Hydrologic Analysis of Existing Terrain and Proposed Stormwater Source Controls

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Outline

- Integral Consulting Inc.
- Stormwater Drainage Analysis
  - Analysis Software
  - Stormwater Source Controls
  - Topographic Data
  - Hydrologic Modeling
  - Outputs for TR-55
  - Flood Inundation Modeling

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Founded in 2002, Integral has a proven track record of developing innovative and cost-effective solutions to the complex technical challenges facing our clients. Our primary goal is to help our clients make informed decisions, manage risk effectively, and identify optimal solutions by applying our science and engineering expertise. We also support our clients in the areas of strategic planning, agency negotiations, technical peer review, and expert services for litigation.

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> Capabilities

GIS Solutions

Geographic information systems (GIS) and database tools have revolutionized our ability to display, interpret, and spatially analyze data, supporting practical and effective decision-making. Integral's GIS and database specialists use advanced tools and techniques to collect and integrate data, and to perform spatial analyses and produce GIS maps, 3-dimensional animations, graphics, and data tables. Whether the goal is to characterize a plume or create a completely GIS-based model, our specialists have the skills and techniques to address spatial analysis problems. Our thorough understanding of the concepts underlying data, queries, and code in relational databases and our ability to create custom application interfaces enable us to apply the most effective solutions to respond to our clients' needs.

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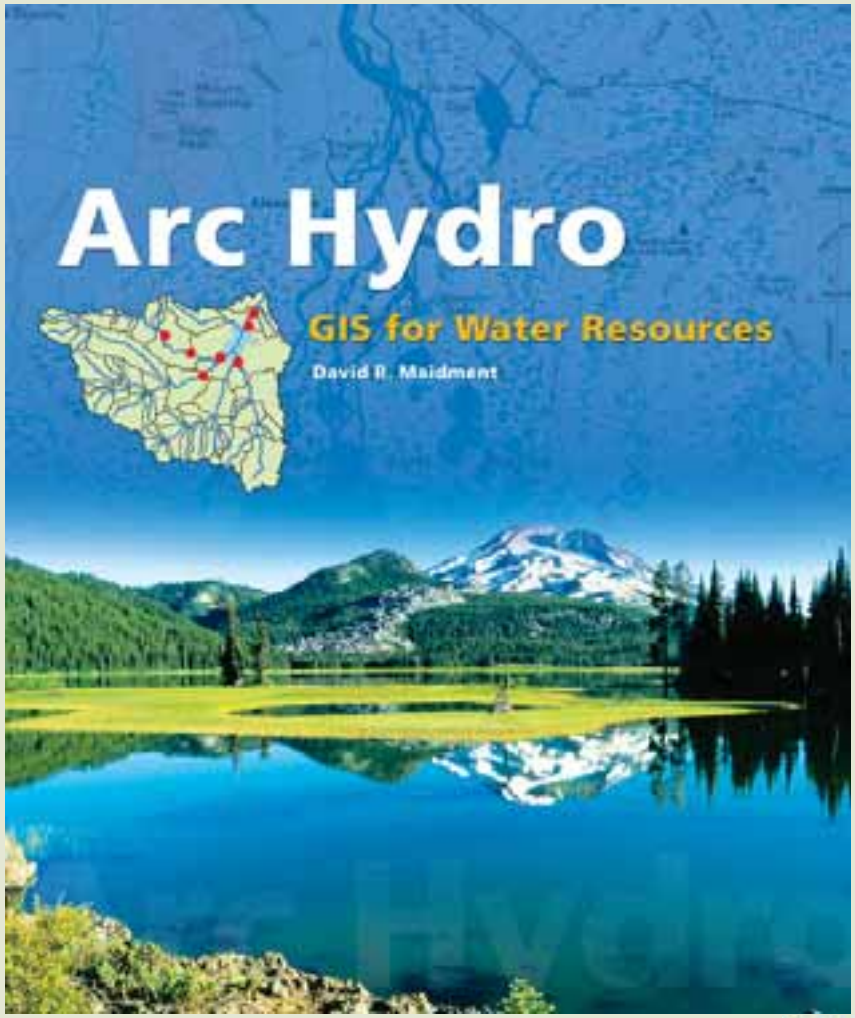
Analysis Software

- ArcGIS
  - ArcHydro Extension
- Autodesk Civil 3D
- WinTR-55
- EVS-Pro



Stormwater Source Controls

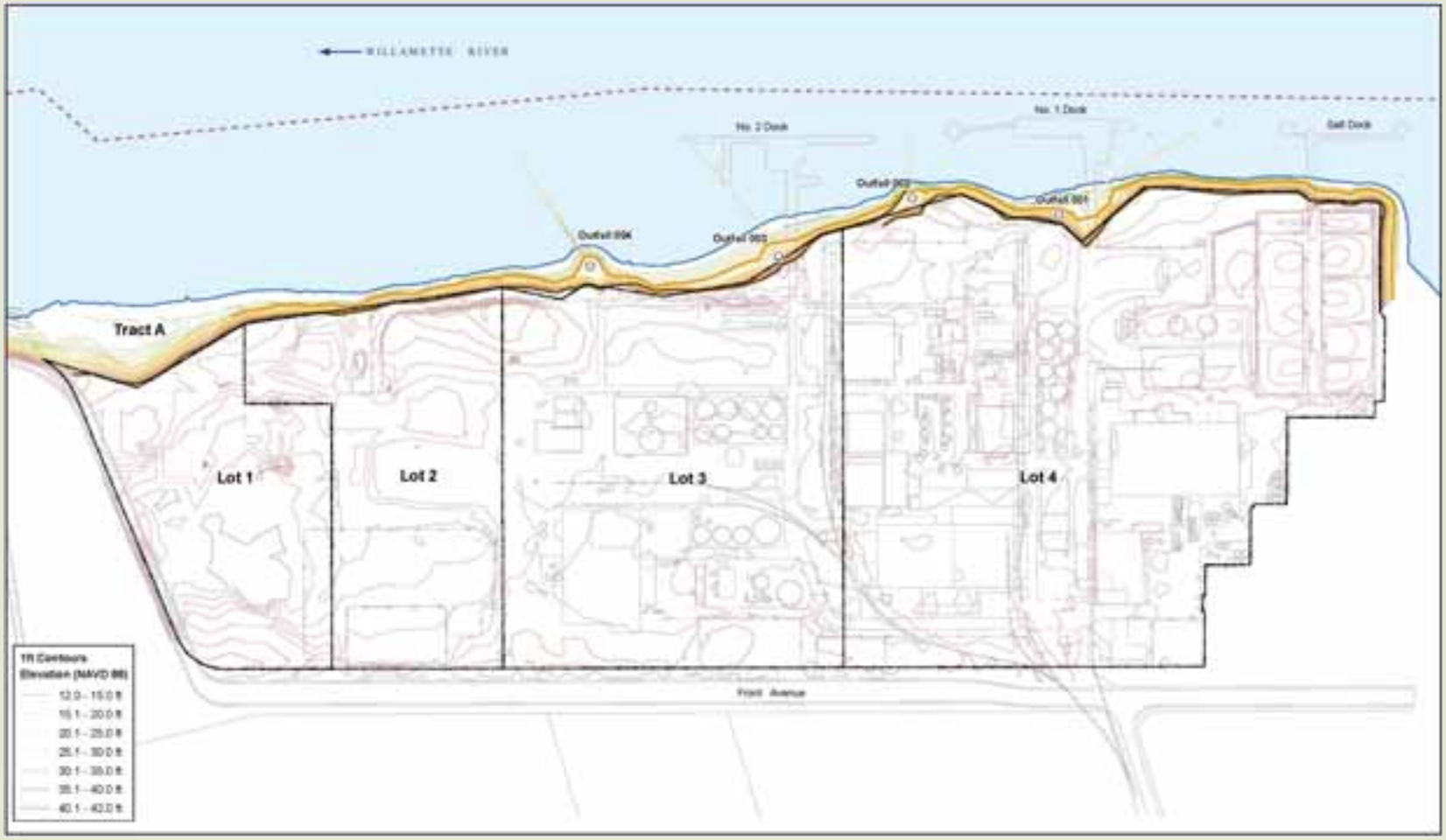
Topographic Data - Existing Surface

Topographic Data - Graded Area

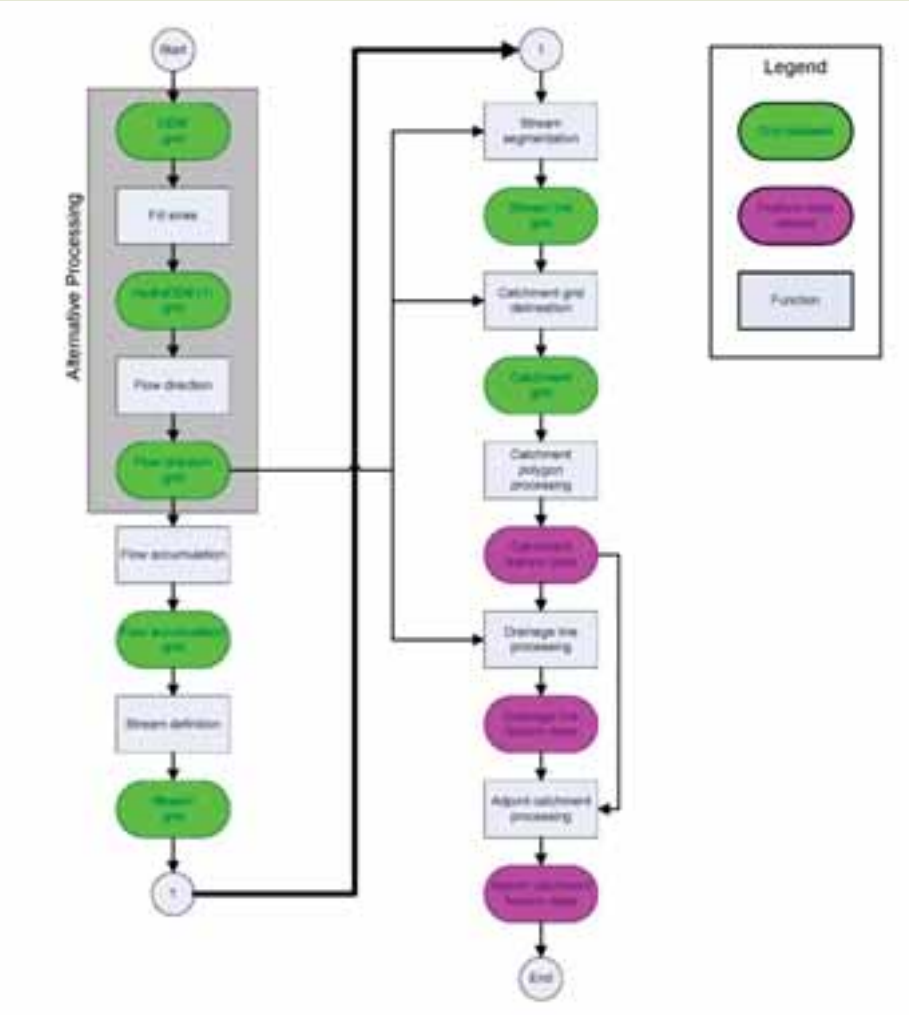
Topographic Data - Graded Area

Stormwater - Existing Surface

Stormwater - Existing Surface



Hydrologic Analysis Workflow



Source: Comprehensive terrain preprocessing using Arc Hydro tools.

Stormwater - Existing Surface Drainage

Stormwater - Final Design

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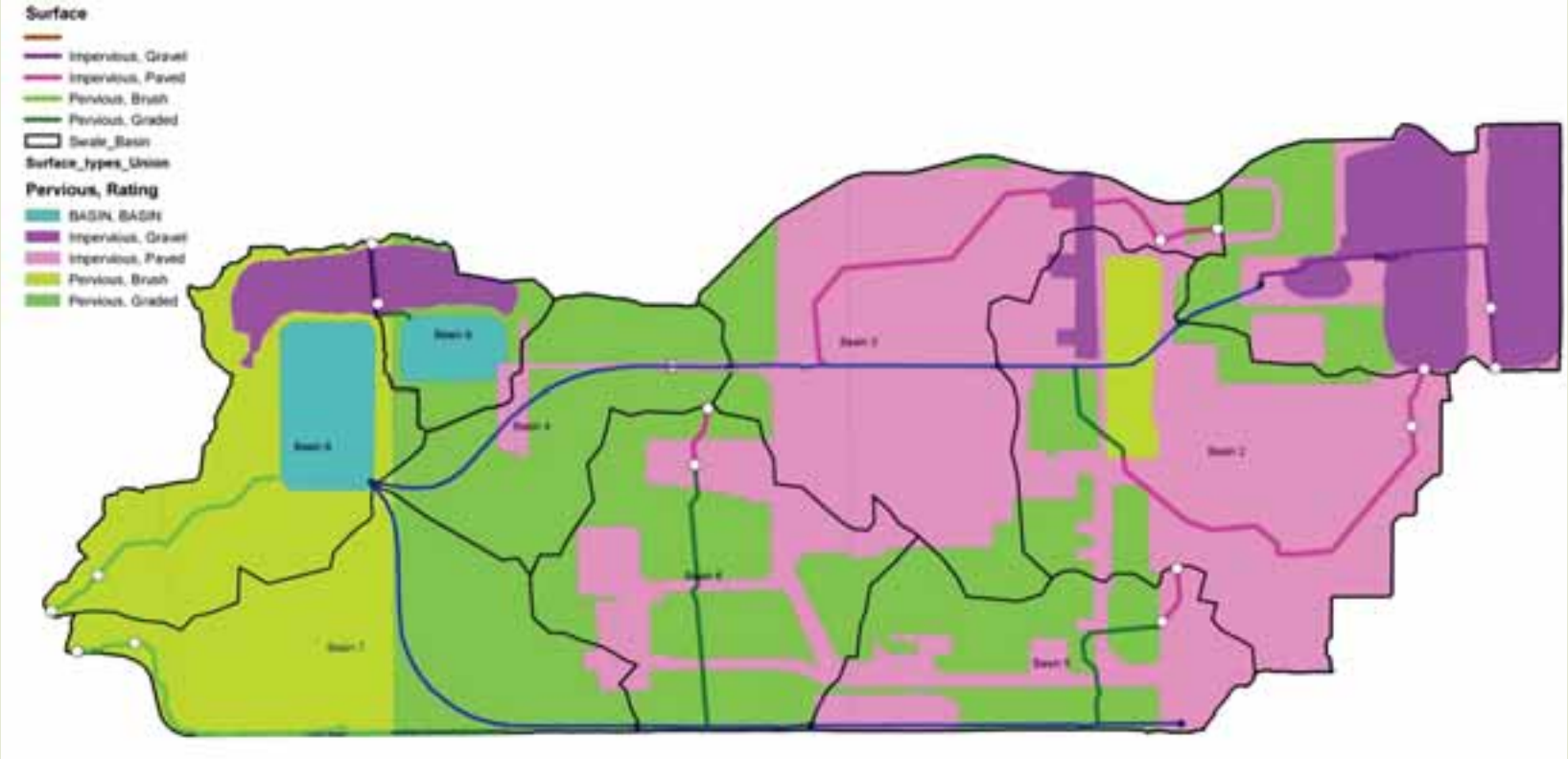
Depression Analysis

Post-Construction Drainage

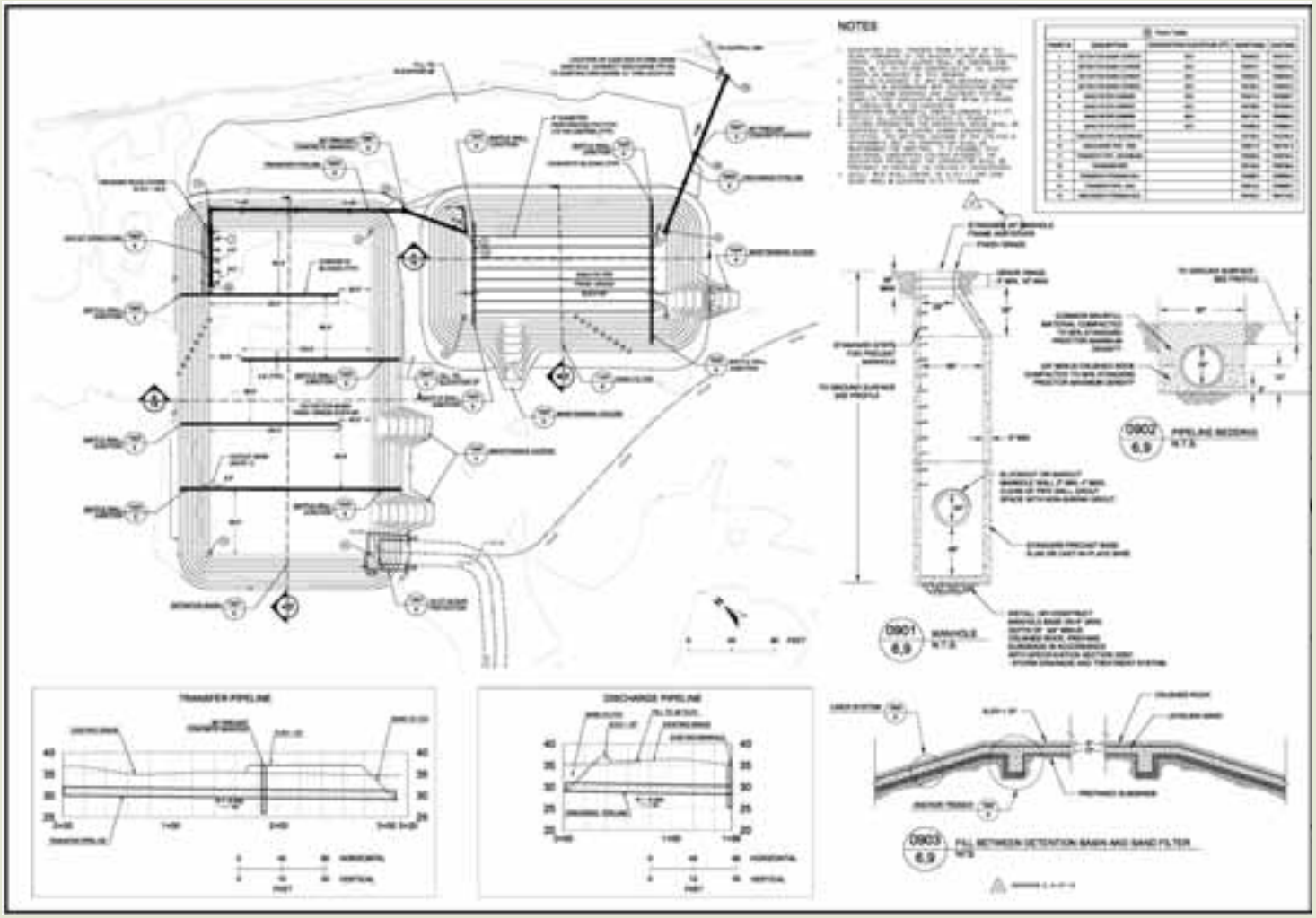
Longest Flow Paths and Catchment Areas

Land Cover Layer



Stormwater - DEM Flood Inundation

Stormwater Construction Drawing



Summary

- Topography reflects current conditions
- Novel hydrologic modeling
- Volumetric flood modeling
- Proposed stormwater conveyance system will capture the majority of stormwater runoff from the site