

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 31 09 16.01 - Pile Driving Template.
  - .2 Section 31 63 19 - Bored and Socketed Piles.
  - .3 Section 05 50 00 - Metal Fabrications.
- 1.2 SUBMITTALS
- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data: submit manufacturer's printed product literature, specifications and datasheet.
  - .3 Borehole data: when site conditions differ from those indicated, submit written notification to Departmental Representative and await further instructions.
  - .4 Submit schedule of planned sequence of drilling to Departmental Representative for review, as specified.
  - .5 Spliced piles: when authorized, submit design details of splice complete with signature and stamp of qualified professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada.
  - .6 Equipment:
    - .1 Submit prior to pile installation for approval by Departmental Representative, list and details of equipment for use in installation of piles.
  - .7 Submit analysis associated with equipment capability of pile advancement, to Departmental Representative for approval of drilling equipment.
  - .8 Quality assurance submittals:
    - .1 Test reports: If requested, submit 3 copies of certified test reports for piles from approved independent testing laboratories,

indicating compliance with specifications for specified performance characteristics and physical properties.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

### 1.3 PROTECTION

.1 Protect piles from damage due to excessive bending stresses, impact, abrasion or other causes during delivery, storage and handling.

.2 Replace damaged piles as directed by Departmental Representative.

### 1.4 FABRICATION

.1 Fabricate structural steel for templates: to CAN/CSA-S16 and approved shop drawings.

.2 Welding: to CSA W59.

.3 Use welding companies qualified under CSA W47.1.

### 1.5 SEQUENCE

.1 Provide schedule of planned sequence of drilling piles to Departmental Representative for review, not less than two weeks prior to commencement of pile drilling.

### 1.6 GENERAL

.1 Drilling of piles is the only accepted means of pile installation.

.2 Supply or fabricate full length piles as indicated and provide equipment to handle full length piles without cutting and splicing.

.3 Splice piles only with written approval of Departmental Representative.

.1 When permitted, provide details for Departmental Representative review.

.2 Design details of splice to bear dated signature stamp of professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

- .3 Welding of splices to be performed by qualified welder as per CSA W47.1 welding to CSA W59.

#### 1.7 EQUIPMENT

- .1 Provide drilling equipment for non-impact method of installation (augering) of piles to elevations indicated on the drawings.

#### 1.8 PROTECTION

- .1 Protection:
  - .1 Protect adjacent structures, services and work of other sections from hazards due to pile drilling operations.
  - .2 Arrange sequencing of pile operations and methods to avoid damages to adjacent existing structures.
  - .3 When damages occur, remedy damaged items to restore to original or better condition at own expense.
- .2 Make provision for access and support of piling equipment during performance of Work.

#### 1.9 LEADS

- .1 Leads: construct pile driver leads to suit drilling equipment.
- .2 Hold leads in position at top and bottom, with guys, stiff braces, or other means approved by Departmental Representative to ensure support to pile while being installed.
- .3 Length: Provide sufficient length of leads to ensure that use of follower is unnecessary.
- .4 Swing leads:
  - .1 Obtain approval from Departmental Representative prior to using swing leads.
  - .2 Firmly guy top and bottom to hold pile in position during drilling operation.
  - .3 Method to be approved by Departmental Representative.
- .5 Installation of each pile will be subject to approval of Departmental Representative.
  - .1 Advance each pile to sound bedrock and beyond, as noted on the drawings. Refer

to Section 31 63 19 for additional requirements for piles with rock sockets.  
.1 Do not cause damage to piles in bedrock.

1.10 PILE DRILLING

- .1 Use all appropriate means to protect piles.
- .2 Paint reference marks on piles for accurate field measurement during drilling.
- .3 Reinforce pile heads as required by Departmental Representative.
- .4 Piles with damaged heads as determined by Departmental Representative will be rejected.
- .5 Hold piles securely and accurately in position while advancing.
- .6 Ensure pile is not overstressed during drilling.
- .7 Do not drive piles within 10 m of concrete which has been in place less than 7 days.
- .8 Ensure no contact between pile and structure takes place when drilling batter piles adjacent to existing structures.
- .9 Do not install batter piles until vertical piles within a radius of 6m have been fully installed.
- .10 Cut off piles neatly and squarely at elevations as indicated.
- .11 Do not cut tendons or other reinforcement, which will be used to tie pile caps to pile.
- .12 Remove cut-off lengths from site on completion of work.
- .13 Drill and drive each pile to competent bedrock.

1.11 TOLERANCES

.1 Pile heads to be within 50 mm of locations as indicated.

.2 Piles not to be more than 0.4% of length out of vertical alignment

1.12 OBSTRUCTION

Where obstruction is encountered that causes sudden unexpected change in penetration resistance or deviation from specified tolerances, proceed as directed by Departmental Representative.

1.13 REJECTED PILES

.1 Pull out rejected piles and replace with new piles.

.2 No extra compensation will be made for removing and replacing or other work made necessary through rejection of defective piles.

1.14 RECORDS

.1 Maintain accurate records of advancement for each pile, including: type and make of equipment used, related energy, other advancement equipment including pile size and length, location of pile in pile group, location or designation of pile group, sequence of placing piles in group, other pertinent information such as interruption of continuous advancement and pile damage.

.3 Record elevation taken on adjacent piles during before and after advancement of each pile.

.4 Provide Departmental Representative with three copies of records.