

TECHNICAL MEMORANDUM

TO: Mohsen Kourehdar, P.E., Washington State Department of Ecology

FROM: Lawrence D. Beard, P.E., L.G.

DATE: May 30, 2012

RE: **SUMMARY OF CAPPING AND STORMWATER MANAGEMENT SYSTEMS
CASCADE POLE SITE,
OLYMPIA, WASHINGTON**

This technical memorandum summarizes the construction of the surface cap to contain contaminated soil and groundwater present at the Cascade Pole site (Site). Additionally, the current configuration of the stormwater collection, treatment and conveyance system used to manage stormwater drainage from the capped surface is described. The following sections provide a brief summary of the various phases of Site capping and the stormwater system improvements that have been made as part of Site interim action cleanup activities. Record drawings for the various capping phases are referenced and presented as exhibits to this document.

SITE CAPPING

The majority of the upland portion of the Site has been capped with a low permeability surface during a series of interim actions conducted between 1997 and 2010. About 6 acres were paved with asphalt in 1997 and a total of about 2.5 acres were paved in 2002 and 2004. Additionally, the 0.35 acre area overlying the near-shore sediment containment cell was capped with a geosynthetic clay liner (GCL) low permeability cap in 2002 as part of the sediment interim action. In 2006, about 2 acres of existing asphalt pavement was reconstructed in the western-most portion of the site. In 2008 the approximately 2.5-acre area on top of the sediment containment cell was paved with asphalt and the side slopes were capped with a soil cover, except that a pvc liner was installed on the eastern side's slope of the containment cell. Approximately 1 acre located immediately west of the sediment containment cell was paved with asphalt in 2010.

Exhibit 1 shows the phasing plan for the various Site capping activities, and Exhibit 2 shows the extent of the various capping methods, and typical capping sections for each capping method. As indicated on the Exhibits, the entire upland portion of the Site is capped. Although there are some limited areas that are capped with soil, over geotextile fabric, rather than a low permeability material such as asphalt or PVC liner material, these areas are primarily on the relatively steep slopes of the sediment containment cell where infiltration is not a significant concern. In total, about 91 % percent of the Site is capped with low permeability materials.

SITE STORMWATER MANAGEMENT SYSTEM

The Site stormwater system has been upgraded and replaced through a series of improvements implemented as part of various interim actions. The old stormwater system was abandoned and a new system installed in conjunction with installation of the bentonite slurry cutoff wall in 1997. The 1997 stormwater system remediation and replacement project included the proper abandonment of the historic stormwater system, including all catch basins, conveyance piping, and the existing stormwater detention basin. New catch basins, conveyance piping and stormwater detention basin were installed in conjunction with the abandonment of the existing stormwater system. The 1997 stormwater improvements did not include extension of the stormwater system into the northern portion of the Site.

The stormwater system was extended into the northern portion of the Site as part of the construction of the sediment containment cell in 2000. Changes and improvements were made to this portion of stormwater system as part of the sediment dredging interim action in 2001, and further modified when the sediment containment cell was paved in 2008. Additional storm water systems were installed as part of the capping of the 1 acre west of the sediment containment cell in 2010.

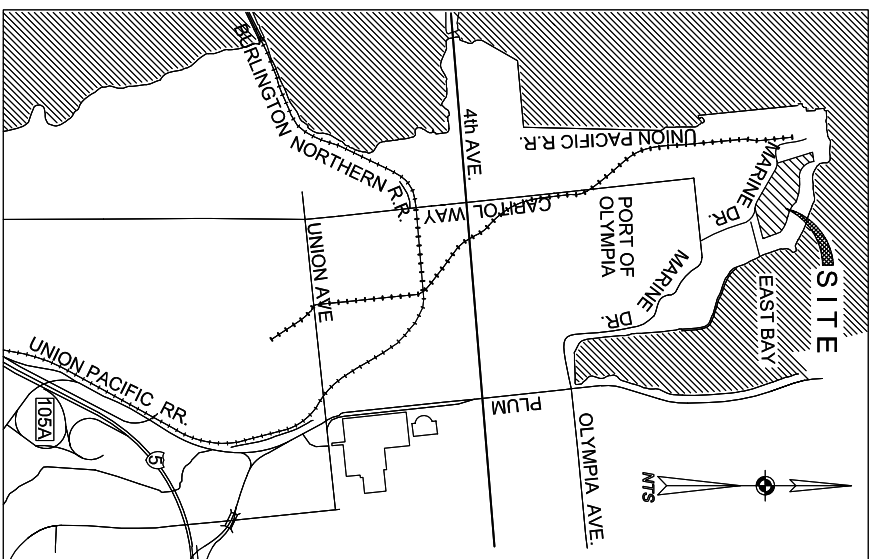
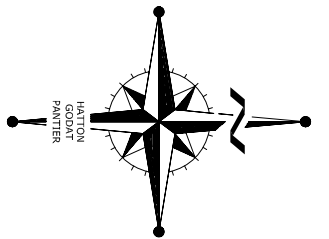
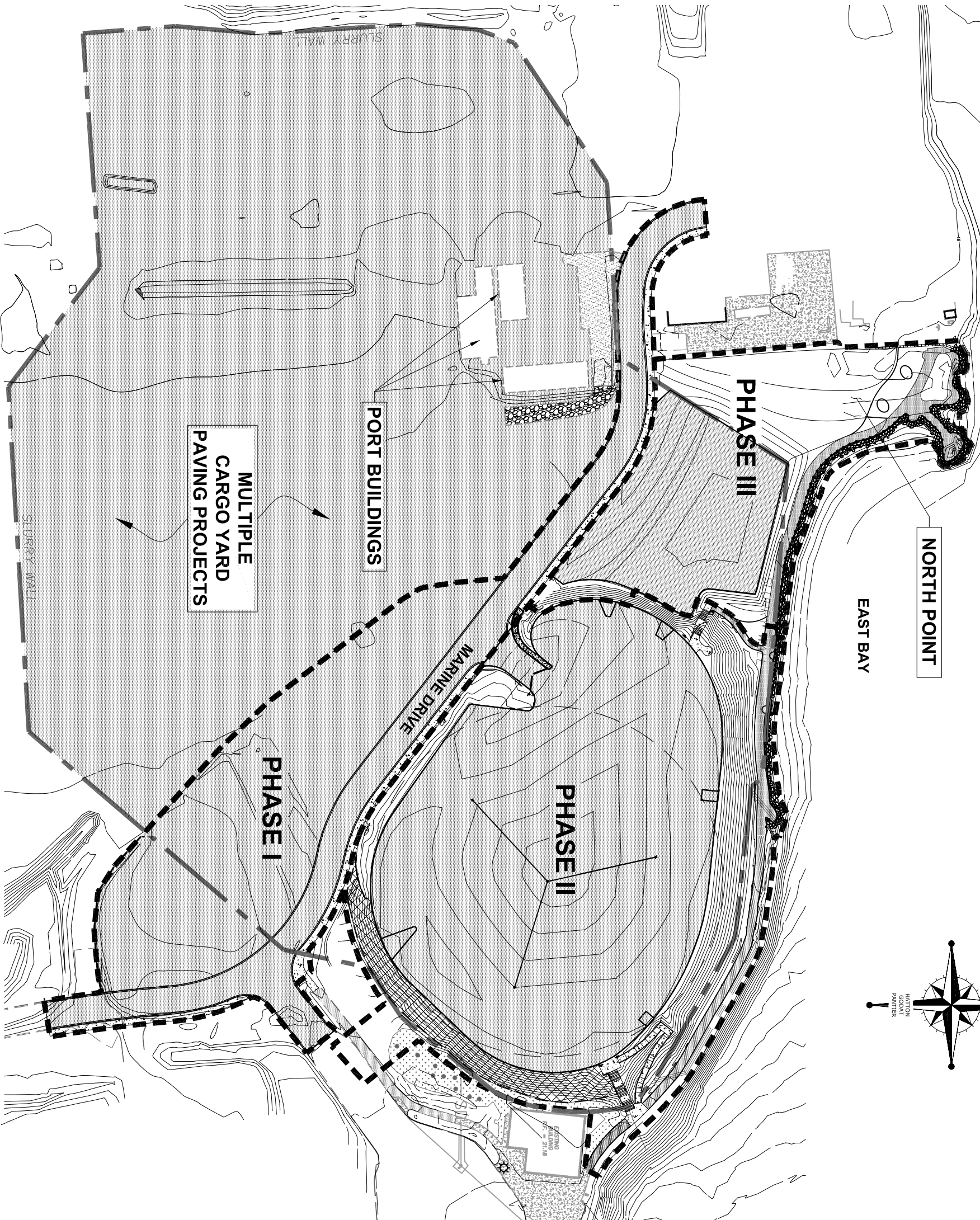
Because the current Site stormwater collection, conveyance and discharge system was constructed either concurrent with or following capping of the Site surface with either clean soil or pavement, it is isolated from any Site releases. Site stormwater quality has been verified by water quality monitoring conducted in conjunction with various interim actions. The current configuration of the Site stormwater system is shown on Exhibit 3.

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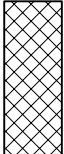
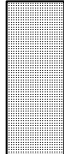
This technical memorandum has been prepared for the exclusive use of the Port of Olympia in summarizing the capping and stormwater improvements conducted at the Cascade Pole Site. No other party is entitled to rely on the information and recommendations included in this document without the express written consent of the Port and Landau Associates. Further, the reuse of information and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

CASCADE POLE SITE

EXHIBIT 1 - PHASING PLAN



VICINITY MAP

LOW PERMEABILITY CAP	
	
PVC LINER	ASPHALT PAVING

REVISIONS:	DATE:
AGENCY NO. _____	
SHEET: <u> 1 </u> OF <u> 3 </u>	
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■ JOB: <u> 09-101 </u>	

CASCADE POLE SITE

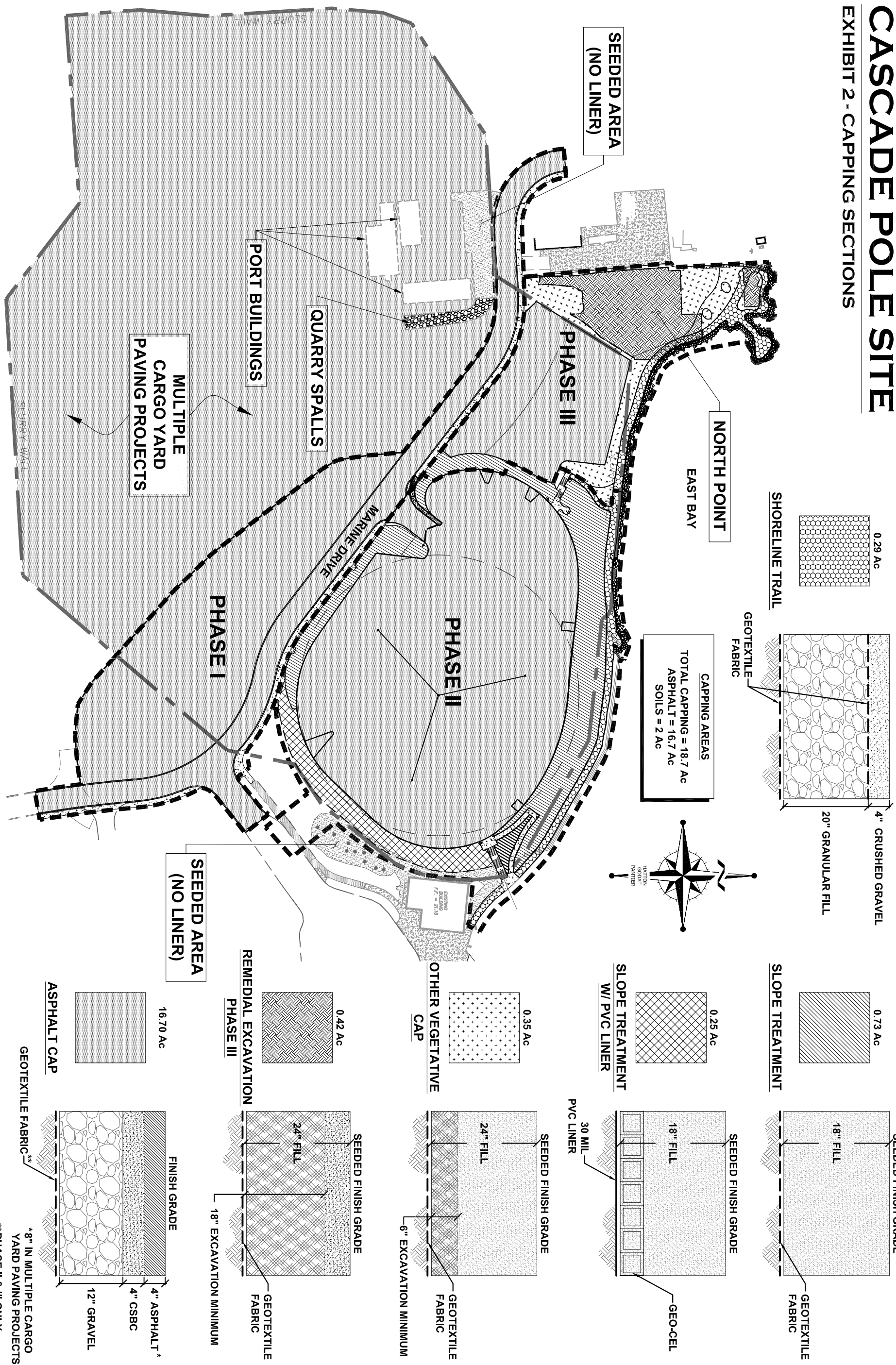
EXHIBIT 1 - PHASING PLAN

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DRAWN BY: <u> JSK </u>
CHECKED BY: <u> SDH </u>
DATE: <u> DEC. 2011 </u>
SCALE: <u> N/A </u>

CASCADE POLE SITE

EXHIBIT 2 - CAPPING SECTIONS



REVISIONS:	DATE:
AGENCY NO. _____	
SHEET: <u> 2 </u> OF <u> 3 </u>	
INDEX: 09-101Exhibit2.dwg	
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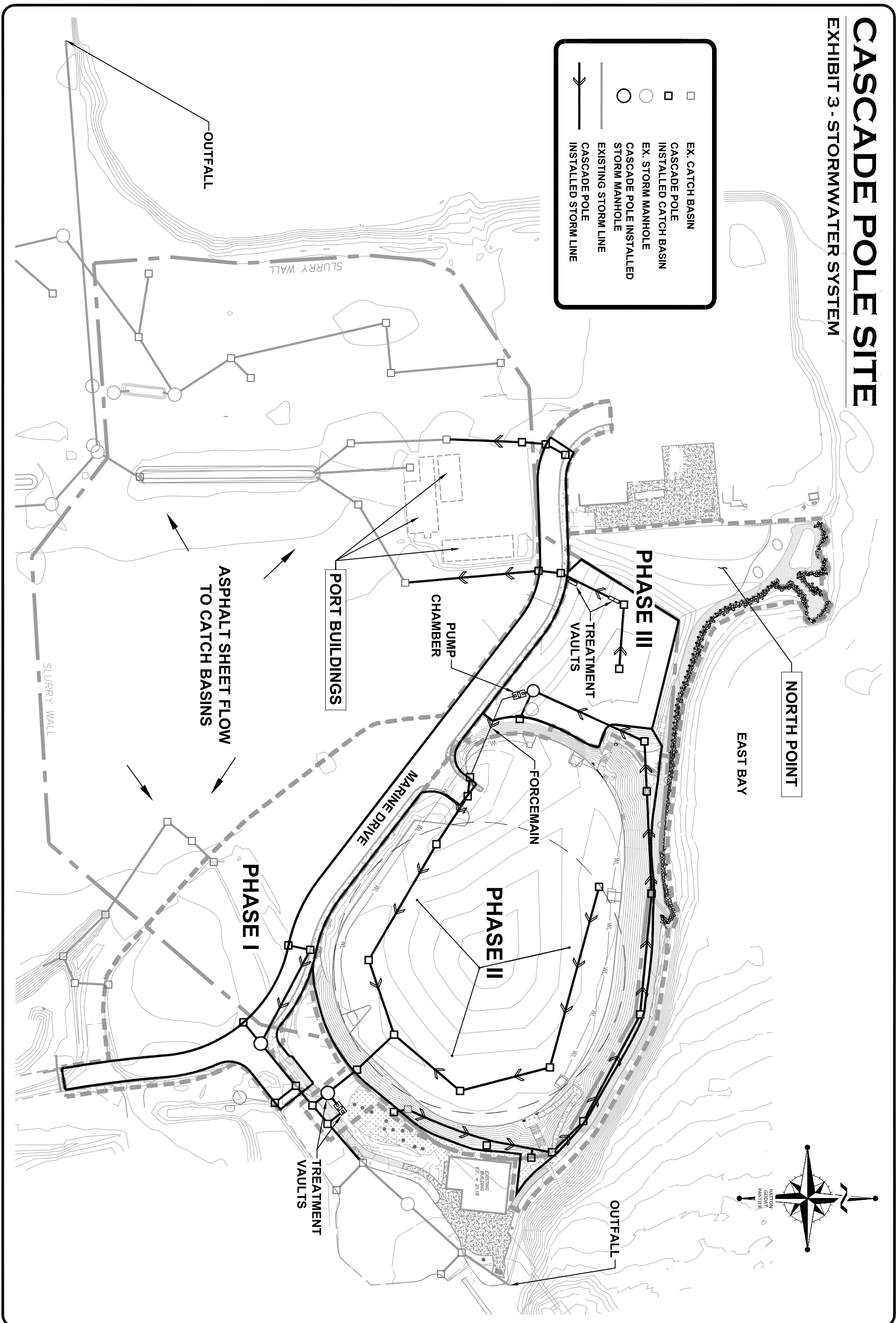
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CASCADE POLE SITE

EXHIBIT 3 - STORMWATER SYSTEM



	EX. CATCH BASIN
	CASCADE POLE INSTALLED CATCH BASIN
	EX. STORM MANHOLE
	CASCADE POLE INSTALLED STORM MANHOLE
	EXISTING STORM LINE
	CASCADE POLE INSTALLED STORM LINE

NORTH POINT

EAST BAY

PHASE III

TREATMENT
VAULTS

FORCEMAIN

PHASE II

PUMP
CHAMBER

MARINE DRIVE

PORT BUILDINGS

ASPHALT SHEET FLOW
TO CATCH BASINS

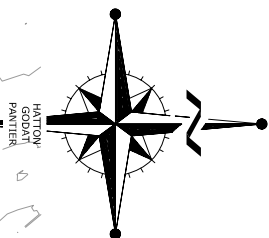
PHASE I

TREATMENT
VAULTS

OUTFALL

OUTFALL

SLURRY WALL



HATTON
GODAT
PANTIER

REVISIONS:	DATE:
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SHEET: <u>3</u> OF <u>3</u>	
INDEX: 09-101exhibit.dwg	
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CASCADE POLE SITE

EXHIBIT 3 - STORWATER SYSTEM

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