appurtenances (for Pipe Sewers)	m3 (P)	4.3		
24	0421-0505	500 mm Pipe Culvert	m (P)	25		
25	0421-0605	600 mm Pipe Culvert	m (P)	41		
26	0441-0050	Service Connection Pipe	m (P)	35		
27	0510-3137	Removal of Asphalt Pavement, Partial-Depth	m2 (P)	15		
28	0510-4210	Removal of Pipes and Culverts	m (P)	11		
29	0510-5401	Removal of Fence	m (P)	297		
30	0511-0145	Rip-Rap	m2 (P)	511		
31	0511-0150	Geotextile	m2 (P)	3,444		
32	0703-0020	Small Signs, Ground Mounted, New	each (P)	8		
33	0704-0025	Post Mounted Delineators	each (P)	10		
34	0706-0015	Temporary Traffic Control Signs	lump sum	100 %		
35	0706-0045	Road Closing/Restriction Notice Signs (TC-64)	each (P)	3		
36	0709-0010 SP	Intermediate Signs, Ground Mounted, New	each (P)	1		
37	0710-0230 SP	Final Pavement Marking, Group 1	m (P)	961		
38	0710-0232 SP	Final Pavement Marking, Group 3	m (P)	126		
39	0710-0242 SP	Final Pavement Marking Symbols, Group 3	each (P)	10		
40	0771-0010	Highway Fence	m (P)	300		
41	0771-0020	Brace Panels	each (P)	14		
42	0772-0011	Chain-Link Fence	m (P)	45		

43	0772-0013	Gates	each (P)	1		
44	0799-0010 SP	Bollards	each (P)	66		
45	0799-6015 SP	Ramp Closure Gates	each (P)	2		
46	0799-6016 SP	Concrete in Ramp Closure Gate Support Footings	each (P)	2		
47	0802-0020	Topsoil from Stockpiles	m3	3,684		
48	0803-0004	Seed	m2 (P)	10,061		
49	0804-0155 SP	Fibre Roll Flow Check Dams	each (P)	13		
50	0804-0165 SP	Rock Flow Check Dams	each (P)	3		
51	0805-0010 SP	Light-Duty Sediment Barriers	m (P)	253		
52	0805-0036 SP	Fibre Roll Barriers	m (P)	61		
53	0805-0040 SP	Heavy-Duty Sediment Barriers	m (P)	441		
54	0899-5402 SP	Shrub, 600 mm Height	each (P)	13		
55	0899-5409 SP	Coniferous Tree, 2.0 m Height	each (P)	39		
56	0899-5415 SP	Deciduous Tree, 50 mm Caliper	each (P)	8		
57	0899-5416 SP	Deciduous Tree, 60 mm Caliper	each (P)	59		

Site Electrical

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
58	0602-0025	Electrical Maintenance Holes	each (P)	8		
59	0602-0045	Electrical Handholes	each (P)	12		
60	0602-0050	Electrical Chamber Drains	m (P)	24		
61	0603-0035	Rigid Ducts, Concrete Encased	m (P)	267		
62	0603-0045	Rigid Ducts, Direct Buried	m (P)	868		
63	0604-0040 SP	High Voltage Cables, in Ducts	m (P)	164		
64	0604-0045 SP	Low Voltage Cables, in Ducts	m (P)	11,514		
65	0609-0020	Ground Wires	m (P)	2,273		
66	0609-0030	Ground Electrodes	each (P)	9		
67	0615-0110	Steel Poles, Base Mounted	each (P)	13		
68	0615-0120	Aluminum Poles, Base Mounted	each (P)	3		
69	0616-0020	Concrete Footings in Earth	each (P)	15		
70	0616-0040	Concrete Pads	each (P)	1		
71	0617-0022 SP	LED Roadway Lighting Luminaires and Bracket Assemblies	each (P)	14		

Facilities

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
72	0517-0010 SP	Dewatering System	lump sum	100 %		
73	0902-0010	Earth Excavation for Structure	m3 (P)	13,256		
74	9999-4010 SP	Water Well and Pump System	lump sum	100 %		
75	9999-9186 SP	Utility Building	lump sum	100 %		
76	9999-9900 SP	Garage/Administration Building	lump sum	100 %		
77	9999-9913 SP	Supply and Installation of New Salt Storage Structure	lump sum	100 %		
78	9999-9916 SP	Septic System	lump sum	100 %		

Bonds

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
79	0599-0100 SP	Performance Bond	lump sum	100 %		
80	0599-0110 SP	Labour and Material Payment Bond	lump sum	100 %		

Addendum #1

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
81	9999-0003 SP	Temporary Office Facility	lump sum	100 %		
82	9999-0260 SP	Geosynthetic Clay Liner	m2 (P)	2,287		

					Total Tender:	
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