

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Excavating, Trenching and Backfilling:
Section 31 23 10
 - .2 Granular Base and Sub-Base Materials:
Section 32 11 16
- 1.2 REFERENCES
- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C127-2012, Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.
 - .2 ASTM D1557-2012, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - .3 ASTM D4253-00(2006), Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
- 1.3 DEFINITIONS
- .1 Corrected maximum dry density is defined as:
 - .1 $D = (D1 \times D2) / ((F1 \times D2) + (F2 \times D1))$
 - .2 Where: D = corrected maximum dry density kg/m³.
 - .1 F1 = fraction (decimal) of total field sample passing 4.75mm sieve
 - .2 F2 = fraction (decimal) of total field sample retained on 4.75mm sieve (equal to 1.00 - F1)
 - .3 D1 = maximum dry density, kg/m³ of material passing 4.75mm sieve determined in accordance with Method A of ASTM D1557.
 - .4 D2 = bulk density, kg/m³, of material retained on 4.75mm sieve, equal to 1000G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.
 - .3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by Departmental Representative.
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MCTS Renovation	DRY DENSITY FOR FILL	Page 2
PWGSC Project No. R.049698.003		2013-09-25

PART 2 - PRODUCTS Not applicable.

PART 3 - EXECUTION Not applicable.

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Environmental Procedures: Section 01 35 43 |
| | .2 | Demolition, Removals and Relocations: Section 02 41 00 |
| | .3 | Excavation, Trenching and Backfilling: Section 31 23 10 |
| <u>1.2 REFERENCES</u> | .1 | American Society for Testing and Materials (ASTM) |
| | .1 | ASTM D1557-2012, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ /2,700 kN-m/m ³). |
| <u>1.3 EXISTING CONDITIONS</u> | .1 | A geotechnical investigation has been carried out at the site. Geotechnical Investigation (Final) - Elevator Addition, Canadian Coast Guard College, Sydney, Nova Scotia", by Conquest Engineering Ltd., proposal file # 034-085, dated September 18, 2013 is available for viewing upon request to the Departmental Representative. Any interpretations or extrapolations by the Contractor will be made at the Contractor's own risk. |
| | .2 | Known underground and surface utility lines and buried objects are as indicated on site plan. |
| | .3 | Verify location of underground utilities in conjunction with carrying out the Work. |
| | .4 | Refer to dewatering in Section 31 23 10. |
| <u>1.4 PROTECTION</u> | .1 | Protect existing trees, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain as indicated and as directed by Departmental Representative. If damaged, restore to original or better condition unless directed otherwise. |

1.4 PROTECTION (Cont'd)	.2	Maintain access roads to prevent accumulation of construction related debris on roads.
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PART 2 - PRODUCTS

2.1 MATERIALS	.1	Excavated or graded material existing on site may be suitable to use as common fill for grading work on approval by Departmental Representative. Departmental Representative does not guarantee approval of on-site excavated materials for re-use.
	.2	Common fill material: in accordance with Section 31 23 10.
	.3	Borrow material: in accordance with Section 31 23 10.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL PROTECTION	.1	Perform Work in accordance with Section 01 35 43 and approved Environmental Protection Plan.
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3.2 STRIPPING OF TOPSOIL	.1	Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Departmental Representative.
	.2	Commence topsoil stripping of areas as indicated and as directed by Departmental Representative after area has been cleared of any existing brush.
	.3	Strip topsoil to 150mm depth. Rototill weeds and grasses and retain as topsoil on site. Avoid mixing topsoil with subsoil.
	.4	Stockpile in location on site as directed by Departmental Representative. Stockpile height not to exceed 2m.
	.5	Deposit unused topsoil to location on site as directed by Departmental Representative.

3.3 GRADING

- .1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.
- .2 Rough grade to following depths below finish grades:
 - .1 100mm for grassed areas.
 - .2 As indicated for asphalt and gravel paving.
 - .3 As indicated for concrete assemblies.
- .3 Grade ditches to depths as indicated.
- .4 Prior to placing fill over existing ground, scarify surface to depth of 150mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.
- .5 Compact filled and disturbed areas to corrected maximum dry density to ASTM D1557 and as follows:
 - .1 90% under landscaped areas (non-embankment).
 - .2 93% under embankment areas.
 - .3 97% under asphalt and gravel paved areas.
 - .4 97% under concrete assemblies.
 - .5 100% under building foundations.
- .6 Fill lifts not to exceed compacted thickness of:
 - .1 200mm under asphalt and gravel paved areas.
 - .2 200mm under concrete assemblies.
 - .3 300mm under other areas.
- .7 Do not disturb soil within branch spread of trees or shrubs to remain.
- .8 Refer to Section 31 23 10 for testing frequencies of fill materials.

3.4 TESTING

- .1 Submit testing procedure, frequency of tests, testing laboratory as designated by ULC or certified testing personnel to Departmental Representative for approval. Refer to Section 01 45 00.

3.5 SURPLUS <u>MATERIAL</u>	.1	Remove clean surplus material and material unsuitable for fill, grading or landscaping to designated location off site.
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PART 1 - GENERAL

- 1.1 RELATED WORK
- .1 Granular Base and Sub-Base Materials: Section 32 11 16
 - .2 Water Mains: Section 33 11 00
 - .3 Sanitary Sewer: Section 33 31 00
 - .4 Manholes, Catch Basins and Structures: Section 33 39 00
 - .5 Storm Sewer: Section 33 41 00
- 1.2 REFERENCES
- .1 CAN/CGSB 148.1-2003 COMPLETE SET, Methods of Testing Geotextiles and Geomembranes
 - .2 CAN/ULC-S701-2011, Thermal Insulation, Poly-styrene, Boards and Pipe Covering.
 - .3 ASTM D1557-2012, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³)).
 - .4 ASTM D4254-00(2006), Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- 1.3 SUBMITTALS
- .1 Submit samples, indicating source, material characteristics and sieve analysis in accordance with Section 01 33 00 for items listed:
 - .1 Structural fill.
 - .2 Type C3 (surge).
 - .3 Granular materials for pavements:
 - .1 Type 1 granular base.
 - .2 Type 2 granular subbase.
 - .4 Pipe bedding materials.
- 1.4 PROTECTION OF EXISTING FEATURES
- .1 Existing buried utilities and structures:
 - .1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.
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1.4 PROTECTION OF .1
EXISTING FEATURES
(Cont'd)

- (Cont'd)
- .2 Prior to commencing excavation work, notify Departmental Representative and the authorities having jurisdiction, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during Work.
- .3 Confirm locations of buried utilities by careful test excavations.
- .4 Maintain and protect from damage, water, sewer, electric, telephone and other utilities and structures encountered.
- .5 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing. Advise Departmental Representative of existing lines in area of excavation that require removal or relocation and cost for such work.
- .6 Record location of maintained, re-routed and abandoned underground lines.

.2 Existing surface features:

- .1 Conduct, with Departmental Representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, pavement, survey bench marks and monuments which may be affected by work.
- .2 Protect existing buildings and surface features from damage while work is in progress. In event of damage, immediately make repair to approval of Departmental Representative.

1.5 SHORING, .1
BRACING AND
UNDERPINNING

- .1 Protect existing features in accordance with Section 01 35 43, applicable federal and local regulations and with authorities having jurisdiction.
- .2 Engage services of qualified professional engineer who is registered or licensed in province of Nova Scotia, in which Work is to be carried out to design and inspect sheeting, shoring, bracing and underpinning required for Work.
- .3 Submit design and supporting data for bracing of Nova Scotia Power (NSP) infrastructure to NSP for approval and to Departmental Representative for record.

1.5 SHORING,
BRACING AND
UNDERPINNING
(Cont'd)

- .4 Submit design and supporting data at least three (3) weeks prior to commencing Work to Departmental Representative or record.
- .5 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in province of Nova Scotia.

1.6 SUPPORT OF
EXCAVATION

- .1 Suitably slope or properly shore sides of excavations according to site conditions, all in accordance with the Nova Scotia Occupational Health and Safety Act.
 - .2 The choice of any method of support will be the responsibility of the Contractor. However, drawings and calculations for the method of support selected, designed by a qualified professional engineer in accordance with the Provincial safety requirements, are to be submitted to Departmental Representative for review before its use.
 - .3 If it is desirable that any support, other than that which may be shown on the Drawings, be left in the excavations, then Departmental Representative will issue instructions accordingly.
 - .4 Take every precaution against slips or falls, but if any should occur, at once make good the same. If any such slip or fall affects or may affect the stability of the permanent Work, execute such remedial work as necessary, including filling up of any space left by the slip or fall with approved granular material. Submit proposed remedial Work to Departmental Representative for review.
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PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Select Backfill material: common fill material approved from site excavation or borrow pits. Such material to be free from stumps, trees, roots, sod, muck, organics or other deleterious material. Material to be well graded having a maximum particle size not exceeding 200 mm with 40% to 60% of the material retained on 75 mm sieve. Material must not be frost susceptible. The material must be free from frost, and not be placed on frozen ground or in water. It must have a moisture content that will allow compaction to the specified densities.

- .2 Gravel borrow material: composed of hard, durable stones and sand, free from clay, frozen lumps, organic, or deleterious matter, graded as follows:

<u>Sieve Size, mm</u>	<u>% Passing</u>
112	100
14	15-65
0.080	3-10

- .3 Structural fill: composed of crushed pit or beach gravel, or crushed rock, well graded, sound, durable, granular material, free from clay, frozen lumps, organic, or deleterious matter, graded as follows:

<u>Sieve Size, mm</u>	<u>% Passing</u>
112	100
80	95-100
20	20-90
5	20-70
0.080	0-10

- .4 Clear stone: river run, hard, durable stone, free from clay and organic matter, and graded as follows:

- .1 Clear Stone, 28 mm:

<u>Sieve Size (mm)</u>	<u>Cum. % Passing</u>
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2.1 MATERIALS
(Cont'd)

- .4 Clear stone:(Cont'd)
 .1 Clear Stone, 28 mm:(Cont'd)

<u>Sieve Size (mm)</u>	<u>Cum. % Passing</u>
65	100
50	90-100
30	0-25
10	0

- .5 Pipe bedding materials: well graded, granular material conforming to concrete aggregate matching Type 1 granular base aggregate gradation specification as indicated in Section 32 11 16.

2.1 MATERIALS
(Cont'd)

- .6 Sand bedding materials: hard granular, sharp freshwater material, well-graded from coarse to fine, free of impurities, chemicals and organic matter and graded as follows:

<u>Sieve Size (mm)</u>	<u>Cum. % Passing</u>
4.75	100
0.150	0-5

- .7 Type C3 (Surge): hard, durable, dense cuboid igneous quarry stone, free from cracks, seams or other structural defects. Resistant to water and ice attack.

<u>Sieve Size (mm)</u>	<u>Cum. % Passing</u>
200	100
150	90-100
112	20-35
80	0-20
20	0-10

- .8 Rock liner: hard, durable, dense cuboid igneous quarry stone, free from cracks, seams or other structural defects. Resistant to water and ice attack. Free from stumps, roots, sod, mulch or other deleterious materia. Sieve gradation in percent passing:
.1 300mm Nominal:

<u>Sieve Size (mm)</u>	<u>Cum. % Passing</u>
350	100
300	70
200	20

- .9 Granular materials for pavements: to Section 32 11 16.

- .10 Rigid insulation: to Section 07 21 13 - Board Insulation.

- .11 Geotextile: non-woven, needle-punched synthetic filter fabric composed of minimum 85% by mass of polyester with inhibitors to resist deterioration. Mullen Burst 1.40 MPa to
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- 2.1 MATERIALS
(Cont'd)
- .11 Geotextile:(Cont'd)
CAN/CGSB-148.1 No. 6.1, Grab Tensile 450 N to
CAN/CGSB-148.1 No. 7.3.
.1 Acceptable products: Terrafix 270R or
approved equivalent.
- .12 Underground warning tape:
.1 Detectable metallic tape, 50 mm wide
clearly marked as follows:
.1 "CAUTION - BURIED SEWER LINE",
colour green with black text.
.2 "CAUTION - BURIED WATER LINE",
colour blue with black text.
.2 Polyethylene, 3.5 mils thick, 75mm wide,
clearly marked as follows:
.1 "CAUTION - BURIED ELECTRICAL
CONDUIT", colour red with black text.

PART 3 - EXECUTION

- 3.1 SITE
PREPARATION
- .1 Remove obstructions, ice and snow, from
surfaces to be excavated within limits
indicated.
- .2 Cut pavement, curb or sidewalk neatly along
limits of proposed excavation in order that
surface may break evenly and cleanly.
- 3.2 STOCKPILING
- .1 Stockpile fill materials in areas designated
by Departmental Representative. Stockpile
granular materials in manner to prevent
segregation.
- 3.3 BLASTING
- .1 Blasting is not permitted. Rock will only be
removed by mechanical means.
- 3.4 EXCAVATION -
GENERAL
- .1 Excavate in all kinds of materials including
rock encountered on Site and make own
computations of amounts and nature of
excavation required.
- .2 Select method of excavation, support and
dewatering suitable for the works. Submit

3.4 EXCAVATION -
GENERAL
(Cont'd)

- .2 (Cont'd)
proposed method to Departmental Representative for record.
- .3 Prior to excavating trenches, measures shall be in place to handle and monitor pumped water from trench excavations, as per the Contractor's Sediment and Erosion Control Plan. Water shall be monitored for pH and suspended solids, and discharged in an approved manner.
- .4 Protect property or structures above or below ground in accordance with the Contract.
- .5 Shore underground utilities within influence of excavation to prevent slip failure or undermining.
- .6 Bear foundations or underside of all structures including pipe surrounds on the material as shown on the Drawings and neatly finish all bearing surfaces to the required levels and grades.
- .7 Earth bottoms of excavations to be undisturbed soil, free from loose, soft, or organic matter. Remove any soil softened due to frost or standing water prior to placing structures.
- .8 Excavations of structure bearing surfaces are to be excavated to bedrock in the presence of an experienced geotechnical inspector and approved by Departmental Representative. Any soft spots are to be overexcavated and backfilled with structural fill.
- .9 If the excavated surface is unsuitable the Departmental Representative will determine what work is required. If such Work is due solely to the nature of the ground, then Departmental Representative will measure the Work, but if such work is due to any act or default of the Contractor in carrying out of the Works, resulting in disturbance of natural ground conditions, then the Execute such Work at no additional cost to the Contract.
- .10 Excavation to greater depth than is shown on the Drawings will be at no additional cost to the Contract, unless ordered by Departmental Representative. Make good trench bottoms with

3.4 EXCAVATION -
GENERAL
(Cont'd)

- .10 (Cont'd)
approved granular material adequately compacted as approved by Departmental Representative or with concrete as may be necessary for the safety or stability of the Works.
- .11 Pile excavated material a safe distance away from sides of trench so it will not endanger personnel and the work, reduce sight distances, or obstruct roadways.
- .12 Leave existing utility controls unobstructed and accessible at all times.
- .13 Do not obstruct drainage ditches and natural watercourses.
- .14 Departmental Representative reserves the right to require surplus material to be placed for embanking, general grading or other improvement or use on site.
- .15 Control grading so that the surface of the ground will be properly sloped to prevent water from running into excavated areas. Promptly remove any water which accumulates in excavations.
- .16 Place excavated soil to be re-used as backfill in stockpiles properly graded and sealed against rain.

3.5 DEWATERING
AND HEAVE
PROTECTION

- .1 Keep excavations and trenches free of water. Control excavations to prevent surface water running into excavated areas.
 - .2 Do Work in connection with dewatering and supply and maintain on the Work, pumps, in number and capacity sufficient to keep bottom of excavations dry and free from water so placing of pipe, manholes, and concrete will be done in the dry. Operate equipment for as long as necessary.
 - .3 Confirm sub-drains, sump holes, wells or the like required for dewatering shall not endanger the stability of the Works. On completion of the Work completely backfill and consolidate excavations.
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3.5 DEWATERING AND HEAVE PROTECTION (Cont'd)

- .4 Dispose of water removed from excavations in a manner that will prevent injuries to public health or private property or to any operation of the work completed or under construction. Do not pump water containing silt or other material in suspension into natural water courses.
- .5 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, water courses or drainage areas.

3.6 STRUCTURE EXCAVATION

- .1 Excavate to lines, grades, dimensions and elevations shown on Drawings.
- .2 Extend excavations sufficient distance from footings and walls to allow placing and removal of forms and for placing backfill materials indicated.
- .3 Prior to excavation around any manhole (existing or newly constructed as part of the tender), supply and install catchment or diversion devices in all manholes prior to Work commencing on the manhole. Install such devices in a manner so as not to impede the flow through the manhole and remove after all Work is completed.

3.7 TRENCH EXCAVATION

- .1 Trenches for piping, conduit, and related excavations to be of sufficient width and depth at all points to allow pipes to be laid, joints to be formed, and appurtenant structures to be built in a workmanlike manner, and when needed, to allow for sheeting and shoring, pumping, draining, and for removing and replacing all materials unsuitable for foundations.
- .2 Excavate trenches so pipe can be laid to the alignment and depth required. Excavation length to be not more than the pipe length that can be laid and backfilled in one (1) day. Brace and drain trench so workers may work safely and efficiently.

3.7 TRENCH
EXCAVATION
(Cont'd)

- .3 Remove organic material and soft deposits to a depth where medium dense to dense materials are encountered as designated by Departmental Representative.
- .4 Do not stockpile excavated materials alongside trench if the bearing soil will cause trench side failure or bottom uplift and affect pipe alignment.

3.8 UNSUITABLE
MATERIAL
EXCAVATION

- .1 Notify Departmental Representative when materials unsuitable for use in the work are encountered and remove to depth and extent as directed by Departmental Representative.
- .2 Backfill excavations with structural fill material or selected backfill material as directed by Departmental Representative.
- .3 Dispose of unsuitable material off site.

3.9 GRANULAR
BEDDING & SURROUND

- .1 Place bedding to suit pipe as indicated.
 - .2 Do not dump bedding materials directly onto pipe.
 - .3 Place granular bedding material in uniform layers not exceeding 150 mm compacted thickness to depth as indicated.
 - .4 Shape bed true to grade to provide continuous uniform bearing surface for pipe. Do not use blocks when bedding pipe.
 - .5 Shape transverse depressions in bedding as required to suit joints.
 - .6 Carry bedding material across actual trench width. Mounding of bedding is not permitted.
 - .7 Compact each layer full width of bed to at least 95% to ASTM D1557.
 - .8 Fill excavation below design elevation of bottom of specified bedding with compacted bedding material or foundation material as directed by Departmental Representative.
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3.9 GRANULAR
BEDDING & SURROUND
(Cont'd)

- .9 After pipe installation, place and compact bedding to haunch line of pipe. Place and compact bedding material from haunch line of pipe to top of pipe in maximum 150 mm layers. Place remaining bedding material to 300 mm above top of pipe before further compaction. Compact 97% to ASTM D1557.
- .10 In areas of excessive groundwater, the Departmental Representative may approve the substitution of the specified bedding with 28mm clear stone completely surrounded with geotextile separator to prevent the migration of fines into the clear stone.

3.10 BACKFILLING-
GENERAL

- .1 At the start of pipe laying operations, the Contractor's geotechnical engineer is to be on-site to establish rolling and compaction patterns in the presence of the Departmental Representative.
 - .2 Every second day during pipe laying operations, or as otherwise directed by the Departmental Representative, the Contractor's geotechnical engineer is to be on-site to confirm compaction of bedding and backfill materials.
 - .3 Submit compaction results to the Departmental Representative for approval.
 - .4 Do not proceed with backfilling operation until Departmental Representative has inspected and approved installations.
 - .5 After pipelines and structures have been built, backfill trenches and other excavated areas with materials shown on Drawings or as specified. Remove timber and debris from excavation before backfilling is commenced. Do not cover up or put out of view any Work until it has been examined, measured and approved by Departmental Representative. If any work is covered without approval of Departmental Representative, Departmental Representative may order backfilled excavation to be uncovered for examination.
 - .6 Place backfill in unfrozen condition.
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- 3.10 BACKFILLING-
GENERAL
(Cont'd)
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- .7 Do not backfill around or over cast-in-place concrete within 24 hours after placing.
 - .8 Where temporary unbalanced earth pressures are liable to develop on walls or other structures, permit concrete to cure minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure.
 - .9 Place foundation material to provide suitable surface for construction as directed by the Departmental Representative.
 - .10 In areas not accessible to rolling equipment, compact to specified density with approved mechanical tampers.
- 3.11 BACKFILLING
STRUCTURES
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- .1 After installation of foundations, clean excavations of trash and debris. Backfill consists of Structural Fill material or material shown on Drawings. Place material to meet following requirements and approval of the Departmental Representative.
 - .1 Place backfill in horizontal layers not more than 300 mm deep.
 - .2 Compact each layer by rollers, mechanical tampers, or other suitable equipment to obtain a density of not less than 97% to ASTM D1557.
 - .3 Compact the Structural Fill placed below the footings and slabs to not less than 100% to ASTM D1557.
- 3.12 BACKFILLING
TRENCHES
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- .1 Backfill trench from top of bedding to top of subgrade using materials shown on Drawings.
 - .2 Place backfill in 300 mm layers and compact 98% to ASTM D1557. Thoroughly compact each layer before placing next layer. Carry out compaction tests to demonstrate the effectiveness of backfill thickness per lift versus the number of passes with the selected equipment to achieve the specified compaction.
 - .3 During backfilling, keep trenches free of water at all times and controlled so as to prevent surface water running into excavated areas. Remove silty materials, which become
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- 3.12 BACKFILLING TRENCHES (Cont'd)
- .3 (Cont'd) wetted and subsequently liquid or extremely plastic.
- .4 Leave surface of backfill initially high and repair settlement of trench backfilling.

- 3.13 BACKFILLING-TESTING
- .1 Provide material testing to minimum limits as follows:
- .1 Testing of all areas except trenching:

<u>Material</u>	<u>Compaction Test Frequency</u>	<u>Moisture Content Test Frequency</u>
Select Backfill	1 per 15m ³ placed	1 per 45m ³ placed
Structural Fill	1 per 10m ³ placed	1 per 30m ³ placed
Type C3	1 per 10m ³ placed	1 per 30m ³ placed

- 3.13 BACKFILLING- .1 (Cont'd)
TESTING .2 Testing of trenching:
(Cont'd)

<u>Material</u>	<u>Compaction Test Frequency</u>	<u>Moisture Content Test Frequency</u>
Pipe bedding	1 per 10m along trench	1 per 30m ³ placed
Sand bedding	1 per 10m along trench	1 per 30m ³ placed
Select backfill	1 per 15m along trench	1 per 45m ³ placed

- 3.14 MARKER TAPE .1 Place marker tape and plank in trenches above
rical conduits and pipes, where indicated.

- 3.15 INSULATION .1 Place rigid insulation in sanitary pipe
trench where indicated or as required in areas
where pipe cover is less than 1600 mm. Do not
disturb or break boards during backfilling.
- .2 Insulation of storm pipe runs is not
required.

- 3.16 REINSTATEMENT .1 Upon completion of work, remove surplus
materials and debris, trim slopes, and correct
defects as directed by Departmental
Representative.
- .2 Reinstall disturbed areas to condition,
elevation and thickness equal to or better
than that, which existed before excavation.
- .3 Clean and reinstall areas affected by work as
directed by Departmental Representative.