THE INN AT CEDARS
EROSION AND SEDIMENTATION CONTROL PLAN
PORTLAND, MAINE

The following plan for controlling sedimentation and erosion from this project is based upon sound conservation practices such as those outlined in the Maine Erosion and Sediment Control Best Management Practices manual by the Maine Department of Environmental Protection, dated March, 2003). Please refer to this source and the Erosion Control Plan and Details included within the plan set.

A. INTRODUCTION

General – The Cedars Nursing Care Center and JHA Properties, Inc. located at 630 Ocean Avenue is proposing to expand it's existing campus by adding a new Inn at Cedars (Assisted Living Facility (ALF)), which will be located between and connected to the existing Cedars, 102 bed, Long Term Care Facility (LTCF) and the Atrium, 61 bed, Independent Living Facility (ILF). The new ALF will have 30 living units and is typically referred to as an intermediate care facility. Each unit can house up to two (2) residents.

The Cedars LTCF was approved in 1988 and constructed in 1990–1991. The Atrium ILF was approved in 1997 and constructed in 1998–1999. The ALF was shown as a future expansion on the Atrium plans but it's location and overall size have changed.

Site Topography and Cover Complex – For the pre–development condition, the site generally slopes from the northwest property line (elevation 844') to the southern property corner (elevation 644'). Generally the slopes range between 0.5% and 10.0% with ledge out cropping prominent throughout the site.

The vegetation in the pre–development condition is limited to the perimeter of the parcel and existing natural detention areas and consists of a mostly isolated wooded parcels of mixed deciduous growth except for portions of the site maintained as lawn and landscaped areas.

Under the developed condition, the site topography will be altered by the placement of the new facility in the central portion of the site in the vicinity of the existing detention pond #4 at elevation 74.0±. The site will be graded to obtain positive drainage away from the building and into the existing drainage courses while limiting the fill to the extent practical.

The Soils site soils were identified as Hollis by the Cumberland County Medium Intensity Soil survey prepared by the Soil Conservation Service. Hollis soils are fine sandy loam soils that are shallow to bedrock (depth to bedrock of 15 in. to 18 in.).

B. CONSTRUCTION CALENDAR

1. Definitions – The following definitions are terms commonly used throughout this report.

a) Seasons – The following dates define the seasons as referred to herein:

Seasons	Dates
Winter	November 1st to March 15th
Mud–Season	March 16th to April 30th *
Spring	May 1st to June 14th *
Summer	June 15th to September 15th *
Fall	September 16th to October 30th

*Seasonal dates may vary according to weather. Any changes in these dates must be approved by the Engineer or City of Portland.

b) Sensitive Areas – This erosion and sedimentation control plan is designed to protect all downstream channels from degradation. However, there are certain "sensitive areas" on site which must be monitored closely during construction in order to prevent any adverse impacts. These areas are shown on the plans and generally defined as follow:

1. The existing wetland restoration areas.

c) Erosion & Sedimentation Controls# – are defined as and equi??? thee smoothe???? installation of silt fence, hay bales, erosion control berms, rip–rap, mulching, or erosion control matting or netting, and any other measures required herein.

d) Clearing – includes cutting and removing of over–story vegetative cover. It does not include grubbing. Limited clearing and other clearing restrictions may apply to sensitive areas and wetland crossings.

e) Grubbing – is the removal of grass, roots and scrub required to begin earthwork.

f) Interim Period – a period of time that an unvegetated area sits unworked, awaiting the next phase of work.

g) Earthwork – consists of the movement of soil by mechanical means including excavation, grading, shaping and general construction.

h) Temporary – as used herein shall refer to the use or placement of erosion or sedimentation controls, seeding or other measures intended to be either removed, replaced or followed with permanent measures.

i) Permanent or Final – as used herein shall refer to the use or placement of erosion or sedimentation controls, seeding or other measures which will remain through final project completion.

2. Schedule of Activities – The following activities, erosion control measures, or other items are required for the construction of this project or require specific measures or scheduling of activities to be conducted or restricted during the various construction seasons as herein defined above.

a) Sensitive Areas – all work proposed in the defined sensitive areas must be completed outside of the mud season. All wetland restoration work must be completed within the spring and summer months, or as directed by the wetland consultant and recommendations included in report narrative. All work adjacent to, or in, areas which drain to sensitive areas shall be protected with appropriate erosion controls to prevent erosion or sedimentation of the identified sensitive areas at all times during construction until the areas under construction are stable.

b) Erosion & Sedimentation Controls Installation – erosion control installation may occur all year long, except that such measures shall be installed prior to commencement of disturbance activities related to each erosion control measure. However, it shall be avoided, to the extent practical, in the winter and mud season. See Drawings and Details for locations and installation procedures.

c) Clearing – clearing may occur all year long except during "mud season".

d) Road and Parking Lot Construction – This construction may occur in the spring, summer and fall seasons. It may be allowed in the winter season except in sensitive areas in which case the winter construction schedule must be followed (see Section D.1.).

B. EROSION CONTROL MEASURES

1. General – The construction of this project may require or incorporate the following measures or practices as needed or applicable. Such measures, where indicated on plans shall be implemented as shown or required herein. Additional measures not shown on plans may be required as specified herein or requested by the Engineer, as needed, in order to ensure the protection of resources or off–site properties.

a) Vegetative Buffers – have been used where practical between wetland areas, streams and sensitive areas. These buffers serve to filter runoff as it flows through and are only effective when the runoff is shallow sheet flow. The contractor must take care in leaving the buffer strips in their natural state and assure that runoff does not channelize through the buffer. Skidder trails or equipment ruts shall be smoothed or regraded. Construction activities and equipment shall be restricted in areas to remain as buffers or not otherwise scheduled for construction.

b) Straw Bales – shall be installed along the contours in the locations and as detailed on the plans. Straw bales may be required in addition to silt f and equi"???fencing or other measures in sensitivee smoothe???? areas as shown on plans.

c) Silt Fence – shall be installed along the contours in the locations and as detailed on the plans. Silt fence may be required in addition to straw bales or other measures in sensitive areas as shown on plans.

d) Erosion Control Mix Berms – specially blended, shall be installed in 18–inch high berms along the contours, in the locations shown on the plans. In sensitive areas or "problem spots" erosion control mix berms may be required in addition to silt fence and/or hay bales as shown on plans.

e) Mulching – shall consist of spreading of straw mulch over bare or disturbed areas. It shall be applied at the rates described herein. It will be substituted by matting where necessary or as specified herein. Alternate mulch materials or methods such as hydro–seeding/mulching may be used only when approved by the Engineer.

f) Matting – shall consist of straw, coconut or excelsior sandwiched between photodegradable netting. Matting may be substituted with sod where desired. Netting over straw mulch may be substituted when approved. (Except in swales.) Matting shall be used as follows:

(1) In the base of swales with greater than 5% pitch.

(2) On steep slopes where rilling may occur.

(3) In any sensitive areas subject to erosion or as indicated on plans.

(4) On any disturbed or newly graded slopes steeper than 25% (4ft: 1V) and located within 100 feet of a perennial or intermittent stream or other sensitive area provided that runoff from the area contributes directly to the stream or sensitive area.

(5) Where straw mulch has been determined to be ineffective based on observations made in the field or as directed by the Engineer.

g) Rip–Rap – shall be used in swales, steep slopes, pond outlets, etc. as shown on plans to protect soils from excessive flow velocities. It shall be of the size and depths specified on the plans. A minimum rip–rap size of D50 = 4 in. shall be used if not otherwise indicated on plans.

h) Inlet Protection – all culvert inlets shall be protected as noted on the rip–rap headwall detail. The rip–rap shall be the same size as that specified at the outlet. A D50 = 4 in shall be used if not otherwise specified.

i) Outlet Protection – rip–rap outlets (aprons or plunge pools) shall be installed at all culvert outlets as detailed on the plans to prevent scouring at the pipe outlet. The rip–rap shall be the same size as that specified at the outlet. A D50 = 4 in shall be used if not otherwise specified.

j) Stone Check Dams – stone check dams shall be installed in existing and proposed swales or at culvert inlets as shown on the plans. These check dams serve to reduce flow velocities in swales thus helping to reduce rilling. Check dams shall be constructed of 2 in. to 3 in. stone.

B. EROSION CONTROL EXECUTION

1. General Construction Phase – the following general practices will be used to prevent erosion during construction of this project.

NOTE: Locations of silt fence/hay–bale barriers are shown for general purposes only. Final locations should be modified based on actual field conditions and as site conditions warrant. Such field changes or modifications shall be approved by the Engineer.

a) Following clearing only those areas under active construction shall be left in an untreated or unvegetated condition.

b) Erosion Control Installation – prior to the start of construction, silt fence and/or haybales, erosion control mix berms, and stone check dams shall be installed around catch basins, at the toe of slopes and in areas as shown on the plans or as otherwise required to protect against any construction related erosion. Immediately following construction of culverts and swales, stone check dams shall be installed, as shown on the plans.

c) Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas. All stockpiles expected to remain longer than 15 days shall be:

(1) Treated with mulch.

(2) Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the downgradient toe of the pile.

d) Temporary Seeding and Mulching Schedule – During construction, all disturbed areas shall adhere to the schedule specified below:

(1) The contractor shall be responsible for monitoring daily weather reports when working in the sensitive areas as identified in section B.b. and for monitoring weekly reports in other areas. Contractor shall adjust the work schedule in anticipation of rains and shall stabilize the site as indicated.

1. TEMPORARY SEEDING AND MULCHING SCHEDULE

Work Area	Expected Interim Period (Calendar Days)	No Treatment	Temporary Mulching (1)	Seeding (2) And Mulching
Sensitive Area (3)	<7	X		
	7–30		X	
	>30			X
Non Sensitive Area	<30	X		
	30–45 e .45		X	
				X

Date	Seed	Rates lbs/1,000 s.f.
4/1 to 7/1	Annual Rye Grass	0.90
7/1 to 8/15	Sudan Grass	0.90
8/15 to 10/15	Winter Rye	2.00
10/16 to 3/31	Annual Rye Grass	1.8

(1) Mulching shall be applied at a rate of 90 lbs/1,000 sq. ft. (180 lbs/1000 sq. ft. for winter construction).
(2) Temporary seeding rates shall be as follows:
(3) The time limit for mulching in sensitive areas may be overridden by the most current weather forecast. All exposed soils in sensitive areas shall be mulched prior to every anticipated storm event.

e) Grading will be held to a maximum 3:1 slope where practical. Greater slopes may be used in ledge cut. All slopes shall be stabilized with permanent seeding and mulching immediately after final grading is complete. If final grading will not be completed immediately, refer to the Temporary Seeding and Mulching Schedule. It is understood that immediately means within 7 days of the completion of work. See seeding specifications for permanent seeding requirements.

1. Culverts will be protected with stone rip–rap headwalls (D50 = 4 in. unless otherwise specified) at inlets an outlets.

f) Winter Construction – For any work proposed during the winter season, the contractor shall adhere to the following practices:

(1) A plan and schedule of activities shall be submitted to the Engineer and approved prior to any work being done.

(2) The interim period for any exposed area shall be limited to 7 calendar days.

(3) Where required, installation of silt fence may be modified from detail on plans to substitute 6 inches of clean gravel over the bottom of the silt fence in lieu of trenching and backfilling fabric.

(4) Mulching and seeding rates shall adhere to the Temporary Seeding and Mulching Schedule. Note that all mulching rates shall be doubled as shown in Note 1 and shall follow the sensitive area schedule.

g) Monitoring Schedule – The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and/or removing all of the erosion and sedimentation controls as specified herein or directed by the engineer, or appointing a qualified subcontractor to do so.

(1) Maintenance measures will be performed as needed during the entire construction cycle. After each rainfall, a visual inspection will be made to insure their continuing function as designed.

I Stone check dams, hay bale barriers, erosion control mix berms, silt fence and mulch shall be inspected and repaired once a week or immediately following any significant rainfall. Sediment trapped behind these barriers shall be removed when it reaches a depth of 6 inches (or 1/2 the height of the dam for check dams) and redistributed to areas undergoing final grading.

II Sedimentation basins and perforated riser pipes shall be visually inspected once a week or immediately after each significant rainfall, and cleaned and repaired as needed. Sediment trapped at the bottom of the basins shall be removed once it attains a depth of 12 inches unless otherwise specified. Stone and sand filters and filter fabrics at riser pipes shall be removed and replaced at scheduled one–month intervals, or as necessary after each storm. The sediment removed shall be transported to an upslope area undergoing final grading, or removed from the site. The sediment and the removal thereof shall be handled in a manner which does not promote erosion or sedimentation.

h) Emergency Protection Procedures – Should construction be hampered by excessive runoff and sediment entering downstream channels, then the contractor shall employ the following procedures to remediate the situation.

I) Take appropriate corrective measures to prevent sediment from entering stream (i.e. mulching, matting, silt fence, etc.).

2. Permanent Seeding and Mulching Plan – The following general practices will be used to re–establish final vegetation.

a) Loaming – A minimum of 4 inches of loam will be spread over disturbed areas and graded to a uniform depth and a natural appearance. All loam shall be as specified or approved by the Engineer or Landscape Architect.

b) Final Seeding: – All final seeding shall be completed immediately following final grading. All final fertilizing and seeding shall adhere to the specifications unless otherwise approved by the Engineer or Landscape Architect.

c) Mulching: – Any area shall be mulched after it has been seeded unless deemed unnecessary by the Engineer or Landscape Architect. Mulching shall consist of hay mulch, hydro–mulch or any suitable substitute deemed acceptable by the Design Engineer or Landscape Architect.

(1) Straw mulch shall be applied at the rate of 2 tons per acre (90 lbs. Or 2 bales/1,000 sq. ft.).

(2) Hydro–mulch shall consist of a mixture of asphalt, wood fiber or paper fiber and water sprayed over a seeded area. Hydro–mulch shall not be used during the fall, winter or mud season.

(3) Mulching shall be monitored according to the monitoring schedule (Section D.1.k.). Should mulching prove to be ineffective, then netting or matting shall be used in its place.

d) Dormant Seeding: – Construction shall be planned to eliminate the need for seeding during the fall, winter or mud season. Should seeding be necessary between these dates, the following procedure shall be followed:

(1) Only unfrozen loam shall be used.

(2) Loaming, seeding and mulching will not be done over snow cover. If snow exists, it must be removed prior to placement of seed.

(3) No permanent seeding will be done during fall, winter or mud season unless specifically approved by the Engineer or Landscape Architect.

(4) Where temporary seeding is required, the rates specified in the Temporary Seeding and Mulching Schedule shall be adhered to.

(5) Fertilizing, seeding and mulching shall be done on loam the same day the loam is spread. Winter mulch rates shall apply as specified in the temporary seeding and mulching schedule.

(6) On slopes greater than 3:1, straw matting or excelsior matting will be substituted for mulch, except that biodegradable netting over mulch may be used where approved by the Engineer.

e) Inspection: – Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding and mulching shall be carried out as required until an adequate catch is established in all seeded areas, as agreed upon by the Owner and Engineer.

3. Erosion Control Removal – Removal of temporary erosion control measures shall be the responsibility of the contractor. All erosion controls shall remain in place and maintained by the contractor until all related construction is complete and the area is stable.

a) An area is considered stable if:

(1) An 80% cover of grass has been established.

(2) It is paved.

b) Haybales and silt fence shall be removed by contractor once the areas upstream are stable. The haybales and silt fence shall be disposed of legally and properly off–site. All sediment trapped behind these controls shall be:

(1) Distributed to an area undergoing final grading.

(2) Graded in an aesthetic manner to conform to the topography, and fertilized, seeded and mulched in accordance with the rates previously stated.

c) The sediment trapped behind/around/in stone check dams, perforated risers, and sedimentation basins, shall be removed and transported off–site, or to an upslope area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways.

d) The rip–rap and stone from the check dams and risers may be either:

(1) Removed, or

(2) Regraded in an aesthetic manner that does not inhibit flow or create erosion.

e) Once all the trapped sediments have been removed from the temporary sedimentation devices, the disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

E. CONCLUSION

1. The construction of The Inn at Cedars, if constructed in conformance with the project plans and the Erosion and Sedimentation Control Report, should not result in any significant erosion or sedimentation either on or off the site.

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EROSION CONTROL NOTES

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Drawing C–6