; ORNAMENTAL
OLE

XISTING PARKING LOT

V NATIVE UPLAND PLANTINGS
FER TERRACE FROM PARKING

E W/ TABLES AND

RKING

RECEPTACLE

RESTAURANT

ER PLANTINGS TO PROVIDE
RATION FROM ADJACENT
PERTY

PLANT SCHEDULE

KEY	QTY. EAST	QTY. WEST	BOTANICAL NAME	COMMON NAME	MIN. SIZE	COMMENTS
TREES						
ACC	1	-	Acer circinatum	Vine Maple	6' ht.	multi-stem, B&B
ALR	9	1	Alnus rubra	Red Alder	2" cal.	Matching, full, B&B
PIC	3	-	Pinus contorta 'Contorta'	Shore Pine	6' ht.	Matching, full, B&B
PSM	1	-	Pseudotsuga menziesii	Douglas Fir	10' ht.	Matching, full, B&B
SHRUBS						
COS	33	-	Cornus sericea	Red-Osier Dogwood	30" ht.	matching, full
GS	21	-	Gaultheria shallon	Salal	1 gal.	matching, full
MAA	14	-	Mahonia aquifolium	Oregon Grape	5 gal.	matching, full
MC	2	2	Myrica californica	Pacific Wax Myrtle	4' ht.	matching, full
POM	-	16	Polystichum munitum	Sword Fern	3 gal.	matching, full
RHM	3	3	Rhododendron 'Macrophyllum'	Coast Rhododendron	30" ht.	matching, full
RON	6	-	Rosa nutkana	Nootka Rose	3' ht.	matching, full
SAH	10	-	Salix hookeriana	Coast Willow	4' ht.	matching, full
SPD	10	-	Spiraea douglasii	Western spiraea	3-4' ht.	matching, full
SYA	3	-	Symphoricarpos albus	Snowberry	3 gal.	matching, full
VO	36	12	Vaccinium ovatum	Evergreen Huckleberry	5 gal.	matching, full
GROUNDCOVERS AND GRASSES						
AU	12" o.c.	18" o.c.	Arctostaphylos uva-ursi	Kinnikinnick	1 gal.	matching, full
CAO	15" o.c.	15" o.c.	Carex obnupta	Slough Sedge	1 gal.	matching, full
FC	12" o.c.	12" o.c.	Fragaria chiloensis	Beach Strawberry	4" pots	matching, full
JUE	18" o.c.	18" o.c.	Juncus effusus	Soft Rush	1 gal.	matching, full
MAR	18" o.c.	18" o.c.	Mahonia repens	Creeping Mahonia	1 gal.	matching, full
BULBS / PERENNIALS						
CQ	152	-	Camassia quamash	Camas	bulb	large
IT	133	-	Iris tenax	Pacific Iris	bulb	large

GENERAL NOTES

1. NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO THE FOLLOWING INSPECTIONS - SEE SPECIFICATIONS:
   - PLANT BED AND STORMWATER FACILITY SUB BASE / EXCAVATION
   - FINISHED GRADING AT PLANT BED AND STORMWATER FACILITIES
   - PLANT MATERIAL ON-SITE INSPECTION AND LAYOUT REVIEW
2. IRRIGATION WILL BE PROVIDED FOR OVERLOOK AND RAIN GARDEN AREA PLANTINGS. COMPLETE IRRIGATION SYSTEM WILL BE DESIGNED AND DOCUMENTED AS PART OF CONSTRUCTION DOCUMENT SET.
3. WETLAND AREA PLANTINGS TO BE INSTALLED IN FALL TO ALLOW FOR SEASONAL RAINS TO AID PLANT ESTABLISHMENT.
4. SEE CIVIL ENGINEER'S PLANS FOR STORMWATER FACILITY DESIGN INFORMATION.
5. SEE CIVIL ENGINEER'S PLANS FOR LOCATION AND HEIGHT OF PROPOSED WALLS, TERRACES, DECKS AND OTHER HARDSCAPE ELEMENTS.
6. SEE CIVIL ENGINEER'S PLANS FOR LOCATION OF EXISTING VEGETATION TO REMAIN AND BE REMOVED.
7. PLANTINGS AS DESIGNED ARE INTENDED TO MEET SPECIFIC REQUIREMENTS, NO SUBSTITUTIONS OR SIZE CHANGES PERMITTED WITHOUT APPROVAL BY LANDSCAPE ARCHITECT
8. MULCH AT BOTTOM AND SIDE SLOPES OF STORM WATER TREATMENT GARDENS TO BE SPECIFIED PEA GRAVEL MULCH, ALL OTHER PLANTING AREAS TO BE FIR MULCH.
9. SEE SPECIFICATIONS FOR ADDITIONAL PLANTING AND SOIL PREPARATION REQUIREMENTS.
10. PLANT LIST QUANTITIES ARE FOR CONTRACTOR CONVENIENCE ONLY. VERIFY ACTUAL QUANTITIES ON PLAN.

LANDSCAPE SPECIFICATIONS

A. PLANT BEDS
1. FINISHED ELEVATION OF SUB-BASE TO BE 18" MINIMUM BELOW FINISHED GRADE.
2. TILL SUBGRADE THOROUGHLY TO A DEPTH OF 8" MINIMUM PRIOR TO PLACEMENT OF TOPSOIL.
3. PLACE 18" MINIMUM OF SANDY LOAM TOPSOIL OVER TILLED SUBGRADE. ADD 4" OF ORGANIC MATERIAL AND 15-5-10-10 FERTILIZER TO TOPSOIL AT THE RATE OF 20 LBS. PER 1000 SF. ROTO-TILL AMENDMENTS AND TOPSOIL TO A DEPTH OF 8" MINIMUM.
4. PROVIDE 3" OF SHREDDED FIR BARK MULCH OVER ALL PLANT BEDS.
5. PROVIDED "SPADED EDGE" TO SEPARATE LAWNS AND PLANT BEDS.

RAIN GARDENS
1. SEE ENGINEER'S DRAWINGS FOR SOIL MATERIAL AND DEPTH.
2. TILL SUBGRADE THOROUGHLY TO A DEPTH OF 8" MINIMUM PRIOR TO PLACEMENT OF TOPSOIL.
3. PLACE SPECIFIED DEPTH OF TOPSOIL OVER TILLED SUBGRADE.
4. ADD 2" OF 15-5-10-10 FERTILIZER TO TOPSOIL AT THE RATE OF 20 LBS. PER 1000 SF. ROTO-TILL AMENDMENTS AND TOPSOIL TO A DEPTH OF 8" MINIMUM OR DEPTH OF SOIL, WHICHEVER IS LESS.
5. PROVIDE 1" DEPTH OF 3/8" ROUND NO. 4 PEA GRAVEL MULCH OVER ALL SWALES. MULCH TO BE FREE FROM FINES OR OTHER DELETERIOUS SUBSTANCES.

B. PLANT MATERIAL
1. PROVIDE ONLY HEALTHY, FULL PLANT MATERIAL AT SIZES INDICATED.
2. PLANT SUBSTITUTIONS TO BE APPROVED BY LANDSCAPE ARCHITECT.
3. PLANT LAYOUT TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

C. SEEDING
1. APPLY SEED AT RATES SPECIFIED BY MANUFACTURER.
2. CONTRACTOR RESPONSIBLE FOR MAINTAINING SEEDED AREA THROUGH ESTABLISHMENT.
3. RE-SEED ANY AREAS AS NECESSARY TO ACHIEVE FULL HEALTHY TURF.

IRRIGATION SYSTEM SPECIFICATIONS

1. IRRIGATION DISTRIBUTION COVERAGE TO BE HEAD TO HEAD.
2. SEPARATE ZONES TO BE PROVIDED FOR STORMWATER AND UPLAND SHRUB AREAS.
3. COVERAGE AT PIPING TO BE 18" MIN. AT MAIN LINES AND 15" AT LATERAL LINES.
4. INVERTED VALVE BOX SUMP TO BE PROVIDED UNDER EACH AUTOMATIC CONTROL VALVE.
5. BACKFLOW PREVENTER TO BE WILKINS 950-XLT LOCATED IN PENTEK 'JUMBO' VALVE BOX.
6. 3" SAND BEDDING TO BE PROVIDED BELOW ALL PIPES.
7. ISOLATION GATE VALVE TO BE PROVIDED BEFORE EACH AUTOMATIC CONTROL VALVE. (NIBCO T-113)
8. MANUAL, BRONZE DRAIN VALVES TO BE PROVIDED AT MAIN LINE LOW POINTS.
9. SPRINKLER MODELS TO BE: RAIN BIRD 1806, WALLA-WALLA MP ROTATORS OR NETAFIM DRIPLINE TUBING.
10. AUTOMATIC CONTROLLER TO BE RAIN BIRD ESP-LX.
11. AUTOMATIC CONTROL VALVES TO BE RAIN BIRD PEB OR DVX SERIES.
12. VALVE BOXES TO BE PENTEK WITH GREEN LIDS AT LAWNS AND BROWN LIDS AT PLANT BEDS.
13. MAIN LINE PIPING TO BE SCHEDULE 40 PVC, LATERAL PIPING CLASS 200 PVC. MINIMUM PIPE SIZE TO BE 3/4".
14. SLEEVES TO BE SCHEDULE 40 PVC. (6" DIAMETER)

PLANTING LEGEND

SHADE TREES

UNDERSTORY TREES

CONIFEROUS TREES

ORNAMENTAL POLE LIGHT

BENCH

INTERPRETIVE SIGN

LITTER RECEPTACLE

BIKE RACK

EXISTING WETLAND

BULB MASSING

PROPOSED GROUNDCOVERS AND GRASSES W/ SPECIES

AU JUE

CAO IT

FC

SIUSLAW INTERPRETIVE WAYSIDE: WAYSIDE EAST

LANDSCAPE PLAN

0 2 5 10 20 40

SCALE: 1" = 10'-0"

NORTH

DLA
DOUGHERTY LANDSCAPE ARCHITECTS
474 Willamette Street
Suite 305
Eugene, Oregon 97401
P 541.683.5803
F 541.683.8183
www.DLAdesign.com

REVISIONS

DATE:	REVISION DESCRIPTION:	BY:
1/25/12	PLAN REVIEW RESPONSE	RR

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:

REGISTERED LANDSCAPE ARCHITECT
279
David J. Dougherty
OREGON
PRELIMINARY NOT FOR CONSTRUCTION

Revised 2/7/12

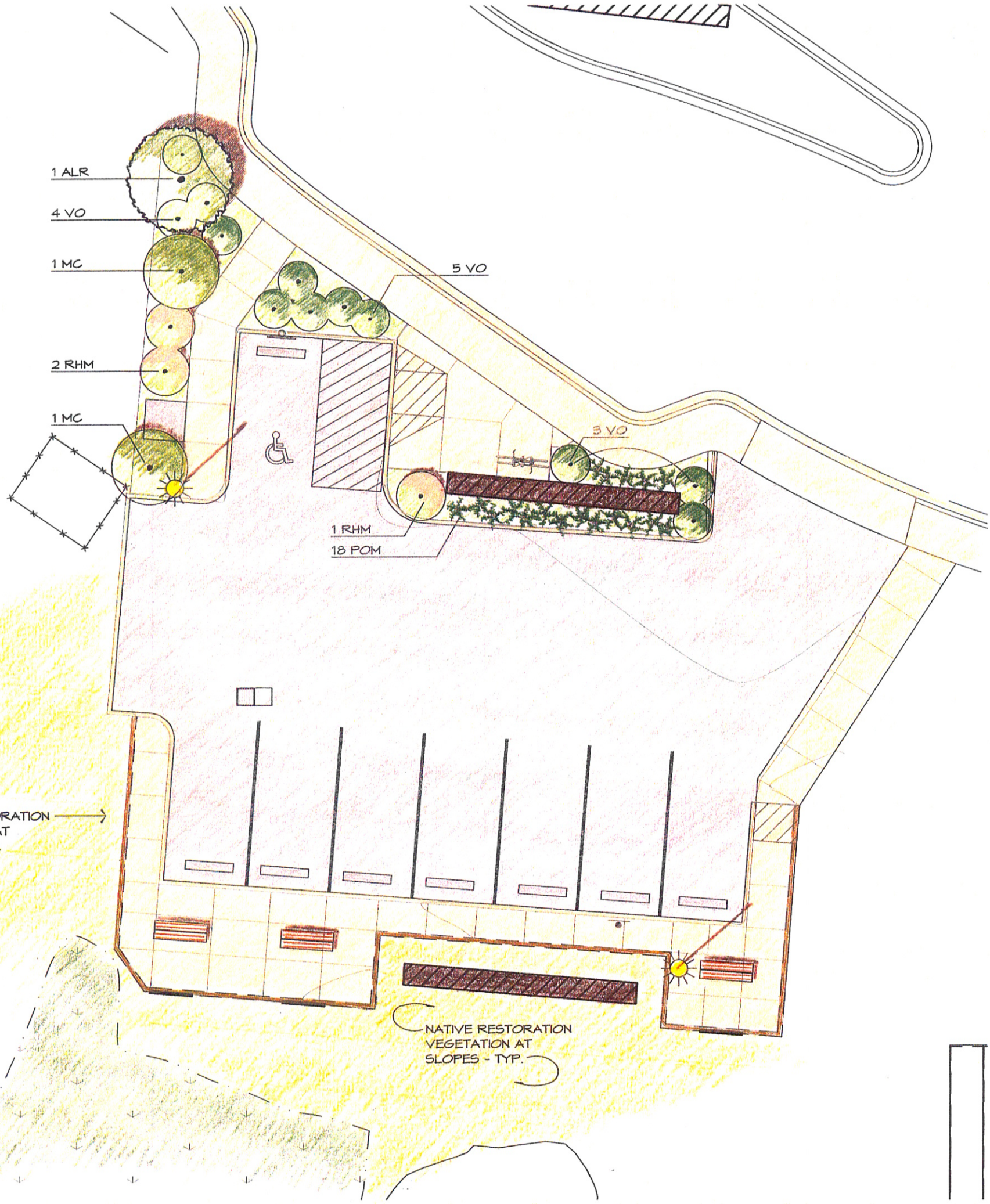
Branch Engineering, Inc.
310 Fifth Street
Springfield, Oregon 97477
(541)746-0637 FAX (541)746-0389
branchadmin@branchengineering.com
Civil • Structures • Transportation • Surveying

DATE	NOV 2011
SCALE	
DRAWN BY	RR
DESIGNER	DJD/RR
CHECKED BY	DJD
PROJECT NUMBER	11-001B

SHEET NO.
L1.1
OF ___ SHEET(S)

Exhibit B


BAY STREET
2 ALR
STORMWATER OUTFALL
3 VO
RETAINING WALL
13 COS
INTERPRETIVE OVERLOOK
1 SPD
1 MC
4 VO
EXISTING ORNAMENTAL LIGHT POLE
EXISTING OUTDOOR DINING TERRACE
3 ALR
3 VO
1 ALR
RAIN GARDEN
1 SAH
3 VO
1 MC
EXISTING PARKING LOT
UPLAND AREA
3 GS
4 VO
COLORED CONCRETE PAVING - TYP.
2 SAH
6 RON
3 COS
6 SAH
BERM W/ NATIVE UPLAND PLANTINGS TO BUFFER TERRACE FROM PARKING
TERRACE W/ TABLES AND CHAIRS
6 SPD
FOOT BRIDGE OVER WEIR
3 PIC
4 VO
11 COS
4 GS
5 VO
3 SYA
1 SAH
BIKE PARKING
LITTER RECEPTACLE
3 ALR
3 MAA
1 ACC
1 GS
9 GS
9 VO
RESTAURANT
3 COS
3 SPD
3 RHM
WETLAND
6S
DECK WITH INTERPRETIVE SIGNS AND BENCHES
EXISTING WETLAND TO BE RESTORED/ENHANCED
BUFFER PLANTINGS TO PROVIDE SEPARATION FROM ADJACENT PROPERTY
3 COS
Beach
SIUSLAW RIVER


1 ALR
4 VO
1 MC
5 VO
2 RHM
1 MC
3 VO
1 RHM
18 POM
NATIVE RESTORATION VEGETATION AT SLOPES - TYP.
NATIVE RESTORATION VEGETATION AT SLOPES - TYP.

LEGEND

	EXTG MAJOR CONTOUR (5, 10...)
	EXTG MINOR CONTOUR
10	PROPOSED MAJOR CONTOUR (2, 4...)
9.5	PROPOSED MINOR CONTOUR
	PROPOSED VERTICAL CURB
	EXISTING CURB
	EXISTING WATER LINE
	EXISTING SANITARY SEWER
	EXISTING STORM DRAIN SEWER
2%	DENOTES PROPOSED PERVIOUS/ IMPERVIOUS STORMWATER RUNOFF PATTERNS
	PROPOSED ASPHALT CONCRETE
	PROPOSED LOW POINT & FLOW DIRECTION
ST ST	PROPOSED STORM PIPE
	PROPOSED WALL
	PROPOSED SAWCUT LINE
WTLND	EXISTING WETLANDS BOUNDARY
	PROPOSED RAILING ALONG WALL
	EXISTING UNDERGROUND TV LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING ELECTRICAL LINE
	EXISTING TAX LOT LINE
	SETBACK LINE

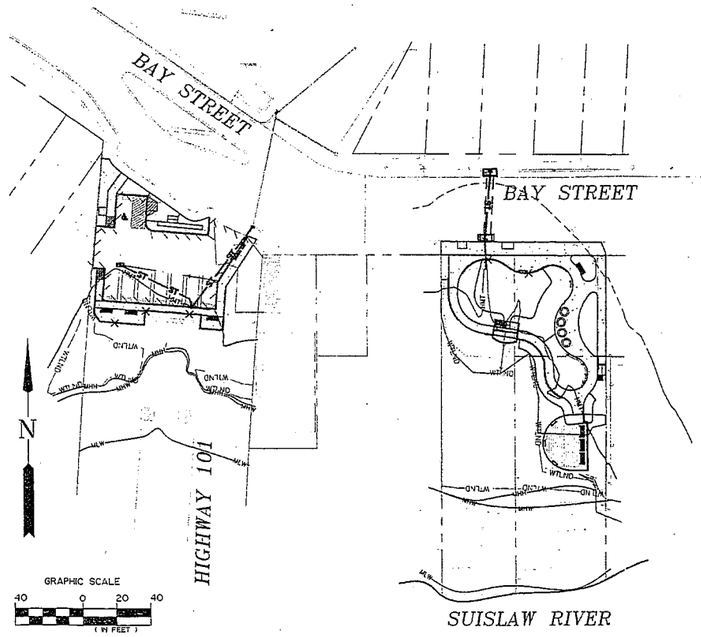
	EXISTING WATER METER
	EXISTING WATER VALVE
	EXISTING POWER POLE
	EXISTING FIRE HYDRANT
	EXISTING CATCH BASIN
	EXISTING MANHOLE
	PROPOSED CONCRETE
	PROPOSED LANDSCAPE AREA
	PROPOSED PAVED WALKWAY
WTLND	EXISTING WETLANDS
	PROPOSED TWO CHAMBER CATCH BASIN
	EXISTING TREE
	EXISTING BRIDGE ARCH ABOVE OR EXISTING COLUMN & FOOTING
	EXISTING SIGN
	PROPOSED BENCH
	PROPOSED SIGNS
	PROPOSED BIKE RACK
	PROPOSED PICNIC TABLE

AC	ASPHALTIC CONCRETE PAVING
BW	BOTTOM OF WALL
FL	FLOW LINE
MHW	MEAN HIGH WATER LINE
MLW	MEAN LOW WATER LINE
HMT	HIGHEST MEASURED TIDE
MHH	MEAN HIGHER HIGH WATER LINE
OHP	OVER HEAD POWER LINES
TP	PROPOSED TOP OF PAVEMENT
TC	TOP OF CURB
TW	TOP OF WALL
CATV	OVERHEAD CABLE TV
SSPL	SANITARY SEWER PRESSURE LINE

LAND USE APPLCIATION
FOR
SIUSLAW WAYSIDE INTERPRETIVE SITE

N.E. 1/4, SEC. 34, T.18S., R.12W., W.M.
LANE COUNTY, OREGON
NOVEMBER 30, 2011
SCALE 1" = 40'

SHEET INDEX



EXISTING USE:
BAY STREET RUNS ALONG THE RIVER IN THE OLD TOWN DISTRICT OF THE CITY OF FLORENCE. THE EXISTING SITES ARE CURRENTLY VACANT. THE PROPOSED PARKING LOT SITE IS UNDERNEATH HIGHWAY 101 ON THE NORTH SIDE OF THE SIUSLAW RIVER. THE INTERPRETIVE SITE IS 120' FEET EAST OF THE HIGHWAY 101 BRIDGE. THE SOUTHEAST CORNER OF THE INTERPRETIVE SITE, NEAR THE RIVER, WAS ONCE USED AS A SCRAP IRON DUMP AREA.

ZONING:
THIS SITE IS LOCATED IN THE OLD TOWN DISTRICT AREA A. THE INTERPRETIVE SITE IMPROVEMENTS PROPOSE TO CONSTRUCT A STORMWATER FACILITY AND PUBLIC ACCESS/OPEN SPACE ADJACENT TO THE SIUSLAW RIVER.

THE PROPOSED IMPROVEMENTS FOR UNDERNEATH HIGHWAY 101 ARE TO CONSTRUCT A PARKING AREA THAT WILL SUPPORT ACCESS TO THE WAYSIDE DEVELOPMENT AND THE OLD TOWN DISTRICT. THE DEVELOPEMENT REQUIRES CONDITIONAL USE APPROVAL FROM THE CITY OF FLORENCE.

LOT ACREAGE
INTERPRETIVE SITE
SITE AREA = 0.44 ACRES
DISTURBANCE AREA = 0.20 ACRES
EXISTING WETLANDS AREA = 0.10 ACRES
NEW IMPERVIOUS AREA = 0.06 ACRES

PARKING LOT SITE
SITE AREA = 0.40 ACRES
DISTURBANCE AREA = 0.14 ACRES
NEW IMPERVIOUS AREA = 0.13 ACRES

WATER QUALITY LIMITED WATER COURSE MAP FEATURES:
THE SIUSLAW RIVER IS JUST SOUTH OF THE SITE. THE HIGHEST MEASURED TIDE (HMT) IS APPROXIMATELY ELEVATION 7.0'. MOST OF THE CONSTRUCTION IS ABOVE THIS ELEVATION WITH THE EXCEPTION OF PART OF THE STORMWATER TREATMENT FACILITY AND A PEDESTRIAN WALKWAY THAT WILL REQUIRE FILL AND A SMALL WALL AND HANDRAIL. THE PARKING LOT WILL ALSO REQUIRE FILL AND A 2-3' WALL TO KEEP THE SITE ABOVE THE HMT ELEVATION.

EARTH WORK:
CUT AND FILL WILL BE ASSOCIATED WITH GRADING THE NEW STORMWATER TREATMENT FACILITY AND FILLING IN THE PARKING AREA TO AN ELEVATION ABOVE THE HIGHEST MEASURED TIDE. BELOW ARE THE UNADJUSTED EARTHWORK QUANTITIES.
APPROXIMATE CUT = 85 CY
APPROXIMATE FILL = 370 CY FILL
NET = APPROXIMATELY 285 CY FILL

CONSTRUCTION TIMELINE
IN CONFORMANCE WITH THE IN-WATER WORK WINDOW DEFINED BY THE OREGON DEPARTMENT OF FISH AND WILDLIFE. IN-WATER WORK WILL OCCUR ONLY BETWEEN NOVEMBER 1 AND FEBRUARY 15. AN "EARLY IN" EXCEPTION WILL BE REQUESTED TO START WORK SEPTEMBER 15, 2012.

SOIL TYPE
#133C – WALDPORT–URBAN LAND COMPLEX, 0 TO 12 PERCENT SLOPES

BENCHMARK / DATUM:
NGVD 1929.

APPLICANT
CONTACT: MIKE MILLER
PUBLIC WORKS DIRECTOR
CITY OF FLORENCE
989 SPRUCE STREET
FLORENCE, OREGON 97439
PHONE: (541) 997-4106
FAX: (541) 902-1333
E-mail: mike.miller@ci.florence.or.us

APPLICANT'S REPRESENTATIVE
CONTACT: DAMIEN GILBERT, P.E.
BRANCH ENGINEERING, INC.
310 5TH STREET
SPRINGFIELD OR, 97477
PHONE: (541) 746-0637
FAX: (541) 746-0389
E-mail: damien@branchengineering.com

CONSULTANTS

ENGINEER CIVIL
CONTACT: CHRIS IRVIN, P.E.
BRANCH ENGINEERING, INC.
310 5TH STREET
SPRINGFIELD OR, 97477
PHONE: (541) 746-0637
FAX: (541) 746-0389
E-mail: chris@branchengineering.com

LANDSCAPE ARCHITECT
CONTACT: DAVID DOUGHERTY
D.L.A., INC.
474 WILLAMETTE ST., SUITE 305
EUGENE, OREGON 97401
PHONE: (541) 683-5803
FAX: (541) 683-8183
E-mail: davidd@dladesign.com

SURVEYOR
CONTACT: GENE WOBBE, P.L.S., W.R.E.
WOBBE & ASSOCIATES, INC.
510 KINGWOOD ST.
P.O. BOX 3093
FLORENCE, OR 97439
PHONE: (541) 997-8411
FAX: (541) 997-2095
E-mail: wobbe_assoc@msn.com

GENERAL NOTES:

A. ALL MATERIALS AND WORKMANSHIP OF ITEMS TO BE MAINTAINED BY THE CITY OF FLORENCE WITHIN PUBLIC EASEMENTS AND RIGHT OF WAY SHALL MEET CITY OF FLORENCE PUBLIC WORKS SPECIFICATIONS. THE 2008 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.

B. THE LOCATION OF EXISTING WATER LINES AND EXISTING UTILITIES SHOWN ON THE PLANS IS APPROXIMATE. THE CONTRACTOR SHALL CALL THE "ONE-CALL" UTILITY LOCATION NUMBER, 1-800-332-3244, FOR FIELD LOCATION AND DEPTH BEFORE EXCAVATING.

C. OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW RULES ADOPTED BY OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987.

D. THE CONTRACTOR SHALL FIELD VERIFY UNDERGROUND FACILITIES DURING THE CONSTRUCTION PERIOD. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE CORRECTION OF ANY UNDERGROUND UTILITY FACILITIES DAMAGED BY CONTRACTOR'S WORK.

E. THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL DEVICES NECESSARY TO PROTECT AND SAFEGUARD THE PUBLIC AND WORKERS AGAINST INJURY AND PROTECT THE WORK AGAINST DAMAGE. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (M.U.T.C.D.), CURRENT EDITION, AS SUPPLEMENTED AND AS SHOWN IN THE OREGON DEPARTMENT OF TRANSPORTATION HANDBOOK, "OREGON TEMPORARY TRAFFIC CONTROL HANDBOOK FOR OPERATIONS OF THREE DAYS OR LESS - MAY 2006." THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REQUIRED TRAFFIC CONTROL AS FIELD CONDITIONS WARRANT.

F. COMPACTION REQUIREMENTS UNLESS OTHERWISE NOTED:

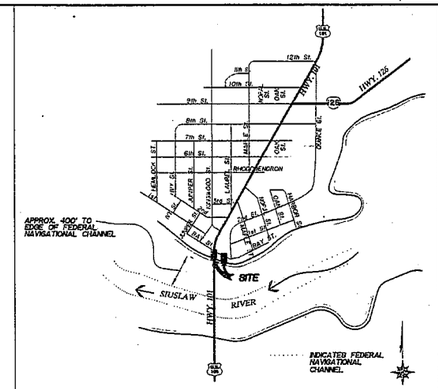
LAYER	RATE	TEST
SUBGRADE	95%	T99
CRUSHED ROCK	95%	T99
ASPHALT	90%	RICE

G. SAWCUT LINES SHOWN ON PLANS SHALL BE PAY LIMITS FOR TRENCH PATCH. ADDITIONAL TRENCH PATCH SHALL BE AT CONTRACTOR'S EXPENSE. INSUFFICIENT SHORING OR DE-WATERING SHALL NOT BE GROUNDS FOR ADDITIONAL TRENCH PATCH PAYMENT.

CONSTRUCTION NOTES:

1. ONLY VISIBLE EVIDENCE OF UNDERGROUND UTILITIES ARE LOCATED. ACTUAL UNDERGROUND LOCATIONS ARE APPROXIMATE AND EXCAVATION MAY BE REQUIRED FOR A MORE PRECISE LOCATION. THE SURVEY WAS MADE WITHOUT BENEFIT OF A TITLE REPORT. EASEMENTS, BOTH IMPLIED AND OF RECORD, NOT SHOWN ON THIS MAP MAY EXIST.
2. WHERE STRIPING IS REQUIRED AS PART OF TRENCH PATCH AND PAVEMENT REPAIR, STRIPING SHALL MATCH EXISTING.
3. RIGHT OF WAY, LOT LINES, AND CENTERLINES SHOWN ARE APPROXIMATE.
4. MANHOLE RIM ELEVATIONS SHOULD MATCH THE EXISTING SURFACE WHEN IN A STREET, DRIVEWAY, SIDEWALK, PATH, TRAIL, OR BIKE PATH, SHOULD BE ONE TENTH OF A FOOT (0.1') ABOVE EXISTING GROUND WHEN ADJACENT TO BUT NOT WITHIN A WALK, PATH, TRAIL, OR BIKE PATH; AND SHOULD BE ONE FOOT (1') ABOVE EXISTING GROUND WHEN OUTSIDE A TRAVELED WAY.
5. RESTORE ADJACENT AND ALL DISTURBED AREAS TO PRECONSTRUCTION CONDITION OR BETTER. PLANT AND STABILIZE AS SOON AS PRACTICABLE. PROVIDE HYDROSEED OR 2" BARK MULCH AT MINIMUM.
6. BACKFILL TO BE CLASS C CLEAN NATIVE SAND UNLESS OTHERWISE NOTED.
7. TRENCHES SHALL BE PATCHED WITH ½" DENSE GRADED LEVEL 3 HMAC TO 4" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER, 2" MAXIMUM LIFTS.
8. CONTRACTOR SHALL PROVIDE TIMELY NOTICE TO ALL AFFECTED PARTIES AND NEIGHBORING PROPERTIES OF CONSTRUCTION SCHEDULE, IMPACTS, AND ANY ANTICIPATED DISRUPTION OF UTILITY SERVICE. WASTEWATER SERVICE SHALL NOT BE INTERUPTED MORE THAN 2 HOURS UNLESS OTHERWISE AUTHORIZED IN WRITING BY PROPERTY OWNER OR RESIDENT.
9. CONTRACTOR SHALL ADEQUATELY SUPPORT ALL WATERLINE CROSSINGS. WATER SERVICE MUST NOT BE INTERUPTED. ALTERNATE METHODS MAY BE PROPOSED BY CONTRACTOR BUT MUST BE APPROVED BY CITY OR AUTHORIZED REPRESENTATIVE PRIOR TO WORK.

FOR SITE REVIEW ONLY
NOT FOR CONSTRUCTION



VICINITY MAP
SCALE: NONE

REVISIONS	
DATE:	REVISION DESCRIPTION:
	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

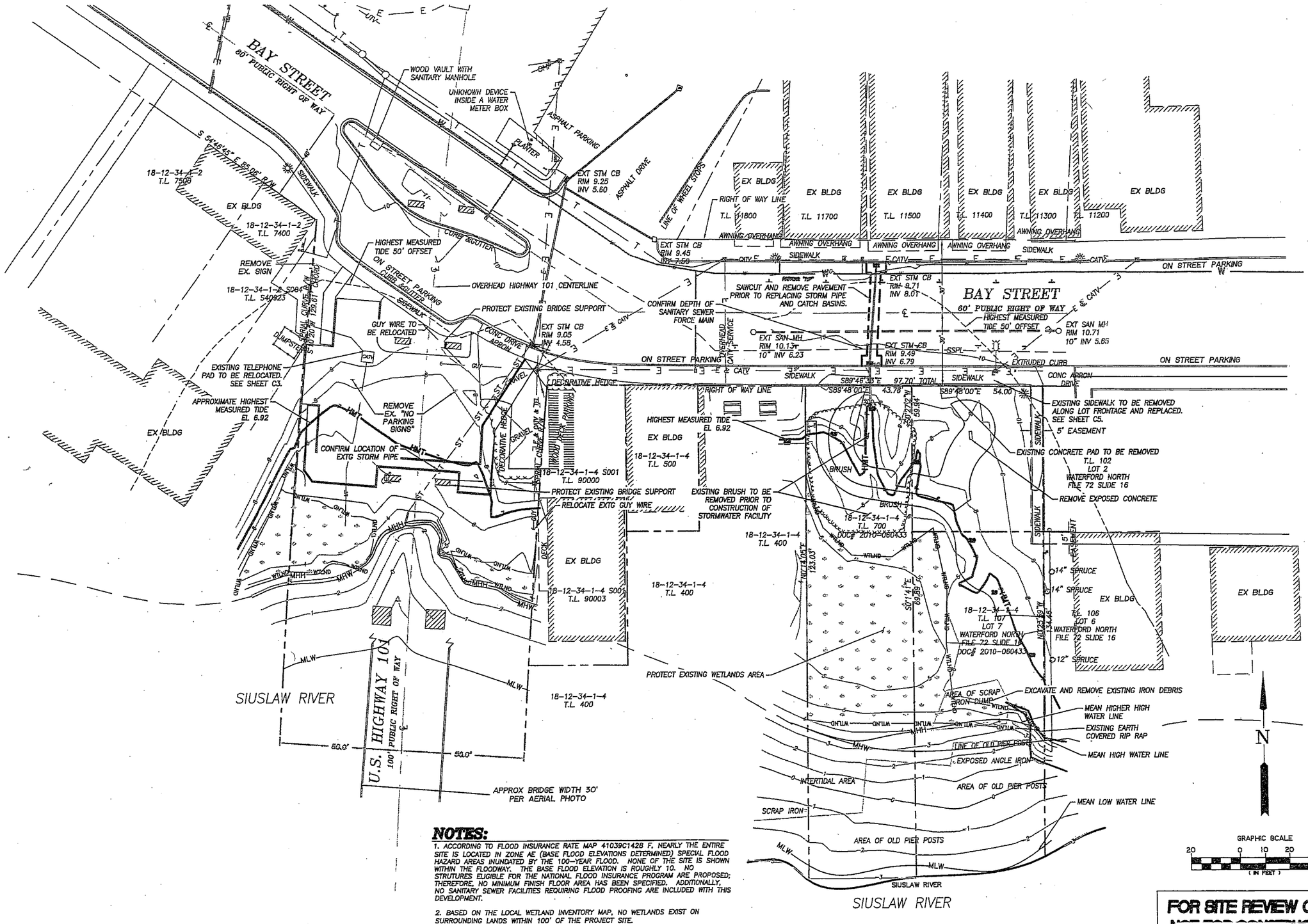
DESCRIPTION:
COVER SHEET

REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 13, 2003 — DAMIEN GILBERT
EXPIRES: JUNE 30, 2013

Branch Engineering, Inc.
Civil • Structures • Transportation • Geotechnical • Surveying
Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637
Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577
www.BranchEngineering.com

DATE	NOV. 30, 2011
SCALE	AS NOTED
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-0018

SHEET NO.
C1
1 OF 13 SHEET(S)



NOTES:

1. ACCORDING TO FLOOD INSURANCE RATE MAP 41039C1428 F, NEARLY THE ENTIRE SITE IS LOCATED IN ZONE AE (BASE FLOOD ELEVATIONS DETERMINED) SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100-YEAR FLOOD. NONE OF THE SITE IS SHOWN WITHIN THE FLOODWAY. THE BASE FLOOD ELEVATION IS ROUGHLY 10. NO STRUTURES ELIGIBLE FOR THE NATIONAL FLOOD INSURANCE PROGRAM ARE PROPOSED; THEREFORE, NO MINIMUM FINISH FLOOR AREA HAS BEEN SPECIFIED. ADDITIONALLY, NO SANITARY SEWER FACILITIES REQUIRING FLOOD PROOFING ARE INCLUDED WITH THIS DEVELOPMENT.

2. BASED ON THE LOCAL WETLAND INVENTORY MAP, NO WETLANDS EXIST ON SURROUNDING LANDS WITHIN 100' OF THE PROJECT SITE.

3. OFF-SITE INFORMATION BASED ON AERIAL PHOTO AND RELATED DOCUMENTS AS REQUESTED BY THE PLANNING DEPARTMENT. NO OFF-SITE SURVEYING PERFORMED ON PRIVATE PROPERTIES.

FOR SITE REVIEW ONLY

Exhibit C 2

REVISIONS		
DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
EXISTING CONDITIONS AND DEMOLITIONS PLAN

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 13, 2007 DAMIEN GILBERT EXPIRES: JUNE 30, 2013

Branch Engineering, Inc.

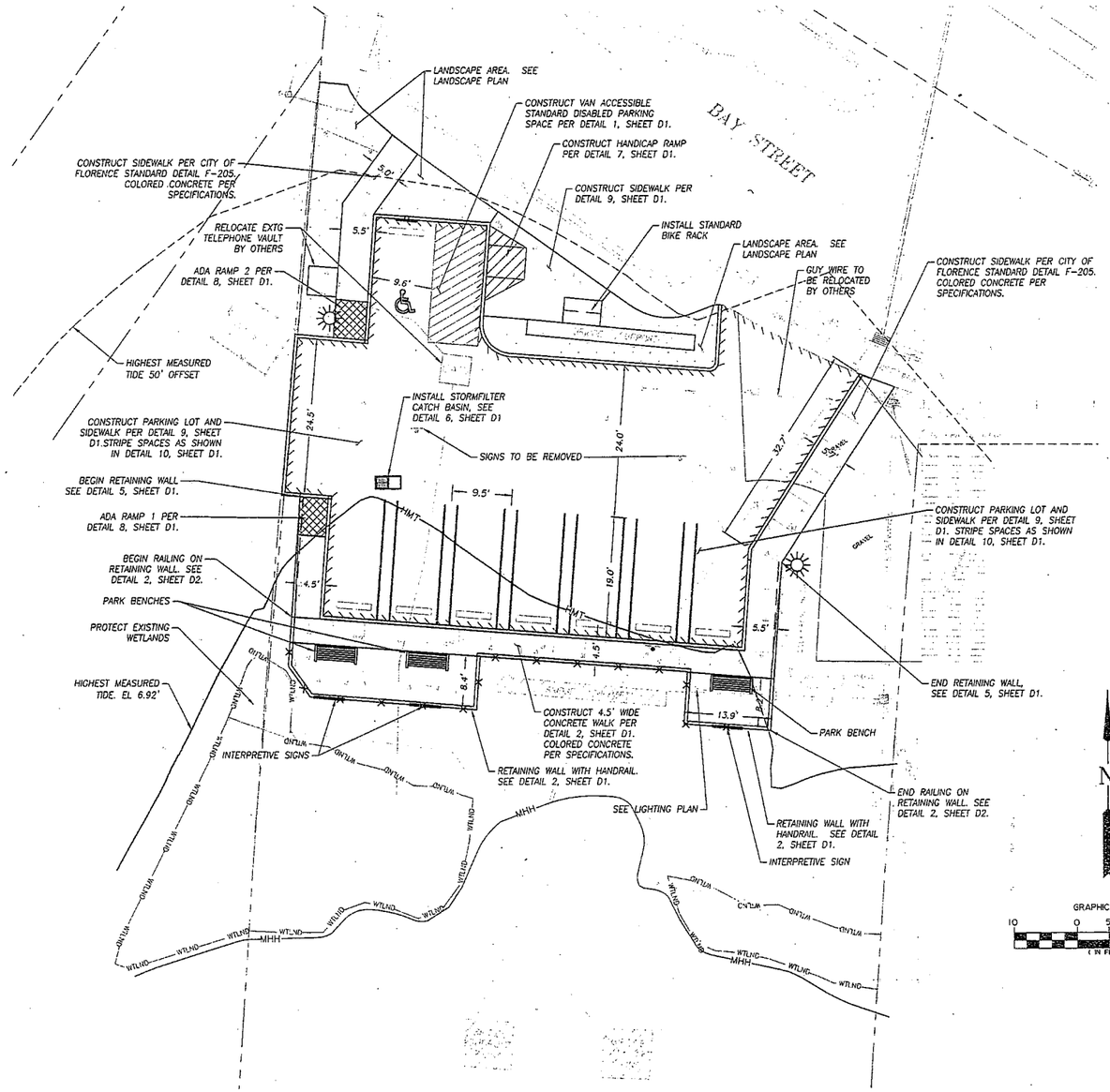
Salem/Keizer Office
4510 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577

Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

www.BranchEngineering.com
Civil • Structures • Transportation • Geotechnical • Surveying

DATE	JANUARY 24, 2012
SCALE	1"=20'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
C2.1



FOR SITE REVIEW ONLY
NOT FOR CONSTRUCTION

TAX MAP 18-12-34-1-4. TAX LOT 101, 107, & 700

REVISIONS		
DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
WAYSIDE WEST OVERLOOK SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2007
DAMIEN GILBERT
EXPIRES: JUNE 30, 2013

Branch Engineering, Inc.

Headquarters
210 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2777

www.BranchEngineering.com
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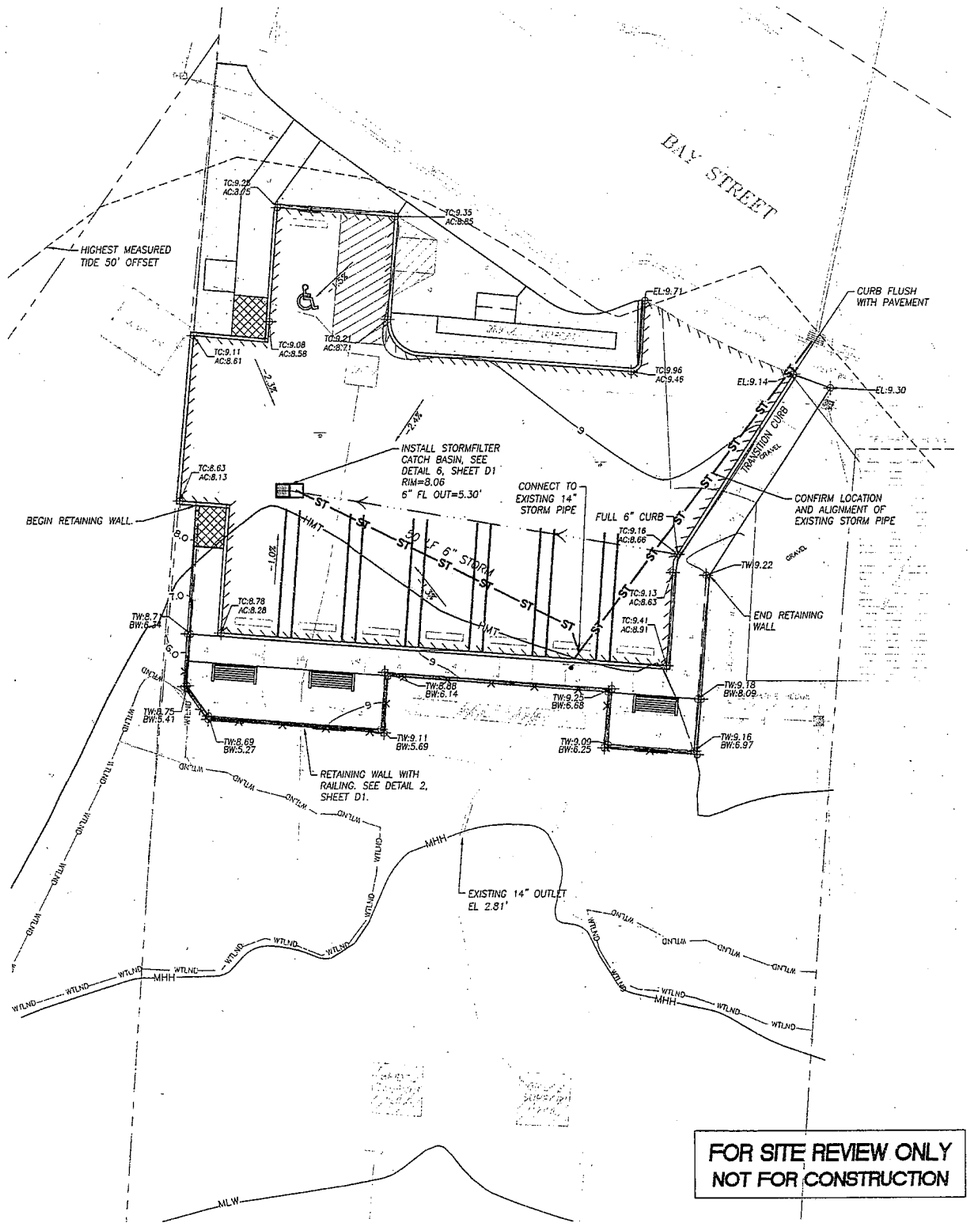
DATE	NOV. 30, 2011
SCALE	1"=10'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
C3
3 OF

Exhibit C 3



TAX MAP 18-12-34-1-4, TAX LOT 101, 107, & 700

REVISIONS		
DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
WAYSIDE WEST OVERLOOK SITE GRADING, DRAINAGE AND UTILITY PLAN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 1982
DANIEL G. GILBERT
EXPIRES: JUNE 30, 2013

Branch Engineering, Inc.

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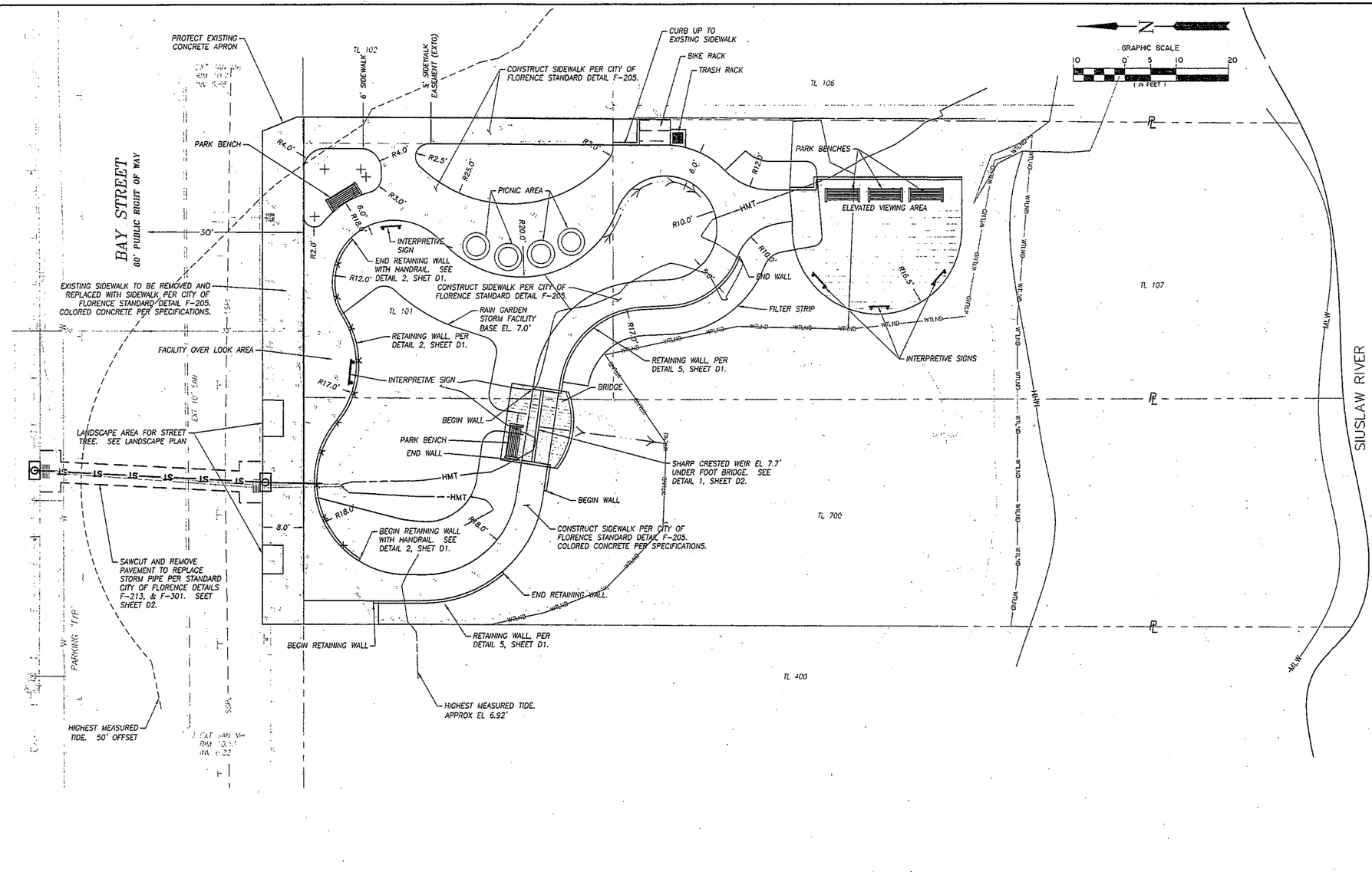
DATE	NOV. 30, 2011
SCALE	1"=10'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
C4
4 OF

Exhibit C 4



TAX MAP 18-12-34-1-4, TAX LOT 101, 107, & 700

FOR SITE REVIEW ONLY
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REVISIONS		
DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
WAYSIDE EAST SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 1977
DAMIEN GILBERT
EXPIRES: JUNE 30, 2013

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DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
C5

Exhibit C 5

BAY STREET
60' PUBLIC RIGHT OF WAY

HIGHEST MEASURED TIDE. 50' OFFSET

FACILITY INLET 10" STM
INVERT 7.31'
INSTALL ENERGY DISSIPATOR, DETAIL 4, SHEET D1.

REMOVE AND REPLACE EXTG STM CATCH BASIN. INSTALL DUAL CHAMBER STORM CURB INLET 2
RIM 9.50'
8" FL (S) 7.4'

40 LF 8" STM @ S=0.0050

REMOVE AND REPLACE EXTG STM CATCH BASIN. INSTALL DUAL CHAMBER STORM CURB INLET 1
RIM 9.85'
8" FL (S) 7.6'

13 LF 8" STM @ S=0.0050

PARKING

RAINGARDEN BASE ELEVATION 7.0'

SHARP CRESTED WEIR EL 7.7
UNDER FOOT BRIDGE. SEE DETAIL 1, SHEET D2.

OUTFALL PROTECTION, DETAIL 1, SHEET C6.

DECK ELEVATION 8.85'
SEE STRUCTURAL PLANS FOR MORE DETAILS

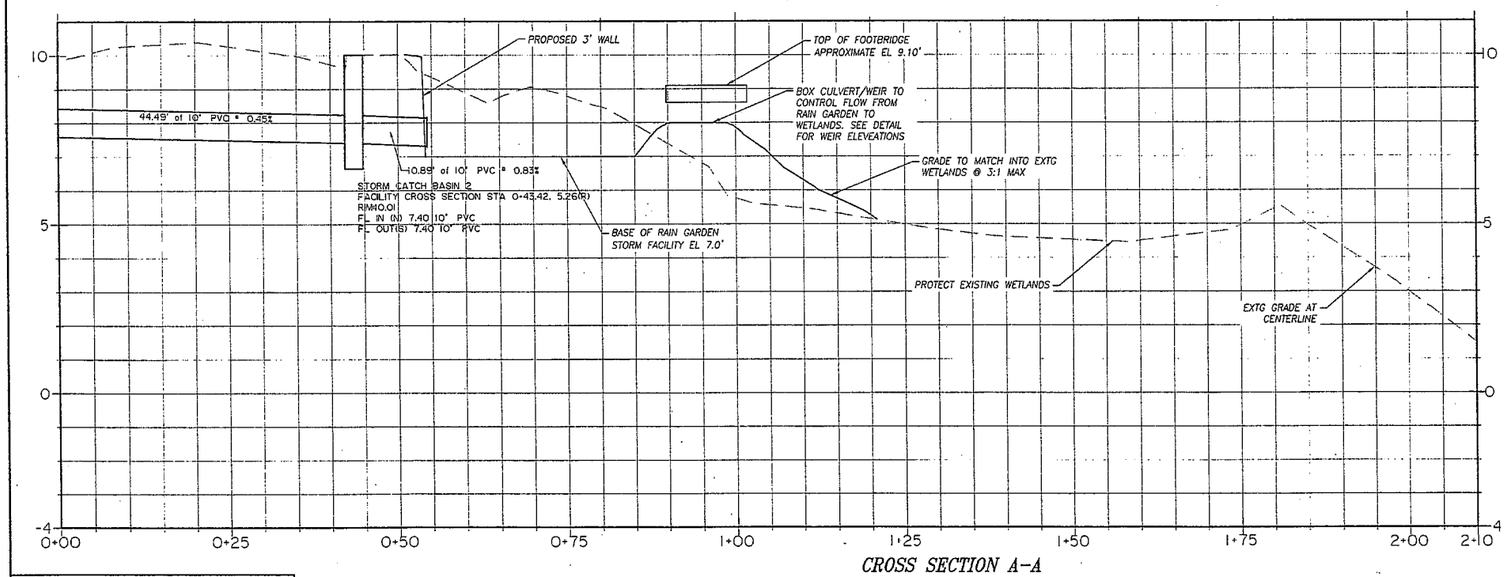
SIUSLAW RIVER

MLW

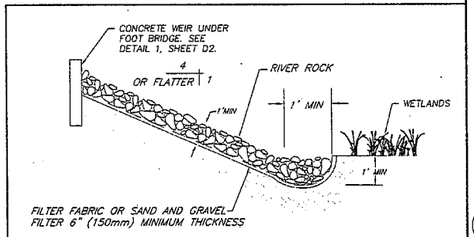
HMT

WTLND

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)



CROSS SECTION A-A



TYPICAL SECTION

1/C6 OUTFALL PROTECTION
NOT TO SCALE

FOR SITE REVIEW ONLY
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TAX MAP 18-12-34-1-4, TAX LOT 101, 107, & 700

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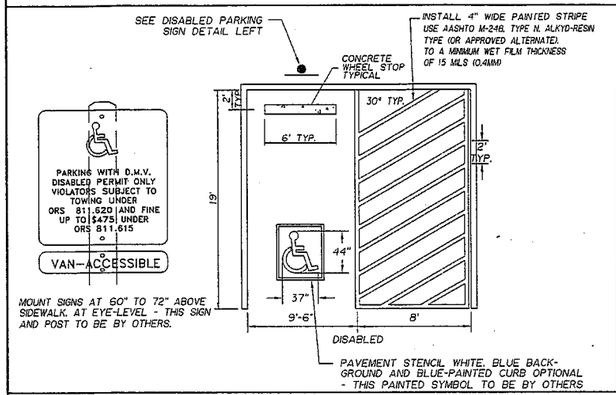
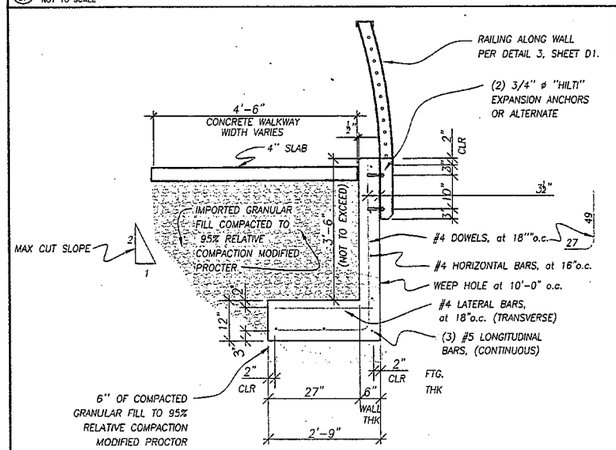
DATE	NOV. 30, 2011
SCALE	1"=10'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
C6
6 OF

Exhibit C 6

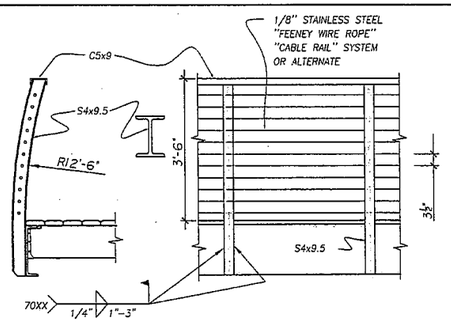


1/D1 STANDARD DISABLED PARKING SPACE
NOT TO SCALE

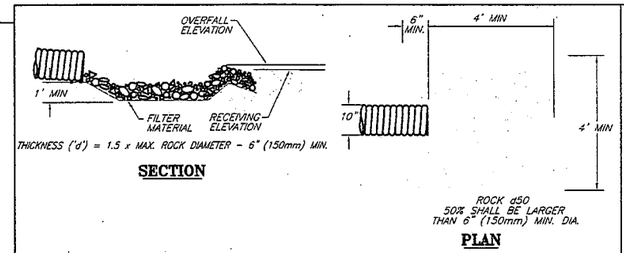


NOTES
USE GRADE 60 REINFORCING BARS
CONCRETE MINIMUM COMPRESSIVE STRENGTH: 2500 PSI FOR STRUCTURAL DESIGN
PROVIDE: 2500 PSI (FOOTING) 3500 PSI (WALL)
4" SLUMP, TOLERANCE ± 1/2"

2/D1 RETAINING WALL DETAIL WITH RAILING
NOT TO SCALE



3/D1 RAILING ALONG WALL
NOT TO SCALE

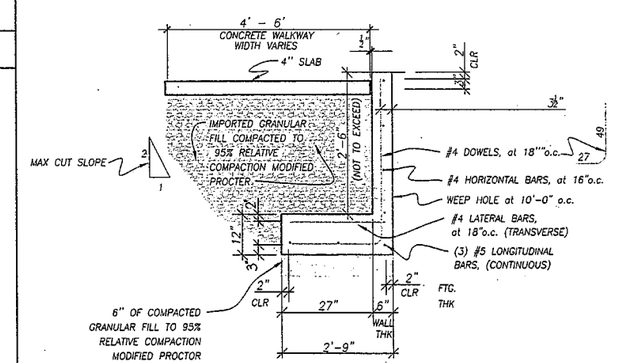


SECTION

PLAN

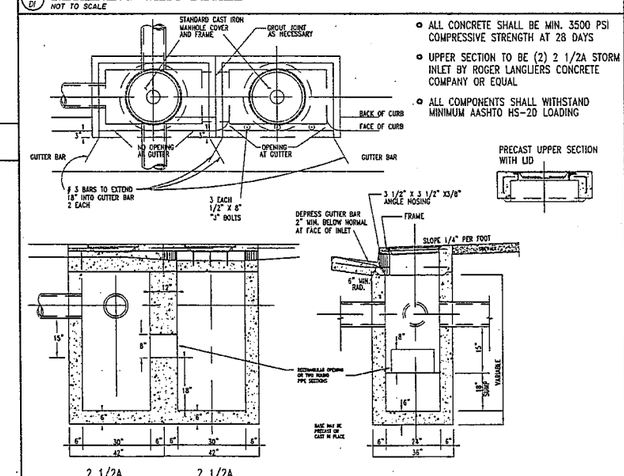
NOTES:
1. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
2. FILTER MATERIAL SHALL BE FILTER FABRIC OR 6" (150mm) THICK MINIMUM GRADED GRAVEL LAYER.

4/D1 ENERGY DISSIPATOR
NOT TO SCALE



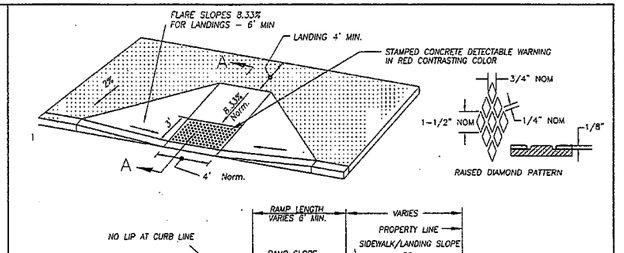
NOTES
USE GRADE 60 REINFORCING BARS
CONCRETE MINIMUM COMPRESSIVE STRENGTH: 2500 PSI FOR STRUCTURAL DESIGN
PROVIDE: 2500 PSI (FOOTING) 3500 PSI (WALL)
4" SLUMP, TOLERANCE ± 1/2"

5/D1 RETAINING WALL DETAIL
NOT TO SCALE



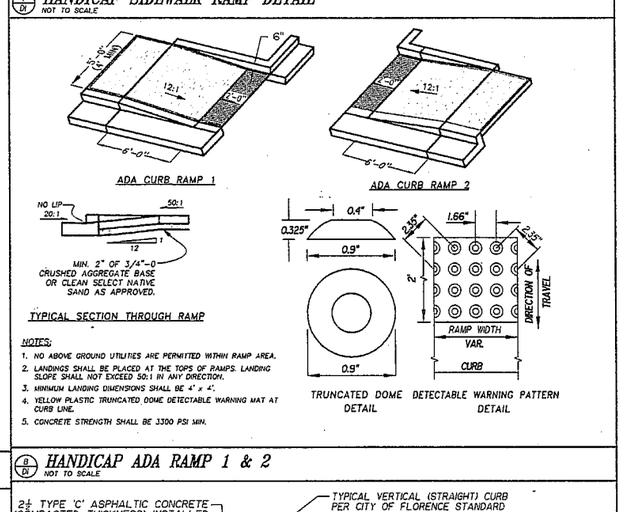
- ALL CONCRETE SHALL BE MIN. 3500 PSI COMPRESSIVE STRENGTH AT 28 DAYS
- UPPER SECTION TO BE (2) 2 1/2A STORM INLET BY ROGER LANGLIERS CONCRETE COMPANY OR EQUAL
- ALL COMPONENTS SHALL WITHSTAND MINIMUM AASHTO HS-20 LOADING

6/D1 DUAL CHAMBER CATCH BASIN DETAIL
NOT TO SCALE



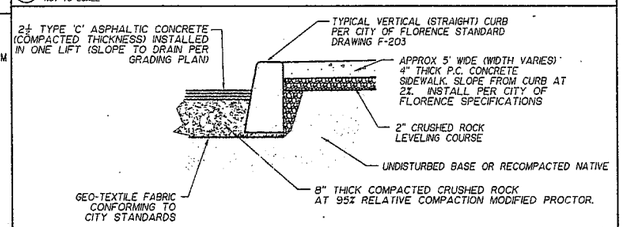
SECTION A–A
NOT TO SCALE

7/D1 HANDICAP SIDEWALK RAMP DETAIL
NOT TO SCALE

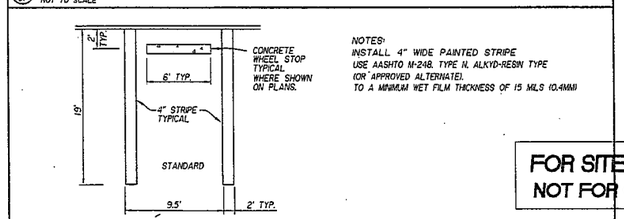


NOTES:
1. NO ABOVE GROUND UTILITIES ARE PERMITTED WITHIN RAMP AREA.
2. LANDINGS SHALL BE PLACED AT THE TOPS OF RAMPS. LANDING SLOPE SHALL NOT EXCEED 50:1 IN ANY DIRECTION.
3. MINIMUM LANDING DIMENSIONS SHALL BE 4' x 4'.
4. YELLOW PLASTIC TRUNCATED DOME DETECTABLE WARNING MAT AT CURB LINE.
5. CONCRETE STRENGTH SHALL BE 3300 PSI MIN.

8/D1 HANDICAP ADA RAMP 1 & 2
NOT TO SCALE



9/D1 PARKING AREA PAVEMENT AND SIDEWALK
NOT TO SCALE



NOTES:
INSTALL 4" WIDE PAINTED STRIPE
USE AASHTO M-248, TYPE N, ALKYD-RESIN TYPE (OR APPROVED ALTERNATE).
TO A MINIMUM WET FILM THICKNESS OF 15 MILS (0.4MM)

10/D1 STANDARD PARKING SPACE DETAIL
NOT TO SCALE

FOR SITE REVIEW ONLY
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REVISIONS

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CITY OF Fflorence, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
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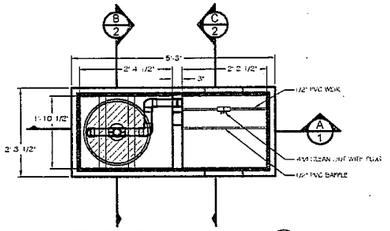
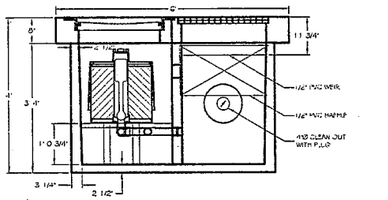
DATE	NOV. 30, 2011
SCALE	
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
D1
7 of

Exhibit C 7



1-CARTRIDGE CATCHBASIN - PLAN VIEW (1/1)



1-CARTRIDGE CATCHBASIN - SECTION VIEW (A/1)

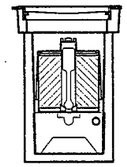
THE STORMWATER MANAGEMENT SmartTreatment U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,641,040, No. 6,824,676, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS — contechstormwater.com

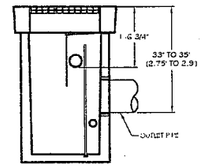
CONCRETE CATCHBASIN STORMFILTER
PLAN AND SECTION VIEWS
1 CARTRIDGE UNIT - STANDARD DETAIL

DRAWING 1 OF 3

DATE: 12/06/05 | SCALE: NONE | FILE NAME: CSSF1-C.DTL | DRAWN: MJW | CHECKED: ARG



1-CARTRIDGE CATCHBASIN - SECTION VIEW (B/2)



1-CARTRIDGE CATCHBASIN - SECTION VIEW (C/2)

THE STORMWATER MANAGEMENT SmartTreatment U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,641,040, No. 6,824,676, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS — contechstormwater.com

CONCRETE CATCHBASIN STORMFILTER
SECTION VIEWS
1 CARTRIDGE UNIT - STANDARD DETAIL

DRAWING 2 OF 3

DATE: 12/06/05 | SCALE: NONE | FILE NAME: CSSF1-C.DTL | DRAWN: MJW | CHECKED: ARG

GENERAL NOTES

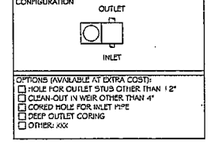
1) STORMFILTER BY CONTECH STORMWATER SOLUTIONS, PORTLAND, OR (800) 548-4667, SCARBOROUGH, ME (877) 907-8676, LITHONIA, MD (866) 740-2310.
2) FILTERS TO BE SIPHON-ACTUATED AND SELF CLEANING. STANDARD DETAIL SHOWS MAXIMUM NUMBER OF CARTRIDGES. EXACT NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS.
3) INLET AND OUTLET PIPES TO BE GROUTED INTO HOLES PROVIDED. JOINTS TO BE WATER-TIGHT.
4) STORMFILTER REQUIRES BETWEEN 2.75' AND 2.9' OF DROP FROM RIM TO OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR. PIPES TO BE GROUTED INTO PROVIDED CORINGS BY CONTRACTOR.
5) ALL STORMFILTERS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

1 CARTRIDGE CONCRETE CATCH BASIN STORMFILTER DATA

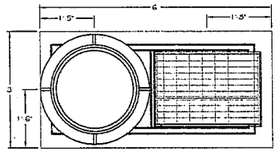
STRUCTURE ID	SFCB
WATER QUALITY FLOW RATE (cfs)	0.3
PEAK FLOW RATE (cfs)	0.13
RETURN PERIOD OF PEAK FLOW (yrs)	25-YR
CARTRIDGE FLOW RATE (1.0 GPM/7.5 gpm)	7.5
MEDIA TYPE (CSF, PERLITE, ZPG)	CSF
RIM ELEVATION	9.00'

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET			
OUTLET	5.30'	CORE	6"

CONFIGURATION



OPTIONS (AVAILABLE AT EXTRA COST):
- ☐ HOLE FOR OUTLET STUB OTHER THAN 12"
- ☐ CLEAN-OUT IN WEIR OTHER THAN 4"
- ☐ CORED HOLE FOR INLET PIPE
- ☐ DEEP OUTLET CORING
- ☐ OTHER: XXX



1-CARTRIDGE CATCHBASIN - TOP VIEW (1/3)

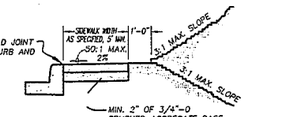
THE STORMWATER MANAGEMENT SmartTreatment U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,641,040, No. 6,824,676, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS — contechstormwater.com

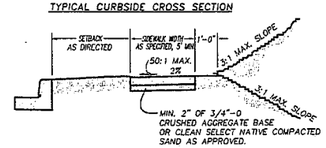
CONCRETE CATCHBASIN STORMFILTER
TOP VIEW, DATA AND NOTES
1 CARTRIDGE UNIT - STANDARD DETAIL

DRAWING 3 OF 3

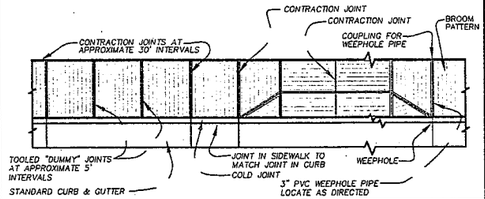
DATE: 12/06/05 | SCALE: NONE | FILE NAME: CSSF1-C.DTL | DRAWN: MJW | CHECKED: ARG



TYPICAL CURBSIDE CROSS SECTION



TYPICAL SETBACK CROSS SECTION



TYPICAL PLAN VIEW

NOTE:
1. SIDEWALKS 8 FEET AND WIDER SHALL HAVE A LONGITUDINAL CONTRACTION JOINT AT THE MIDPOINT.
2. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 4" MIN.; THICKNESS IN DRIVEWAY SHALL MATCH EXISTING DRIVEWAY.
3. INSTALL 3" PVC WEEPHOLE PIPES IN SIDEWALKS IN LOCATIONS AS DIRECTED BY THE ENGINEERS. PLACE CONTRACTION JOINT OVER THE TOP OF THE PIPE.
4. CONCRETE STRENGTH SHALL BE 3300 PSI MIN.

CITY OF FLORENCE STANDARD DRAWING

SIDEWALK

DATE: MARCH 2007 | DRAWING NO. F-205

FILENAME: F-205.DWG

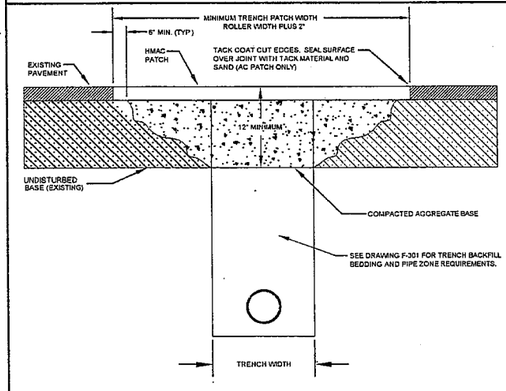
REVISIONS		
DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
SITE DETAILS

REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 13, 1982 — DANIEN GILBERT

EXPIRES: JUNE 30, 2013



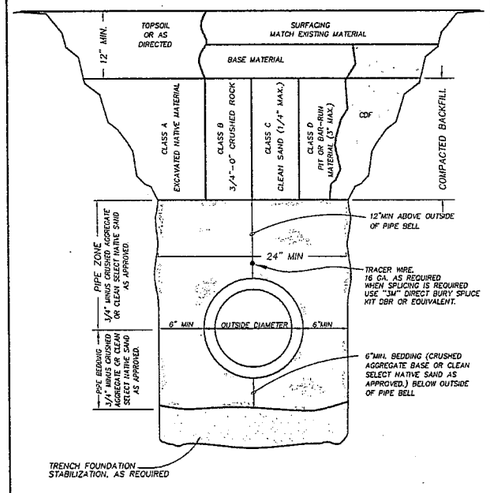
NOTES:

1. CONTRACTOR TO OBTAIN STREET CUT PERMIT FROM APPROPRIATE ROAD AUTHORITY PRIOR TO CONSTRUCTION.
2. COMPLETE REPAIR WITHIN 24 HOURS OF EXCAVATION OR PER THE SCHEDULE SPECIFIED ON THE PERMIT.
3. ADDITIONAL APPROVALS ARE REQUIRED FOR THE USE OF STEEL PLATES IN THE RIGHT OF WAY.
4. ALL EXISTING PAVEMENT SHALL BE SAW CUT TO CREATE SMOOTH LINES AND EDGES PRIOR TO PAVING.
5. PATCH SECTION SHALL MATCH EXISTING SECTION OR THE MINIMUM THICKNESS AS FOLLOWS:
   A. ASPHALT CONCRETE - 4 - INCHES, 2 - LIFTS
   B. BASE MATERIAL - MATCH EXISTING OR 8 - INCH MINIMUM
   C. IF REQUIRED, CEMENT TREATED BASE (CTB) AND CONTROLLED DENSITY FILL (CDF) - 18 - INCH MINIMUM
   D. FLOWABLE FILL - FULL DEPTH OF TRENCH
6. EXCEPT AS NOTED, ALL WORK TO CONFORM TO OREGON 2009 STANDARD SPECIFICATIONS. SEE SECTION 745 FOR HMAC PAVEMENT AND SECTION 495.40(e) FOR TACK COAT EDGES.

CITY OF FLORENCE STANDARD DRAWING

STREET CUT

DATE: MAY 2011 | DRAWING NO. F-213



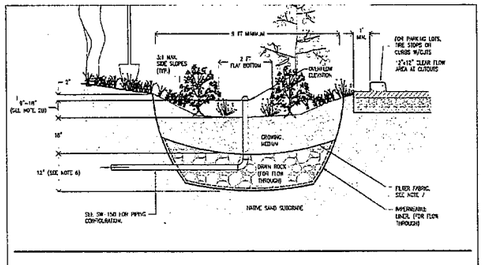
NOTE:
SURFACING OF PAVED AREAS SHALL COMPLY WITH STREET CUT STANDARD DRAWING.

CITY OF FLORENCE STANDARD DRAWING

TRENCH BACKFILL, BEDDING, AND PIPE ZONE

DATE: MARCH 2007 | DRAWING NO. F-301

FILENAME: F-301.DWG



1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.
2. Dimensions:
   a. Width of basin: 5' minimum.
   b. Depth of basin (from top of growing medium to overflow elevation): Sloped bed: 12", Presumptive flow 6"-18".
   c. Flat bottom width: 3' min.
   d. Side slopes of basin: 3:1 maximum.
3. Setbacks (from midpoint of facility):
   a. Infiltration basins must be 10' from foundations and 5' from property lines.
   b. Flow-through swales must be lined with connection to approved stormwater point according to SWDM Section 2.1
4. Overflow:
   a. Overflow required for Simplified Approach.
   b. Inlet elevation must allow for 2" of freeboard, minimum.
   c. Protect from debris and sediment with strainer or grate.
5. Piping: shall be ABS Sch 40, cast iron, or PVC Sch 40. 3" pipe required for up to 1,500 sq ft of impervious area, otherwise 4" min. Piping must have 1% grade and follow the Uniform Plumbing Code.
6. Drain rock:
   a. None required for infiltration basin
   b. Size for flow-through basin: 1" washed
7. Separation between drain rock and growing medium: Use filter fabric (see SWDM Exhibit 2-5).
8. Growing medium:
   a. 18" minimum
   b. See Appendix B for specification.
9. Vegetation: Follow landscape plans otherwise refer to plant list in SWDM Appendix B. Minimum container size is 1 gallon. # of plantings per 100sf of facility area):
   a. Zone A (wet): 115 herbaceous plants OR 100 herbaceous plants and 4 shrubs
   b. Zone B (moderate to dry): 1 tree AND 3 large shrubs AND 4 medium to small shrubs.
   The delineation between Zone A and B shall be either at the outlet elevation or the check dam elevation, whichever is lowest.
10. Install washed pea gravel or river rock to transition from inlets and splash pad to growing medium.
11. Inspections: Call City of Florence Public Works (541) 997-4106 to schedule appropriate inspections.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

CITY OF FLORENCE PUBLIC WORKS DEPARTMENT — DATE: 11-30-10

- Simplified / Presumptive Design Approach -

Rain Garden

SW-140

FOR SITE REVIEW ONLY
NOT FOR CONSTRUCTION

FOOT BRIDGE DETAIL
NOT TO SCALE

Branch Engineering, Inc.
Civil • Structures • Transportation • Geotechnical • Surveying

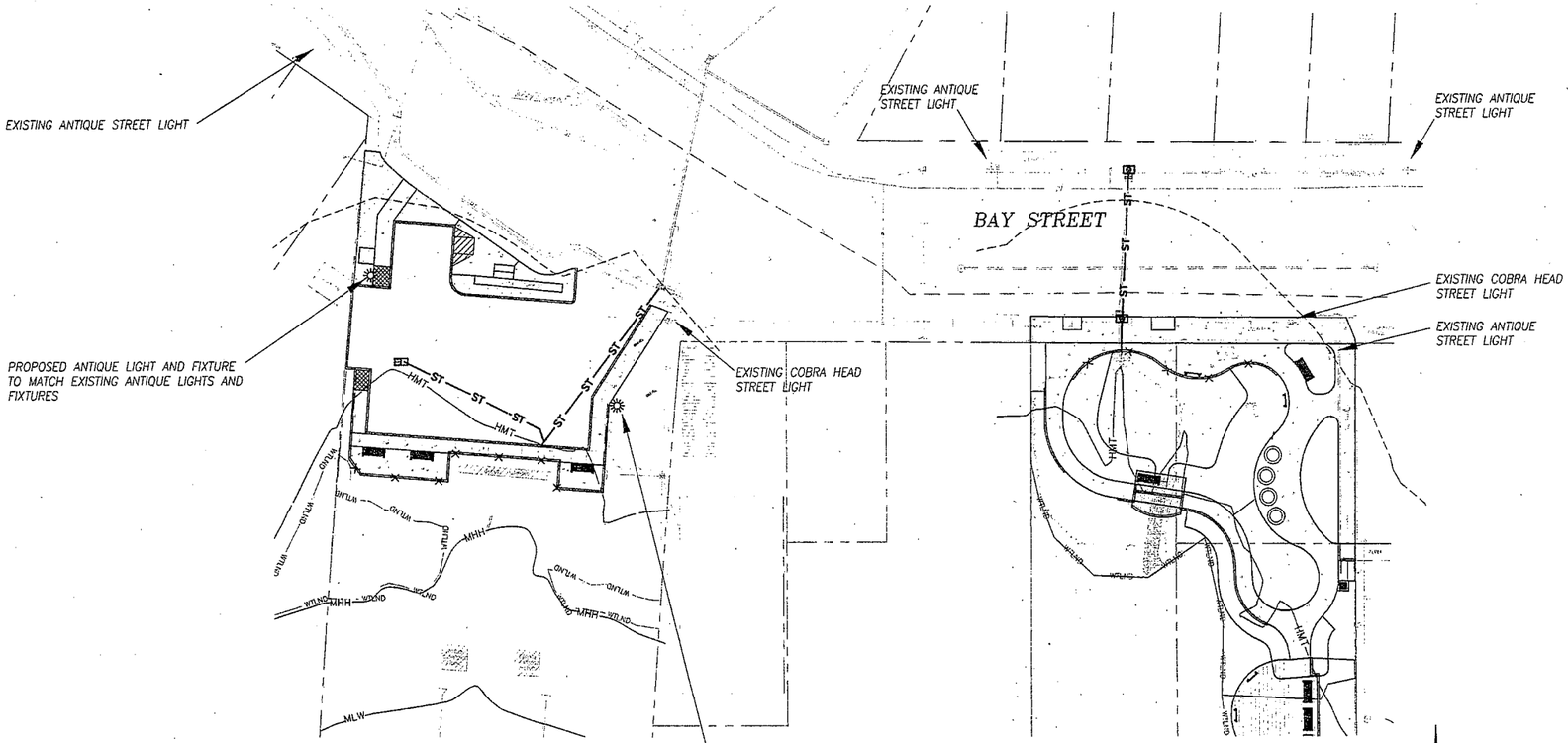
Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

Salem/Keizer Office
4319 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577

www.BranchEngineering.com

DATE	NOV. 30, 2011
SCALE	
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
D2
8 OF 13 SHEET(S)



LEGEND

- EXISTING COBRA HEAD STREET LIGHT TO REMAIN
- EXISTING POST TOP ANTIQUE STREET LIGHT TO REMAIN
- PROPOSED POST TOP ANTIQUE STREET LIGHT

FOR SITE REVIEW ONLY
NOT FOR CONSTRUCTION

REVISIONS

DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
LIGHTING PLAN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 1982
DAMIEN GILBERT
EXPIRES: JUNE 30, 2013

Branch Engineering, Inc.
Civil • Structures • Transportation • Geotechnical • Surveying
Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637
Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577
www.BranchEngineering.com

DATE	NOV. 30, 2011
SCALE	1"=20'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

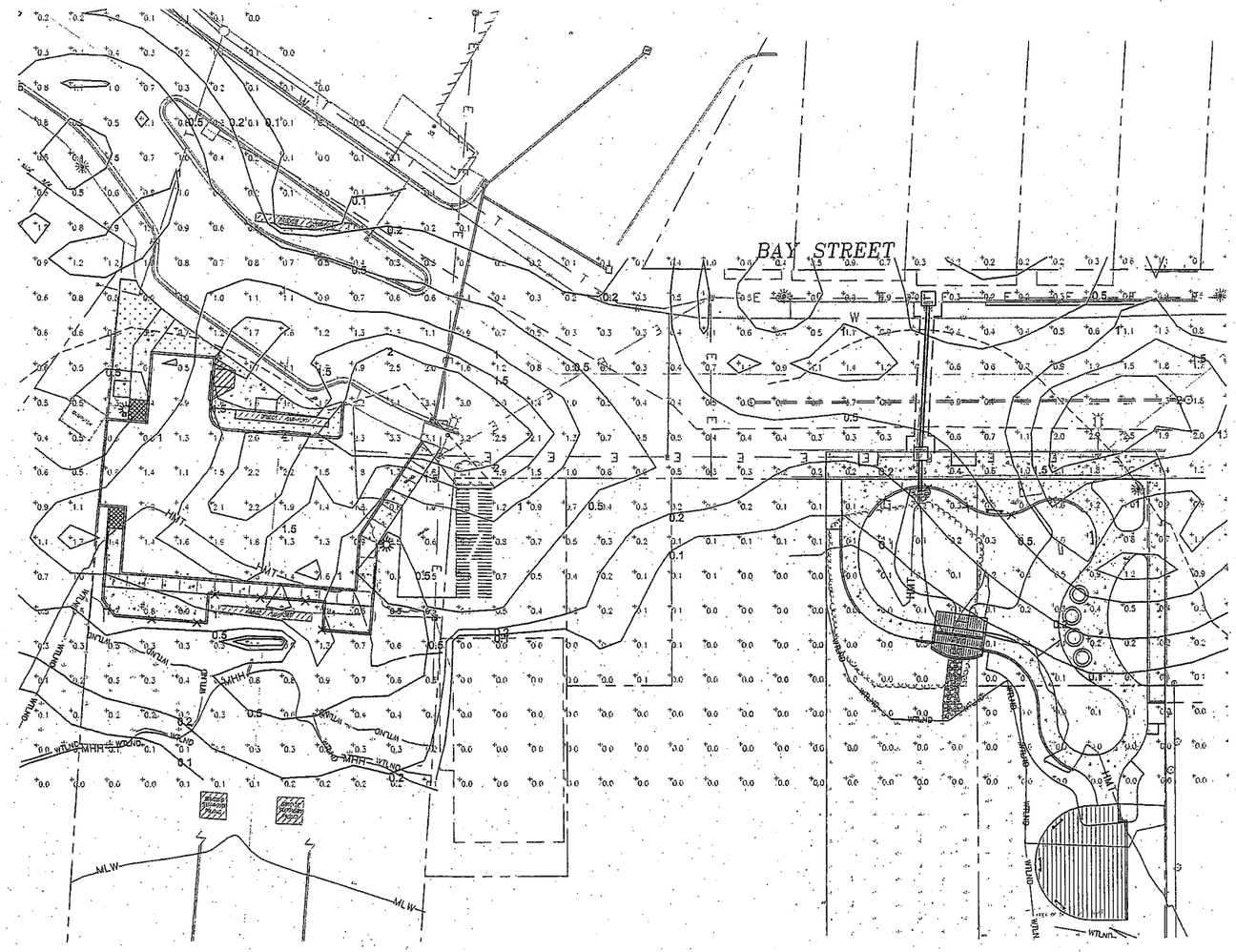
SHEET NO.
ST1
9 OF

Exhibit C 8

STATISTICS

MAXIMUM ILLUMINATION ON SITE 1.8 fc
MINIMUM ILLUMINATION ON SITE 0.2 fc
MAX:MIN RATIO 9:1

SEE SHEET ST1 FOR LEGEND



FOR SITE REVIEW ONLY
NOT FOR CONSTRUCTION

REVISIONS

DATE:	REVISION DESCRIPTION:	BY:

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
LIGHTING PHOTOMETRICS

REGISTERED PROFESSIONAL ENGINEER
OREGON
DAMIEN GILBERT
EXPIRES: JUNE 30, 2015

Branch Engineering, Inc.
Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577
Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637
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Civil • Structures • Transportation • Geotechnical • Surveying

DATE	NOV. 30, 2011
SCALE	1"=20'
DRAWN BY	NBP
DESIGNER	CI
CHECKED BY	DG
PROJECT NUMBER	11-001B

SHEET NO.
ST2
10 OF 13 SHEET(S)

STORMWATER MANAGEMENT PLAN

FOR

Siuslaw River Bridge Interpretive Wayside
FLORENCE, OR

December 14, 2011

EXPIRES: *JUNE 30, 2013*

Prepared For:

CITY OF FLORENCE
250 HWY 101
Florence, Oregon 97439

Branch Engineering, Inc.
310 5th Street
Springfield, OR 97477
Phone (541) 746-0637
Fax (541) 746-0389

Branch Engineering, Inc.

PROJECT # 11-001B

Exhibit D

TABLE OF CONTENTS

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LIST OF APPENDICES

1. Introduction

The Siuslaw River Bridge is a recognized historic and cultural icon, important to the city of Florence. The bridge is listed on the *National Register of Historic Places* and is one of many historic depression area bridges built along the Oregon Coast designed by Conde McCullough. In the vicinity, a cannery and ferry operated prior to bridge construction. This type of historical information is not adequately conveyed to the community or to the travelers of the Pacific Coast Scenic Byway. The interpretive wayside project will create a scenic overlook park and a parking area. Figure 1 shows the vicinity of the project.

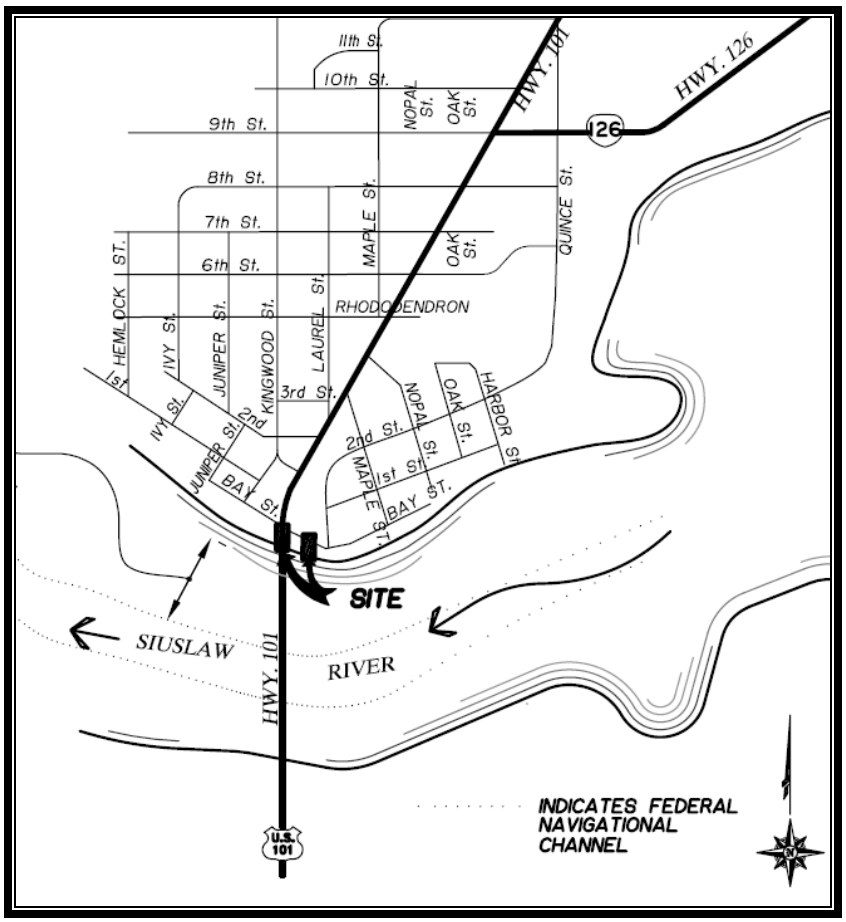


Figure 1: Vicinity Map

The project involves the construction of a wayside that includes interpretive signage and a stormwater demonstration project. The west portion involves building a parking area overlook and interpretive signs underneath the northern end of the Siuslaw Bridge. The east portion of the interpretive wayside includes stormwater improvements on undeveloped city owned

property approximately 120 feet east of the bridge. The East project site will widen the existing sidewalk on Bay Street and extend a concrete pathway to an observation deck and also to an overlook for viewing the wetland enhancements, the proposed stormwater treatment facility, the estuary and the Siuslaw River Bridge. The north end of the Siuslaw River Bridge is shown in Figure 2 below.

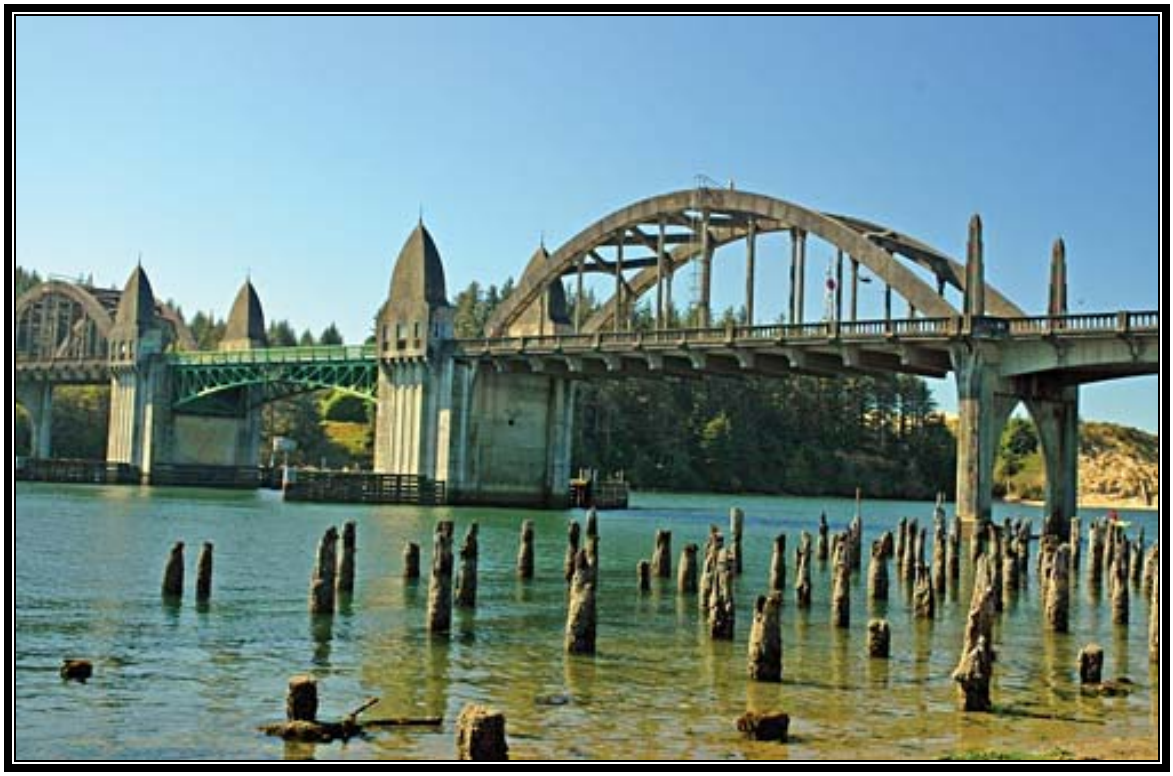


Figure 2: Siuslaw River Bridge

2. Site Characteristics & Existing Conditions

2.1 TOPOGRAPHY

Wayside West currently consists of loose alluvial sand between the bridge footings that slope gently towards the river. Approximately one-third of the proposed parking area lies below the Highest Measured Tide elevation. Wetlands are present outside the project on the west site.

Wayside East currently has an outfall structure near the center of the site that drains in a ditch south to a wetlands area adjacent to the river. The proposed improvements to this site will include grading adjustments to treat stormwater before releasing into the wetlands and the Siuslaw River.

2.2 SOILS

Most of the soil is native sand. Some mixed concrete and rock rubble are also located on site. Metal refuse is partially buried at Wayside East. Site soils consist of Waldport Urban Land Complex 0-12% slope, type 133C, according to the Lane County Soil Survey. Additional Soil data and an NRCS Soil map can be found in Appendix C.

2.3 GROUNDWATER

Soil type "Waldport Urban Land Complex" is not a hydric soil and not susceptible to high seasonal groundwater. The City of Florence Stormwater Design Manual does not identify this soil as requiring groundwater mitigation measures.

The site is located in a designated sole source aquifer so all stormwater generated by this project will be treated before infiltrating into the soil or discharged into the Siuslaw River.

2.4 RECEIVING WATER BODY

The receiving water body is the Siuslaw River. The river is a listed 303 (d) water quality limited water body for temperature only. It supports anadromous salmonids including threatened Coho Salmon.

The two subject sites fall into areas of potential flooding from the 100 year and 500 year flood zones. Since there will be no occupancy related to the development of these sites, no additional analysis necessary. A FEMA permit will be obtained, if necessary, for working in the floodplain. Appendix E includes FEMA flood maps.

2.5 ZONING

Wayside East zoned as Old Town District/ Zone A, and the west portion is in ODOT Right of Way.

2.6 EXISTING DRAINAGE

Wayside West is underneath the highway, where most of the rainfall is intercepted by the bridge and drained to scuppers. The scuppers are located mid bent on the bridge and drain aerially onto the site. Nearly all of this rainfall is infiltrated into the ground below the scuppers. Little precipitation reaches directly underneath the bridge. Any runoff that may occur would sheet flow directly into the Siuslaw River. An existing 15" outfall is located on this site. The pipe primarily drains the Highway 101 Right of Way. The outfall will not be altered with this development.

Wayside East is primarily wetlands and the Siuslaw River. Existing runoff sheet flows into the Siuslaw River. However, the site also conveys offsite drainage from an outfall structure that drains the neighboring Bay Street. Two catch basins pick up approximately 180 feet of Bay Street and about 15,000 square feet of total area. This drainage basin is primarily impervious surfaces such as streets, sidewalks, and buildings. The runoff from the Bay Street Basin discharges to Wayside East and travels to the river via a short ditch. Figure STM 1 shows the modeled drainage basins and Figure STM 2 shows existing drainage conditions for the site. Table 1 below is a brief summary of the basin areas.

Table 1: Existing Drainage Basin Description, Label and Size

Label	Description	Size (SF)	Assumed CN
B1a	Wayside East	4,515	85
B1b	Bay Street north of Wayside East	10,093	98
B1c	Roof Drainage north of Bay Street	5,340	98
B2	Southeast area of Wayside East	1,244	85
B3	Wayside West Overlook, underneath Siuslaw Bridge	6,018	80

3. PROJECT DESCRIPTION AND PROPOSED STORMWATER SYSTEM

3.1 PROJECT DESCRIPTION

Wayside West Overlook:
The west project site includes an asphalt paved parking area, approximately 70' x 60'. The parking area provides seven standard spaces, and one van accessible space. There is an accessible sidewalk from the public sidewalk to the interpretive signs and walkway which are elevated from the existing shoreline by a short retaining wall. A Stormfilter Catch Basin will be installed in the western area of the parking facility. Copies of the plans are included in Appendix A.

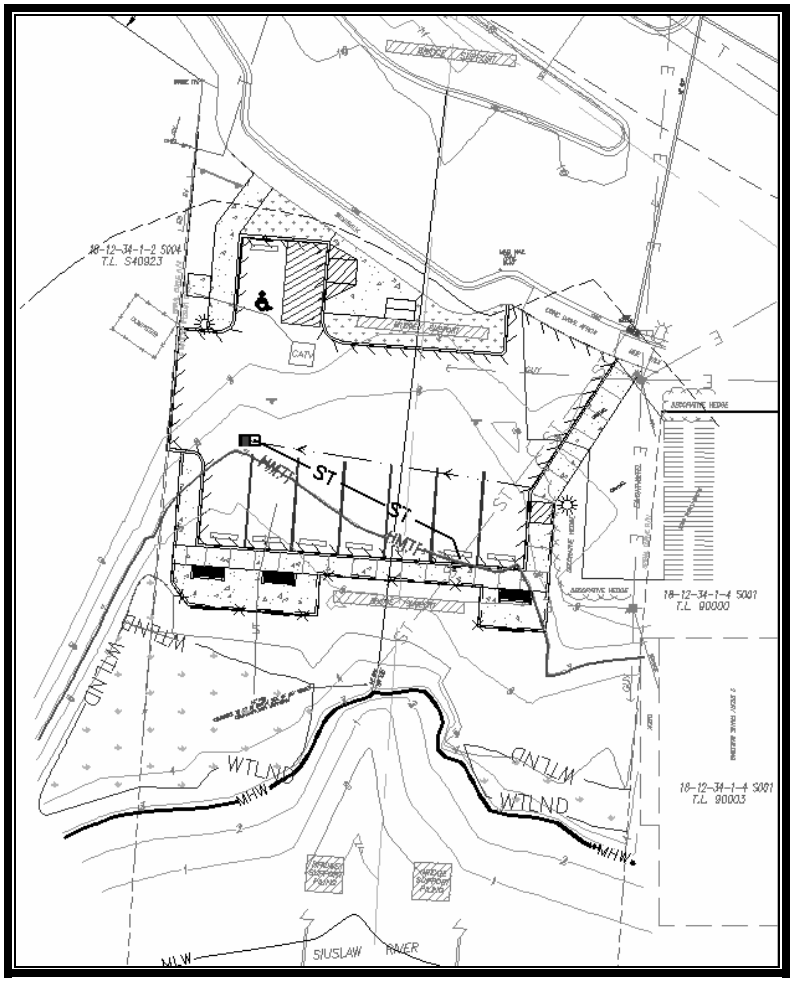


Figure 3: Proposed Siuslaw Interpretive Site & Wayside West

Wayside East:
Construction of the east project site will include the replacement of two older catch basins and a 6" storm pipe on Bay Street with new double-chambered water quality curb inlets and an 8" storm pipe. To the south of Bay Street a new stormwater treatment facility is proposed as well as a pedestrian path with interpretive signs that will highlight the ecological value of wetlands and native plants in treating stormwater. Figure 4 shows the layout of the new site.

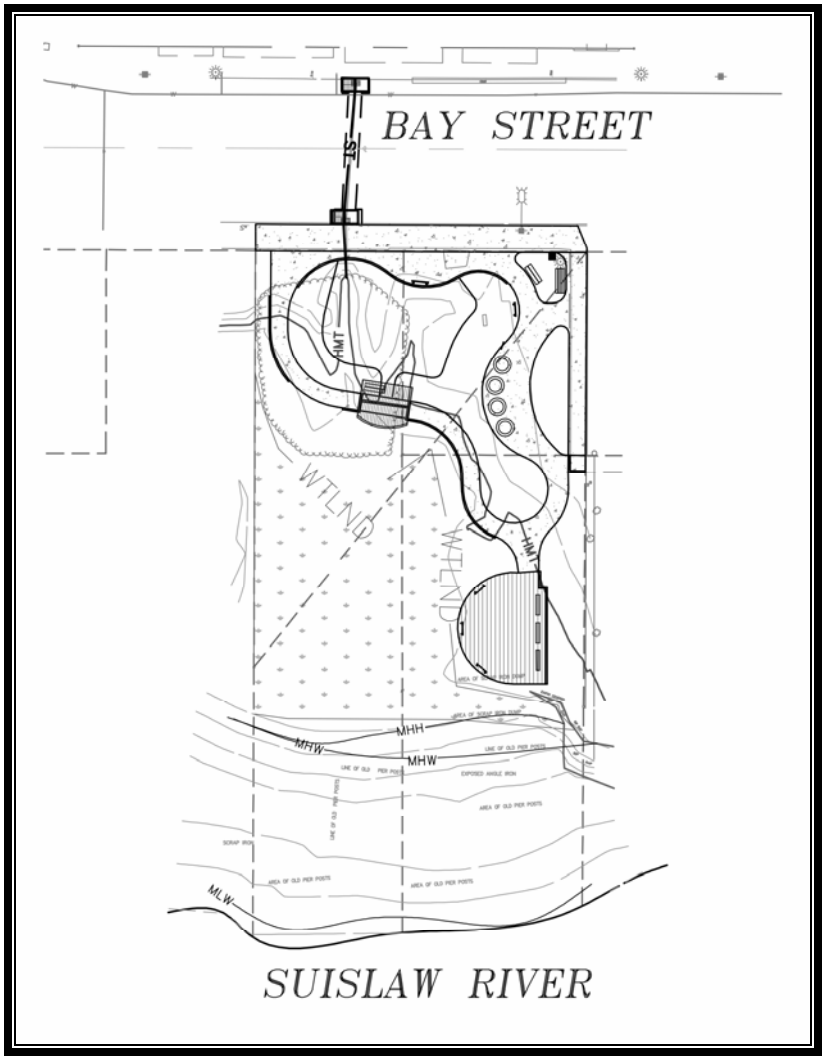


Figure 4: Proposed Siuslaw Interpretive Wayside: East Wayside

3.2 EXPECTED POLLUTANTS

Wayside West is expected to generate a low to moderate amount of car related pollutants oil, metals, sediment, etc. The primary pollutants expected are oil/grease, sediment, and metals. Wayside East should create very minor amounts of pollution since it is only pedestrian related improvements.

3.3 EXISTING STORMWATER RUNOFF

Existing stormwater runoff is primarily from Bay Street pavements and sidewalks. Table 1 shows the existing basin's peak runoff flows and volumes. Figure STM1 shows basin boundaries and STM2 shows existing site drainage patterns. Runoff rates were determined using HydroCAD 9.1 modeling software. This program was used utilizing the Santa Barbara Unit Hydrograph hydraulic modeling method. The results of this analysis are included in Appendix B. A standard SCS Type 1A 24-hour storm distribution with related rainfall depths per City of Florence Stormwater Design Manual dated November 2010 was used for the analysis. Table 2.2 displays the existing peak flows and the runoff volume discharged during the various storm events.

Table 2: Existing Stormwater Flows and Volumes

Basin ID	WQ Event		2-Year Event		10-Year Event		25-Year Event	
	Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)
B1a	0	0.001	0.05	0.017	0.08	0.025	0.09	0.03
B1b	0.04	0.012	0.19	0.062	0.25	0.082	0.28	0.093
B1c	0.02	0.006	0.10	0.033	0.13	0.043	0.15	0.049
B2	0	0	0.01	0.005	0.02	0.007	0.03	0.008
B3	0	0	0.05	0.018	0.08	0.028	0.10	0.034
Total	**0.06**	**0.019**	**0.4**	**0.135**	**0.56**	**0.185**	**0.65**	**0.214**

3.4 CONSTRUCTION EROSION CONTROL

Erosion control will be included for this project with silt fence barriers to prevent sediment from entering the Siuslaw River. The erosion control will be in compliance with ODOT standards and consistent with the Portland erosion control manual. Erosion control drawings are included with the preliminary Construction Drawings in Appendix A.

3.5 PROPOSED WATER QUALITY TREATMENT

Runoff rates were determined using HydroCAD 9.1 modeling software. This program was used utilizing the Santa Barbara Unit Hydrograph hydraulic modeling method. The results of this analysis are included in Appendix B.

Wayside West:
The west parking facility will create 5,300 ft^2 of impervious surfaces and will have a peak runoff 0.02 CFS for the water quality storm. To remove the

primary pollutants generated by the parking area, a Stormfilter® catch basin filter with two ZPG (zeolite, perlite, granulated activated carbon) media cartridges will be installed. This system is listed and approved by the Washington Department of Ecology, in compliance with the Florence Stormwater Design Manual. The Stormfilter catch basin will settle out particulates and retain oil and grease runoff from the pavement. Due to limited elevation difference between river and parking lot a low head Stormfilter Cartridge will be necessary. These cartridges are rated at 0.011 cfs each so the site will require a two cartridge system that will have a total capacity of 0.022 cfs. All runoff from newly created impervious area will be treated and discharged to the existing 15" storm pipe that runs through the site. This system will also and capture and treat a portion of the Highway 101 runoff that will drain onto the new parking area. Due to topography and site constraints, vegetated stormwater treatment is not feasible. The Stormfilter is an approved manufactured treatment process per City of Florence Stormwater Design Manual when site limitations necessitate manufactured treatment technology.

Wayside East:
The existing catch basins on Bay Street that will be replaced that collect stormwater from a basin area of approximately 15,000 ft^2. This stormwater will route through a new 8" pipe just under Bay Street to the proposed rain garden to be treated and infiltrated. The water quality stormwater runoff from Basins 1b and 1c on Bay Street of 0.04 CFS only fills the rain garden up 0.01'. The new walkway will primarily drain to the rain garden for treatment but approximately 1250 square feet, or about 10% of total site area, will drain to a filter strip. This filter strip does not meet all city design standards due to limited space and constraints with wetland areas. It is requested that this small area be exempted from full requirements as allowed in 3.4.4 of the Florence Design Manual for up to 30% of pedestrian impervious surfaces.

3.6 FLOW CONTROL

The stormwater runoff from the development of these two sites will be equal to or less than the pre-developed site from the 2 year storm through the 25 year storm event. The detention at the rain garden at Wayside East will compensate for the small increase at Wayside West. Flow control was modeled in the HydroCAD software using SBUH method. See Appendix B for Results.

Wayside West:
The west parking area will have a peak runoff of 0.17 CFS during the 25 year storm. The existing peak 25 year flow for this basin is 0.10 CFS. It is important to note that the parking area is underneath Highway 101, so modeling is very conservative and peak runoff flows calculated in the

HydroCAD model will actually be less for Wayside West. Assuming there is no highway above the west site, Table 3 shows the runoff flow and volumes for the post developed site.

Wayside East:
The development of the east site will add a small amount of additional impervious area through the construction of the pedestrian walkway. The walkway will drain primarily to the rain garden for detention. A small area will drain to a filter strip. See Drainage Plan in Appendix A. Currently the stormwater entering the catch basins on Bay Street flows directly into the river. The construction of the new stormwater facility will retain runoff and minimize peak flows into the Siuslaw River. These results can be seen by the comparisons in Table 4.

Table 3: Post Developed Stormwater Runoff

Basin ID	Basin Area (sq ft)	Weighted CN Value	WQ Event		2-Year Event		10-Year Event		25-Year Event	
			Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)	Peak Flow (cfs)	Volume (acre-feet)
B1a	4,515	92	0.01	0.002	0.07	0.022	0.1	0.031	0.11	0.036
B1b	10,093	98	0.04	0.012	0.19	0.062	0.25	0.082	0.28	0.093
B1c	5,340	98	0.02	0.006	0.10	0.033	0.13	0.043	0.15	0.049
B2	1,244	91	0	0.001	0.02	0.006	0.03	0.008	0.03	0.01
B3	6,018	96	0.02	0.006	0.11	0.035	0.14	0.046	0.16	0.053

For the HydroCAD analysis the volume of the available storage in the rain garden was multiplied by 0.75 for a factor of safety. The weir design was set to limit overflow to the wetlands area and the river to the south. A square-notch weir at elevation 7.7' would allow the rain garden to fill up with 0.7 feet of stormwater before overflowing into the wetlands. The Rain garden was assumed to have a constant infiltration rate of 4 in/hr. The width of the weir was set to be 4 feet wide to avoid clogging from debris. A detail of the weir and foot bridge is located in the construction drawings in Appendix A.

Conclusions/Summary:
The conservative safety factor set to the available storage was applied to account for any minor adjustments to the layout that may arise. The comparison analysis shows a decrease in runoff during the 25 year storm from 0.65 CFS , (0.09+0.28+0.15+0.03+0.10 , Table 4), to 0.61 CFS (Table 4 & Appendix B). This decrease in flow may be even greater if the safety factor is removed or if the overhead bridge is taken into consideration. The development of these two sites will reduce flows into the Siuslaw River.

Table 4: Comparison of Pre and Post Developed Conditions.

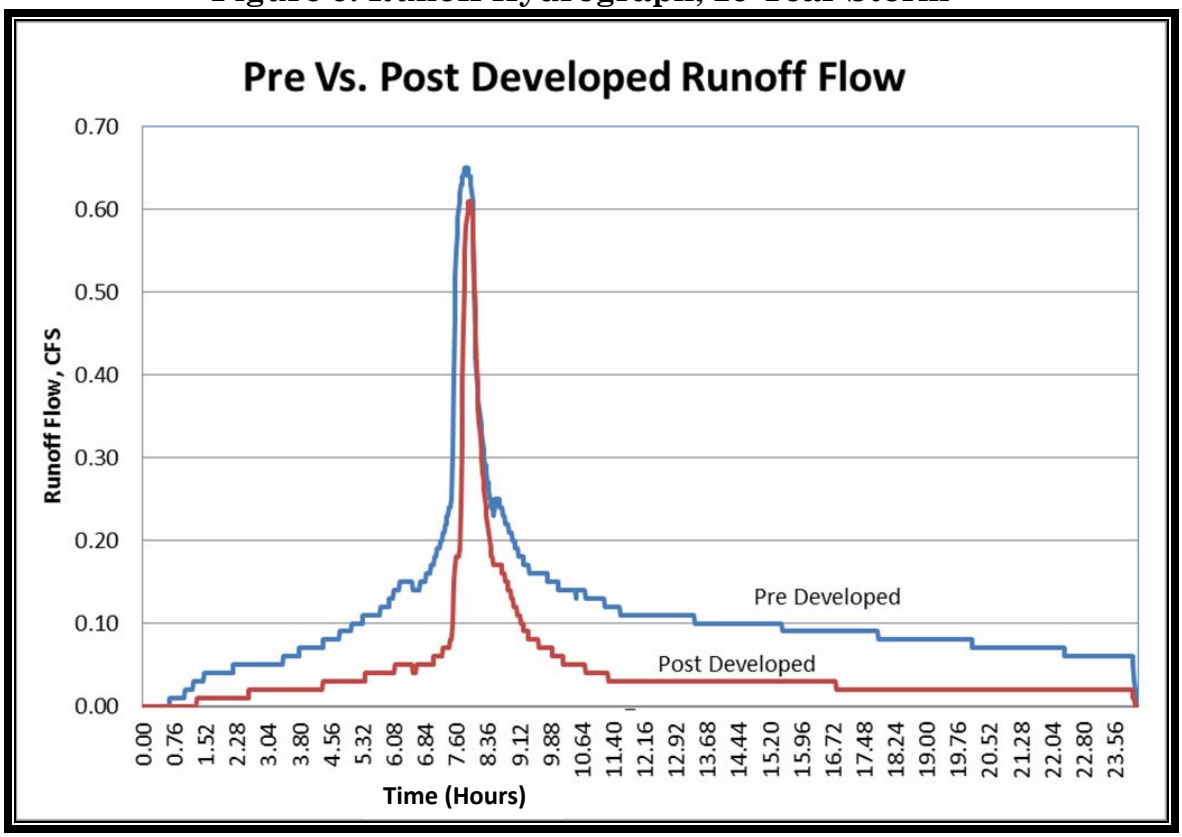
Basin ID	WQ Event		2-Year Event		10-Year Event		25-Year Event	
	PRE DEVELOPED	POST DEVELOPED	PRE DEVELOPED	POST DEVELOPED	PRE DEVELOPED	POST DEVELOPED	PRE DEVELOPED	POST DEVELOPED
B1a	0	0.01	0.05	0.07	0.08	0.1	0.09	0.11
B1b	0.04	0.04	0.19	0.19	0.25	0.25	0.28	0.28
B1c	0.02	0.02	0.10	0.10	0.13	0.13	0.15	0.15
B2	0	0	0.01	0.02	0.02	0.03	0.03	0.03
B3	0	0.02	0.05	0.11	0.08	0.14	0.10	0.16
*Total Discharge	**0.06**	**0.02**	**0.4**	**0.13**	**0.56**	**0.48**	**0.65**	**0.61**

*Total Discharged from all basins into the Siuslaw River.

Note that the Total Discharges for the Post Developed condition are less than the sum of the flows because of the detention volume and infiltration dispersion in the rain garden

The graph below displays the total of the Pre Vs. Post Developed discharges into the Siuslaw River.

Figure 5: Runoff Hydrograph, 25-Year Storm



3.7 100 Year Flood

Both sites will be inundated by the 100 year Flood and an overflow elevation of the stormwater facilities isn't relevant. The facilities proposed will be resistant to damage from inundation events.

4. OPERATIONS AND MAINTENANCE PLAN

4.1 RESPONSIBILITY

The facilities will be maintained by the City of Florence. Prior to contstruction, the City will likely sign a maintenance agreement with ODOT for all maintenance required for the Wayside West parking area underneath Highway 101.

4.2 DESCRIPTION

The west project site will include a Stormfilter Catch Basin for treatment of the parking area. Contech Stormwater Solutions, the maker of the Stormfilter products have specific guidelines for the operation and maintenance of their Stormfilter Catch Basins which can be found in Appendix D.

The east project site will include a new rain garden stormwater treatment facility. According to City of Florence Stormwater Management Manual, "Rain gardens are landscaped reservoirs used to collect, filter, and/or infiltrate stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil before infiltrating into the ground below or being piped to its downstream destination." Maintenance for this facility will be done in accordance with Florence Stormwater Design Manual

4.3 INSPECTION/MAINTENANCE SCHEDULE

For the first two years the rain garden and filter strip shall be inspected and maintained quarterly and within 48 hours after each major storm event which shall be defined as the water quality event in any 24 hour period for the City of Florence. City of Florence shall keep a log, recording all inspection dates, observations, and maintenance activities. Appendix D has example logs for the inspection of the stormwater facilities. For the quarterly inspections of the rain garden and filter strip, city crews shall confirm the facility is in working order and that vegetation is in adequate form.

The Stormfilter shall be inspected and maintained in accordance with the manufacturers recommendations. Generally the manufacturer recommends annual maintenance and inspection after all major storm events. The filter media will need to be regularly replaced to maintain effectiveness. A 2 year replacement is the basic renewal schedule recommended but may need to be done more often based on field observation.

4.4 INSPECTION/MAINTENANCE PROCEDURES

Rain Garden

- Vegetation or roots from large shrubs and trees that limit access or interfere with rain garden operations shall be prevented.
- Fallen leaves and debris from deciduous plant foliage shall be raked and removed biannually.
- Nuisance and prohibited vegetation of all species shall be removed biannually. Invasive vegetation shall be removed and replaced.
- Dead vegetation shall be removed to maintain less than 10% of area coverage or when planter function is impaired. Vegetation shall be replaced within 3 months or immediately if the season is appropriate in order to maintain cover density and control erosion where soils are exposed.
- The rain garden shall infiltrate within 48 hours after a storm event. If water continues to pond after that time, sources of possible clogging shall be identified and corrected. If necessary, the top layers shall be tilled and amended with compost; if this is not sufficient, they shall be removed and replaced with new freely draining growing medium.
- Inlets and outlets shall be inspected quarterly and after any large rain event.
- Any trash or debris that collects in the planter and may inhibit planter function shall be removed quarterly.

Catch Basins, Trench Drains, and Piped Storm System

- Sediment shall be removed biannually.
- Debris shall be removed from inlets and outlets quarterly.
- Quarterly inspection for clogging shall be performed.

Stormfilter treatment Catch basin

- Remove sediment annually
- Replace cartridge media on recommended 2 year interval or more often based on inspection
- Refer to Appendix D for detailed manufacturer maintenance requirements

APPENDIX

A

Site Plan and Basin Drawings

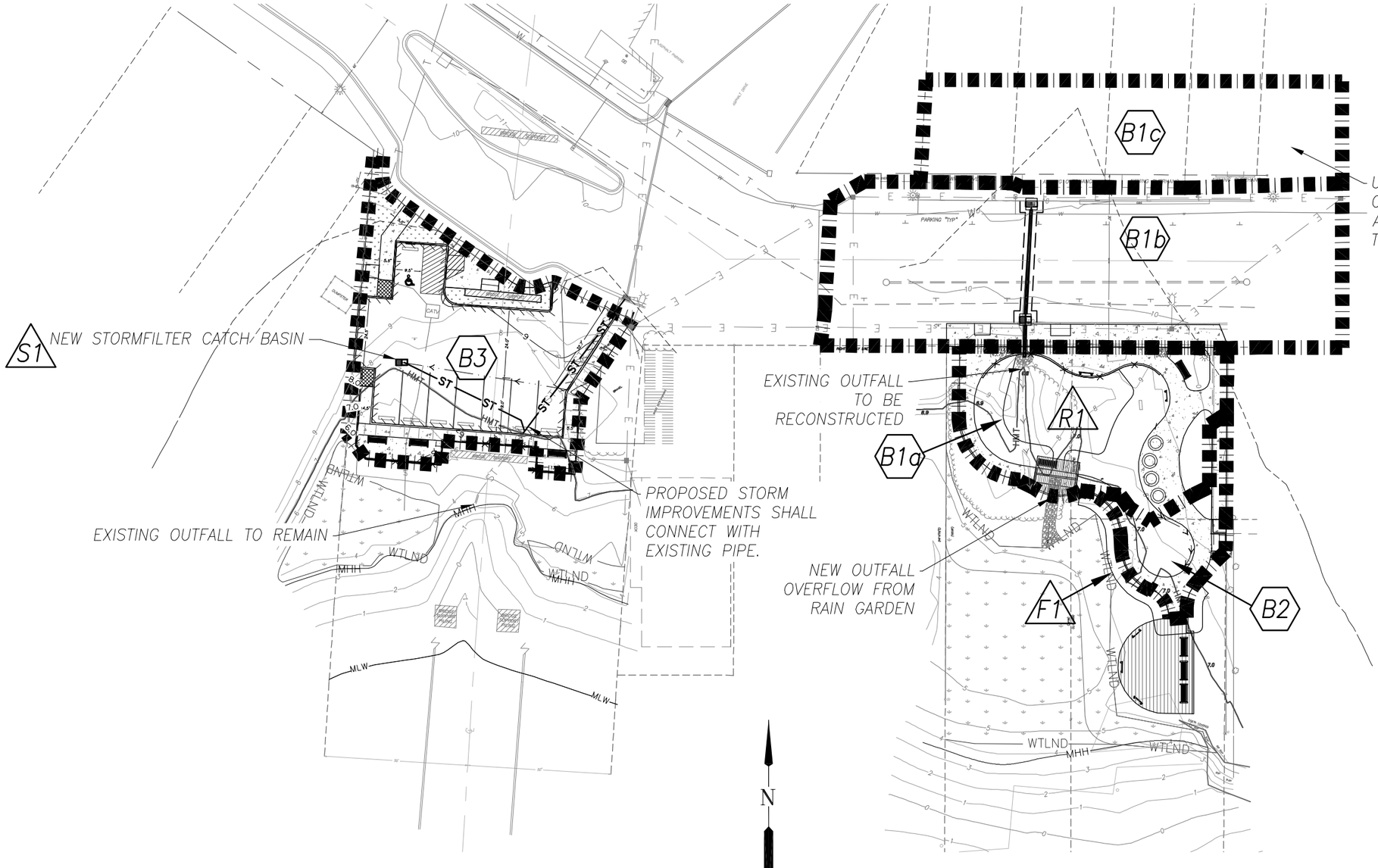
Site Basin Maps
11x17 Set of Plans

LEGEND

- PROPOSED BASIN LINE
- BASIN ID
- TREATMENT FACILITY

Drainage Basin Summary

Label (SF)	Description CN	Size CN	Existing	Future
B1a	Wayside East	4,515	85	92
B1b	Bay Street north of Wayside East	10,093	98	98
B1c	Existing Building Runoff north of Bay Street	5,340	98	98
B2	Southeast area of Wayside East	1,244	85	91
B3	Wayside West Overlook, underneath Siuslaw Bridge	6,018	80	96



Stormwater Treatment Facilities

Label	Description	Size SF
R1	Rain Garden	1,130
F1	Filter Strip	280
S1	Stormfilter Catch Basin	N/A

TAX MAP 18-12-34-1-4, TAX LOT 101, 107, & 700

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
STORM SYSTEM MAP 1
PROPOSED BASIN DELINEATION

Branch Engineering, Inc.

Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577

Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

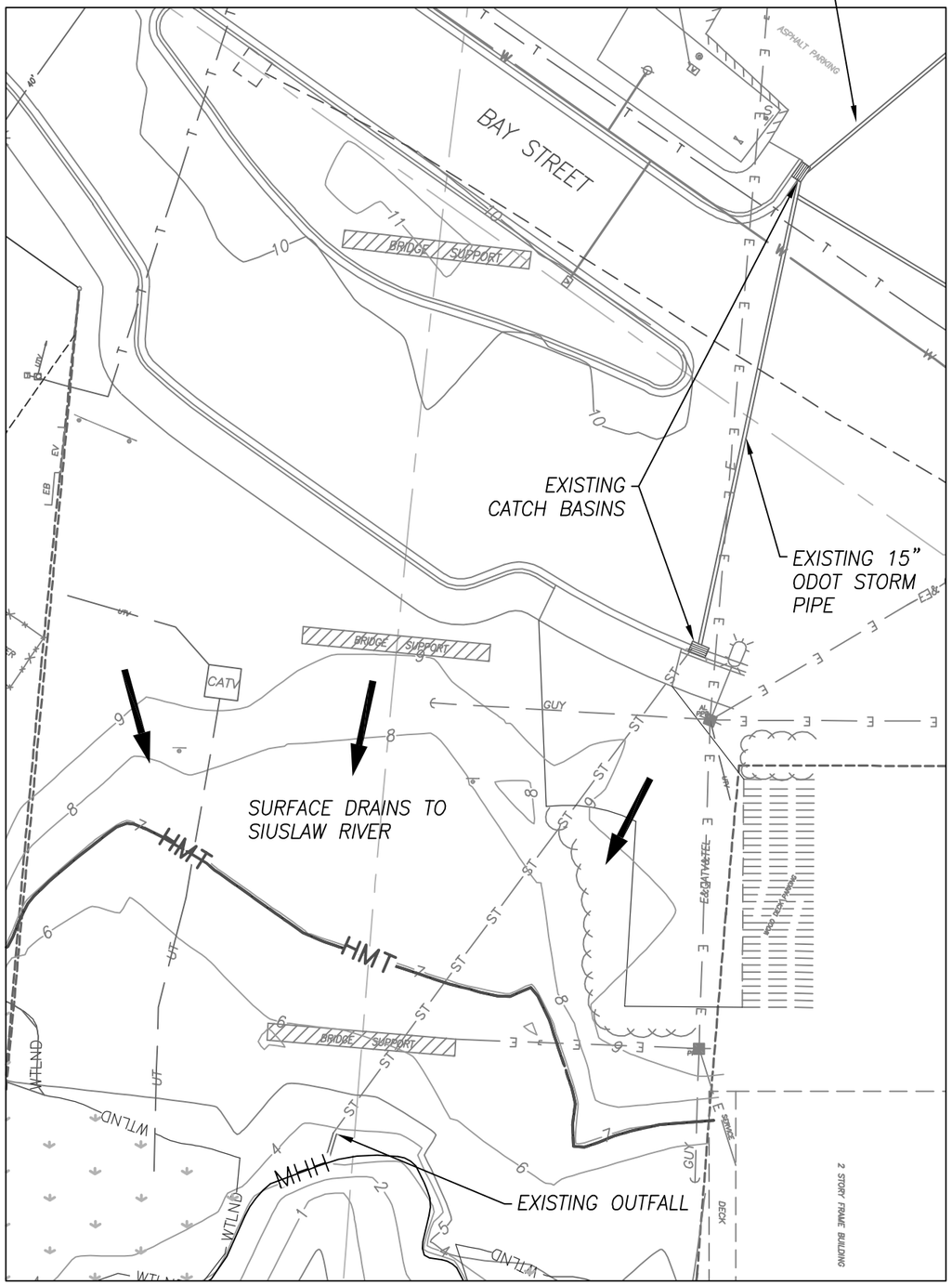
www.BranchEngineering.com
Civil • Structures • Transportation • Geotechnical • Surveying

DATE	NOV. 23, 2011
SCALE	1'' = 40'
DRAWN BY	NP
DESIGNER	CCI
CHECKED BY	DG
PROJECT NUMBER	11-01B

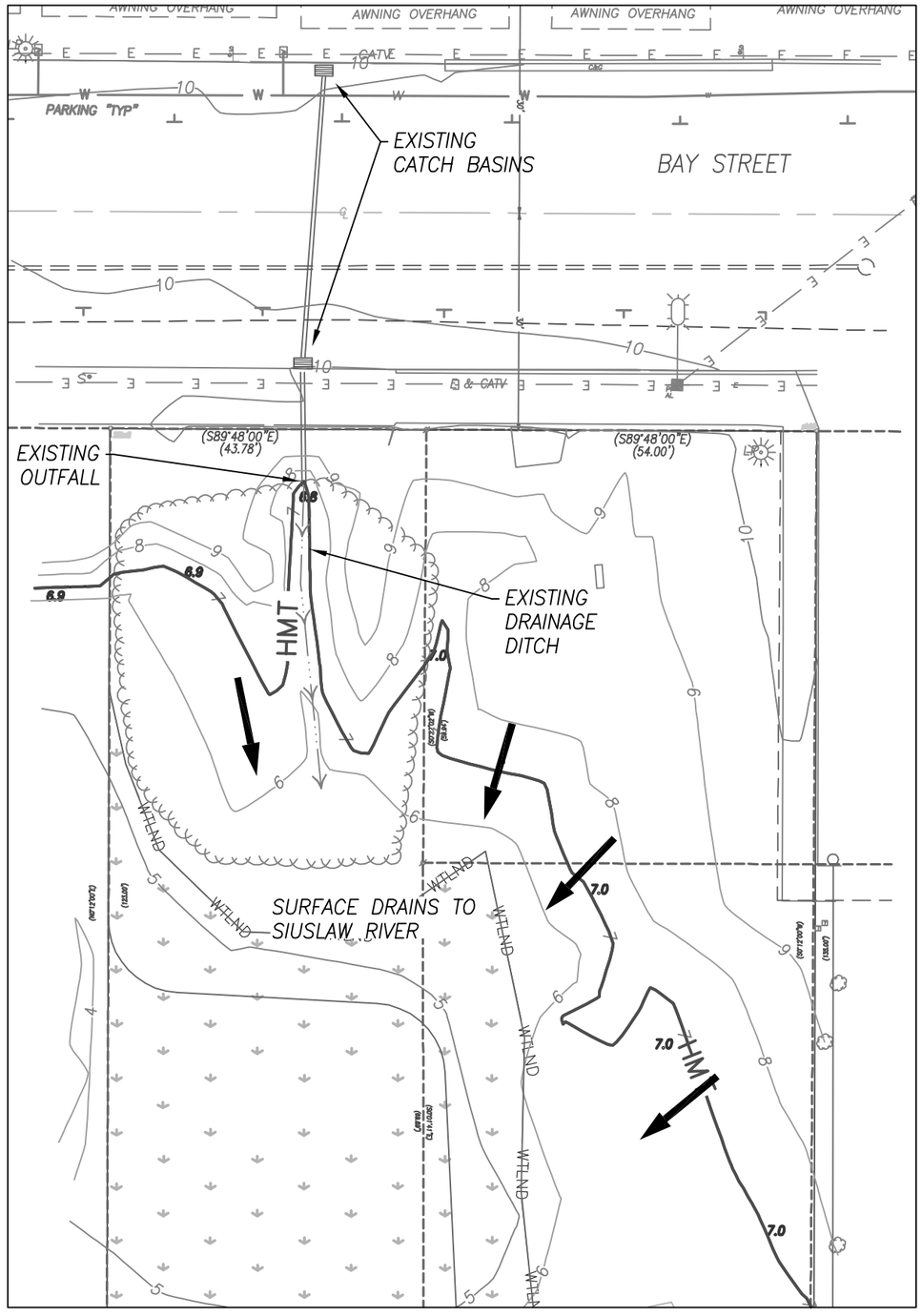
STM 1

Exhibit D

WAYSIDE WEST OVERLOOK
EXISTING CONDITIONS



WAYSIDE EAST
EXISTING CONDITIONS



N

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)

TAX MAP 18-12-34-1-4, TAX LOT 101, 107, & 700

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
STORM SYSTEM MAP 2
EXISTING CONDITIONS

Branch Engineering, Inc.

Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577

Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

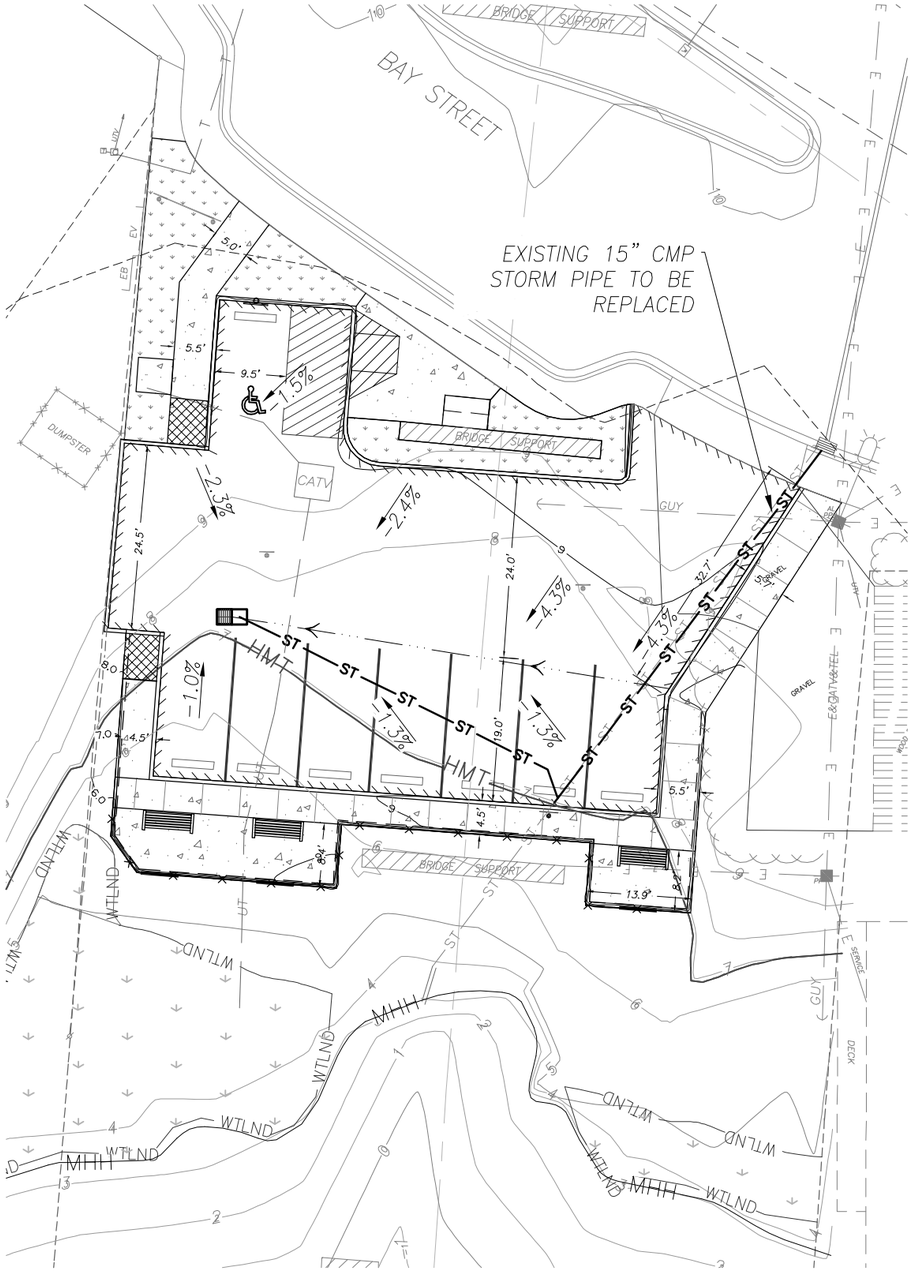
www.BranchEngineering.com
Civil • Structures • Transportation • Geotechnical • Surveying

DATE	NOV. 23, 2011
SCALE	1'' = 20'
DRAWN BY	NP
DESIGNER	CCI
CHECKED BY	DG
PROJECT NUMBER	11-01B

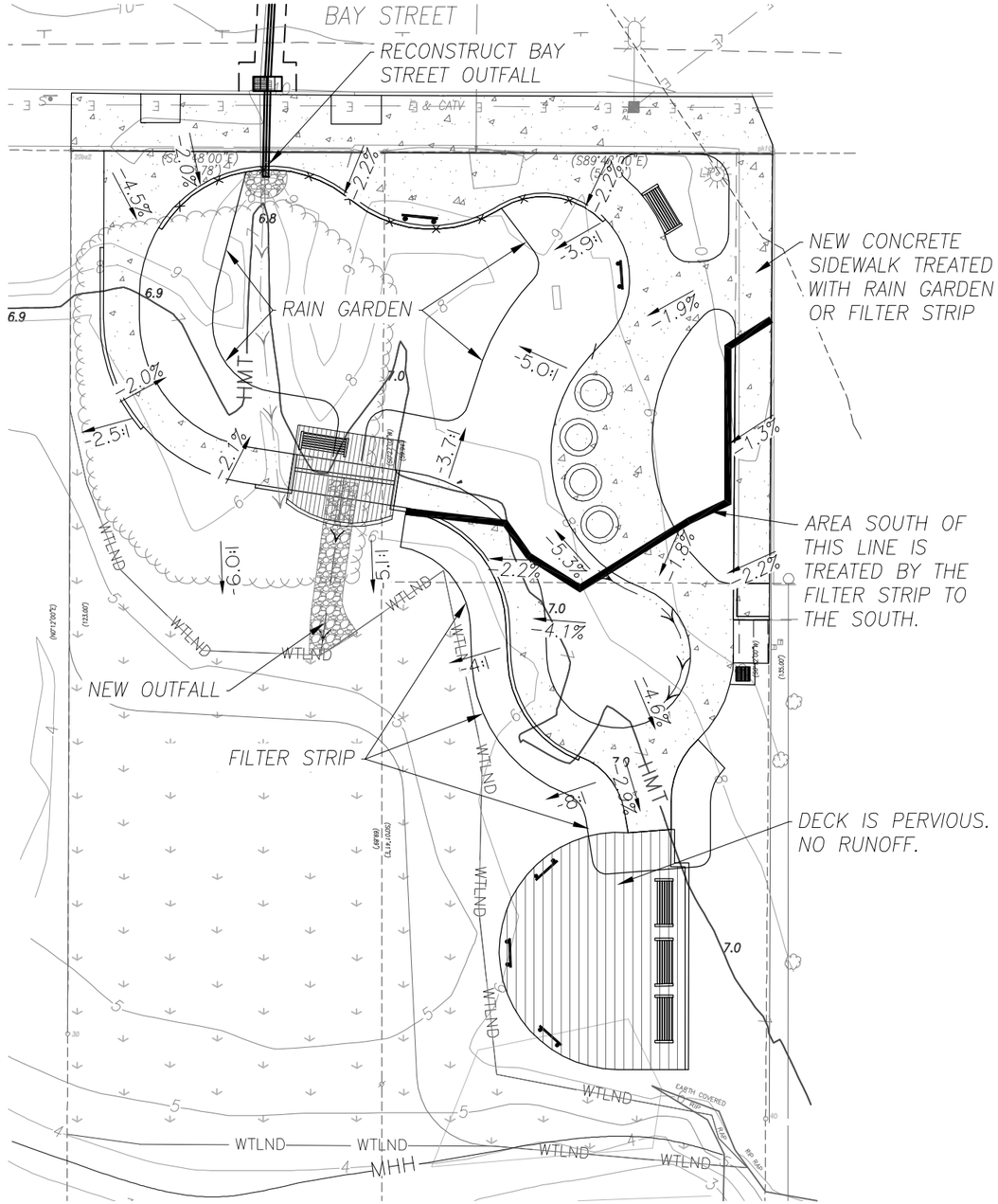
STM 2

Exhibit D

WAYSIDE WEST OVERLOOK
PROPOSED CONDITIONS



WAYSIDE EAST
PROPOSED CONDITIONS



N

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)

TAX MAP 18-12-34-1-4. TAX LOT 101, 107, & 700

PROJECT TITLE:
SIUSLAW RIVER BRIDGE INTERPRETIVE SITE
CITY OF FLORENCE, P.O. BOX 340
FLORENCE, OR 97439

DESCRIPTION:
STORM SYSTEM MAP 3
PROPOSED DRAINAGE PLAN

Branch Engineering, Inc.

Salem/Keizer Office
4310 Cherry Avenue N.E.
Salem, Oregon 97303
(503) 779-2577

Headquarters
310 Fifth Street
Springfield, Oregon 97477
(541) 746-0637

www.BranchEngineering.com
Civil • Structures • Transportation • Geotechnical • Surveying

DATE	NOV. 23, 2011
SCALE	1'' = 20'
DRAWN BY	NP
DESIGNER	CCI
CHECKED BY	DG
PROJECT NUMBER	11-01B

STM 3

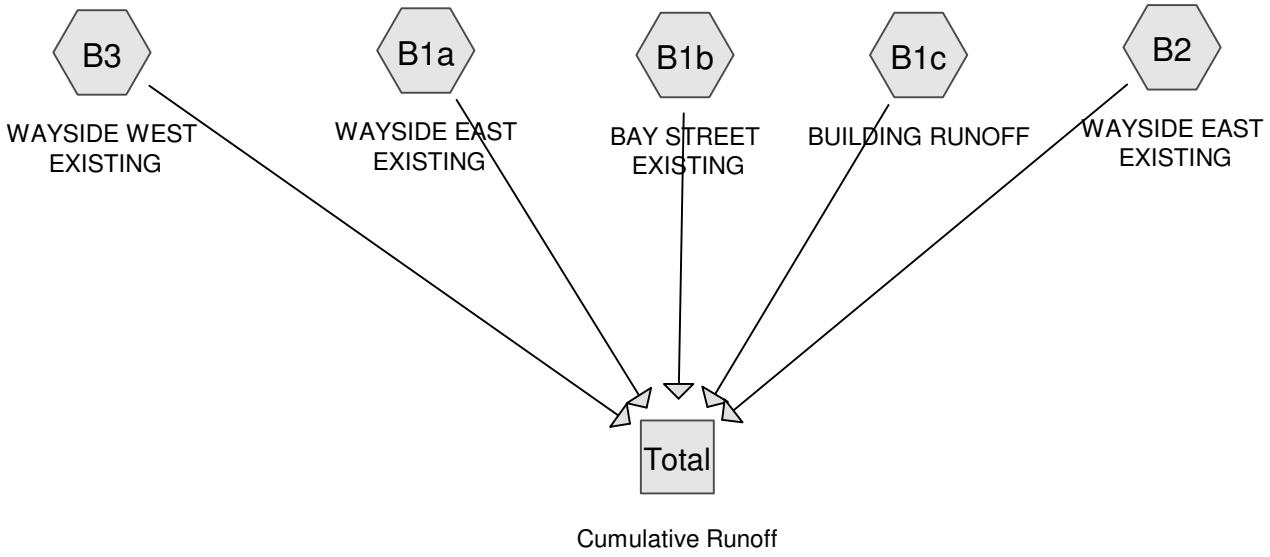
Exhibit D

APPENDIX

B

HydroCAD Analysis

Existing Conditions Analysis
Proposed Conditions Analysis



Subcat Reach Pond Link

Drainage Diagram for WAYSIDE EXISTING 112911
Prepared by Microsoft, Printed 11/29/2011

Summary for Subcatchment B1a: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.05 cfs @ 7.88 hrs, Volume= 0.017 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	4,514	85	Existing Landscape
	4,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.19 cfs @ 7.83 hrs, Volume= 0.062 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

Area (sf)	CN	Description
10,093	98	Paved parking, HSG B
10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.10 cfs @ 7.81 hrs, Volume= 0.033 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.01 cfs @ 7.88 hrs, Volume= 0.005 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	1,244	85	EXISTING LANDSCAPE
	1,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST EXISTING

Runoff = 0.05 cfs @ 7.92 hrs, Volume= 0.018 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	6,018	80	EXISTING LANDSCAPE
	6,018		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.97		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 56.72% Impervious, Inflow Depth = 2.60" for 2 yr event
Inflow = 0.41 cfs @ 7.85 hrs, Volume= 0.136 af
Outflow = 0.41 cfs @ 7.86 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 1.1 min

Peak Storage= 13 cf @ 7.86 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Subcatchment B1a: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.08 cfs @ 7.86 hrs, Volume= 0.025 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	4,514	85	Existing Landscape
	4,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.25 cfs @ 7.83 hrs, Volume= 0.082 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

Area (sf)	CN	Description
10,093	98	Paved parking, HSG B
10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.13 cfs @ 7.81 hrs, Volume= 0.043 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.02 cfs @ 7.86 hrs, Volume= 0.007 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	1,244	85	EXISTING LANDSCAPE
	1,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST EXISTING

Runoff = 0.08 cfs @ 7.89 hrs, Volume= 0.028 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	6,018	80	EXISTING LANDSCAPE
	6,018		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.97		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 56.72% Impervious, Inflow Depth = 3.56" for 10 yr event
Inflow = 0.56 cfs @ 7.84 hrs, Volume= 0.185 af
Outflow = 0.56 cfs @ 7.85 hrs, Volume= 0.185 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.70 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 1.0 min

Peak Storage= 17 cf @ 7.85 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Subcatchment B1a: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.09 cfs @ 7.85 hrs, Volume= 0.030 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	4,514	85	Existing Landscape
	4,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.28 cfs @ 7.83 hrs, Volume= 0.093 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

Area (sf)	CN	Description
10,093	98	Paved parking, HSG B
10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.15 cfs @ 7.81 hrs, Volume= 0.049 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.03 cfs @ 7.85 hrs, Volume= 0.008 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	1,244	85	EXISTING LANDSCAPE
	1,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST EXISTING

Runoff = 0.10 cfs @ 7.88 hrs, Volume= 0.034 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	6,018	80	EXISTING LANDSCAPE
	6,018		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.97		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 56.72% Impervious, Inflow Depth = 4.11" for 25 yr event
Inflow = 0.65 cfs @ 7.84 hrs, Volume= 0.214 af
Outflow = 0.65 cfs @ 7.85 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.80 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 0.9 min

Peak Storage= 18 cf @ 7.85 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Subcatchment B1a: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.00 cfs @ 17.40 hrs, Volume= 0.001 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	4,514	85	Existing Landscape
	4,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.04 cfs @ 7.87 hrs, Volume= 0.012 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

Area (sf)	CN	Description
10,093	98	Paved parking, HSG B
10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.02 cfs @ 7.85 hrs, Volume= 0.006 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST EXISTING

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.00 cfs @ 17.40 hrs, Volume= 0.000 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	1,244	85	EXISTING LANDSCAPE
	1,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, LANDSCAPE SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST EXISTING

Runoff = 0.00 cfs @ 20.56 hrs, Volume= 0.000 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	6,018	80	EXISTING LANDSCAPE
	6,018		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.97		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

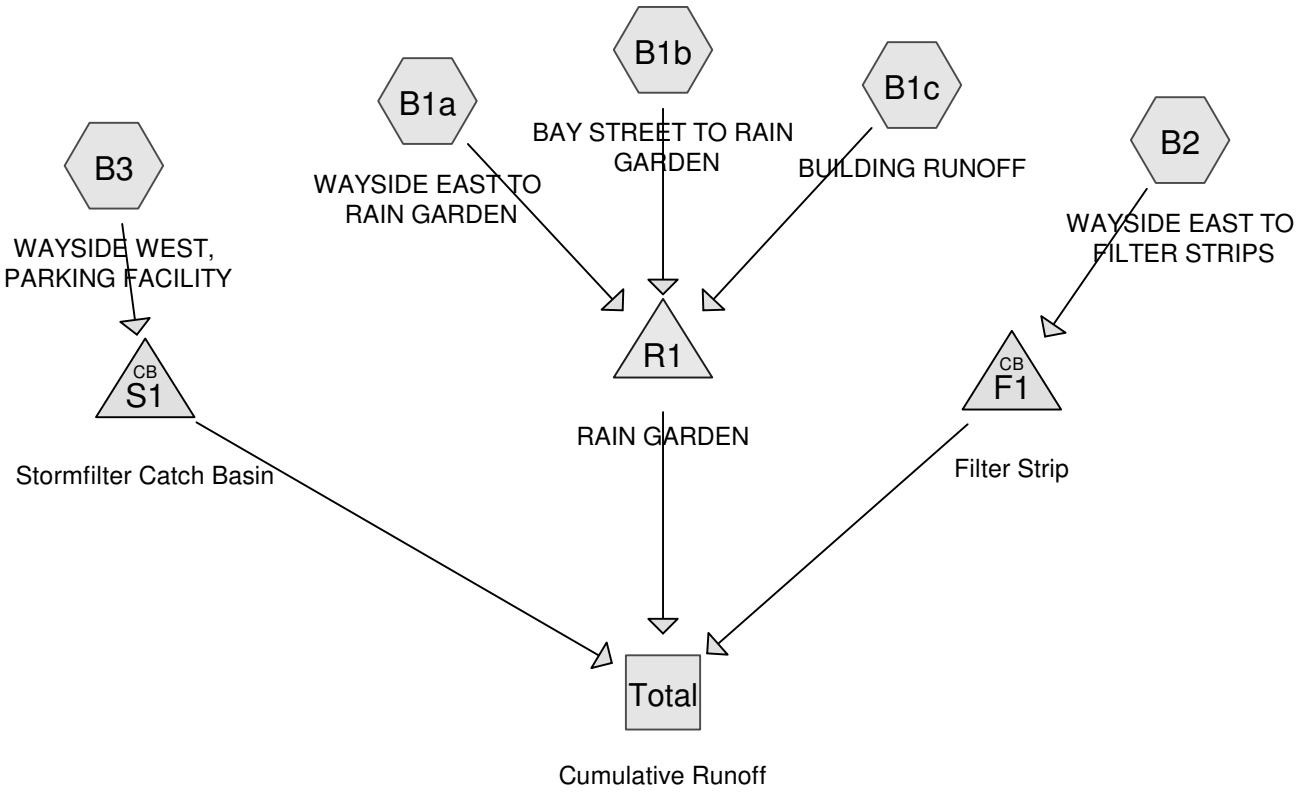
Inflow Area = 0.625 ac, 56.72% Impervious, Inflow Depth = 0.39" for WQ event
Inflow = 0.06 cfs @ 7.86 hrs, Volume= 0.020 af
Outflow = 0.06 cfs @ 7.87 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.75 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 1.4 min

Peak Storage= 4 cf @ 7.87 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡



Subcat Reach Pond Link

Drainage Diagram for WAYSIDE PROPOSED 112911
Prepared by Microsoft, Printed 11/29/2011

Summary for Subcatchment B1a: WAYSIDE EAST TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.07 cfs @ 7.83 hrs, Volume= 0.022 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	1,130	100	Pond Area
*	1,707	80	Landscape
*	1,677	98	PEDESTRIAN WALKWAY
	4,514	92	Weighted Average
	1,707		37.82% Pervious Area
	2,807		62.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.19 cfs @ 7.83 hrs, Volume= 0.062 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	10,093	98	BAY STREET
	10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY**
					Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.10 cfs @ 7.81 hrs, Volume= 0.033 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY**
					Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow**
					Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST TO FILTER STRIPS

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.02 cfs @ 7.84 hrs, Volume= 0.006 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	455	80	Landscape
*	789	98	PEDESTRIAN WALKWAY
	1,244	91	Weighted Average
	455		36.58% Pervious Area
	789		63.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST, PARKING FACILITY

Runoff = 0.11 cfs @ 7.81 hrs, Volume= 0.035 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 yr Rainfall=3.46"

	Area (sf)	CN	Description
*	3,742	98	Parking Area
*	1,602	98	Sidwalk
*	674	80	Landscape
	6,018	96	Weighted Average
	674		11.20% Pervious Area
	5,344		88.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	70	0.0100	0.96		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 89.58% Impervious, Inflow Depth = 0.80" for 2 yr event
Inflow = 0.13 cfs @ 7.81 hrs, Volume= 0.042 af
Outflow = 0.13 cfs @ 7.82 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.98 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 1.3 min

Peak Storage= 6 cf @ 7.82 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Pond F1: Filter Strip

Inflow Area = 0.029 ac, 63.42% Impervious, Inflow Depth = 2.50" for 2 yr event
Inflow = 0.02 cfs @ 7.84 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 7.84 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 7.84 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 8.50' @ 7.84 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.50'	**80.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 7.84 hrs HW=8.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.08 fps)

Summary for Pond R1: RAIN GARDEN

Inflow Area = 0.458 ac, 91.44% Impervious, Inflow Depth = 3.08" for 2 yr event
Inflow = 0.36 cfs @ 7.83 hrs, Volume= 0.118 af
Outflow = 0.13 cfs @ 8.71 hrs, Volume= 0.118 af, Atten= 65%, Lag= 53.0 min
Discarded = 0.10 cfs @ 8.71 hrs, Volume= 0.117 af
Primary = 0.03 cfs @ 8.71 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Peak Elev= 7.71' @ 8.71 hrs Surf.Area= 1,109 sf Storage= 699 cf

Plug-Flow detention time= 41.3 min calculated for 0.118 af (100% of inflow)
Center-of-Mass det. time= 41.2 min (713.4 - 672.2)

Volume	Invert	Avail.Storage	Storage Description
#1	7.00'	2,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.75

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.00	1,134	0	0
7.50	1,370	626	626
8.00	1,624	749	1,375
8.50	1,843	867	2,241
9.00	2,154	999	3,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	7.70'	**90.0 deg x 4.0' long x 1.00' rise Sharp-Crested Vee/Trap Weir** C= 2.50

Discarded OutFlow Max=0.10 cfs @ 8.71 hrs HW=7.71' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.02 cfs @ 8.71 hrs HW=7.71' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.02 cfs @ 0.38 fps)

Summary for Pond S1: Stormfilter Catch Basin

Inflow Area = 0.138 ac, 88.80% Impervious, Inflow Depth = 3.01" for 2 yr event
Inflow = 0.11 cfs @ 7.81 hrs, Volume= 0.035 af
Outflow = 0.11 cfs @ 7.81 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 7.81 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 5.50' @ 7.81 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.30'	**6.0" Round Culvert** L= 49.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.30' / 4.81' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.11 cfs @ 7.81 hrs HW=5.50' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.11 cfs @ 1.51 fps)

Summary for Subcatchment B1a: WAYSIDE EAST TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.10 cfs @ 7.82 hrs, Volume= 0.031 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	1,130	100	Pond Area
*	1,707	80	Landscape
*	1,677	98	PEDESTRIAN WALKWAY
	4,514	92	Weighted Average
	1,707		37.82% Pervious Area
	2,807		62.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.25 cfs @ 7.83 hrs, Volume= 0.082 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	10,093	98	BAY STREET
	10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY**
					Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.13 cfs @ 7.81 hrs, Volume= 0.043 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY**
					Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow**
					Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST TO FILTER STRIPS

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.03 cfs @ 7.82 hrs, Volume= 0.008 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	455	80	Landscape
*	789	98	PEDESTRIAN WALKWAY
	1,244	91	Weighted Average
	455		36.58% Pervious Area
	789		63.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST, PARKING FACILITY

Runoff = 0.14 cfs @ 7.80 hrs, Volume= 0.046 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=4.48"

	Area (sf)	CN	Description
*	3,742	98	Parking Area
*	1,602	98	Sidwalk
*	674	80	Landscape
	6,018	96	Weighted Average
	674		11.20% Pervious Area
	5,344		88.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	70	0.0100	0.96		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 89.58% Impervious, Inflow Depth = 1.33" for 10 yr event
Inflow = 0.48 cfs @ 8.00 hrs, Volume= 0.069 af
Outflow = 0.48 cfs @ 8.00 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.62 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 1.3 min

Peak Storage= 15 cf @ 8.00 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Pond F1: Filter Strip

Inflow Area = 0.029 ac, 63.42% Impervious, Inflow Depth = 3.48" for 10 yr event
Inflow = 0.03 cfs @ 7.82 hrs, Volume= 0.008 af
Outflow = 0.03 cfs @ 7.82 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 7.82 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 8.50' @ 7.82 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.50'	**80.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 7.82 hrs HW=8.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.09 fps)

Summary for Pond R1: RAIN GARDEN

Inflow Area = 0.458 ac, 91.44% Impervious, Inflow Depth = 4.09" for 10 yr event
Inflow = 0.48 cfs @ 7.82 hrs, Volume= 0.156 af
Outflow = 0.43 cfs @ 8.01 hrs, Volume= 0.156 af, Atten= 9%, Lag= 11.0 min
Discarded = 0.11 cfs @ 8.01 hrs, Volume= 0.142 af
Primary = 0.33 cfs @ 8.01 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Peak Elev= 7.79' @ 8.01 hrs Surf.Area= 1,137 sf Storage= 780 cf

Plug-Flow detention time= 48.1 min calculated for 0.156 af (100% of inflow)
Center-of-Mass det. time= 48.1 min (712.8 - 664.7)

Volume	Invert	Avail.Storage	Storage Description
#1	7.00'	2,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.75

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.00	1,134	0	0
7.50	1,370	626	626
8.00	1,624	749	1,375
8.50	1,843	867	2,241
9.00	2,154	999	3,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	7.70'	**90.0 deg x 4.0' long x 1.00' rise Sharp-Crested Vee/Trap Weir** C= 2.50

Discarded OutFlow Max=0.11 cfs @ 8.01 hrs HW=7.79' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.33 cfs @ 8.01 hrs HW=7.79' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.33 cfs @ 0.92 fps)

Summary for Pond S1: Stormfilter Catch Basin

Inflow Area = 0.138 ac, 88.80% Impervious, Inflow Depth = 4.02" for 10 yr event
Inflow = 0.14 cfs @ 7.80 hrs, Volume= 0.046 af
Outflow = 0.14 cfs @ 7.80 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 7.80 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 5.53' @ 7.80 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.30'	**6.0" Round Culvert** L= 49.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.30' / 4.81' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.14 cfs @ 7.80 hrs HW=5.53' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.14 cfs @ 1.63 fps)

Summary for Subcatchment B1a: WAYSIDE EAST TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.11 cfs @ 7.81 hrs, Volume= 0.036 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	1,130	100	Pond Area
*	1,707	80	Landscape
*	1,677	98	PEDESTRIAN WALKWAY
	4,514	92	Weighted Average
	1,707		37.82% Pervious Area
	2,807		62.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.28 cfs @ 7.83 hrs, Volume= 0.093 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	10,093	98	BAY STREET
	10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.15 cfs @ 7.81 hrs, Volume= 0.049 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST TO FILTER STRIPS

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.03 cfs @ 7.82 hrs, Volume= 0.010 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	455	80	Landscape
*	789	98	PEDESTRIAN WALKWAY
	1,244	91	Weighted Average
	455		36.58% Pervious Area
	789		63.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST, PARKING FACILITY

Runoff = 0.16 cfs @ 7.80 hrs, Volume= 0.053 af, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=5.06"

	Area (sf)	CN	Description
*	3,742	98	Parking Area
*	1,602	98	Sidwalk
*	674	80	Landscape
	6,018	96	Weighted Average
	674		11.20% Pervious Area
	5,344		88.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	70	0.0100	0.96		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 89.58% Impervious, Inflow Depth = 1.67" for 25 yr event
Inflow = 0.61 cfs @ 7.92 hrs, Volume= 0.087 af
Outflow = 0.61 cfs @ 7.92 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.67 fps, Avg. Travel Time= 1.2 min

Peak Storage= 17 cf @ 7.92 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Pond F1: Filter Strip

Inflow Area = 0.029 ac, 63.42% Impervious, Inflow Depth = 4.04" for 25 yr event
Inflow = 0.03 cfs @ 7.82 hrs, Volume= 0.010 af
Outflow = 0.03 cfs @ 7.82 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 7.82 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 8.50' @ 7.82 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.50'	**80.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 7.82 hrs HW=8.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.10 fps)

Summary for Pond R1: RAIN GARDEN

Inflow Area = 0.458 ac, 91.44% Impervious, Inflow Depth = 4.67" for 25 yr event
Inflow = 0.54 cfs @ 7.82 hrs, Volume= 0.178 af
Outflow = 0.53 cfs @ 7.93 hrs, Volume= 0.178 af, Atten= 3%, Lag= 6.7 min
Discarded = 0.11 cfs @ 7.93 hrs, Volume= 0.154 af
Primary = 0.42 cfs @ 7.93 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Peak Elev= 7.80' @ 7.93 hrs Surf.Area= 1,143 sf Storage= 799 cf

Plug-Flow detention time= 52.2 min calculated for 0.178 af (100% of inflow)
Center-of-Mass det. time= 52.2 min (713.8 - 661.5)

Volume	Invert	Avail.Storage	Storage Description
#1	7.00'	2,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.75

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.00	1,134	0	0
7.50	1,370	626	626
8.00	1,624	749	1,375
8.50	1,843	867	2,241
9.00	2,154	999	3,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	7.70'	**90.0 deg x 4.0' long x 1.00' rise Sharp-Crested Vee/Trap Weir** C= 2.50

Discarded OutFlow Max=0.11 cfs @ 7.93 hrs HW=7.80' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.42 cfs @ 7.93 hrs HW=7.80' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.42 cfs @ 1.00 fps)

Summary for Pond S1: Stormfilter Catch Basin

Inflow Area = 0.138 ac, 88.80% Impervious, Inflow Depth = 4.59" for 25 yr event
Inflow = 0.16 cfs @ 7.80 hrs, Volume= 0.053 af
Outflow = 0.16 cfs @ 7.80 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 7.80 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 5.55' @ 7.80 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.30'	**6.0" Round Culvert** L= 49.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.30' / 4.81' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.16 cfs @ 7.80 hrs HW=5.55' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.16 cfs @ 1.69 fps)

Summary for Subcatchment B1a: WAYSIDE EAST TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.01 cfs @ 7.97 hrs, Volume= 0.002 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	1,130	100	Pond Area
*	1,707	80	Landscape
*	1,677	98	PEDESTRIAN WALKWAY
	4,514	92	Weighted Average
	1,707		37.82% Pervious Area
	2,807		62.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1b: BAY STREET TO RAIN GARDEN

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.04 cfs @ 7.87 hrs, Volume= 0.012 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	10,093	98	BAY STREET
	10,093		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	200	0.0050	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B1c: BUILDING RUNOFF

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.02 cfs @ 7.85 hrs, Volume= 0.006 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	5,340	98	BUILDING RUNOFF
	5,340		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.65		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"
1.2	105	0.0050	1.44		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
2.2	145	Total			

Summary for Subcatchment B2: WAYSIDE EAST TO FILTER STRIPS

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

Runoff = 0.00 cfs @ 7.99 hrs, Volume= 0.001 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	455	80	Landscape
*	789	98	PEDESTRIAN WALKWAY
	1,244	91	Weighted Average
	455		36.58% Pervious Area
	789		63.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		**Sheet Flow, ROADWAY** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Subcatchment B3: WAYSIDE WEST, PARKING FACILITY

Runoff = 0.02 cfs @ 7.88 hrs, Volume= 0.006 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	3,742	98	Parking Area
*	1,602	98	Sidwalk
*	674	80	Landscape
	6,018	96	Weighted Average
	674		11.20% Pervious Area
	5,344		88.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	70	0.0100	0.96		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.12"

Summary for Reach Total: Cumulative Runoff

Inflow Area = 0.625 ac, 89.58% Impervious, Inflow Depth = 0.12" for WQ event
Inflow = 0.02 cfs @ 7.89 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 7.91 hrs, Volume= 0.006 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.61 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 1.4 min

Peak Storage= 1 cf @ 7.91 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 166.11 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 4.00', Outlet Invert= 3.00'

‡

Summary for Pond F1: Filter Strip

Inflow Area = 0.029 ac, 63.42% Impervious, Inflow Depth = 0.25" for WQ event
Inflow = 0.00 cfs @ 7.99 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 7.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 7.99 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 8.50' @ 7.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.50'	**80.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 7.99 hrs HW=8.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.02 fps)

Summary for Pond R1: RAIN GARDEN

Inflow Area = 0.458 ac, 91.44% Impervious, Inflow Depth = 0.55" for WQ event
Inflow = 0.06 cfs @ 7.88 hrs, Volume= 0.021 af
Outflow = 0.06 cfs @ 7.94 hrs, Volume= 0.021 af, Atten= 1%, Lag= 3.7 min
Discarded = 0.06 cfs @ 7.94 hrs, Volume= 0.021 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Peak Elev= 7.02' @ 7.94 hrs Surf.Area= 856 sf Storage= 14 cf

Plug-Flow detention time= 3.6 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (740.1 - 736.5)

Volume	Invert	Avail.Storage	Storage Description
#1	7.00'	2,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.75

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.00	1,134	0	0
7.50	1,370	626	626
8.00	1,624	749	1,375
8.50	1,843	867	2,241
9.00	2,154	999	3,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	7.70'	**90.0 deg x 4.0' long x 1.00' rise Sharp-Crested Vee/Trap Weir** C= 2.50

Discarded OutFlow Max=0.08 cfs @ 7.94 hrs HW=7.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.00' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond S1: Stormfilter Catch Basin

Inflow Area = 0.138 ac, 88.80% Impervious, Inflow Depth = 0.48" for WQ event
Inflow = 0.02 cfs @ 7.88 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 7.88 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 7.88 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Peak Elev= 5.37' @ 7.88 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.30'	**6.0" Round Culvert** L= 49.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.30' / 4.81' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.02 cfs @ 7.88 hrs HW=5.37' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.02 cfs @ 0.92 fps)

APPENDIX
C

Soil Data and Lane County Soil Maps

Lane County Area, Oregon

133C—Waldport-Urban land complex, 0 to 12 percent slopes

Map Unit Setting

Elevation: 10 to 150 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 165 to 250 days

Map Unit Composition

Waldport and similar soils: 50 percent
Urban land: 40 percent
Minor components: 5 percent

Description of Waldport

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of mixed origin

Properties and qualities

Slope: 0 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 3 inches: Moderately decomposed plant material
3 to 8 inches: Fine sand
8 to 60 inches: Fine sand

Description of Urban Land

Interpretive groups

Land capability (nonirrigated): 8

Minor Components

Yaquina

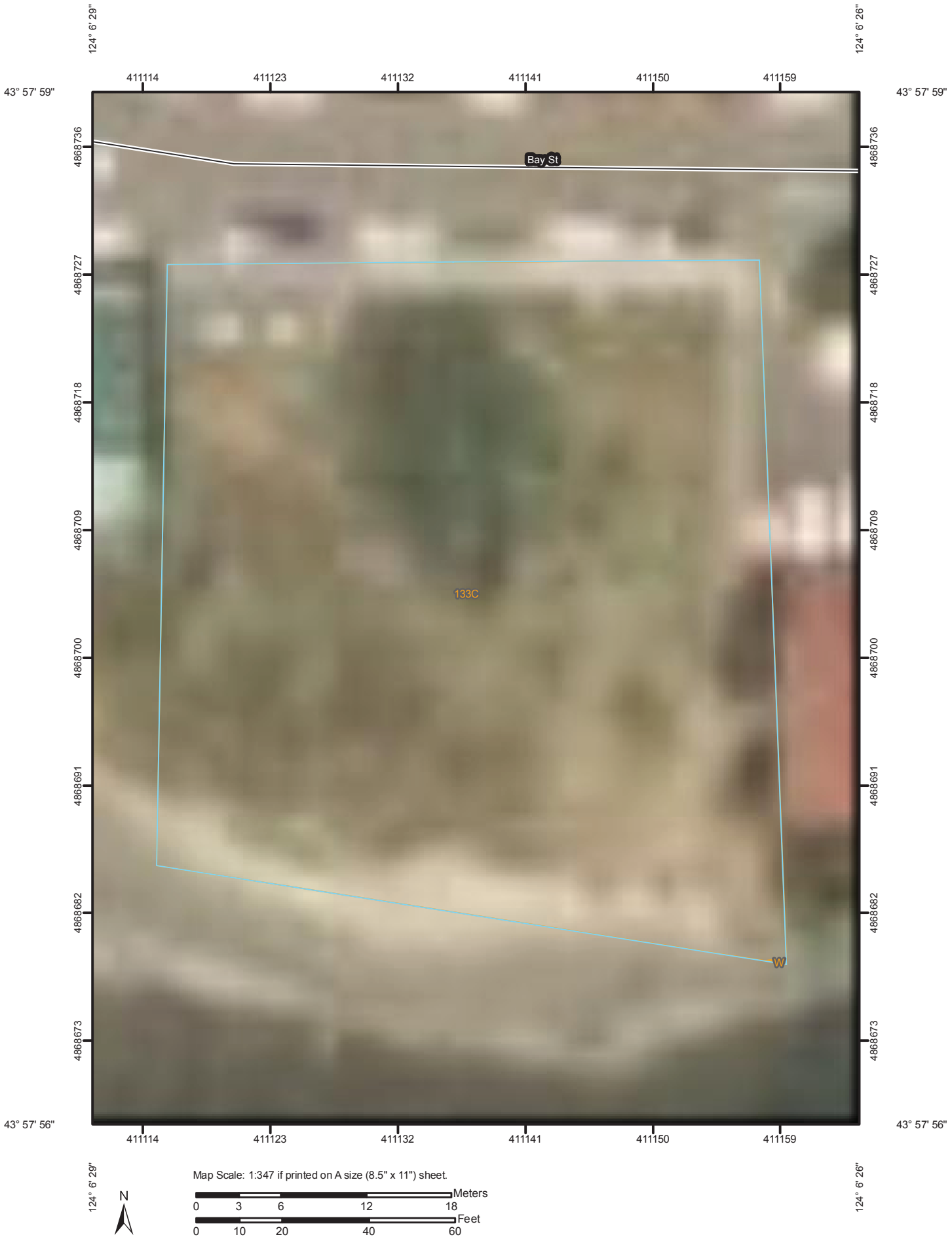
Percent of map unit: 5 percent

Landform: Marine terraces

Data Source Information

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 8, Feb 9, 2010

Exhibit D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Bay St
133C
W
Map Scale: 1:347 if printed on A size (8.5" x 11") sheet.
N
Meters
0 3 6 12 18
Feet
0 10 20 40 60

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:347 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 8, Feb 9, 2010

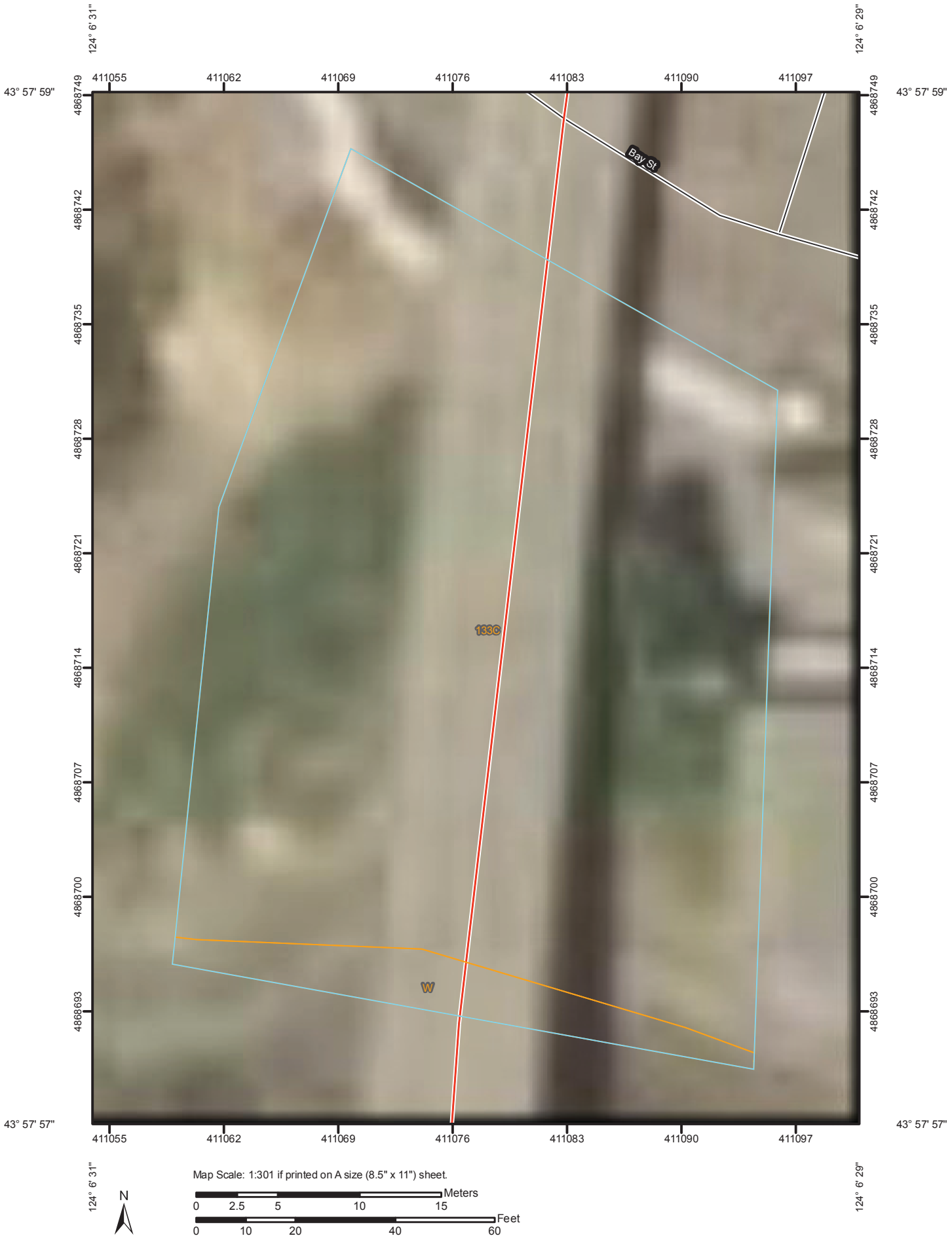
Date(s) aerial images were photographed: 7/17/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Exhibit D

Map Unit Legend

Lane County Area, Oregon (OR637)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
133C	Waldport-Urban land complex, 0 to 12 percent slopes	0.5	100.0%
W	Water	0.0	0.0%
Totals for Area of Interest		**0.5**	**100.0%**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4868749
4868742
4868735
4868728
4868721
4868714
4868707
4868700
4868693
Bay St
133C
W
Map Scale: 1:301 if printed on A size (8.5" x 11") sheet.
N
Meters
0 2.5 5 10 15
Feet
0 10 20 40 60

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:301 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 8, Feb 9, 2010

Date(s) aerial images were photographed: 7/17/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Exhibit D

Map Unit Legend

Lane County Area, Oregon (OR637)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
133C	Waldport-Urban land complex, 0 to 12 percent slopes	0.4	94.2%
W	Water	0.0	5.8%
Totals for Area of Interest		**0.4**	**100.0%**

Exhibit D

APPENDIX

D

Operation and Maintenance Documents

CONTECH
CONSTRUCTION PRODUCTS INC.

StormFilter Inspection and Maintenance Procedures

The Stormwater Management StormFilter®

Exhibit D

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are likely many effective maintenance options, we believe the following procedure is efficient and can be implemented using common equipment and existing maintenance protocols. A two step procedure is recommended as follows:

1. Inspection

Inspection of the vault interior to determine the need for maintenance.

2. Maintenance

Cartridge replacement

Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, in late summer to early fall when flows into the system are not likely to be present.

Maintenance Frequency

The primary factor controlling timing of maintenance of the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection

One time per year

After major storms

Maintenance

As needed, based on results of inspection (The average maintenance lifecycle is approximately 1-3 years)

Per Regulatory requirement

In the event of a chemical spill

Frequencies should be updated as required. The recommended initial frequency for inspection is one time per year. StormFilter units should be inspected after major storms.

Exhibit D

Sediment removal and cartridge replacement on an as needed basis is recommended unless site conditions warrant.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to three years, but inspection is warranted and recommended annually.

Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)

1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water in the cartridge bay for more that 24 hours after end of rain event, maintenance is required.
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.
8. Calendar Lifecycle.
   a. If system has not been maintained for 3 years maintenance is required.

Exhibit D

Assumptions

- No rainfall for 24 hours or more
- No upstream detention (at least not draining into StormFilter)
- Structure is online
- Outlet pipe is clear of obstruction
- Construction bypass is plugged

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Construction Products.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Construction Products for suggested attachment devices.

Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Construction Products performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under structure access, tip the cartridge on its side.

Exhibit D

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

E. Set the empty, used cartridge aside or load onto the hauling truck.

F. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
   a. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Construction Products.

Exhibit D

Related Maintenance Activities -

Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

RECYCLED PAPER

CONTECH CONSTRUCTION PRODUCTS INC.
800.338.1122
www.contech-cpi.com

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

Nothing in this catalog should be construed as an expressed warranty or an implied warranty of merchantability or fitness for any particular purpose. See the CONTECH standard quotation or acknowledgement for applicable warranties and other terms and conditions of sale.

Exhibit D

Inspection Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: _____ Date: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water: _____

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal: _____

☐ Minor Structural Repairs: _____

☐ Drainage Area Report _____

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

Items Needing Further Work: _____

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

_____

_____

_____

_____

_____

_____

_____

_____

Exhibit D

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay: Yes ☐ No ☐

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

_____

_____

_____

_____

_____

Operation and Maintenance

CatchBasin StormFilter™

Important: These guidelines should be used as a part of your site stormwater plan.

Overview

The CatchBasin StormFilter™ (CBSF) consists of a multi-chamber steel, concrete, or plastic catch basin unit that can contain up to four StormFilter cartridges. The steel CBSF is offered both as a standard and as a deep unit.

The CBSF is installed flush with the finished grade and is applicable for both constrained lot and retrofit applications. It can also be fitted with an inlet pipe for roof leaders or similar applications.

The CBSF unit treats peak water quality design flows up to 0.13 cfs, coupled with an internal weir overflow capacity of 1.0 cfs for the standard unit, and 1.8 cfs for the deep steel and concrete units. Plastic units have an internal weir overflow capacity of 0.5 cfs.

Design Operation

The CBSF is installed as the primary receiver of runoff, similar to a standard, grated catch basin. The steel and concrete CBSF units have an H-20 rated, traffic-bearing lid that allows the filter to be installed in parking lots, and for all practical purposes, takes up no land area. Plastic units can be used in landscaped areas and for other non-traffic-bearing applications.

The CBSF consists of a sumped inlet chamber and a cartridge chamber(s). Runoff enters the sumped inlet chamber either by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit vault. The inlet chamber is equipped with an internal baffle, which traps debris and floating oil and grease, and an overflow weir. While in the inlet chamber, heavier solids are allowed to settle into the deep sump, while lighter solids and soluble pollutants are directed under the baffle and into the cartridge chamber through a port between the baffle and the overflow weir. Once in the cartridge chamber, polluted water ponds and percolates horizontally through the media in the filter cartridges. Treated water collects in the cartridge's center tube from where it is directed by an under-drain manifold to the outlet pipe on the downstream side of the overflow weir and discharged.

When flows into the CBSF exceed the water quality design value, excess water spills over the overflow weir, bypassing the cartridge bay, and discharges to the outlet pipe.

Applications

The CBSF is particularly useful where small flows are being treated or for sites that are flat and have little available hydraulic head to spare. The unit is ideal for applications in which standard catch basins are to be used. Both water quality and catchment issues can be resolved with the use of the CBSF.

Retro-Fit

The retrofit market has many possible applications for the CBSF**.** The CBSF can be installed by replacing an existing catch basin without having to "chase the grade," thus reducing the high cost of re-piping the storm system.

Maintenance Guidelines

Maintenance procedures for typical catch basins can be applied to the CatchBasin StormFilter (CBSF). The filter cartridges contained in the CBSF are easily removed and replaced during maintenance activities according to the following guidelines.

1. Establish a safe working area as per typical catch basin service activity.
2. Remove steel grate and diamond plate cover (weight ≈ 100 lbs. each).
3. Turn cartridge(s) counter-clockwise to disconnect from pipe manifold.
4. Remove 4" center cap from cartridge and replace with lifting cap.
5. Remove cartridge(s) from catch basin by hand or with vactor truck boom.
6. Remove accumulated sediment via vactor truck (min. clearance 13" x 24").
7. Remove accumulated sediment from cartridge bay.
   (min. clearance 9.25" x 11")
8. Rinse interior of both bays and vactor remaining water and sediment.
9. Install fresh cartridge(s) threading clockwise to pipe manifold.
10. Replace cover and grate.
11. Return original cartridges to CONTECH Stormwater Solutions for cleaning and media disposal.

Media may be removed from the filter cartridges using the vactor truck before the cartridges are removed from the catch basin structure. Empty cartridges can be easily removed from the catch basin structure by hand. Empty cartridges should be reassembled and returned to CONTECH Stormwater Solutions, as appropriate.

Materials required include a lifting cap, vactor truck, and fresh filter cartridges. Contact CONTECH Stormwater Solutions for specifications and availability of the lifting cap. The vactor truck must be equipped with a hose capable of reaching areas of restricted clearance. The owner may refresh spent cartridges. Refreshed cartridges are also available from CONTECH Stormwater Solutions on an exchange basis. Contact the maintenance department of CONTECH Stormwater Solutions at (503) 240-3393 for more information.

Maintenance is estimated at 26 minutes of site time. For units with more than one cartridge, add approximately 5 minutes for each additional cartridge. Add travel time as required.

Mosquito Abatement

In certain areas of the United States, mosquito abatement is desirable to reduce the incidence of vectors.

In BMPs with standing water, which could provide mosquito breeding habitat, certain abatement measures can be taken.

1. Periodic observation of the standing water to determine if the facility is harboring mosquito larvae.
2. Regular catch basin maintenance
3. Use of larvicides containing *Bacillus thuringiensis israelensis* (BTI). BTI is a bacterium toxic to mosquito and black fly larvae.

In some cases, the presence of petroleum hydrocarbons may interrupt the mosquito growth cycle.

Using Larvicides in the CatchBasin StormFilter

Larvicides should be used according to manufacturer's recommendations.

Two widely available products are Mosquito Dunks and Summit B.t.i. Briquets. For more information, visit http://www.summitchemical.com/mos_ctrl/default.htm.

The larvicide must be in contact with the permanent pool. The larvicide should also be fastened to the CatchBasin StormFilter by string or wire to prevent displacement by high flows. A magnet can be used with a steel catch basin.

For more information on mosquito abatement in stormwater BMPs, refer to the following: http://www.ucmrp.ucdavis.edu/publications/managingmosquitoesstormwater8125.pdf

CONTECH CONSTRUCTION PRODUCTS INC.

The Stormwater Management StormFilter®

StormFilter Maintenance Guidelines

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site, and may be required in the event of a chemical spill or due to excessive sediment loading.

Maintenance Procedures

Although there are other effective maintenance options, CONTECH recommends the following two step procedure:

1. Inspection: Determine the need for maintenance.

2. Maintenance: Cartridge replacement and sediment removal.

Inspection and Maintenance Activity Timing

At least one scheduled inspection activity should take place per year with maintenance following as warranted.

First, inspection should be done before the winter season. During which, the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, maintenance should be performed during periods of dry weather.

In addition, you should check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation. It may be necessary to adjust the inspection/maintenance activity schedule depending on the actual operating conditions encountered by the system.

Generally, inspection activities can be conducted at any time, and maintenance should occur when flows into the system are unlikely.

Maintenance Activity Frequency

Maintenance is performed on an as needed basis, based on inspection. Average maintenance lifecycle is 1-3 years. The primary factor controlling timing of maintenance of the StormFilter is sediment loading. Until appropriate timeline is determined, use the following:

Inspection:

One time per year

After major storms

Maintenance:

As needed

Per regulatory requirement

In the event of a chemical spill

Inspection Procedures

It is desirable to inspect during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. Use the following as a general guide. (Other factors, such as regulatory requirements, may need to be considered)

1. Sediment loading on the vault floor. If >4" of accumulated sediment, then go to maintenance.
2. Sediment loading on top of the cartridge. If >1/4" of accumulation, then go to maintenance.
3. Submerged cartridges. If >4" of static water in the cartridge bay for more that 24 hrs after end of rain event, then go to maintenance.
4. Plugged media. If pore space between media granules is absent, then go to maintenance.
5. Bypass condition. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), then go to maintenance.
6. Hazardous material release. If hazardous material release (automotive fluids or other) is reported, then go to maintenance.
7. Pronounced scum line. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, then go to maintenance.
8. Calendar Lifecycle. If system has not been maintained for 3 years, then go to maintenance.

Assumptions:

No rainfall for 24 hours or more.

No upstream detention (at least not draining into StormFilter).

Structure is online. Outlet pipe is clear of obstruction. Construction bypass is plugged.

Maintenance

Depending on the configuration of the particular system, workers will be required to enter the vault to perform the maintenance.

Exhibit D

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flow is occurring.

Replacement cartridges can be delivered to the site or customers facility. Contact CONTECH for more information.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.

To conduct cartridge replacement and sediment removal:

1. If applicable, set up safety equipment to protect workers and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that workers enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH for suggested attachment devices.

Important: Cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Do not damage the manifold connectors. They should remain installed in the manifold and can be capped during the maintenance activity to prevent sediments from entering the under drain manifold.

B. Remove the used cartridges (up to 250 lbs.) from the vault.

Important: Avoid damaging the cartridges during removal and installation.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps A through C until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under structure access, tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

F. Set the empty, used cartridge aside or load onto the hauling truck.

G. Continue steps a through E until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. Use vacuum truck for highest effectiveness.
9. Once the sediments are removed, assess the condition of the vault and the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
   a. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH.

Material Disposal

The accumulated sediment must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals. Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with applicable waste disposal regulations. Coordinate disposal of solids and liquids as part of your maintenance procedure. Contact the local public works department to inquire how they disposes of their street waste residuals.

800.338.1122
www.contech-cpi.com

Exhibit D

Date:_____ Initials:_____
Work performed by:_____
Work performed:_____
_____
Details:_____
_____

Date:_____ Initials:_____
Work performed by:_____
Work performed:_____
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Details:_____
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Details:_____
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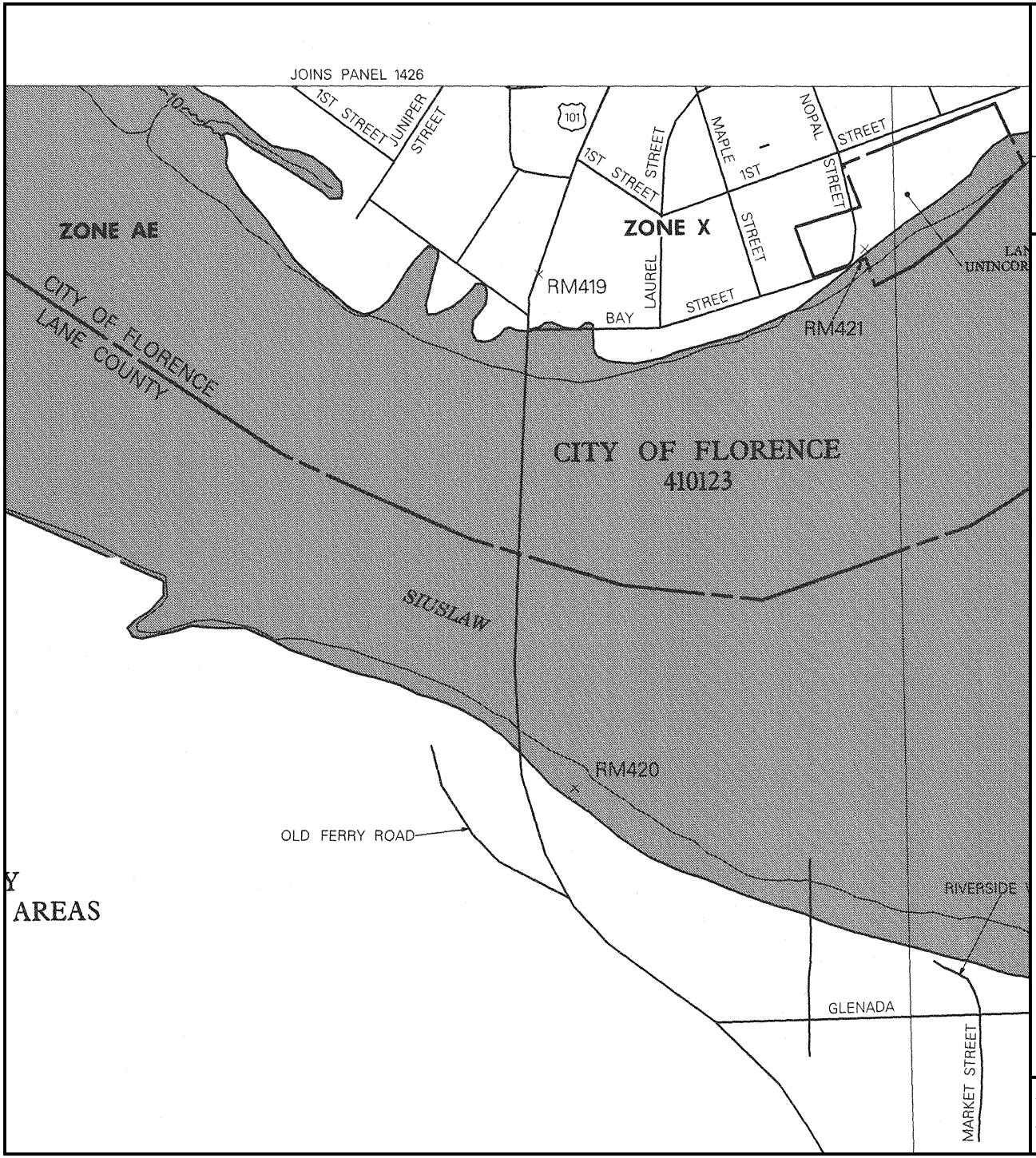
APPENDIX E

FEMA Flood Maps



APPROXIMATE SCALE IN FEET

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

LANE COUNTY, OREGON AND INCORPORATED AREAS

PANEL 1428 OF 2975

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

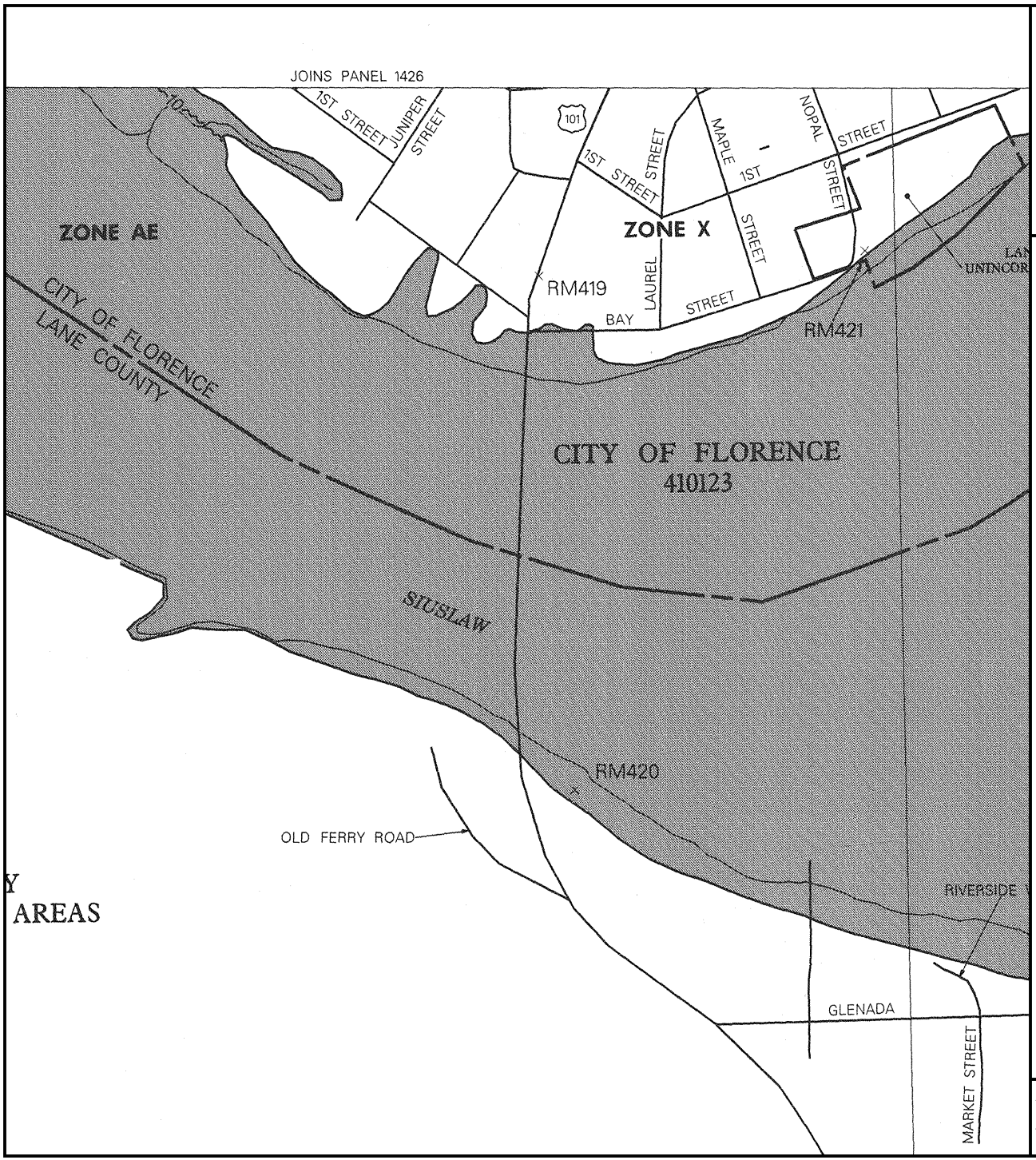
COMMUNITY	NUMBER	PANEL	SUFFIX
DUNES CITY, CITY OF	410262	1428	F
FLORENCE, CITY OF	410123	1428	F
LANE COUNTY, UNINCORPORATED AREAS	415591	1428	F

MAP NUMBER
41039C1428 F

EFFECTIVE DATE:
JUNE 2, 1999

Federal Emergency Management Agency

Exhibit D



APPROXIMATE SCALE IN FEET

500 0 500

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone.

Exhibit D

CITY OF FLORENCE
SITE INVESTIGATION REPORT SUMMARY

CITY OF FLORENCE
Applicant

1-26-2012
Date

SIUSLAW RIVER BRIDGE WAYSIDE
Proposal or Project

18-12-34-14 TL 700, 101, 107
Map No. Tax Lot

DOWNTOWN
Comprehensive Plan Designation

OLD TOWN A
Zoning District

Purpose of Proposal or Project (attach additional sheets, as needed)

1250 BAY STREET
Street Address

MIXED DEVELOPMENT SHORELAND
Overlay District

Based on submitted information, zoning and comprehensive plan requirements, and the completed Site Investigation Report, this proposal **does** / **does not** comply with Title 10 of the City Code and the Comprehensive Plan. The proposal **will** / **will not** achieve the stated purpose. The site and/or building design **will** / **will not** have adverse impacts and **will** / **will not** mitigate any adverse impacts.

The completed Site Investigation Report is available at the Planning Department.

This investigation was done by:

MIKE MILLER
Print

Signature

PUBLIC WORKS DIRECTOR
Title

SITE INVESTIGATION – PHASE 1
INITIAL PROPOSED DEVELOPMENT APPLICATION CHECKLIST

YES	NO		
✓		1.	LOCAL ZONING REGULATIONS Does the proposed development site plan conform to City, or County Zoning Regulations regarding setback lines and other code provisions? (Contact the City or County Engineer for details.)
		2.	COMPREHENSIVE PLAN SETBACK LINE OR DESIGNATION
	N/A		a. Has a Coastal Construction Setback line (CCSBL) been adopted for this County or city? (Inquire from the County or City Engineer.)
	N/A		b. If a CCSBL has been adopted for this County or City is the proposed site seaward of the CCSBL?
	N/A		c. If the proposed site is seaward of the adopted CCSBL, has application for a variance or exception been made to the Planning Commission having jurisdiction?

SITE INVESTIGATION – PHASE 1
INITIAL PROPOSED DEVELOPMENT APPLICATION CHECKLIST

YES	NO	
	✓	3. IDENTIFIED HAZARDOUS CONDITIONS
	✓	a. Has any portion of the property been identified as being affected by any potential or existing geological hazard? (Contact County or City Planning Departments for information published by the State Department of Geology and Mineral Industries, US Department of Agriculture-Soil Conservation Service, US Geological Survey, US Army Corps of Engineers and other government agencies.)
		b. Are any of the following identified hazards present?
	✓	1. Active foredune
✓		2. Water erosion
✓		3. Flooding
	✓	4. Wind erosion
	✓	5. Landslide or sluff activity
	✓	c. Are there records of these hazards ever being present of the site? Describe:
		4. EXISTING SITE VEGETATION
	✓	a. Does the vegetation on the site, afford adequate protection against soil erosion from wind and surface water runoff?
	✓	b. Does the condition of vegetation present constitute a possible fire hazard or contributing factor to slide potential?
		(If answer is Yes, full details and possible remedies will be required.)
		5. FISH AND WILDLIFE HABITAT
	✓	a. Does the site contain any identified rare or endangered species or unique habitat (feeding, nesting or resting)?
	✓	b. Will any significant habitat be adversely affected by the development? (Contact State Fish and Wildlife, County and City Planning Staffs for inventory data.)
		6. HISTORICAL AND ARCHEEOLOGICAL SITES
	✓	Are there any identified historical or archaeological sites within the area proposed for development? (Contact local planning office.)
		7. FLOOD PLAIN ELEVATION
	n/a	a. If the elevation of the 100 year flood plain or storm tide has been determined, does it exceed the existing ground elevation at the proposed building site? (Contact the Federal Insurance Administration, City or County Planning Departments for information on 100 year flood pla9in. Existing site elevations can be identified by local registered surveyor.)
	n/a	b. If elevations of the proposed development is subject to flooding during the 100 year flood or storm tide, will the lowest habitable floor be raised above the top of the highest predicted storm-wave cresting on the 100 year flood or storm tide?
		8. CONDITION OF ADJOINING AND NEARBY AREAS
		Are any of the following natural hazards present on the adjoining or nearby properties that would pose a threat to this site?
	✓	a. Open dunes

SITE INVESTIGATION – PHASE 1
INITIAL PROPOSED DEVELOPMENT APPLICATION CHECKLIST

YES	NO	
	✓	b. Active foredune
	✓	c. Storm runoff erosion
	✓	d. Wave undercutting or wave overtopping
	✓	e. Slide areas
	✓	f. Combustible vegetative cover
		(Contact County and City Planning staffs for local hazard information.)
		9. DEVELOPMENT IMPACTS
	✓	a. Will there be adverse off-site impacts as a result of this development?
		b. Identify possible problem type
		1. Increased wind exposure
		2. Open sand movement
		3. Vegetative destruction
		4. Increased water erosion (storm runoff, driftwood removal, reduction of foredune, etc.)
		5. Increased slide potential
		6. Affect on aquifer
		c. Has landform capability (density, slope failure, groundwater, vegetation, etc) been a consideration in preparing the development proposal?
		d. Will there be social and economic benefits from the proposed development?
		e. Identified benefits
		1. New jobs
		2. Increased tax valuation
		3. Improved fish and wildlife habitat
		4. Public access
		5. Housing needs
		6. Recreation potential
		7. Dune stabilization (protection of other features)
		8. Other _____
		10. PROPOSED DESIGN
	n/a	a. Has a site map been submitted showing in detail exact location of proposed structures?
✓		b. Have detailed plans showing structure foundations been submitted?
	n/a	c. Have detailed plans and specifications for the placement of protective structures been submitted if need is indicated?
✓		d. Has a plan for interim stabilization, permanent revegetation and continuing vegetative maintenance been submitted?
		e. Is the area currently being used by the following?
	✓	1. Off-road vehicles
	✓	2. motorcycles
	✓	3. horses
	✓	f. Has a plan been developed to control or prohibit the uses of off-road vehicles, motorcycles and horses?
		11. LCDC COASTAL GOAL REQUIREMENTS
✓		a. Have you read the LCDC Goals affecting the site? (contact LCDC, City or County office for copies of Goals.)
	✓	b. Have you identified any possible conflicts between the proposed development

SITE INVESTIGATION – PHASE 1
INITIAL PROPOSED DEVELOPMENT APPLICATION CHECKLIST

YES	NO	
		and the Goals or acknowledged comprehensive plans? (If so, list them and contact local planning staff for possible resolution.)
✓	___	c. Have all federal and state agency consistency requirements been met? (Contact local planning office.)
✓	___	d. Has applicant or investigator determined that the development proposal is compatible with the LCDD Beaches and Dunes Goal and other appropriate statewide land use planning laws?

Rev. 1/08

City of Florence
Land Use Applications For:

Siuslaw Interpretive Wayside

Submitted by:

Mike Miller, Florence Public Works Director
Carol Heinkel, Planning Consultant
Damien Gilbert, P.E., Branch Engineering

Submitted: December 21, 2011

Exhibit G

Exhibit G

Table of Contents

Table of Contents (Continued)

Attachments (submitted under separate cover)
Please Note: The following documents were prepared over several years while this project has been in development and during which project design has evolved. Where there are conflicts, the information and conclusions in the most recent document prevail.

- Siuslaw Interpretive Wayside: **Wayside East Landscape Plan**, Dougherty Landscape Architects, November 2011
- Siuslaw Interpretive Wayside: **Wayside West Landscape Plan**, Dougherty Landscape Architects, November 2011
- **Site Plans, Lighting Plans, Parking Area Plan, and Survey**, December 2011
- **Wetland Investigation and Delineation Report** for the City of Florence, Barnett Family Bay Street Property, 18-12-34-1-4 TL 101, 107, 700, prepared by Wilbur E. Ternyik and Matthew J. Ternyik, Wetland, beaches, and Dunes Consultants; Surveyed by Wobbe & Associates, November, 2007
- **Phase II Site Investigation Report**, Siuslaw Interpretive Wayside, Florence, Oregon, Branch Engineering, Inc. Project No. 11-001B, December 8, 2011
- **Stormwater Management Plan** for Siuslaw River Bridge Interpretive Wayside, Florence, Oregon, by Branch Engineering, Inc., December 14, 2011
- Letter from Barry Thom, Acting Regional Administrator for the **National Marine Fisheries Service (NMFS)** to Phillip Ditzler, Federal Highway Administration (FHWA) Division Administrator, Oregon Division dated October 20, 2009
- May 18, 2006 letter to Linda Sarnoff, Community Development Director, from Wilbur Ternyik, regarding “Initial Siuslaw estuary **Zostora locations**”
- Letter of concurrence from Cindy Orendorff, Geo-Environmental Section, State Historic Preservation Office **(SHPO)** to Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians and others, responding to Request for **Concurrence Finding of No Historic Properties Affected (Archaeology)** Siuslaw River Bridge Interpretive Waysides (Florence) Project Lane County, Oregon, Key Number 13228, Federal Aid Number S009(190)PE, dated July 13, 2009
- HRA Letter Report 09-6: **Archaeological Discovery (Wayside East)** Probing for the Siuslaw River Bridge Interpretive Wayside in Florence, Lane County, Oregon, by Kendra Carlisle, M.A., RPA and Linda Hart, M.A. Heritage Research Associates, Inc. to Scott E. Olson, P.E. Branch Engineering, Inc. dated March 5, 2009

Table of Contents (Continued)

Attachments (submitted under separate cover):

- **Photographs** of Wayside East and Wayside West
- Local Agency Agreement between the City of Florence and the State of Oregon – Department of Transportation, Scenic Byway Program Project, City of Florence, Siuslaw River Bridge **Agreement No. 21381**, and amendment
- **Biological Assessment: Coho Salmon, Oregon Coast ESU; Critical Habitat for Coho Salmon, Oregon Coast ESU; Green Sturgeon, Sothern DPS; and Brown Pelican,** for the Siuslaw River Bridge Interpretive Wayside (KN 13228), Oregon Coast Highway, US-101, lane county Oregon, HUC 1710020608, by PBS Engineering and Environmental Consultants, for Branch Engineering and ODOT, December 2008.
- **Hazardous Materials Corridor Study** for Siuslaw River Bridge Interpretive Wayside, Oregon Coast Highway, HWY 101, MP 190.84, Florence, Lane County, Key #13228, Prepared for the City of Florence and ODOT, by Branch Engineering, November, 2008

- **On file at the City of Florence Planning Office:**
  - Lane County **Coastal Resource Inventory and Maps**, Weisly and Ham, 1978 (Inventory under separate cover; Applicable maps, attached and digital) (City of Florence)
  - City of Florence **Hazards Map** (City of Florence)
  - **Comprehensive Plan Map and Map 17-1** (City of Florence)
  - Florence **Zoning Map** (City of Florence)
  - Florence **Beaches and Dunes Overlay** Zoning Map (City of Florence)

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I. Proposal

I.1 Request and Proposal

Request

This request is for City of Florence Planning Commission approval of the following land use applications, which have been consolidated into this land use application, as per FCC 10-1-1-5 H:[1]

- Conditional Use Permit
- Design Review
- Special Use Permit

Proposal

This proposal is for a Siuslaw Interpretive Wayside. The Wayside is divided into two portions: Wayside East and Wayside West. Both portions of the site are adjacent to the Siuslaw Estuary. The two portions are physically separated by private property, but they are linked via public right-of-way. The West portion of the site is located entirely within public right-of-way (ODOT) and is directly connected to the East portion of the site via public right-of-way (Bay Street). Thus, the two portions of the site are physically connected and are one "site." See "location" section below and Site Plan C2 for maps and details on the location of this site.

The proposal includes:

- **Wayside East**: This portion of the Wayside is on City-owned property east of the Siuslaw Bridge with picnic tables, benches, walkways, and signage for interpretation of the historic Siuslaw River Bridge, the estuary, and stormwater best management practices. This portion of the site provides visual access to the Siuslaw estuary and the span of the Siuslaw Bridge. It also provides physical access to the estuary for a Stormwater Demonstration Project, that demonstrates state-of-the-art best management practices (BMPs) using natural stormwater treatment techniques, and restoration of existing wetlands.

  The East project site will widen the existing sidewalk on Bay Street and extend a concrete pathway to an observation deck and also to an overlook for viewing the wetland enhancements, the proposed stormwater treatment facility, the estuary, and the Siuslaw River Bridge. Fill will be required and permits will be obtained from the Department of State Lands (DSL) and the Army Corps of Engineers (ACE).

- **Wayside West**: This portion of the Wayside is entirely on Oregon Department of Transportation right-of-way located under the Siuslaw Bridge. This portion of the site provides an overlook, railing, benches, a walkway, and in-

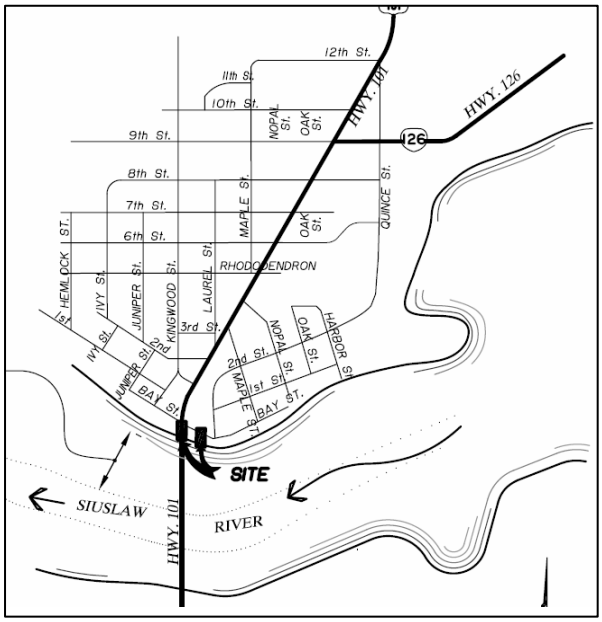
[1] "Consolidated Procedures: Whenever possible an application for development such as a Conditional Use, Variance, or other action requiring Planning Commission, or Design Review Board approvals be consolidated to provide faster service to the applicant. (ORS 227.175(2)), (Amd. by Ord. No. 4, Series 2011)"

terpretive signs for education and interpretation of the estuary and the bridge. The overlook will provide visual access to the cathedral arches under the bridge for the traveling public as well as visual access to the estuary. The Wayside West includes a seawall (retaining wall), and involves: fill in the estuary; and substantial removal of non-native species and re-vegetation with native species. Permits will be obtained from the Department of State Lands (DSL) and the Army Corps of Engineers (ACE). The required accessory bicycle and eight vehicle parking spaces for the Wayside (both East and West) are also located at the Wayside West.

I.2 Location

The Wayside East portion of the site will be located adjacent to the Siuslaw River, east of the Siuslaw Bridge; and the Wayside West portion of the site will be located adjacent to the Siuslaw River under the Siuslaw Bridge. See Vicinity Map.

The Wayside West will be located within a portion of the existing area of the Siuslaw estuary, entirely under the bridge, within ODOT right-of-way. When complete, this portion of the project will lie entirely above high mean tide (HMT) in order for the overlook and parking area to stay out of tidal inundation and for the stormwater filters to work properly.



I.3 Purpose

The purpose of the Siuslaw Interpretive Wayside is to provide visual and physical access to, and education and interpretation for, the Siuslaw estuary, the Stormwater Demonstration Project, and the historic Siuslaw River Bridge.

Both portions of the site (Wayside East and Wayside West) provide benches, walkways, and interpretation of, and visual access to, the estuary and the bridge. The Wayside East also provides picnic tables and visual access to, and interpretation of, the Stormwater Demonstration Project and the span of the Siuslaw Bridge; while the Wayside West portion of the site provides interpretation and visual access to the understory of the Bridge, i.e., the cathedral arches, for all visitors and also provides a parking area for the required accessory bicycle and vehicle parking for the entire site (Wayside East and Wayside West).

I.4 Definitions of Proposed Uses

The proposed uses fit definitions in the Comprehensive Plan and Code, as reflected in the findings in Section IV of this application.

The use is consistent with the following Comprehensive Plan definitions for Coastal Recreation, Water-dependent Use, Water-related Use, and Accessory Use. The proposed parking area is an “Accessory Use” (as that term is defined in Old Town Area A Definitions) to the primary use, a Wayside, and the uses also involve Fill, a Seawall, Natural Hazards, and Temporary Estuary Alteration, as discussed in detail in Section IV.

A. Coastal Recreation

The uses are consistent with the following Comprehensive Plan definition of “Coastal Recreation” because they provide people with an experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction; the uses occur on the shorelands adjacent to the estuary; and provide for a variety of activities, including wildlife observation, and sightseeing.

> ***RECREATION.*** *Any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction.*
>
> ***Coastal Recreation*** *occurs in offshore ocean waters, estuaries, and streams, along beaches and bluffs, and in adjacent shorelands. It includes a variety of activities, from swimming, scuba diving, boating, fishing, hunting, and use of dune buggies, shell collecting, painting, wildlife observation, and sightseeing, to coastal resorts and water-oriented restaurants.*

B. Water-dependent Use

The proposed uses are a “Water-Dependent Use,” as that term is defined in the following definition in Florence Realization 2020 Comprehensive Plan and Florence City Code Title 10:

> ***WATER-DEPENDENT USE.*** *A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production, or source of water, where:*
>
> - *"Access" means physical contact with or use of the water;*
> - *"Requires" means the use either by its intrinsic nature (e.g., fishing navigation, boat moorage) or at the current level of technology cannot exist without water access;*
> - *"Water-borne transportation" means use of water access:*
>   - *(1) Which are themselves transportation (e.g., navigation);*
>   - *(2) Which require the receipt of shipment of goods by water; or*
>   - *(3) Which are necessary to support water-borne transportation (e.g., moorage fueling, servicing of watercraft, ships boats, etc. terminal and transfer facilities;*
> - *"Recreation" means water access for fishing, swimming, boating, etc. Recreation uses are water dependent only if use of the water is an integral part of the activity.*

- *“Energy production" means uses which need quantities of water to produce energy directly (e.g. hydroelectric facilities, ocean thermal energy conversion);*
- *"Source of water" means facilities for the appropriation of quantities of water for cooling, processing or other integral functions.*

Typical examples of "water dependent uses" include the following:

(1) "Industrial" - e.g., manufacturing to include boat building and repair; water-borne transportation, terminals, and support; energy production which needs quantities of water to produce energy directly; water intake structures for facilities needing quantities of water for cooling, processing, or more integral functions.
(2) "Commercial," e.g., commercial fishing marinas and support; fish processing and sales; boat sales, rentals, and supplies.
(3) “Recreational," e.g., recreational marinas, boat ramps and support.
(4) Aquaculture.
(5) Certain scientific and educational activities which, by their nature, require access to coastal waters - estuarine research activities and equipment mooring and support.

Examples of uses that are not "water dependent uses" include restaurants, hotels, motels, bed and breakfasts, residences, parking lots not associated with water dependent uses; and boardwalks.

The proposed Siuslaw Interpretive Wayside fits this definition of a “Water-dependent Use,” because the uses and activities can be carried out only in or adjacent to the Siuslaw estuary, as demonstrated below:

a. The following proposed uses and activities “can be carried out only adjacent to the Siuslaw estuary” and “require access to the water body for recreation and source of water:”

- observance of the estuary, the stormwater demonstration project, and the bridge (including the cathedral arches under the bridge), while walking, picnicking, or sitting in a vehicle or on a bench;
- demonstration of state-of-the art best management practices (BMPs) using natural stormwater treatment techniques through the Stormwater Demonstration Project; and
- interpretation of the estuary, the bridge, and the stormwater demonstration project provided through the interpretative signs.

b. The proposed uses require “access,” or “physical contact with the water body,” for “recreation” and “source of water,” as per the definition of “Coastal Recreation” in the Comprehensive Plan. Access to the Siuslaw estuary is required for the integral function of the activities in “a,” above. The stormwater demonstration and the recreation use of the Wayside, i.e., observing the estuary, the bridge, and

the Demonstration Project are “an integral part of the activities.”

c. “By their intrinsic nature,” the uses and activities in “a” cannot exist without access to the Siuslaw estuary.

d. The scientific and educational activities involved in the Stormwater Demonstration Project and the interpretive Wayside are included in the definition of “Water-Dependent Use” as a “typical example of water dependent uses,” including, “certain scientific and educational activities, which, by their nature, require access to coastal waters – estuarine research activities.” The Stormwater Demonstration Project is an estuarine research and educational activity and the interpretive Wayside is an educational activity.

e. The parking spaces for this Water-dependent Use, i.e., the Wayside and Stormwater Demonstration Project, are included in the definition of “Water-Dependent Use.” The definition of Water Dependent Use includes “examples of uses that are not water dependent uses;" and these include “parking lots not associated with water dependent uses.” Conversely, a parking area “associated with a water-dependent use,” that meets City parking requirements and is accessory to the primary use, is, by definition, part of the water-dependent use.

f. The proposed parking spaces located in the Wayside West portion of the proposal are an integral part of this Water-dependent Use because the parking spaces are accessory to the proposed Water-dependent Uses and are required by the Florence Comprehensive Plan, as follows.

1. The “Wayside and Parking Area,” adjacent to the estuary, are required by Florence Realization 2020 Comprehensive Plan policy. To locate the proposal or the parking in another location would be in conflict with, or require an amendment to, the Comprehensive Plan.

2. Parking for the Wayside is “accessory” to these primary uses as opposed to a “parking facility” as those terms are defined in Section 1.4.b of this Application, below.

3. Parking for the Wayside and Stormwater Demonstration Project is required for the proposal to meet the parking requirements of FCC 10-3-2: Off-street Parking and Loading and FCC 10-17A-4 Site and Development Provisions for Downtown Area A, as set out in the Section IV of this application.

4. As discussed in detail in Section IV, there are no alternative locations for a parking area that can serve the water-dependent needs of this site, i.e., visual access to the estuary and the bridge arches and meet the requirements of the Florence Comprehensive Plan to locate the parking area in the proposed location.

5. This is the only location adjacent to the estuary that will not ad-

versely impact the estuary because this area of the proposal is located entirely under the bridge, and, thus, is irreversibly impacted. No other location adjacent to the estuary has this characteristic.

C. Water-related Use

In addition to being a Water-dependent Use, aspects of the proposal may also fit the following definition of Water-related Use in the Florence Realization 2020 Comprehensive Plan and Florence City Code Title 10:

> *WATER-RELATED Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent and or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for ater-dependent or water-related uses for facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.*

.
The proposed use, Wayside, may also be considered a Water-related use for the following reasons:

1. aspects of the use that are not directly dependent upon access to a water body, such as picnic benches and parking, provide goods or services that are directly associated with water-dependent land or waterway use;

2. if not located adjacent to the estuary, there would result a public loss of quality in the goods or services offered because the public would not be able to closely observe the subjects of the interpretive signage (birds, currents, bridge, wetland restoration, stormwater treatment facilities, etc.) and relax on at a picnic bench for the observation; and

3. the parking area is necessary for the water-dependent and water-related uses, as described in detail in the finding above and in the findings for criteria in Chapter 3 of Title 10.

D. Accessory Use

The proposed parking area is an “Accessory Use” for the Wayside and provides the required parking for the Wayside, as defined in Old Town District Area A, FCC 10-17A-2, below.

> ***10-17-2 DEFINITIONS:*** *As used in this Chapter, the following definitions apply, instead of the general definitions in Chapter 1:*
>
> > ***ACCESSORY USE*** *A use or activity that is a subordinate part of a primary use and that is clearly incidental to a primary use on a site. It shall (1) be subordinate to and serve a primary use in function and time; (2) be subordinate in area,*

extent, or purpose to primary use; (3) contribute to the comfort, convenience, or necessity of those occupying, working at, or being served by the primary use; (4) be located on the same lot as the primary use; (5) be under the same ownership and control as the primary use; (6) comply with the use limitations applicable in the zoning district in which it is located; and (7) no accessory use shall be established prior to the primary use.

The primary uses are "education, passive coastal recreation, and observation" and "stormwater demonstration and treatment" via the Wayside East and West portions; the parking area is a subordinate part of the primary use that is clearly incidental to these primary uses on the site.

The parking area:

(1) is subordinate to, and serves the Wayside in function and time, i.e., allows visitors to the Wayside by car and bicycle to observe the estuary and the bridge arches;
(2) is subordinate in purpose to the Wayside, i.e., observation of the Siuslaw estuary and the Bridge, including the cathedral arches;
(3) contributes to the comfort, convenience, and necessity of those being served by the Wayside, i.e., the traveling public;
(4) is located in public right-of-way on the same site as the Wayside: the East and West portions are connected via public right-of-way; and the East and West portions of the Wayside are within 500 feet of the parking area, as required by Code for off-street parking;
(5) is under the same ownership and control as the Wayside: City ownership through acquisition and control through agreement (See City of Florence/State of Oregon – Dept. of Transportation Agreement No. 21381, as amended);
(6) complies with the use limitations applicable in the zoning district in which it is located, as demonstrated in the Findings of Consistency in Section IV; and
(7) will not be established prior to the Wayside primary uses, above.

Conversely, the parking area can be distinguished from a commercial "parking facility" as that term is defined in FCC 10-1, below, because the parking area is accessory to the proposed Wayside, is necessary to meet parking requirements for the Wayside, and will not provide "regular fee parking" for people not connected to the use.

Parking Facility: *Parking facilities provide parking that is not accessory to a specific use. A fee may or may not be charged. A facility may be a surface parking lot or structured parking garage. A facility that provides both accessory parking for a specific use and regular fee parking for people not connected to the use is also classified as a Parking Facility.*

I.5 Existing Conditions

A. Map and Tax Lots

- Wayside East: Map 18-12-34-14 TL 101;
- Wayside West: Not applicable; ODOT Right-of-way

B. Owners/Applicants

Applicants: City of Florence

Owners:

- Wayside East: City of Florence
- Wayside West: Public rith-of-way under the control of the Oregon Department of Transportation (ODOT); ODOT has authorized the proposed use. See City of Florence/State of Oregon – Department of Transportation Agreement No. 21381, as amended.

C. Existing Land Uses: Proposal Site

- Wayside East: Undeveloped vacant land
- Wayside West: Fully developed right-of-way for the Siuslaw Bridge, i.e., impervious with the existing bridge crossing (area is entirely under the bridge)

D. Lot Size (Acres) and Dimensions

- Wayside East: 0.29 acre; about 100' X 125'
- Wayside West: N/A (not a lot); redeveloped area is about 0.15 acre; about 100' X 65'

E. Existing Land Uses and Conditions Within 100 Feet of Proposal Site

South: Siuslaw River and vacant land

Wayside East:

North: Retail
East: Coffee Roasters
West: Restaurant and Retail

Wayside West:

North: Right-of-way
East: Office and vacant land
West: Condominiums

1.6 Plan Designations

- Downtown
- Mixed Development Coastal Shoreland Management Unit (MU #4)
- Development Estuary (MU "F")

1.7 Zoning Districts

- Old Town District A (FCC 10-17-A)
- Development Estuary (FCC 10-19-4)
- Mixed Development Overlay Zone (FCC10-19-7)

I.8 Detailed Proposal: (see Conceptual Plans, Site Plans, Architectural Renderings, and Photographs, attached)

A. Wayside East:

1. Pedestrian walkway:

Winding concrete pathway (300 lineal feet) outside of existing tidal wetlands, past stormwater treatment rain garden.

2. Drainage: (see attached Drainage Plan)

- Two (2) Double Chambered catch basins with 55 lineal feet of 10" Storm Pipe
- Stormwater Demonstration Project: Stormwater Treatment Facility (Rain Garden), 1100 square feet
- Rain Garden integrated with landscaping, two overlooks of the treatment facility. River rock instead of Rip Rap for aesthetics. Bay street runoff to be treated prior to discharging to existing wetland.
- The stormwater facility will utilize round river rock for energy dissipation and prevention of erosion. Bank stabilization will be accomplished though vegetative means.

3. Signs: (need sign permits; not land use; see Sign Permit Requirements)

- Project Funding Signboard (required?)
- Entrance Sign
- Ten (10) Interpretive Signs

4. Earthwork (Clearing, grading, compaction)

The project will maintain existing grading to the extent possible but

the observation deck will need to be elevated out of the threat of inundation from the tides. The rain garden will require excavating a broad basin. To keep pedestrian ways out of inundation potential, the project will build up the pathway between the rain garden and the river. The site will not require tree removal. Both sites will be stripped of vegetation in the work area to facilitate grading activities. Growing medium will be imported on the interpretive site to enhance plant growth and stormwater treatment. Fill will be compacted to support the parking area and walking areas. The site will be graded in order to provide stormwater treatment.

5. **Fill:** Fill will be required and permits will be obtained from the Department of State Lands (DSL) and the Army Corps of Engineers (ACE).

6. **Concrete walkway:** 2300 square feet, approx 300 lineal feet of walkway Two concrete walkway connections from bay street to the observation deck both will be ADA compliant. Concrete is to be an architecturally colored concrete. Concrete paving at both portions of the site will be dyed using a dark tan integral colorant. Concrete coloring will help the site to blend into the natural landscape, help provide cohesion between the two portions of the site and help create a sense of place. Using integral colorant will prevent fading associated with surface colorant.

7. **Viewing platform/Observation Deck (including railing):**

   - 750 square feet

8. **Picnic area:** Picnic tables (4) total: 30" round or square tables fixed in place w/ 4 backless seats also fixed in place. One table minimum will have (3) seats to allow for UA (universal access, aka wheelchair)

9. **Benches:** (5) 6' length benches to match tables. Benches are to have backs and be fixed in place.

10. **Foot bridge:** 150 square feet; 15 lineal feet

11. **Landscaping: (see Landscape Plans) – includes required vegetation in Drainage Plan.**

    The plantings shown on the site's Landscape Plan are comprised entirely of native plant material suited for the conditions in which they are located. The Wayside West portion of the site has shade tolerant plants because of the deep shade beneath the bridge, screening plants at the existing dumpster enclosure and one street tree where the plant bed extends beyond the overhang of the bridge above.

    The Wayside East plantings vary. Wetland grasses meander along the bottom of the rain garden and creep up the sides. Shore Pines provide buffering from the adjacent parking lot and large blank wall

to the east while Alder and Willow trees frame views to the rain garden and river beyond. Native shrubs of varying sizes have been used to create a sense of passage through the site and to provide both foreground and background plantings from varying vantage points. Alder street trees have been added to improve the public walk experience and native bulbs have been proposed in the rain garden and wetland to add seasonal color interest.

12. **Erosion Control:** Work will be isolated from the estuary and wetland areas in accordance with DEQ and DSL/ACOE Joint Permit Application requirements to be submitted with construction drawings under the permit process. Site will be stabilized quickly to prevent blowing sand or water erosion. River will be visually monitored to ensure turbid water does not leave site and enter river (see separate requirements)

13. **Wetland restoration:** As part of the Joint ACOE and DSL permitting process the existing wetlands will be temporally impacted. Scrap metal, concrete rubble, trash, debris, and invasive species will be removed from the wetland area. Areas disturbed temporarily will be restored and re-vegetated through planting and application of a wetland seed mix. The overall impact on the wetlands is anticipated to be positive.

14. **Shoreline Setback:** The entire site is within the 50' setback from the shoreline, as shown in the attached Site Plans.

B. Wayside West

1. **Location** (see Site Plan):

- The Wayside with accessory parking area will be located entirely under the bridge within ODOT right-of-way.
- The entire site will lie entirely above high mean tide (HMT) in order for the parking area to stay out of tidal inundation.

2. **Wayside West area design:**

- Wayside incorporates a widened pedestrian walkway with benches, interpretive signage, and cable railing system for maximum visibility of the estuary and bridge structure from vehicle and pedestrian viewpoint.

3. **Parking area design:**

- Eight (8) vehicle spaces including 1 van accessible handicapped parking stall
- one bicycle rack
- Asphalt paving: 3" Level 2 MHMAC on 9" crushed aggregate
- Trash enclosures
- Continuous sidewalk connection from overlook area to interpretive area

4. Retaining wall (seawall):

- Approximately 150 lineal feet of retaining wall varying in height from 0 to 4.5 feet.
- Retaining wall located almost entirely below Highest Measured Tide but above Mean Higher High Water

5. Fill:

- Extent: Most of the site will be filled 1-to-4.5 feet.
- Permits required: A portion of the site lies below Highest Measured Tide (HMT) and will require permits from the U.S. Army Corps of Engineers (ACE) and Oregon Department of State Lands (DSL).
- Stormwater discharge will require a section 401 water quality permit from DEQ

6. Wetland impacts:

- As part of the Joint ACOE and DSL permitting process the existing wetlands will be temporally impacted. Trash, debris, and invasive species will be removed from the wetland area. Areas disturbed temporarily will be restored and re-vegetated through planting and application of a wetland seed mix. The overall impact on the wetlands is anticipated to be positive.

7. Drainage: (see attached Drainage Plan)

- The stormwater runoff from the Overlook and parking spaces will be treated using a two (2) cartridge Stormfilter catch basin filtration system and 6" Storm Pipe (including trenching and backfill). This is a currently accepted BMP under DEQ guidelines. All runoff from newly created impervious area will be treated and discharged to the existing 14” storm pipe that runs through the site.

8. Signs: (No Sign Permits are required per 4-7-7-K)

- Three (3) Interpretive Signs

9. Earthwork (Clearing, grading, fill)

The project will maintain existing grading wherever possible but the parking area will need to be elevated up to 4 feet in areas to protect infrastructure and users from tidal inundation. Fill will also be required to allow stormwater system to function properly.

10. Concrete Walkways

Two concrete walkway connections from Bay Street to the overlook are provided with one access fully ADA compliant. Concrete is to be an architecturally colored concrete. Concrete paving at both portions of the site will be dyed using a dark tan integral colorant. Con-

crete coloring will help the site to blend into the natural landscape, help provide cohesion between the two portions of the site and help create a sense of place. Using integral colorant will prevent fading associated with surface colorant.

11. **Erosion Control:** Work will be isolated from the estuary and wetland areas in accordance with DEQ and DSL/ACOE Joint Permit Application requirements to be submitted with construction drawings under the building permit process. Site will be stabilized quickly to prevent blowing sand or water erosion. River will be visually monitored to ensure turbid water does not leave site and enter river (see separate requirements)

12. **Riprap:** There is some limited existing riprap at the site that will not be disturbed. No new riprap is proposed. All bank stabilization will be accomplished through vegetative means.

13. **Railing:** Railing will be a cable wire rope style that will compliment railings in other nearby facilities. The supports will be galvanized steel powder coated black and the wire rope will be stainless steel.

14. **Benches:** Three (3) benches will be of standard design with black powder coated steel/iron supports, stainless fasteners, and wood fiber composite surface.

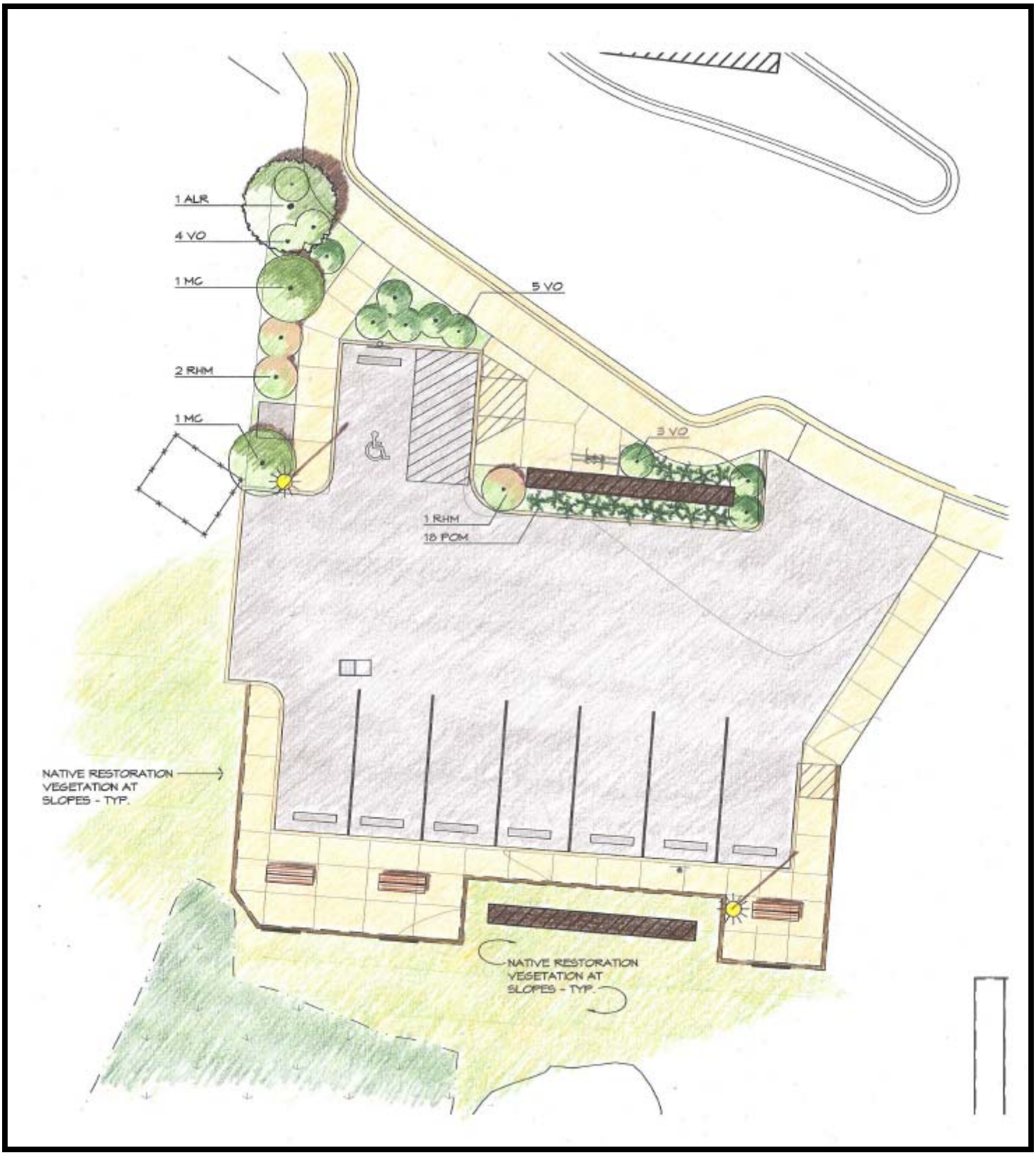
15. **Utility relocation:** Two utilities will be relocated for this site. CLPUD has an existing guy wire that will need to be removed from the site and there is an existing communications vault that will need to be moved underground or into a landscaped area.

16. **Shoreline Setback:** The entire site is within the 50’ setback from the shoreline, as shown in the attached Site Plans.

17. **Landscaping: (see Landscape Plans) – includes required vegetation in Drainage Plan.**

    The plantings shown on the site's Landscape Plan are comprised entirely of native plant material suited for the conditions in which they are located. Wayside West has shade tolerant plants because of the deep shade beneath the bridge, screening plants at the existing dumpster enclosure and one street tree where the plant bed extends beyond the overhang of the bridge above.


BAY STREET
2 ALR
3 VO
STORMWATER OUTFALL
RETAINING WALL
13 COS
INTERPRETIVE OVERLOOK
1 SPD
1 MC
4 VO
3 VO
3 ALR
1 ALR
1 SAH
RAIN GARDEN
3 VO
1 MC
2 SAH
3 GG
4 VO
6 RON
3 COS
6 SAH
6 SPD
FOOT BRIDGE OVER NEB
11 COS
3 MC
4 VO
4 GG
5 VO
3 SYA
1 SAH
3 ALR
3 MAA
1 AGG
1 GG
4 VO
3 RHM
3 COS
3 SPD
WETLAND
EXISTING WETLAND TO BE RESTORED/ENHANCED
DECK WITH INTERPRETIVE SIGNS AND BENCHES
3 COS


1 ALR
4 VO
1 MG
5 VO
2 RHM
1 MG
3 VO
1 RHM
18 POM
NATIVE RESTORATION VEGETATION AT SLOPES - TYP.
NATIVE RESTORATION VEGETATION AT SLOPES - TYP.

II. Narrative

II.1 Proposal Background

This Siuslaw Interpretive Wayside and associated parking area has a long history of policy direction by the City of Florence and its partner local, state, and federal agencies. The project, as it was originally conceived, was called a "Siuslaw Interpretive Wayside and associated parking" project. The project was first proposed more than 13 years ago in 1998 when the City developed the Florence Downtown Implementation Plan, adopted in 1999. A "Wayside and associated parking area" project is included in that Plan as a priority project. The Downtown Implementation Plan was adopted as part of the Florence Realization 2020 Comprehensive Plan in 2002. The proposal is also included as a top priority project in the Florence Transportation System Plan, adopted as part of the Comprehensive Plan in 2003. Specifically, Comprehensive Plan Chapter 2, Land Use, Downtown Plan Designation, states: "Also included in the Old Town Zoning District is the proposed Siuslaw River Bridge Interpretive Wayside located at the west end of Bay Street under the Bridge."

Initially, the proposed location for the Interpretive Wayside was under the north end of the bridge; and the "Wayside West" portion of the project, with associated parking area, is proposed for this location. The original 2006 project design for the Siuslaw Interpretive Wayside Project included the construction of a walkway and viewing platform on piles in the Siuslaw River estuary along with the parking area, both directly under the north end of the Siuslaw River Bridge. This design had potential to cause unnecessary impacts to listed species found in the estuary, since piles were to be driven below Mean High Water (MHW). In 2008, the project design was revised, and a portion of the project was located on a site 120 feet east of the bridge, i.e., the "Wayside East," on property purchased by the City for this purpose (formerly referred to as the "Barnett property.") The parking area under the bridge was retained without the viewing platform extending into the river. The new design does not include any construction below MHW, and both the estuary and bridge will be visible from the viewing platform which will be constructed in an upland area. A Biological Assessment (BA) was prepared for the new project site to address the effect of the Siuslaw River Bridge Interpretive Wayside Project on species listed as endangered or threatened under the federal and state Endangered Species Acts (ESA). That assessment is included in this application.

In 2009, the City was awarded a grant from the U.S. Environmental Protection Agency for the three-year Siuslaw Estuary Partnership project (Partnership). The Partnership work plan includes a Stormwater Demonstration Project to be conducted on the site of the proposed Wayside East. The Partnership work plan also includes the development of a Stormwater Design Manual and Comprehensive Plan and Code amendments to make stormwater management and administration more effective and efficient and to incorporate state-of-the-art best management practices (BMPs) that are tailored to Florence's unique climate and hydrogeology. Those amendments were adopted in September 2011 and the Stormwater Demonstration Project that is proposed in conjunction with the Way-

side will be designed in accordance with that new set of Plan policy and Code direction.

The Partnership includes a Water Quality and Quantity element that involves groundwater and surface water monitoring. The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians, one of the project partners, will be installing a continuous data logger in the estuary just downstream of the Wayside in order to monitor urban effects on water quality, including the Stormwater Demonstration Project.

The Florence Transportation System Plan presents the following background on the Siuslaw River Bridge and this proposal for a "Wayside with associated parking:"

> "The Siuslaw River Bridge is a very important feature of the Florence Downtown Plan. This historic bridge, designed by Conde B. McCullough, has been admired for decades by locals and visitors. More than a critical transportation link, the architecture and setting in the beautiful Siuslaw River estuary make this bridge unique. The Bridge is listed on the National Register of Historic Places. The Pacific Coast Scenic Byway Plan highlighted four projects to be forwarded to the CPACT Subcommittee from the Yachats/North Dunes Regional Planning Group. The first priority was the Siuslaw River Bridge Walk. This project includes a pedestrian loop across and under the bridge, a viewpoint for the bridge, Old Town and the estuary, interpretation, and parking. The Scenic Byway Plan sets forth several Management Goals and Strategies for the Bridge Project. These are:
>
> **Access…**
>
> - Provide opportunities to view the bridge
> - Interpretation
>   - Interpret bridge and area history
>   - Provide interpretation on bridge history, history of Florence area and natural and human history of the Siuslaw estuary at viewpoints adjacent to the bridge and at bridge/estuary viewpoints in Old Town.
>
> ..The priorities of the Florence Downtown Implementation Plan related to the bridge include:
>
> - location of a parking lot under the Siuslaw River Bridge to be combined with a Scenic Byway Bridge Interpretative Site,
> - Scenic Byway Bridge Interpretative Site and associated parking,
> - Relies on the direction of the Pacific Coast Byway Plan for the detailed implementation strategy."

II.2 Proposal Summary

The Siuslaw Interpretive Wayside project will provide a scenic wayside for tourists, travelers, and residents to observe and learn about the estuary and the historic Siuslaw River Bridge. The Wayside will provide viewing platforms at excellent locations for first-hand observation, education, and passive recreation, in ad-

dition to strolling around the area, resting, and picnicking. The Wayside will include interpretive signage to educate visitors about the ecological value of the estuary, the bridge and cutting edge natural stormwater management techniques.

At the Wayside East, a concrete pathway will wind past existing tidal wetlands, past a stormwater treatment swale. Interpretive signage will introduce the visitor to stormwater in our built environment and demonstrate how efforts to improve stormwater quality can be both functional and attractive. A picnic area will provide travelers an attractive respite to enjoy a lunch before moving on.

The Wayside West, located entirely under the Siuslaw River Bridge, includes an overlook that provides two areas for viewing the estuary and the cathedral arches under the bridge. Benches will be provided at the overlook and interpretive signage will educate visitors about the estuary and the bridge and possibly the nearby historical Cannery site. Bicycle and vehicle parking for the Wayside will be located under the bridge. The area under the bridge is currently overgrown with blackberries. As a result of this project, the area will be transformed into an attractive wayside for residents and visitors to Florence.

Jurisdictional Waterways/Wetlands

As reported in the attached Biological Assessment, PBS biologists investigated the entire property for wetlands and waters of the state. Two wetlands were delineated during the investigation adjacent to the Siuslaw Estuary. Both have a Cowardin class of estuarine intertidal emergent (E2EM). The project site also includes an area of intertidal mud flats, which have a Cowardin class of estuarine intertidal unconsolidated shore (E2US). The wetlands were labeled “A” and “B”. Wetlands A and B are approximately 1,370 and 270 square feet, respectively. Approximately 520 square feet of Wetland A is located between the western property boundary and the toe of the fill slope on the adjacent property. The Siuslaw Estuary borders the southern boundary of the wetlands.

Wayside East:

Much of the site is lower than the Highest Measured Tide (HMT) and consequently is within the jurisdictional area of the Siuslaw River regulated by the Oregon Department of State Lands and Army Corp of Engineers. No work will be below Mean Low Water which would require a lease from the State of Oregon. No work will be below Mean Higher High Water.

No wetlands will be permanently impacted. Interpretive signing will highlight the value of wetlands and illustrate how the wetland area was enhanced and enlarged. Much of the wayside will be constructed near the HMT and will be constructed appropriately in the event the tide inundates the area. The Walkway and Observation deck will be located above the HMT so visitors will always have

safe access to the walkway and deck.

Wayside West:

To construct the overlook and parking area, a retaining wall will be constructed and most of the site filled 1 to 4.5 feet. A portion of the site lies below Highest Measured Tide (HMT) and will require permits from ACOE and DSL. The existing wetland will be impacted temporarily. The parking area will lie entirely above HMT so the parking area will stay out of tidal inundation and the stormwater filters will work properly.

Landscaping (see Landscaping Plans for details)

The Wayside will utilize primarily native plantings throughout based on the city's adopted plant list and stormwater design manual. Interpretive signing will highlight the benefits of using native plants. Existing invasive species will be removed.

Stormwater Treatment (see Drainage Plans for details)

At Wayside East the existing catch basins in Bay Street will be replaced with new water-quality double-chambered oil/water separating curb inlets. These will settle out some particulates and retain oil and grease runoff from the streets. The stormwater from these catch basins will outflow to a rain garden stormwater treatment facility. The stormwater facility will be designed in accordance with the City's Stormwater Manual. The outlet will be controlled with a concrete weir structure providing on-site detention/retention. The stormwater facility will treat the stormwater utilizing vegetated native plant species. The sediment will settle out, bacteria and other pollutants will be filtered out, and the water will be cooled prior to being discharged to the wetland. An observation walkway will surround the facility so visitors can observe the cleansing process.

At the Wayside West, the stormwater runoff from the parking area will be treated using a 2 cartridge Stormfilter catch basin filtration system, in accordance with the City's Stormwater Manual, and a currently accepted BMP under DEQ guidelines. All runoff from newly created impervious area will be treated and discharged to the existing 15" storm pipe that runs through the site.

Regulatory Agencies Permits

The Federal Highway Administration and ODOT issued a finding of Categorical Exclusion for the project in November, 2009. Depending upon final design, a Corps of Engineers, Nationwide (perhaps a #18), or no permit will be required. The Department of State Lands will require an individual permit via a joint permit application form. The DEQ will require a 401 certification for stormwater due to new impervious surfaces.

Deck and Walkway

The Deck and Walkway will be constructed out of plastic composite decking and will be supported by concrete, metal, and/or cedar as necessary. No pressure treated wood will be used onsite.

Project Funding

The estimated remaining project cost of $940,250 is planned to be funded with $298,581 of Federal Scenic Byways Program discretionary funds. The city has committed an additional $524,047 of state Exchange Funds to this project. An additional $32,170 of Oregon State Highway Funds has been contributed to this project. The balance of the project costs are planned to be funded with Urban Renewal Funds in the amount of $85,238. All of the Florence Urban Renewal District funds have been committed to the property acquisition phase of this project. Additional property acquisition costs are planned to be funded out of the 2009, 2010, and 2011 STP exchange funds using federal dollars. The engineering and construction expenses will be funded with Federal Scenic Byway funds, State fund contributions, and the STP Exchange Funds.

Time Schedule

The in water work period for the Siuslaw River is between November 15, and February 15 but an in water work period extension will be requested in order that construction can be accomplished during the dry season. An “early in” in water work period request will included with the JPA to start work in late summer but based on final permit conditions work may not start until fall or winter of 2012.

III. Requested Land Use Permits and Submittal Requirements

III.1 Requested Land Use Permits

This section describes the land use approvals necessary and requested in order for the proposal to be constructed.

In addition to these land use approvals, the following permits will be required: building/structural permits for the deck and wayside signs, drainage, and federal and state regulatory permits.

Public Works approval and an ODOT permit will be required for work within the right of way.

The Drainage Plan will need to be submitted for approval to the Public Works Department concurrent with this application because the findings of consistency with the Landscaping Standards in Title 10 are affected by the design of the stormwater system in accordance with the standards in Title 9, Chapter 5.

A. Land Use, In General

The proposal is subject to the requirements of Florence City Code (FCC) Title 10, as per FCC 10-2-1, below.

> ***10-2-1:*** ***CONFORMANCE AND PERMITS:*** *No building or structure shall be erected, reconstructed, structurally altered, enlarged, moved or maintained, nor shall any building, structure or land be used or designed to be used for any use other than is permitted in the district in which such building, structure or land is located and there only after applying for and securing all permits and licenses required by all laws and ordinances of the City.*

The proposal includes uses which are “Similar Uses” to those specifically called out in the FCC. The definition of these uses is determined based on the provisions in FCC 10-2-2, below. Please see “Definitions of Proposed Uses” in Section I.4 of this Application for the reasoning behind the definitions of proposed uses.

> *10-2-2: SIMILAR USES: When the term "other uses similar to the above" is mentioned, it shall be deemed to mean other uses which, in the judgment of the Planning Commission, are similar to and not more objectionable to the general welfare than the uses listed in the same section.*

A portion of the proposal is located in the public right-of-way of the Siuslaw Bridge. This portion of the project is not exempt from land use approvals because the location of this portion is within and adjacent to the Siuslaw estuary, as

per FCC 10-2-12-A-4, below.

10-2-12: USES AND ACTIVITIES PERMITTED IN ALL ZONES: The following uses and activities are permitted in all zones without review unless specifically required otherwise:

A. Operation, maintenance, repair or preservation of public roads and highway facilities, including, but not limited to sewer, water line, electrical power, or telephone or television cable system, with the following exceptions:

4. Development or activities involving reconstruction or modernization in a location identified as environmentally or culturally sensitive, such as floodplains, estuarine areas, wetlands, and archeological sites.

B. Conditional Use Permit

Base Zone: Development Estuary Zoning District

A Conditional Use Permit (CUP) is required, as per FCC 10-19-4, below. The CUP is required because the following proposed uses are listed as Conditional Uses in the Development Estuary Zoning District:

1. fill in the estuary (FCC 10-19-4-F-1)
2. a seawall and rip-rap (FCC 10-19-4-F-2)
3. water-dependent activities, i.e., Wayside and Stormwater Demonstration project, with required parking (FCC 10-19-4-F-3) **Note: Please see Section I.4 of this Application, "Definitions of Proposed Uses," for a detailed explanation of the application of this definition to the proposal.**
4. temporary alterations (FCC 10-19-4-F-8)
5. water-related activities (FCC 10-19-4-F-10)

10-19-4: DEVELOPMENT ESTUARY DISTRICT (DE):

F. Conditional Uses: <u>Outside of Areas Managed for Water Dependent Activities</u>, the following uses and activities are allowed in the estuary with a Conditional Use Permit, subject to the applicable criteria. A Conditional Use Permit may be approved according to the procedures set forth in Chapter 4 of this Title upon affirmative findings that: the use or activity is consistent with the purposes of the DE District; it must not be detrimental to natural characteristics or values in the adjacent estuary; and it must comply with the specific criteria below, and the applicable criteria in I and either G or H (if dredging or fill is required, the requirements in G apply; if the use will otherwise alter the estuary, the requirements in H apply):

1. Dredge or fill.
2. Flood and erosion control structures such as jetties, bulkheads, seawalls, and groin construction, may be

installed and maintained, and riprap may be installed and expanded; provided all such uses are needed to protect existing uses or uses specifically allowed in this Code section

3. Navigation and water-dependent commercial enterprises and activities, including docks and piers to support existing uses or uses specifically permitted in this Code section.

8. Temporary alterations, subject to the following additional criteria: the alteration shall support a use expressly allowed in this MU in this Comprehensive Plan as defined in the Definitions in the Introduction to this Comprehensive Plan; it shall be for a specified short period of time, not to exceed three years; and the area and affected resources shall be restored to their original condition.

10. Water-related uses, non-water-dependent uses, and non-water-related uses, provided no dredge or fill is involved and it is not possible to locate the use on an upland site. Nonwater-dependent and non-water-related uses that existed as of July 7, 2009 will retain their non-conforming status for five years from the date the use is abandoned or the structure is destroyed; and the existing structure for the same use may be replaced; the provisions of non-conforming uses in the Florence City Code not withstanding.

C. Design Review

Base Zone: Old Town District Area A

Design Review is required, as per FCC 10-17-4, below.

FCC 10-17A-4: SITE AND DEVELOPMENT PROVISIONS FOR AREA A

K. Design Review: All uses in Area A of Old Town District whether permitted or conditional uses, shall be subject to design review (FCC 10-6) to insure compatibility and integration with the character of the district and to encourage revitalization. Architectural design shall be reviewed against Downtown Architectural Design Guidelines to determine compatibility with the character of the district.

D. Special Use Permit

A Special Use Permit is required, as per FCC 10-7, below, for the following reasons:

1. the Hazards Map shows this area as “cutbanks;”
2. the Coastal Resources Management Plan Inventory Map, Siuslaw Estuary and Shorelands, Geologic Hazards of the Estuary, shows this as an area of rapid erosion; and

3. the area is in the floodplain.

TITLE 10 CHAPTER 7: SPECIAL DEVELOPMENT STANDARDS

FCC 10-7-1: PURPOSE: The purpose of this Chapter is to apply additional development standards to areas with potential natural hazards or soils which are particularly subject to erosion, landslide or seasonal surface water. Compliance with these standards is required in order to obtain a Special Use Permit. The standards are intended to eliminate the danger to the health, safety or property of those who would live in potential problem areas and the general public and to protect areas of critical environmental concern; areas having scenic, scientific, cultural, or biological importance; and significant fish and wildlife habitat as identified through Goal 5: Open Spaces and Scenic, Historic, and Natural Resources, and Goal 17: Coastal Shorelands. (Amended Ord. No. 10, Series 2009)

FCC 10-7-2: IDENTIFICATION OF POTENTIAL PROBLEM AREAS: At minimum, the following maps shall be used to identify potential problem areas:

A. "Hazards Map", Florence Comprehensive Plan Appendix 7.

B. "Soils Map", Florence Comprehensive Plan Appendix 7. (Ord. 625, 6-30-80)

C. "Beaches and Dunes Overlay Zone." See Chapter 19 for overlay zone requirements. Where conflicts exist between that chapter and this one, the more restrictive requirements shall apply.

D. Other information contained in the plan or adopted by reference into the plan, or more detailed inventory data made available after adoption of the plan may also be used to identify potential problem areas. (Amended Ord. No. 10, Series 2009)

II.2 Submittal Requirements

In addition to the findings of consistency with applicable criteria in this application, the following Plans, Reports, and Visual Aids must be submitted with the application. Submittal requirements are shown in bold and items submitted are shown in regular font. Please see the items listed under “Appendices” for a complete list of documents submitted with this request.

A. Conditional Use Permit

FLORENCE CITY CODE TITLE 10 CHAPTER 4

FCC 10-4-3: APPLICATIONS: The application for a conditional use permit shall be made in writing to the Planning Commission by the of the land in consideration or his agent, duly authorized in writing. The application shall include the following information:

A. Site and building plans and elevations.
B. Existing conditions on the site and within three hundred feet (300') of a site that is one (1) acre or larger and within one hundred feet (100') from a site that is less than one (1) acres in size.
C. Existing and proposed utility lines and easements.
D. Operational data explaining how the buildings and uses will function.
E. Any other pertinent information requested by the Planning Commission such as architectural renderings of the buildings and structures involved in the proposed development.

Submittal: This Application includes an application for a Conditional Use Permit and it is made in writing to the Planning Commission by the City of Florence, owner and duly authorized agent. The application includes Site Plans and written descriptions that show and describe existing conditions on the site and within 100 feet of the site, existing and proposed utility lines and easements, operational data explaining how the uses will function, and other pertinent information including architectural renderings of the uses and activities and structures involved in the proposed development.

B. Design Review

FLORENCE CITY CODE TITLE 10 CHAPTER 17, OLD TOWN DISTRICT AREA A

FCC 10-17A-4: SITE AND DEVELOPMENT PROVISIONS FOR AREA A

K. Design Review: All uses in Area A of Old Town District whether permitted or conditional uses, shall be subject to design review (FCC 10-6) to insure compatibility and integration with the character of the district and to encourage revitalization. Architectural design shall be reviewed against Downtown Architectural Design Guidelines to determine compatibility with the character of the district.

1. Additional Requirements:

a. Survey: All new development and redevelopments and/or additions must also submit a recent survey map with their Design Review Application. The survey must show:

i. Property lines
ii. Easements
iii. 2' Contours
iv. Existing structures (including height of seawall, if appropriate)
v. Floodplain
vi. Highest observed tide

b. New Construction or Story Additions: As an element of the Design Review process, the applicant is required to provide and/or install visual aids to assist the Planning Commission and the public to visualize the size /configuration of the proposed structure with its relation to the surroundings. The required visualization aids consist of three types: Type I Story Poles, Type II Virtual Images, and Type III Color Architectural Renderings, as defined in FCC 10-17-2 Definitions of Visual Aid.

Visual aids are required unless waived by the Community Development Director. In the course of the public hearing, the Commission may overrule such determination and require additional visual aid(s). The following visual aides are required for all buildings or story additions in Area A:

i. Projects located on the riverside of Bay Street shall provide visual aid type I and visual aid type II or III.
ii. Projects located in Area A other than the riverside of Bay Street shall provide visual aid type I, II or III.

Submittal: This Application includes an application for Design Review and Findings of Consistency with FCC 10-6 and other criteria in the Florence City Code and Comprehensive Plan in order to insure compatibility and integration with the character of the district and to encourage revitalization. The Findings of Consistency with the Downtown Architectural Design Guidelines in Section IV demonstrate how the architectural design will ensure compatibility with the character of the district; and the attached Survey Map shows all of the following:

i. Property lines
ii. Easements
iii. 2' Contours
iv. Existing structures (including height of sea-wall, if appropriate)
v. Floodplain
vi. Highest observed tide

Visual Aids (photographs and architectural renderings) are included with this Application, although not specifically required because no buildings are proposed.

FCC 10-3-8: PARKING AREA IMPROVEMENT STANDARDS

G. Lighting: (Lighting should provide a safe level of illumination and be designed as not to become a nuisance to residential area or cause glare to drivers.) Except for single family and duplex dwellings, applicants shall submit a lighting plan which shows the location, type and projected amount of light at night. The plan shall also address the following policies for

design review. The following policies also apply to the replacement of lighting fixtures within parking lots.

1. Illumination: Parking areas shall have lighting to provide at least two (2) foot-candles of illumination at any point in the entire lot with a maximum of five (5) foot-candles over parking spaces and walkways. The Design Review Board may decrease the minimum if the applicant can provide documentation that the overall parking lot has adequate lighting. The Design Review Board may increase the maximum on a case-by-case basis, with no greater than 7 foot-candles measured directly under the light fixture.

Submittal: The Application for Design Review includes a lighting plan that addresses the above criteria. Findings of consistency with the criteria are presented in Section IV of this application.

10-34-3-2: LANDSCAPING PLAN REQUIRED

A landscape plan is required. All landscape plans shall include the following information:

A. The location and height of existing and proposed fences and walls, buffering or screening materials.

B. The location of existing and proposed terraces, retaining walls, decks, patios, shelters, and play areas.

C. The location, size, and species of the new proposed plant materials (at time of planting).

D. The location(s) of areas where existing vegetation will be cleared and the location(s) of areas where existing vegetation will be preserved, delineated on a recent aerial photo or site plan drawn to scale.

E. Existing and proposed building and pavement outlines.

F. Specifications for soil at time of planting, irrigation and anticipated planting schedule.

G. Other information as deemed appropriate by the City Planning Official.

Submittal: A landscape plan is submitted that includes the following information:

A. The location and height of existing and proposed fences and walls, buffering or screening materials.

B. The location of existing and proposed terraces, retaining walls, decks, patios, shelters, and play areas.

C. The location, size, and species of the new proposed plant materials (at time of planting).

D. The location(s) of areas where existing vegetation will be cleared and the location(s) of areas where existing vegetation will be preserved, delineated on a recent aerial photo or site plan drawn to scale.

E. Existing and proposed building and pavement outlines.

F. Specifications for soil at time of planting, irrigation and anticipated planting schedule.

G. Other information as deemed appropriate by the City Planning Official.

OFF-STREET PARKING PLAN

K. A plan, drawn to a suitable scale, indicating how the off- street parking and loading requirements are to be met shall accompany an application for a building permit. The plan shall indicate in detail all of the following:

1. **Individual parking and loading spaces.**
2. **Circulation area.**
3. **Access to streets and property to be served.**
4. **Curb cut dimensions.**
5. **Dimensions, continuity and substance of screening, if any.**
6. **Grading, drainage, surfacing and subgrading details.**
7. **Obstacles, if any, to parking and traffic circulation in finished parking areas.**
8. **Specifications for signs, bumper guards and curbs.**
9. **Landscaping and lighting.**

Submittal: The Site Plan shows the location of the 8 vehicle parking spaces and the bicycle rack. The parking area and retaining wall improvements will require ODOT design review and approval.

C. Special Use Permit

FCC 10-7-4: SITE INVESTIGATION REPORTS (SIR):

A. Areas identified in Section 2 and 3 above, are subject to the site investigation requirements as presented in "Beach and Dune Techniques: Site Investigation Reports by Wilbur Ternyik" from the Oregon Coastal Zone Management Association's *Beaches and Dunes Handbook for the Oregon Coast* (OCZMA Handbook), Appendix 18 of the Florence Comprehensive Plan as modified by the City of Florence. No development permit (such as building permit or land use permit) subject to the provisions of this Title may be issued except with affirmative findings that:

1. Upon specific examination of the site utilizing a

Phase I Site Investigation Report (the checklist from the OCZMA Handbook, as modified by the City of Florence), it is found that the condition identified on the "Hazards Map" or "Soils Map" or "Beaches and Dunes Overlay Zone" or other identified problem area does not exist on the subject property; or

2. As demonstrated by the Phase II Site Investigation Report that harmful effects could be mitigated or eliminated through, for example, foundation of structural engineering, setbacks or dedication of protected natural areas. (Amended by Ord. No. 10, Series 2009)

Site investigation requirements may be waived where specific standards, adequate to eliminate the danger to health, safety and property, have been adopted by the City. This exception would apply to flood-prone areas, which are subject to requirements of the National Flood Insurance Program and other problem areas which may be adequately protected through provisions of the Building Code. (Ord. 669, 5-17-82)

C. General Requirements for Phase II Site Investigation Reports shall include at least the following information. Additional information, commensurate with the level of hazard and site conditions shall be submitted.

1. Identification of potential hazards to life, proposed development, adjacent property, and the natural environment which may be caused by the proposed development.
2. Mitigation methods for protecting the subject property and surrounding areas from each potential hazard.
3. Acceptable development density.
4. Identification of soils and bedrock types.
5. Identification of soil depth.
6. Water drainage patterns.
7. Identification of visible landslide activity in the immediate area.
8. History of mud or debris flow.
9. In areas prone to landslide, mudflow and where slopes exceed 25%, reports shall identify the orientation of bedding planes in relation to the dip of the surface slope.
10. Recommendations for removal, retention, and placement of trees and vegetation.
11. Recommendations for placement of all structures, on site drives, and roads.
12. Recommendations for protecting the surrounding area from any adverse effects of the development. (Amended by Ord. No. 10, Series 2009)

Submittal: A Phase II Site Investigation Report is submitted with this application that demonstrates compliance with these criteria. In addition, a “Hazardous Mate-

rials Corridor Study" was completed for the project and is included in the application.

IV. Applicable Criteria and Findings of Consistency

IV.1 Applicable Criteria

The following criteria apply to this application:

- **Florence Realization 2020 Comprehensive Plan:**
  - Chapter 1: Introduction, Definitions
  - Chapter 2: Land Use: Downtown
    Appendix 2: Downtown Implementation Plan and Downtown Architectural Guidelines
  - Chapter 5: Open Spaces and Scenic, Historic, and Natural Resources
  - Chapter 7: Development Hazards and Constraints
  - Chapter 11: Utilities, Facilities, and Services: Stormwater Management
  - Chapter 12: Transportation
    Appendix 12: Transportation System Plan
  - Chapter 16: Siuslaw River Estuarine Resources
  - Chapter 17: Coastal Shorelands: Ocean, Estuary, and Lake Shorelands
- **Florence City Code Title 10, the following Chapters and Sections:**
  - Chapter 1: Zoning Administration: FCC 10-1-14: Application; 10-1-1-5: Land use Hearings; 10-1-4: Definitions; 10-1-5: Land Use Category Definitions
  - Chapter 2: General Zoning Provisions: FCC 10-2-1: Conformance and Permits; 10-2-2, Similar Uses; 10-2-12: Uses and Activities Permitted In All Zones
  - Chapter 3: Off-Street Parking and Loading
  - Chapter 4: Conditional Uses
  - Chapter 6: Design Review
  - Chapter 7: Special Development Standards
  - Chapter 17: Old Town District Area A
  - Chapter 19: Estuary, Shorelands, and Beaches and Dunes:
    - FCC 10-19-1: Estuary District Administration
    - FCC 10-19-4: Development Estuary District (DE)
    - FCC 10-19-5: Coastal Shorelands Overlay Districts Administration
    - FCC 10-19-7: Mixed Development Overlay District (/MD)
  - Chapter 34: Landscaping
  - Chapter 35: Access and Circulation
  - Chapter 36: Public Facilities
- **Florence City Code Title 9, the following Chapters and Sections:**
  - Chapter 5: Stormwater Management Utility, User Fee System and Stormwater Management Requirements (To be approved by the Public Works Director; under separate cover)

IV.2 Findings of Consistency

The criteria are shown in bold and the findings of consistency are shown in regular type, below.

FLORENCE CITY CODE TITLE 10: ZONING REGULATIONS

CHAPTER 2: GENERAL ZONING PROVISIONS

FCC 10-2-1: CONFORMANCE AND PERMITS:

No building or structure shall be erected, reconstructed, structurally altered, enlarged, moved or maintained, nor shall any building, structure or land be used or designed to be used for any use other than is permitted in the district in which such building, structure or land is located and there only after applying for and securing all permits and licenses required by all laws and ordinances of the City.

Finding: The proposal is consistent with the criteria above because the proposed land uses and design are permitted in the applicable zoning districts with approval of a Conditional Use Permit, Special Use Permit, Design Review, and all required construction permits consistent with the requirements of Florence City Code (FCC) Title 10.

CHAPTER 1: ZONING ADMINISTRATION

FCC 10-1-1-5: LAND USE HEARINGS:

H. Consolidated Procedures: Whenever possible an application for development such as a Conditional Use, Variance, or other action requiring Planning Commission, or Design Review Board approvals be consolidated to provide faster service to the applicant. (ORS 227.175(2)), (Amd. by Ord. No. 4, Series 2011)

Finding: The proposal is consistent with this criterion because the applications for Conditional Use, Design Review, and Special Use Permit are consolidated in this proposal. The findings below address the criteria for these permits in this order and cross-reference redundant findings, as appropriate.

A. Findings of Consistency with Conditional Use Criteria

CHAPTER 19: ESTUARY, SHORELANDS, AND BEACHES AND DUNES

FCC 10-19-4: DEVELOPMENT ESTUARY DISTRICT (DE):

F. Conditional Uses: Outside of Areas Managed for Water Dependent Activities, the following uses and activities are allowed in the estuary with a Conditional Use Permit, subject to the applicable criteria…

1. Dredge or fill.
2. Flood and erosion control structures such as jetties, bulkheads, seawalls, and groin construction, may be installed and

maintained, and riprap may be installed and expanded; provided all such uses are needed to protect existing uses or uses specifically allowed in this Code section

3. Navigation and water-dependent commercial enterprises and activities, including docks and piers to support existing uses or uses specifically permitted in this Code section.

8. Temporary alterations, subject to the following additional criteria: the alteration shall support a use expressly allowed in this MU in this Comprehensive Plan as defined in the Definitions in the Introduction to this Comprehensive Plan; it shall be for a specified short period of time, not to exceed three years; and the area and affected resources shall be restored to their original condition.

9. Short-term fills for temporary alterations provided the estuarine areas impacted shall be restored following removal of the fill.

10. Water-related uses, non-water-dependent uses, and non-water-related uses, provided no dredge or fill is involved and it is not possible to locate the use on an upland site. Nonwater-dependent and non-water-related uses that existed as of July 7, 2009 will retain their non-conforming status for five years from the date the use is abandoned or the structure is destroyed; and the existing structure for the same use may be replaced; the provisions of non-conforming uses in the Florence City Code not withstanding.

Finding: This application for a Conditional Use Permit is consistent with these criteria because the proposal site is located in and adjacent to the estuary where it is zoned Development Estuary and the following uses are included in this proposal: fill; seawall; water-dependent activities; water-related activities; temporary alterations; and short-term fill for temporary alterations and enhancement and restoration of the existing riprap.

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CHAPTER 4: CONDITIONAL USES

FCC 10-4-2: USE PERMIT PREREQUISITE TO CONSTRUCTION:

When a conditional use permit is required by the terms of this Title, no building permit shall be issued until the conditional use permit has been granted by the Planning Commission, and then only in accordance with the terms and conditions of the conditional use permit. Conditional use permits may be temporary or permanent.

FCC 10-4-3: APPLICATIONS: The application for a conditional use permit shall be made in writing to the Planning Commission by the owner of the land in consideration or his agent, duly authorized in writing. The application shall include the following information:

A. Site and building plans and elevations.
B. Existing conditions on the site and within three hundred feet (300') of a site that is one (1) acre or larger and within one hundred feet (100') from a site that is less than one (1) acres in size.
C. Existing and proposed utility lines and easements.
D. Operational data explaining how the buildings and uses will function.

E. Any other pertinent information requested by the Planning Commission such as architectural renderings of the buildings and structures involved in the proposed development.

Finding: This application for a Conditional Use Permit is consistent with these criteria because no building or other permit will be granted until the conditional use permit has been granted by the Planning Commission and then only in accordance with the terms and conditions of the conditional use permit; a permanent permit is requested; the application is made in writing to the Planning Commission by the City of Florence, the owner and duly authorized agent; and the application includes the following information:

A. Site and building plans and elevations: Site Plans area included; no buildings are proposed; so, no building elevation drawings are included.
B. Existing conditions on the site and within one hundred feet (100') from a site that is less than one (1) acres in size.
C. Existing and proposed utility lines and easements.
D. Operational data explaining how the buildings and uses will function: (n/a)
E. Other pertinent information requested by the Planning Commission, including architectural renderings of the proposed development and submittal materials required for Design Review and Special Use Permit approval, as presented in the findings below.

FCC 10-4-9: GENERAL CRITERIA: A conditional use permit may be granted only if the proposal conforms to all the following general criteria: (Ord. 669, 5-17-82)

A. Conformity with the Florence Comprehensive Plan.
B. Compliance with special conditions established by the Planning Commission to carry out the purpose of this Chapter.
C. Findings that adequate land is available for uses which are permitted outright in the district where the conditional use is proposed. Available land can be either vacant land or land which could be converted from another use within the applicable zoning district. Land needs for permitted uses may be determined through projections contained in the Florence Comprehensive Plan or other special studies.
D. Conditional uses are subject to design review under the provisions of Chapter 6 of this Title, except single family and duplex residential use. (Ord. 625, 6-30-80) See Code Section 10-6-3 for Design Review requirements.
E. Adequacy of public facilities, public services and utilities to service the proposed development.
F. Adequacy of vehicle and pedestrian access to the site, including access by fire, police and other vehicles necessary to protect public health and safety. (Ord. 669, 5-17-82).

Finding: The proposal is consistent with these criteria for the following reasons:

1. The proposal conforms with the Florence Comprehensive Plan, as presented in the findings below.
2.. The proposal will be modified to comply with any special conditions established by the Planning Commission to carry out the purpose of this Chapter.

3. The proposal has no effect on the availability of land for permitted uses in the Development Estuary District because permitted uses are maintenance of existing erosion control structures and docks and piers, navigation, and maintenance dredging and these activities do not require available land.
4. This request includes an application for Design Review and findings of consistency with Chapter 6 of this Title.
5. The proposal includes findings of consistency with Title 9 Chapter 5 that demonstrate that the stormwater facilities adequately serve the proposed development.
6. The proposal contains detailed findings of consistency with the Florence City Code, and all City requirements for vehicle and pedestrian access to the site, including access by fire, police and other vehicles necessary to protect public health and safety.

B. Findings of Consistency with Design Review Criteria

FLORENCE CITY CODE TITLE 10 CHAPTER 6: DESIGN REVIEW

FCC 10-6-1: PURPOSE:

The design review process is intended to:

A. Create an attractive appearance that will enhance the City and promote the general welfare of its citizens.

C. Recognize areas of existing or potential scenic value.

D. Protect and preserve buildings and sites that are of significant architectural or historic merit. (Ord. 625, 6- 30-80)

Finding: The proposal is consistent with the applicable criteria for the following reasons:

A. The Wayside will create an attractive appearance that will enhance the City and promote the general welfare of its citizens.

C. The Wayside recognizes the Siuslaw River Bridge and the Siuslaw Estuary, areas of existing scenic value.

D. The Interpretive Wayside helps to protect and preserve the Siuslaw River Bridge, an area of significant architectural and historic merit.

FCC 10-6-4: DRAWINGS TO BE APPROVED:

No permit for a new use, structure or exterior alteration or enlargement of an existing use or structure that is subject to design review, as prescribed in this Title, shall be issued until the drawings required by this Chapter have been approved by the Design Review Board.

FCC 10-6-5: GENERAL CRITERIA:

The Planning Commission or Design Review Board may require any of the following conditions it deems necessary to secure the purpose and intent of this Chapter. The Board shall consider the effect of its action on the availability and cost of needed housing. The Board shall not use the requirements of this Section to exclude needed housing types. However, consideration of these factors shall not prevent the Board from imposing conditions of approval if the costs of such conditions shall not unduly increase the cost of housing. The Board shall have no authority to affect dwelling unit densities. The Board shall consider the following criteria in reviewing applications and may set conditions or standards which regulate and limit the following:

C. Installation and maintenance of fences, walls, hedges, screens and landscaping according to standards set forth in FCC 10-34 Landscaping, and any requirements of the underlying zoning district.

D. The location and design of access and egress points for vehicles and pedestrians, including access points along State highways according to standards set forth in FCC 10-35 Access and Circulation, and any requirements of the underlying zoning district.

F. Parking and outside display areas, dimensions, surfacing and on-site traffic circulation according to standards set forth in FCC 10-3 Parking and Loading.

H. Color, building materials and exterior appearance in accordance with the policies established by the City in the Downtown Implementation Plan, and in applicable zoning districts.

I. Exterior lighting and security.

J. Public health, safety and general welfare.

K. Provision of public facilities and infrastructure according to standards set forth in FCC 10-36 Public Facilities.

N. Such other conditions as are necessary to implement policies contained in the Florence Comprehensive Plan.

Finding: The proposal is consistent with these criteria, because the proposal is not for residential land and will not effect the availability and cost of needed housing or exclude needed housing types; and the proposal is consistent with the following criteria, as demonstrated in the findings in this application:

- Installation and maintenance of the retaining wall and landscaping are shown to be in accordance with the applicable standards set forth in FCC 10-34 Landscaping, and any requirements of the underlying zoning district.

- The location and design of access and egress points for vehicles and pedestrians are according to standards set forth in FCC 10-35 Access and Circulation, and any requirements of the underlying zoning district.

- Parking and outside display areas, dimensions, surfacing and on-site traffic circulation are according to standards set forth in FCC 10-3 Parking and Loading.
- Color and exterior appearance are in accordance with the policies established by the City in the Downtown Implementation Plan, and in applicable zoning districts.
- Exterior lighting and security are consistent with applicable criteria.
- The project will promote public health, safety and general welfare.
- Provision of public facilities and infrastructure is according to standards set forth in FCC 10-36 Public Facilities.
- Findings are presented to demonstrate that the proposal implements policies contained in the Florence Comprehensive Plan.

FCC 10-6-6: DRAWING SUBMITTAL:

The owner or authorized agent shall submit the following drawings to the City for review:

A. A site plan, drawn to scale, showing the proposed layout of structures and other improvements including, where appropriate, driveways, pedestrian walks, off-street parking and off-street loading areas, landscaped areas, locations of entrances and exists, the direction of traffic flow into and out of off-street parking space and loading berth, and areas for turning and maneuvering vehicles. The site plan shall indicate how utility services and drainage are to be provided.

B. A landscape plan, drawn to scale, in conformance with FCC 10-34-3-2.

C. Architectural drawings or sketches, drawn to scale, including floor plans in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures as they will appear upon completion. All exterior surfacing materials and colors shall be specified.

D. Additional information may be required by the City if necessary to determine whether the purposes of this Chapter are being carried out or may authorize omission of any or all the drawings required by this Chapter if they are not necessary. The City shall specify the number of copies of each drawing to be submitted.

E. It is expressly understood that single-family residential homeowners are exempted from the above plans, scale drawings and architectural drawings enumerated above except as required for the issuance of a building permit or under State law. (Ord. 625, 6-30-80)

Finding: The proposal is consistent with this criterion because all of the required drawings have been submitted as part of this application.

C. Findings of Consistency with Special Use Permit Criteria

TITLE 10 CHAPTER 7: SPECIAL DEVELOPMENT STANDARDS

FCC 10-7-1: PURPOSE: The purpose of this Chapter is to apply additional development standards to areas with potential natural hazards or soils which are particularly subject to erosion, landslide or seasonal surface water. Compliance with these standards is required in order to obtain a Special Use Permit. The standards are intended to eliminate the danger to the health, safety or property of those who would live in potential problem areas and the general public and to protect areas of critical environmental concern; areas having scenic, scientific, cultural, or biological importance; and significant fish and wildlife habitat as identified through Goal 5: Open Spaces and Scenic, Historic, and Natural Resources, and Goal 17: Coastal Shorelands. (Amended Ord. No. 10, Series 2009)

FCC 10-7-2: IDENTIFICATION OF POTENTIAL PROBLEM AREAS: At minimum, the following maps shall be used to identify potential problem areas:

A. "Hazards Map", Florence Comprehensive Plan Appendix 7.

B. "Soils Map", Florence Comprehensive Plan Appendix 7. (Ord. 625, 6-30-80)

C. "Beaches and Dunes Overlay Zone." See Chapter 19 for overlay zone requirements. Where conflicts exist between that chapter and this one, the more restrictive requirements shall apply.

D. Other information contained in the plan or adopted by reference into the plan, or more detailed inventory data made available after adoption of the plan may also be used to identify potential problem areas. (Amended Ord. No. 10, Series 2009)

FCC 10-7-3: DEVELOPMENT STANDARDS:

The following standards shall be applied to development in potential problem areas unless an approved Phase I Site Investigation Report or an on-site examination shows that the condition which was identified in the Comprehensive Plan or Overlay Zoning Map does not in fact exist on the subject property. These standards shall be applied in addition to any standards required in the Zoning Districts, Comprehensive Plan, and to any requirements shown to be necessary as a result of site investigation. Where conflicts or inconsistencies exist between these Development Standards, City Code, and the Comprehensive Plan, the strictest provisions shall apply unless stated otherwise.

A. Special Flood Hazard Area: All uses proposed in the flood area shall conform to the provisions of the National Flood Insurance Programs.

C. River Cutbanks: No building shall be permitted within fifty feet (50') from the top of a river cutbank.

I. Yaquina Soils and Wet Areas: In areas with seasonal standing water, construction of a drainage system and/or placement of fill material shall be required according to plans prepared by a registered engineer and approved by the City. (Ord. 625, 6-30-80; amd. Ord. 669, 5-17-82) (Amended Ord. 10, Series 2009)

FCC 10-7-4: SITE INVESTIGATION REPORTS (SIR):

A. Areas identified in Section 2 and 3 above, are subject to the site investigation requirements as presented in "Beach and Dune Techniques: Site Investigation Reports by Wilbur Ternyik" from the Oregon Coastal Zone Management Association's *Beaches and Dunes Handbook for the Oregon Coast* (OCZMA Handbook), Appendix 18 of the Florence Comprehensive Plan as modified by the City of Florence. No development permit (such as building permit or land use permit) subject to the provisions of this Title may be issued except with affirmative findings that:

1. Upon specific examination of the site utilizing a Phase I Site Investigation Report (the checklist from the OCZMA Handbook, as modified by the City of Florence), it is found that the condition identified on the "Hazards Map" or "Soils Map" or "Beaches and Dunes Overlay Zone" or other identified problem area does not exist on the subject property; or

2. As demonstrated by the Phase II Site Investigation Report that harmful effects could be mitigated or eliminated through, for example, foundation of structural engineering, setbacks or dedication of protected natural areas. (Amended by Ord. No. 10, Series 2009)

Site investigation requirements may be waived where specific standards, adequate to eliminate the danger to health, safety and property, have been adopted by the City. This exception would apply to flood-prone areas, which are subject to requirements of the National Flood Insurance Program and other problem areas which may be adequately protected through provisions of the Building Code. (Ord. 669, 5-17-82)

C. General Requirements for Phase II Site Investigation Reports shall include at least the following information. Additional information, commensurate with the level of hazard and site conditions shall be submitted.

1. Identification of potential hazards to life, proposed development, adjacent property, and the natural environment which may be caused by the proposed development.
2. Mitigation methods for protecting the subject property and surrounding areas from each potential hazard.
3. Acceptable development density.
4. Identification of soils and bedrock types.
5. Identification of soil depth.

6. Water drainage patterns.
7. Identification of visible landslide activity in the immediate area.
8. History of mud or debris flow.
9. In areas prone to landslide, mudflow and where slopes exceed 25%, reports shall identify the orientation of bedding planes in relation to the dip of the surface slope.
10. Recommendations for removal, retention, and placement of trees and vegetation.
11. Recommendations for placement of all structures, on site drives, and roads.
12. Recommendations for protecting the surrounding area from any adverse effects of the development. (Amended by Ord. No. 10, Series 2009)

D. Specific Standards for Phase II Site Investigation Reports will be determined on the basis of the information provided in the Phase I Site Investigation Report. At a minimum, specific standards shall address the following (may include more than one category listed below):

1. The SIR Phase II - Geologic Report shall follow the "Guidelines for Preparing Engineering Geologic Reports in Oregon" as adopted by the Oregon State Board of Geologist Examiners or shall meet the requirements for Site Investigation Reports as required by the Oregon State Board of Examiners for Engineering and Land Surveying (OSBEELS). The SIR Phase II – Geologic Report shall address the following:
a. An explanation of the site and scope of the study area (e.g. subdivision, by lot specific, or for public improvements)
b. An explanation of the degree the condition affects the property use in question;
c. An explanation of the measures to be employed to minimize detrimental impacts associated with the condition;
d. An explanation of the condition-associated consequences the development and the loss-minimizing measures will have on the surrounding properties.

6. Properties along the Siuslaw River Estuary:
a. Angle of repose for bluff material
b. Mean high tide, and highest measured tide
c. Extent of recent and historical cutbank, length of area and height of cut
d. Area of wave overtopping and furnish photographs or other evidence
e. Current and historic stability of riverbank and rates of erosion in general area.
f. Projected rate of erosion and methodology
g. Environmental resources present
h. Impacts to be expected
i. Description and photographs of current vegetation

8. Soils: The Site Investigation Report shall address the following development constraints for the soil types.

d. Waldport - These are sand dunes which are covered

with stabilization vegetation. Conditions are moderate to severe, depending on slope. The particular need here is to preserve existing vegetation and to stabilize soil which is disturbed. Drainage is not a problem. Areas with slopes greater than 12% should not be built on unless a site investigation determines the site to be buildable.

10-7-5: REVIEW AND USE OF SITE INVESTIGATION REPORTS

B. Required Certifications and Inspections:

For any Phase II SIR submitted, the registered professional of record shall be required to:

1. Review final plans for development and submit a signed and stamped certification report that all recommendations have been incorporated into development plans.

2. Review subgrade excavations and fills for structures and stormwater drainage and submit a signed and stamped certification report that construction is proceeding in accordance with approved plans.

3. Perform interim inspections as necessary and a final inspection of the site and submit a signed and stamped certification report that the project as constructed complies with approved plans.

C. Conditions of approval may be imposed and/or a bond may be required to be posted prior to issuance of permit to ensure that harmful effects such as erosion, sand encroachment, destruction of desirable vegetation including inadvertent destruction by moisture loss or root damage, spread of noxious weeds, damage to archaeological resources, are mitigated or eliminated.

D. Approval: The property owner shall record a Covenant of Release which outlines the hazard, restrictions and/or conditions that apply to the property and shall state, "The applicant recognizes and accepts that this approval is strictly limited to a determination that the project as described and conditioned herein meets the land use provisions and development standards of the City Code and Comprehensive Plan current as of this date. This approval makes no judgment or guarantee as to the functional or structural adequacy, suitability for purpose, safety, maintainability, or useful service life of the project."

Finding: The proposal is consistent with these criteria, as demonstrated in the attached Site Investigation Report Phase II, signed and stamped by Branch Engineering; and no "Covenant of Release" is applicable because the site is publicly owned and thus is governed by applicable state and local laws and the City of Florence/State of Oregon – Dept. of Transportation Agreement No. 21381, as amended. In addition, a "Hazardous Mate-

rials Corridor Study" was completed for the project and is included in the application.

D. Findings of Consistency with Florence Realization 2020 Comprehensive Plan

CHAPTER I: INTRODUCTION

DEFINITIONS

The proposed uses are consistent with the following definitions for Fill, Natural Hazards, Coastal Recreation, Temporary Estuary Alteration, Water-dependent Use and Water-related Use.

FILL. For the purposes of this Comprehensive Plan and implementing ordinances, the definition of fill shall be the definition used in the Statewide Planning Goals: The placement by man of sand, sediment, or other material, usually in submerged lands or wetlands, to create new uplands or raise the elevation of land. [Note that the Army Corps of Engineers' (ACOE) and the Department of State Lands' (DSL) definitions are different from this Statewide Planning Goals definition and the definitions of this federal and other state agency have been interpreted to include pilings and riprap in the estuary.]

Finding: The proposed fill in Wayside East and West is consistent with this definition because it will place sand, sediment and other material in submerged lands to raise the elevation of land.

NATURAL HAZARDS. Natural events that are known to result in death or endanger the works of man, such as stream flooding, ocean flooding, groundwater, erosion and deposition, landslides, earthquakes, weak foundation soils and other hazards unique to local or regional areas.

Finding: The proposal addresses criteria for development in and adjacent to the estuary, an area of potential natural hazards due to flooding and/or erosion.

RECREATION. Any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction.

Coastal Recreation occurs in offshore ocean waters, estuaries, and streams, along beaches and bluffs, and in adjacent shorelands. It includes a variety of activities, from swimming, scuba diving, boating, fishing, hunting, and use of dune buggies, shell collecting, painting, wildlife observation, and sightseeing, to coastal resorts and water-oriented restaurants.

Finding: The proposed use – a Wayside – is consistent with the Comprehensive Plan definition of "Coastal Recreation" because it provides people with an experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction; the use occurs on the shorelands adjacent to the estuary; and provides for a variety of activities, including wildlife observation, and sightseeing.

TEMPORARY ESTUARY ALTERATION. Dredging, filling, or another estuarine alteration occurring over a specified short period of time which is needed to facilitate a use allowed by the Florence Comprehensive Plan. Temporary alterations may not be for more than three years and the affected area must be restored to its previous condition. Temporary alterations include: (1) alterations necessary for federally authorized navigation projects (e.g., access to dredged material disposal sites by barge or pipeline and staging areas or dredging for jetting maintenance), (2) alterations to establish mitigation sites, alterations for bridge construction or repair and for drilling or other exploratory operations, and (3) minor structures (such as blinds) necessary for research and educational observation.

Finding: The proposed filling of the estuary in this proposal fits this definition of a Temporary Estuary Alteration because the filling will occur over one year, a specified short period of time which is needed to facilitate uses specifically allowed and required by the Florence Comprehensive Plan. The temporary alterations will be restored to its previous or an improved condition. The temporary alterations are for observation areas, minor structures necessary for research and educational observation, and a parking area, an accessory use to these uses.

WATER-DEPENDENT USE. A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production, or source of water, where:

- **"Access" means physical contact with or use of the water;**
- **"Requires" means the use either by its intrinsic nature (e.g., fishing navigation, boat moorage) or at the current level of technology cannot exist without water access;**
- **"Water-borne transportation" means use of water access:**
  - **(1) Which are themselves transportation (e.g., navigation);**
  - **(2) Which require the receipt of shipment of goods by water; or**
  - **(3) Which are necessary to support water-borne transportation (e.g., moorage fueling, servicing of watercraft, ships boats, etc. terminal and transfer facilities;**
- **"Recreation" means water access for fishing, swimming, boating, etc. Recreation uses are water dependent only if use of the water is an integral part of the activity.**
- **“Energy production" means uses which need quantities of water to produce energy directly (e.g. hydroelectric facilities, ocean thermal energy conversion);**
- **"Source of water" means facilities for the appropriation of quantities of water for cooling, processing or other integral functions.**

Typical examples of "water dependent uses" include the following:

(1) "Industrial" - e.g., manufacturing to include boat building and repair; water-borne transportation, terminals, and support; energy production which needs quantities of water to produce energy directly; water intake structures for facilities needing quantities of water for cooling, processing, or more integral functions.

(2) "Commercial," e.g., commercial fishing marinas and support; fish processing and sales; boat sales, rentals, and supplies.
(3) "Recreational," e.g., recreational marinas, boat ramps and support.
(4) Aquaculture.
(5) Certain scientific and educational activities which, by their nature, require access to coastal waters - estuarine research activities and equipment mooring and support.

Examples of uses that are not "water dependent uses" include restaurants, hotels, motels, bed and breakfasts, residences, parking lots not associated with water dependent uses; and boardwalks.

Finding: The proposed uses are consistent with this definition of "Water-Dependent Use." The proposed Siuslaw Interpretive Wayside and associated accessory parking fit this definition of a "Water-dependent Use," because the uses and activities can be carried out only in or adjacent to the Siuslaw estuary, as demonstrated below:

a. The following proposed uses and activities "can be carried out only adjacent to the Siuslaw estuary" and "require access to the water body for recreation and source of water:"

- observance of the estuary, the stormwater demonstration project, and the bridge (including the cathedral arches under the bridge), while walking, picnicking, or sitting in a vehicle or on a bench;
- state-of-the art best management practices (BMPs) using natural stormwater treatment techniques discharging directly to the estuary through the Stormwater Demonstration Project, and associated observation and interpretation; and
- interpretation of the estuary, the bridge, and the stormwater demonstration project provided through the interpretative signs.

b. The proposed uses require "access," or "physical contact with the water body," for "recreation" and "source of water." Access to the Siuslaw estuary is required for the integral function of the activities in "a," above. The stormwater demonstration and the recreation use of the Wayside i.e., observing the estuary, the bridge, are "an integral part of the activities."

c. "By their intrinsic nature," the uses and activities in "a" cannot exist without access to the Siuslaw estuary.

d. The scientific and educational activities involved in the Stormwater Demonstration Project and the interpretive Wayside are included in the definition of "Water-Dependent Use" as a "typical example of water dependent uses," including, "certain scientific and educational activities, which, by their nature, require access to coastal waters – estuarine research activities." The Stormwater Demonstration Project is an estuarine research and educational activity and the interpretive Wayside is an educational activity.

e. The parking spaces for these Water-dependent Uses, i.e., the Wayside,

and Stormwater Demonstration Project, are included in the definition of "Water-Dependent Use." The definition of Water Dependent Use includes "examples of uses that are not water dependent uses;" and these include "parking lots not associated with water dependent uses." Conversely, a parking area "associated with a water-dependent use," that meets City parking requirements and is accessory to the primary use, is, by definition, part of the water-dependent use.

f. The proposed parking spaces located in the Wayside West are an integral part of this Water-dependent Use because the parking spaces are accessory to the proposed Water-dependent Uses and are required by the Florence Comprehensive Plan, as follows.

1. The Wayside and parking area, adjacent to the estuary, are required by Florence Realization 2020 Comprehensive Plan policy. To locate the proposal or the parking in another location would be in conflict with, or require an amendment to, the Comprehensive Plan.

2. Parking for the Wayside is "accessory" to these primary uses as opposed to a "parking facility" as those terms are defined in Section 1.4.b of this Application, below.

3. Parking for the Wayside is required for the proposal to meet the parking requirements of FCC 10-3-2: Off-street Parking and Loading and FCC 10-17A-4 Site and Development Provisions for Downtown Area A, as set out in the Section IV of this application.

4. As discussed in detail in Section IV, there are no alternative locations for a parking area that can serve the water-dependent needs of this site, i.e., visual access to the estuary and the bridge arches and meet the requirements of the Florence Comprehensive Plan to locate the parking area in the proposed location.

5. This is the only location adjacent to the estuary that will not adversely impact the estuary because this area of the proposal is located entirely under the bridge, and, thus, is irreversibly impacted. No other location adjacent to the estuary has this characteristic.

WATER-RELATED. Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

Finding: The proposed uses, Wayside and Stormwater Demonstration with necessary parking area are also Water-related uses for the following reasons:

1. aspects of the uses that are not directly dependent upon access to a water body, such as picnic tables, benches, and parking, provide goods or services that are directly associated with water-dependent land or waterway use;

2. if not located adjacent to the estuary, there would result a public loss of quality in the goods or services offered because the public would not be able to closely observe the subjects of the interpretive signage (birds, currents, bridge, wetland restoration, stormwater treatment facilities, etc.) and relax on a bench for the observation; and

3. the parking area is necessary for the water-dependent and water-related uses, as described in detail in the finding above and in the findings for criteria in Chapter 3 of Title 10.

CHAPTER 2: LAND USE

DOWNTOWN, Page II-21

"Also included in the Old Town Zoning District is the proposed Siuslaw River Bridge Interpretive Wayside located at the west end of Bay Street under the Bridge."

Downtown Planning Area

The Downtown Planning Area is shown on the Comprehensive Plan Map as the Downtown Plan designation. The policies guiding development of this area are described in this section, in the section titled, Downtown under "Other Plan Designations," and in the *Downtown Implementation Plan,* adopted into Appendix 2 of this Comprehensive Plan…

Specific policies regarding land use and transportation for each subarea are contained in the *Florence Downtown Implementation Plan, September 1999* which was officially incorporated into this Comprehensive Plan as the detailed plan for the Downtown area…

The *Downtown Implementation Plan* also establishes the following priorities for implementation of the Plan:..

- **Locate a parking lot under the bridge. Combine with a Scenic Byways Bridge Interpretive Site.**

Finding: The proposed Wayside and associated parking area is consistent with the Chapter 2 of the Comprehensive Plan priorities because the proposed Wayside locates parking under the bridge in combination with the Scenic Byways Bridge Interpretive Site, as expressly required by the Comprehensive Plan.

APPENDIX 2: DOWNTOWN IMPLEMENTATION PLAN

PRIORITIES

7. Identify and obtain key lots in Old Town for parking, and to preserve views .
8. Locate a parking lot under the bridge. Combine with a Scenic Byways Bridge Interpretive Site.

Plan is completed. Apply for Scenic Byways funds for construction in Spring 2000.

Finding: The proposed Wayside and associated parking area is consistent with the Downtown Implementation Plan priorities because the proposed Wayside locates parking under the bridge in combination with the Scenic Byways Bridge Interpretive Site, as expressly required by the Florence Downtown Implementation Plan.

APPENDIX 2: FLORENCE DOWNTOWN ARCHITECTURAL GUIDELINES, JUNE 1999

Purpose

The Architectural Guidelines establish a minimum level of design quality and compatibility between buildings. They recommend appropriate selected and use of materials. The Guidelines respect the historical character of the Florence Downtown through proper building massing, siting and materials which reflect important aspects of Oregon's traditional Northwest architecture.

The Guidelines are organized into Site and Building Materials, and Materials Applications, Configurations, and Recommendations. The Guidelines apply to all commercial and multi-family buildings and related accessory structures and site improvements.

Applicable Design Guidelines:

Landscape/Retaining Walls and Fences

- **Brick and stone masonry or precast concrete**
- **Architecturally finished exposed concrete.**
- **Cement-based stucco over masonry or concrete substrate**
- **Solid wood pickets, lattice, and boards**
- **Painted welded metal or iron**

Visible Landscape/Retaining Walls and Fences

- **Freestanding concrete and masonry walls shall be minimum 8" nominal thickness with a finished top course, cap or other compatible termination.**

Findings: The proposal is consistent with these Guidelines because the retaining wall will not be visible and there are no buildings or fences.

CHAPTER 5: OPEN SPACES AND SCENIC, HISTORIC, AND NATURAL RESOURCES

Wetlands Policies

1. For the purpose of land planning and initial wetland identification, the City and Lane County shall rely on the 1997 Florence Local Wetland and Riparian Area Inventory, approved by the Oregon Division of State Lands, and as amended hereafter.

2. **Disturbance of significant[2] wetlands for land development activities shall be permitted within the Florence UGB only as determined by the permitted provisions of permits issued by the Division of State Lands and/or the Army Corps of Engineers.**

3. **The City shall consider formal wetland delineation reports approved by the Oregon Division of State lands as a valid source of wetland information specific to a land use action or limited land use action. Such reports, if approved by DSL, will be incorporated by reference into the City's 1997 Local Wetland and Riparian Area Inventory.**

4. **No significant wetland as defined by the 1997 Florence Local Wetland and Riparian Area Inventory shall be drained by re-routing of natural drainage ways.**

Finding: The proposal is consistent with these policies because the wetlands present on the site are not shown as significant on the City's Map of the 1997 Florence Local Wetlands Inventory, Determination of Locally Significant Wetlands Table, adopted as part of the Comprehensive Plan; and permits will be obtained from the Department of State Lands and Army Corps of Engineers for activities affecting the wetlands on the site.

Regarding, Wayside East, the following additional findings are based on the November, 2007, Wetland Investigation and Delineation Report for the City of Florence, Barnett Family Bay Street Property, 18-12-34-1-4 TL 101, 107, 700, prepared by Wilbur E. Ternyik and Matthew J. Ternyik, Wetland, Beaches, and Dunes Consultants; Surveyed by Wobbe & Associates.

- "Within the field investigation of the wetland boundary, surveyed by Gene Wobbe we identified a total of 0.10 of an acre of jurisdictional tidal wetlands. This wetland area is part of a larger similar classification wetland to the west, also a private parcel. The following wetland classifications are Cowardin E2EMI and HGM of EFR. Upland area size is 0.25 of an acre, with river tidally influenced being 0.10 of an acre making a total study area amount 0.35 of an acre."

- "Due to identified high marsh wetland portion adjacent to the Siuslaw River lower estuary, we recommend long term protection; possibly in conjunction with the adjoining property owners to the west. The quality of the city owned drainage pipe from Bay Street in the center of the parcel may be a legal problem. There is a significant flow of untreated water from Bay Street entering the high salt marsh area. Large pieces of buried iron should be removed from the wetland areas."

Rare, Threatened, Endangered and Sensitive Species (RTESS)

Policies

3. **The City shall provide potential developments with information about retention of such sites early in discussions about development plans, in order to ensure that site designs provide for retention of the**

[2] Significant wetlands as identified by the 1997 Florence Local Wetland and Riparian Area Inventory.

RTESS resource, or mitigation if that should be appropriate as determined in consultation with the appropriate state agencies.

Findings: These findings are based on the letter, included in this application and submitted for the record, from Barry Thom, Acting Regional Administrator for the National Marine Fisheries Service (NMFS) to Phillip Ditzler, Federal Highway Administration (FHWA) Division Administrator Oregon Division, dated October 20, 2009. This letter was required in order to proceed with the engineering for the project and is based on preliminary site design and best management practices. The final design and BMPs for both Wayside East and Wayside West will be subject to approval by the Army Corps of Engineers and the Department of State Lands. The letter from NMFS concurs that the project will not adversely affect listed species, as discussed in the Biological Assessment, included in this application. The following species are identified as listed in the project area:

- Coho salmon and the Southern Distinct Population Segment (SDPS) of green sturgeon are listed as threatened species under the Endangered Species Act. The Siuslaw River is designated critical habitat for coho salmon and is outside of the designated critical habitat for the SDPS of green sturgeon. This portion of the river is also designated as essential fish habitat (EFH) for Chinook salmon, (O. tshawytscha), coho salmon, and coastal pelagic species; and is in an area where environmental effects of the proposed action may affect EFH for those species.

- The only federally listed bird species that may be found in the project area is the brown pelican. The brown pelican uses the Siuslaw River estuary and its associated intertidal habitat. When migrating through the estuary, this species uses roosting habitat and perches for foraging. This type of habitat is abundant in the project area. The estuary near the Old Town District is lined with old piles and piers which provide adequate roosting and feeding habitat (USFWS, 1983). The project area provides stopover habitat for brown pelicans migrating along the Oregon Coast, particularly in the early fall. This species uses the pier pilings in the project area. This habitat will be unaffected by the project.

- No listed plant species were found in the project area during the site survey, and none were reported by the ORNHIC within 2 miles of the project area (ORNHIC, 2008). Habitat conditions in the project area are not suitable for any of the listed species identified on the USFWS species list.

- Green sturgeon are present in the estuary only during the summary and early fall. Since construction will occur during the ODFW work window (November 15 to February 1), no green sturgeon are likely to be present during the construction.

- The following excerpts from this letter conclude that the project is “not likely to adversely affect” (NLAA) coho salmon, critical habitat for coho, or the SDPS of green sturgeon. They also conclude that the project will not adversely affect essential fish habitat (EFH) designated for Chinook salmon or coastal pelagic species.

  “This response to your letter was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency

guidance for preparation of letters of concurrence, and concludes that the action, as proposed, is NLAA Oregon Coast (OC) coho salmon *(Oncorhynchus kisutch*) and their designated critical habitat. The NMFS also concludes the proposed action is NLAA the southern distinct population segment (SDPS) of green sturgeon (*Acipenser medirostris*)…. The action, as proposed, will not adversely affect EFH designated for Chinook salmon (*O. tshawytscha*), coho salmon, and coastal pelagic species. Therefore, no conservation measures are provided at this time and no further response is necessary."

"The potential negative effects to water quality and habitat will be small, localized, and short term. None of the effects to PCEs (primary constituent elements, sic) are likely to disrupt normal behavioral patterns of OC coho salmon, nor will they result in functional changes to the affected PCEs. Because all effects are small, localized and short-term, the proposed action is not likely to meaningfully change the conservation value of the PCEs and is NLAA designated OC coho salmon critical habitat."

CHAPTER 7: DEVELOPMENT HAZARDS AND CONSTRAINTS

Policies

1. The City shall restrict or prohibit development in known areas of natural hazard or disaster in order to minimize risk to citizens, reduce the hazard of loss of life and economic investments, the costs of expensive protection works, and public and private expenditures for disaster relief.

2. Prior to development taking place in known areas of potential natural hazard, applicants shall provide a Site Investigation Report which clearly determines the degree of hazard present and receive City approval for the measures to be taken to reduce the hazard.

3. All new development shall conform to City Code, the adopted Building Code and Flood Insurance Program requirements in flood-prone areas.

4. For those areas that have excessive slopes or conditions which constitute a geological hazard, proposed developments shall be keyed to the degree of hazard and to the limitation on the use imposed by such hazard. Accepted engineering practices shall determine the extent of development allowed. The City may require a professional engineer's report to fulfill this requirement.

Flooding

In June, 1999, the revised Federal Emergency Management Agency (FEMA) flood area maps became effective together with a requirement for elevation certificates for structures in the floodplain…. The Maps, June 1999, are recognized as the official floodplain maps and are included by reference in Appendix 7 of this Plan, subject to any revision agreed to in resolution of the North Fork area of dispute…

Coastal Erosion

The unique geology of the Florence area contributes to coastal erosion. Florence is lo-cated on a deep sand deposit in a sandstone basin. The sand layer contains a large aquifer which flows south and west through the sands to the Siuslaw River. A signifi-cant amount of the groundwater flow, particularly in high rainfall years, occurs at the junction of the sand and sandstone layers. As water exits along this sandstone layer at the base of sand banks, it carries sand away, causing upper sand layers to slough in significant amounts. Due to the steepness of these slopes and the normal erosion caused by wind and rains, it is difficult to establish and maintain vegetation on these slopes.

Since 1980, the City has required a 50 foot setback from the top of the bank of the Siuslaw River.

Finding: The proposal is consistent with these criteria as demonstrated in the attached Site Investigation Report Phase II. In addition, a "Hazardous Materials Corridor Study" was completed for the project and is included in the application which states as follows. "The purpose of the study was to identify potential environmental conditions that could impact project construction and property acquisition. Three total sites with Recognized and Potential Environmental Conditions (RPECs) that could potentially impact construction. The site visit indicated that treated timber piling and lead paint may exist on site, but will not be affected by the project. The proposed project involves limited excavation, primarily organics removal and minor shaping. It is unlikely that the sites in the vicinity of the project area have contaminated the project site. Previous activities on site, notably the cannery machine shop, could potentially have contributed contaminants to the site, though it is unlikely. Based on the findings of this Hazardous Materials Corridor Study, the following recommendations are made: If a Level 2 Preliminary Site Investigation is required it should not be initiated until after property acquisition negotiations are completed but prior to completion of the acquisition." ODOT did not require a Level 2 Site Investigation.

CHAPTER 11: UTILITIES, FACILITIES, AND SERVICES

STORMWATER MANAGEMENT

Policies

Water Quality

2. Protect the quality of water in surface waters, i.e., the estuary, creeks, lakes, wetlands, and ocean/beach, from contamination threats that could impair the quality of the water for fish and wildlife habitat and human recreation.

3. Manage or enhance waterways and open stormwater systems to reduce water quality impacts from runoff and to improve stormwater conveyance.

5. Stormwater shall be managed in as close proximity to the development site as is practicable, and stormwater management shall avoid

a net negative impact on nearby streams, wetlands, groundwater, and other water bodies. The quality of stormwater leaving a site after development shall be equal to or better than the quality of stormwater leaving the site before development, as much as is practicable.

7. Use natural and simple mechanical treatment systems to provide treatment for potentially contaminated runoff waters.

8. Require containment and/or pretreatment of toxic substances.

Finding: The proposal is consistent with these criteria because the stormwater best management practices on the site will:

- protect the quality of water in the estuary and wetlands from contamination threats that could impair the quality of the water for fish and wildlife habitat and human recreation;
- manage and enhance waterways and open stormwater systems to reduce water quality impacts from runoff and to improve stormwater conveyance.
- manage stormwater on site and will avoid a net negative impact the estuary and the quality of stormwater leaving the site after development will be be equal to or better than the quality of stormwater leaving the site before development, as much as is practicable;
- use natural and simple mechanical treatment systems to provide treatment for potentially contaminated runoff waters; and
- include pretreatment of toxic substances.

Water Quantity (Flow Control)

10. Prevent adverse flooding conditions through natural storage and slow release of surface water and runoff.

11. Development shall mitigate all project impervious surfaces through retention and on-site infiltration to the maximum extent practicable. Where on-site retention is not possible, development shall detain stormwater through a combination of provisions that prevent an increased rate of flow leaving a site during a range of storm frequencies as specified in Florence City Code. Surface water discharges from onsite facilities shall be discharged to an approved drainage facility.

12. The quantity and flow rate of stormwater leaving the site after development shall be equal to or less than the quantity and flow rate of stormwater leaving the site before development, as much as is practicable.

13. Maintain flood storage capacity within the floodplain, to the maximum extent practical, through measures that may include reducing impervious surface in the floodplain and adjacent areas.

Finding: The proposal is consistent with these criteria because the stormwater best management practices on the site will:

- prevent adverse flooding conditions through natural storage and slow release of surface water and runoff;

- include on-site infiltration to the maximum extent practicable; where on-site retention is not possible, at the Wayside West, stormwater will be detained through a combination of provisions that prevent an increased rate of flow leaving a site during a range of storm frequencies as specified in Florence City Code; and surface water discharges from onsite facilities will be discharged to an approved drainage facility;

- the quantity and flow rate of stormwater leaving the site after development will be equal to or less than the quantity and flow rate of stormwater leaving the site before development, as much as is practicable;

- maintain flood storage capacity within the floodplain, to the maximum extent practical, through: measures that leave most of the site in a natural condition; natural stormwater facilities; less impervious surface than another type of development, e.g., a building, would create; and locating the parking area under the bridge, an area that is already impacted due to construction of the bridge.

Stormwater Management Facilities and Design

14. Stormwater management facilities are required for public and private development and shall be designed, installed and maintained in accordance with Florence City Code Title 9 Chapter 5 and the policies of the Comprehensive Plan.

15. Foster and support the design and use of innovative stormwater management practices, including the incorporation of properly-designed constructed wetlands into public and private stormwater systems.

16. Tailor stormwater management plans and practices for new development and re-development to the Oregon coastal environment in a manner that can adapt to changes in temperature and precipitation, and other notable climate change impacts.

17. Promote water conservation through efficient landscape and irrigation, including water reuse and recycling, and other strategies to reduce water consumption, to reduce the need for new drinking water sources and/or expanded water storage.

19. All local, state, and federal permit requirements related to implementation of stormwater management facilities must be met by the owner/operator prior to facility use.

21. Increase storage and retention and natural filtration of storm runoff to lower and delay peak storm flows and to settle out pollutants prior to discharge into waterways.

22. Reduce street-related water quality and quantity problems caused by stormwater run-off.

Finding: The proposal is consistent with these criteria because the stormwater best management practices on the site will:

- be designed, installed and maintained in accordance with Florence City Code Title 9 Chapter 5 and the policies of the Comprehensive Plan;
- foster and support the design and use of innovative stormwater management practices, including the incorporation of properly-designed constructed wetlands into public and private stormwater systems;
- tailor stormwater management plans and practices to cleanse existing street stormwater runoff, and treat runoff resulting from new development;
- promote water conservation through efficient landscape and irrigation;
- meet all local, state, and federal permit requirements related to implementation of stormwater management facilities prior to facility use;
- increase storage and retention and natural filtration of storm runoff to lower and delay peak storm flows and to settle out pollutants prior to discharge into the estuary; and
- reduce street-related water quality and quantity problems caused by stormwater run-off by treating the runoff with natural systems on-site prior to discharge to the estuary (East) and the City stormwater system (West).

Public Education

28. As available funding and budgetary priorities allow, increase public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problems; and provide public information on how personal choices and actions affect watershed health.

29. Work with the development community to increase their awareness of, and concern for, water quality and fish and wildlife habitat; and encourage them to actively seek new and innovative ways to design stormwater systems in a manner that best achieves water quality and quantity objectives.

Finding: The proposal is consistent with these criteria because the Wayside Interpretation and Stormwater Demonstration Project will:

- increase public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problems; and provide public information on how personal choices and actions affect watershed health; and
- increase the development community's awareness of, and concern for, water quality and fish and wildlife habitat; and encourage them to actively seek new

and innovative ways to design stormwater systems in a manner that best achieves water quality and quantity objectives.

CHAPTER 12: TRANSPORTATION

Policies

10. New development shall gain access primarily from local streets. Driveway access onto arterials and collectors shall be evaluated based on access options, street classifications and the effects of new access on the function, operation and safety of surrounding streets and intersections. Land development shall not encroach within setbacks required for future expansion of transportation facilities.

23. Design and construction of transportation facilities shall be responsive to topography and should minimize impacts on natural resources such as streams, wetlands and wildlife corridors.

24. Stormwater shall be required to have appropriate pre-treatment prior to discharge.

28. On-site parking for motor vehicles shall continue to be provided, unless another adopted City plan expressly provides otherwise.

29. The policies and direction of Downtown Implementation Plan regarding the provision of on-street parking shall be implemented.

30. Appropriate bicycle parking facilities shall be provided at places of employment, at business and at public buildings.

Finding: The proposal is consistent with these criteria, as follows:

- the Wayside will gain access from Bay Street and will not encroach within setbacks required for future expansion of transportation facilities;
- the design and construction of the parking area will be responsive to topography and will minimize impacts on natural resources such as streams, wetlands and wildlife corridors, as demonstrated in the attached Site Investigation Report Phase II and Biological Assessment reports;
- stormwater will have appropriate pre-treatment prior to discharge;
- parking for motor vehicles will be provided consistent with City Code;
- the policies and direction of Downtown Implementation Plan regarding the provision of on-street parking will be implemented;
- appropriate bicycle parking facilities will be provided.

TRANSPORTATION SYSTEM PLAN MAP

Project A 3-b: Siuslaw Bridge Interpretive Wayside

APPENDIX 12: FLORENCE TRANSPORTATION SYSTEM PLAN

Project Summary

Florence Downtown Transportation Planning Area

This area is identified in the Florence Downtown Implementation Plan which was adopted on September 20, 1999 and incorporated into the Comprehensive Plan as part of Appendix 2 on January 14, 2002.

3. Siuslaw River Bridge/Highway 101. The priorities of the Florence Downtown Implementation Plan related to the bridge include:

a. location of a parking lot under the Siuslaw River Bridge to be combined with a Scenic Byway Bridge Interpretative Site

Finding: The proposal directly implements this policy and high priority project in the Florence Transportation System Plan.

Functional Roadway Classifications

The purpose of classifying roads within the study area is to provide a balanced transportation system that facilitates mobility for all modes at acceptable levels of service while providing sufficient access to adjacent land uses and ensuring neighborhood livability. Currently, the City of Florence, Lane County, and ODOT each have their own roadway classifications and standards for roads within the City's planning area.

Collectors

The primary functions of collectors are to move traffic between arterial facilities and local streets, and to provide access to adjacent uses. Collector streets are characterized by a two or three-lane roadway section; sidewalks on both sides of the street; signalization of intersections with other collectors and arterials, if warranted; and bike lanes where:

- **average daily traffic volumes exceed 3,000 vehicles per day (vpd)**
- **the collector street directly connects to a land use that generates significant bicycle traffic (e.g., a school or park)**
- **on any other street where separately striped bike lanes may be necessary to accommodate safe bike travel along the facility.**

Collector Facilities

Bay Street (Kingwood Street to Harbor Street)

Finding: The proposal is consistent with this standard because the proposal will not adversely impact Bay Street, which is classified as a Collector without bike lanes.

Capital Improvements

"1. Highest Priority Projects

The following projects are the highest priority and should be completed within the first five years of this plan. No priority is intended by the order of the listing.

- **Siuslaw River Bridge Interpretative Sites and associated parking"**

"Table 12-5-F1. Future Transportation System Improvements

Project A-3-b: Pacific Coast Scenic Byway Bridge Interpretive Sites and Associated Parking; Estimated Cost: $173,000."

Table 12-5-B2. Prioritized Funding Needs

Project A-3-b: Pacific Coast Scenic Byway Bridge Interpretive Sites and Associated Parking; Est. Cost: $312,770; application for federal funding submitted.

Map 12-A-1. Siuslaw River Bridge/Highway 101 (Map 12-A-3) (shows project)

Finding: The proposal directly implements this policy and is a high priority project in the Florence Transportation System Plan.

CHAPTER 16: SIUSLAW RIVER ESTUARINE RESOURCES

Policies

1. The *Lane County Coastal Resource Inventory* (Appendix 16) and amendments shall serve as the definitive document for inventory data related to Goal 16 Estuarine Resources, except as the inventory is updated through processes prescribed in this Comprehensive Plan and the Florence City Code. This Comprehensive Plan is consistent with CRMP policies related to the Siuslaw River Estuary within the Florence UGB.

Finding: This proposal to develop these two areas along the estuary in these locations with a Wayside and associated parking is consistent with the inventory information in the following applicable Lane County Coastal Resource Inventory Maps (included in the Appendix to this Application):

Beaches and Dunes/Lakes: Geologic Nature and Stability of Beaches and Dunes Map II-2: Shows an area of Younger Stabilized Dunes just north of the proposal areas; no impact to the dunes will occur with this proposal because these dunes are stabilized.

Beaches and Dunes/Lakes: Land Ownership/ Use/ Transportation/ History Map II-5: Shows areas of historic significance in the proposal area, specifically the Siuslaw Bridge. The proposal will have no impact on these historic sites, except to provide opportunities for observation and interpretation.

Beaches and Dunes/Lakes: Erosion, Accretion and Migration, Sediment Sources, Hydrologic Hazards Map II-3: Shows no eroding shorelines; shows possible standing water in winter as a hydrologic hazard. No development will occur in the area identified on this map at the Wayside. The Wayside West and the accessory parking for the project will be located adjacent to and within a portion of the existing area of the Siuslaw estuary, entirely under the bridge within ODOT right-of-way. When complete, this portion of the project will lie entirely above high mean tide (HMT) in order for the parking area to stay out of tidal inundation and for the stormwater filters to work properly.

Siuslaw Estuary and Shorelands Geologic Hazards of the Estuary Map III-2A: Geologic units shown are stabilized sand (younger) with compressible soils (no flooding);[3] earthquake response of geologic units equals settlement; potential shoreline hazards related to hydraulic alteration by land use is moderate. The types of activities proposed for this site, a Wayside with associated parking area, are well suited to these geologic conditions because alteration of the land will be minimal, no structures will be constructed, and no human occupation of the site for residence or business will take place.

Siuslaw Estuary and Shorelands Geologic Hazards of the Estuary Map III-2B: ODS – recurrent landslide potential in Dune Sand; very active bank erosion (3" to 2' per year). The types of activities proposed for these sites, a Wayside with associated parking area, are well suited to these geologic conditions because alteration of the land will be minimal, no structures will be constructed, and no human occupation of the site for residence or business will take place. Potential erosion is addressed in the Site Investigation Reports.

Siuslaw Estuary and Shorelands Man-made Geographic Features Map III-3: Fill and pilings are shown. The area proposed for the Wayside West has already been impacted by fill and pilings for the bridge.

Siuslaw Estuary and Shorelands Biological Areas Map III-4: No biological areas are shown in the proposal locations; tidal flats are shown just west of the bridge and the Wayside West.

Siuslaw Estuary and Shorelands Wetlands, Fisheries, and Shellfish Map III-5: Shows eel grass and high salt marsh in the location of the proposed Wayside. Impacts to these resources will be minimal because no alteration of the estuary will occur at the Wayside East and alteration of the estuary at the Wayside West and parking area will be minimal and will occur in areas already impacted with fill and pilings. Wetlands will be temporarily impacted and restored to their original condition.

[3] Compressible Soils: Some soils or geologic units are compressible because they are loose and un-compacted, which is common for recently deposited sediments. Some earth materials are compressible because they contain much organic matter, such as peat deposits. If a compressible condition is not recognized and mitigative steps are not taken, structures and utilities may be damaged by differential settlement. Coastal Resources Management Plan Inventory (CRMPI) page 0-7.

5. Actions which could potentially alter the estuarine ecosystem shall be preceded by a clear presentation of the impacts of the proposed alteration. Such activities include dredging, fill, in-water structures, riprap, log storage, application of pesticides and herbicides, water intake or withdrawal and effluent discharge, flow-lane disposal of dredged material, and other activities which could affect the estuary's physical processes or biological resources. The assessment shall include information on the following:

a. the type and extent of alterations expected;
b. the type of resource(s) affected;
c. the expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other allowed uses of the estuary; and
d. the methods which could be employed to avoid or minimize adverse impacts.

Finding: The proposal is consistent with these criteria because the Biological Assessment report and concurrence letter from the National Marine Fisheries Service (NMFS) attached to this application determined "no significant impact" is expected to result from the actions which could potentially alter the estuarine ecosystem: fill, retaining wall (seawall), enhancement and restoration of the existing riprap, and construction of the parking area, and show the following related to these actions:

a. The alterations that will occur at the Wayside East, including fill and wetland restoration, and Stormwater Demonstration Project will improve the hydrology and fish and wildlife habitat functions of the site because the actions will restore existing wetlands and use state-of-the-art natural systems to process stormwater runoff from the site; and the alterations that will occur at the Wayside West: fill, retaining wall (seawall), enhancement and restoration of the existing riprap, and construction of the parking area, will not permanently alter the estuary because this area has already been impacted and the temporary alteration will restore the area to its original condition and improve it.

b. As stated in the findings of compliance with Comprehensive Plan Chapter 5, coho salmon, the Southern Distinct Population Segment (SDPS) of green sturgeon, and the brown pelican are listed as threatened species under the Endangered Species Act. The Siuslaw River is designated critical habitat for coho salmon and is outside of the designated critical habitat for the SDPS of green sturgeon. This portion of the river is also designated as essential fish habitat (EFH) for Chinook salmon, (*O. tshawytscha*), coho salmon, and coastal pelagic species; and is in an area where environmental effects of the proposed action may affect EFH for those species. The other type of resource potentially affected would be Zostora (eelgrass) and wetlands.

c. As demonstrated in the Stormwater Management Plan and Landscaping Plans included in this application, the proposed alteration will have a positive effect on water quality and other physical char-

acteristics of the estuary because invasive, non-native plant species will be removed and replaced with native species in the areas that will not be paved; no living resources will be affected, and the proposal will have a positive effect on recreation and aesthetic use because it will improve the appearance of the site and provide opportunities for resting, picnicking, bird watching, and other recreation activities.

As stated in the findings above for compliance with Comprehensive Plan Chapter 5, the environmental report from NMFS concludes that the project is "not likely to adversely affect" (NLAA) coho salmon, critical habitat for coho, or the SDPS of green sturgeon. They also conclude that the project will not adversely affect essential fish habitat (EFH) designated for Chinook salmon or coastal pelagic species. In addition, the following findings are based on the May 18, 2006 letter, included and submitted for the record, to Linda Sarnoff, Community Development Director, from Wilbur Ternyik, regarding "Initial Siuslaw estuary Zostora locations."

- On May 16, 2006, Mr. Ternyik visited sites in the lower Siuslaw estuary where Zostora formerly existed. Added to this list was the Highway 101 bridge location. All sites visited were on the north side of the river.

- "There is zero Zostora under the Highway 101 bridge area. Out going tide velocity due to restricted passage presents it from growing at this location. The only significant Zostora stands are just below the Port of Siuslaw Boardwalk, Large areas where it formerly was located are now gone. Zostora comes and goes with a whole set of conditions that affects its survival."

d. The methods that will be employed to avoid or minimize adverse impacts include state-of-the art natural and mechanical stormwater treatment systems; enhancing the native vegetation on the site; wetland restoration; and locating the parking area in an area that has already been impacted with fill, dredging, and construction of bridge pilings.

6. This Plan recognizes the authorities of state, federal, and tribal programs to maintain water quality and minimize human-induced sedimentation in the estuary. Actions to implement the policies in this Chapter shall be coordinated with the appropriate state, federal, and tribal agencies responsible to implement these programs, as they apply within the Florence UGB: Siuslaw Soil and Water Conservation District; the non-point source discharge water quality program administered by the Oregon Department of Environmental Quality (DEQ); the Fill and Removal Permit Program administered by the Department of State Lands, the National Marine Fisheries Service, and the Army Corps of Engineers; and the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians.

Finding: This proposal is consistent with this criterion because the project is being coordinated with the Siuslaw Estuary Partnership Interdisciplinary

Team, a group of state, federal, local, and tribal agencies responsible to implement these programs, as they apply within the Florence UGB, including: Siuslaw Soil and Water Conservation District; the non-point source discharge water quality program administered by the Oregon Department of Environmental Quality (DEQ); the Fill and Removal Permit Program administered by the Department of State Lands, the National Marine Fisheries Service, and the Army Corps of Engineers; and the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians.

7. Restoration is appropriate in areas where activities have adversely affected some aspect of the estuarine system, and where it would contribute to a greater achievement of Statewide Planning Goal 16. Appropriate sites include areas of heavy erosion or sedimentation, degraded fish and wildlife habitat, anadromous fish spawning and rearing areas, abandoned diked estuarine marsh areas, and areas where water quality restricts the use of estuarine waters for fish and shellfish harvest and production, or for human recreation.

Finding: The proposal is consistent with this criterion because the restoration will occur to areas where activities have adversely affected some aspect of the estuarine system, and the proposal will contribute to a greater achievement of Statewide Planning Goal 16. The area under the bridge is an area of heavy erosion, degraded fish and wildlife habitat, and areas where water quality restricts the use of estuarine waters for fish and shellfish harvest and production, or for human recreation.

11. Removal and fill activities shall, where possible, avoid impacts to archaeological resources. Unavoidable impacts to tribal archaeological resources shall be mitigated in consultation with the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians. Mitigation may include data recovery (archaeological excavation), capping, or other appropriate methods of preserving the archaeological value of the site.

Finding: The proposal is consistent with this criterion because the archeology report shows that there will be no impact to archaeological resources.

12. When dredge or fill activities are permitted in intertidal or tidal marsh areas, their effect shall be mitigated by creation, restoration or enhancement of another area to ensure that the integrity of the estuarine ecosystem is maintained. This Comprehensive Plan shall designate specific sites for mitigation which generally correspond to the types and quantity of intertidal area proposed for dredging or filling, or make findings demonstrating that it is not possible to do so. These mitigation sites shall be protected through application of the Dredged Materials/Mitigation Sites Overlay District in Florence City Code, inside city limits, and in Lane Code, outside city limits. Mitigation activities may include the use of mitigation banks, consistent with relevant policies in this Plan and the Florence City Code.

Finding: The proposal is consistent with this criterion because the fill activities will not have a negative impact on intertidal or tidal marsh areas.

13. In addition to the goals, policies, and recommendations in this Chapter, provisions in Chapter 7, Development Hazards and Constraints, and Florence City Code Title 10, Chapter 7: Special Development Standards shall also apply as they relate to river cutbanks and erosion along the estuary.

Finding: The proposal is consistent with this criterion because the provisions in Chapter 7, Development Hazards and Constraints, and Florence City Code Title 10, Chapter 7: Special Development Standards are also addressed in these findings as they relate to erosion along the estuary.

14. The Management Units (MUs) Natural Estuary, Conservation Estuary, and Development Estuary, as described in this Chapter of the Comprehensive Plan, shall apply to the estuary within the Florence UGB as shown in "Map 17-1: Estuary and Coastal Shoreland Management Units in the Florence UGB."

Implementation requirements in Lane Code Chapter 10 Zoning Districts shall apply to these MUs within the Florence UGB, outside city limits; and Florence City Code Title 10, Chapter 19, shall apply within Florence city limits.

Finding: The proposal is consistent with this criterion because these findings include findings of consistency with the Development Management Unit (MU) as shown in "Map 17-1: Estuary and Coastal Shoreland Management Units in the Florence UGB" and Development Estuary Zoning District in Florence City Code Title 10, Chapter 19.

15. The general priorities (from highest to lowest) for management and use of the estuarine resources, as implemented through the Management Unit designation and permissible use requirements shall be:

a. Uses which maintain the integrity of the estuarine ecosystem
b. Water-dependent uses requiring estuarine location, as consistent with the Shallow Draft Development Estuary classification
c. Water-related uses which do not degrade or reduce the natural estuarine resources and values
d. Non-dependent, nonrelated uses which do not alter, reduce, or degrade estuarine resources and values.

Finding: The proposal is consistent with these criteria because the proposal is for uses which maintain the integrity of the estuarine ecosystem, i.e., natural and mechanical stormwater treatment facilities, wetland restoration, and removal of non-native, invasive species, Water-dependent uses requiring estuarine location, as consistent with the Shallow Draft Development Estuary classification, and Water-related uses which do not degrade or reduce the natural estuarine resources and values, as demonstrated in the Site Investigation Reports and Environmental Studies submitted with this application.

18. In <u>Development Estuary Management Units</u>, the following additional policies shall apply:

c. Permitted uses or activities in Development Estuary areas <u>outside of Areas Managed for Water-dependent Activities</u>, shall be limited to the following, provided the proposed use must not be detrimental to natural characteristics or values in the adjacent estuary, and subject to the specific criteria below, and the applicable requirements in f and either d or e (if dredging or fill is required, the requirements in d apply; if the use will otherwise alter the estuary, the requirements in e apply):

1) Dredge or fill, as needed for navigation or to support uses specifically allowed in this Comprehensive Plan policy

2) Flood and erosion control structures such as jetties, bulkheads, seawalls, and groin construction, may be installed and maintained, and riprap may be installed and expanded; provided all such uses are needed to protect existing uses or uses specifically allowed in this Comprehensive Plan policy

3) Navigation and water-dependent commercial enterprises and activities, including docks and piers to support an existing use or a use specifically allowed in this Comprehensive Plan policy.

8) Temporary alterations, subject to the following additional criteria: the alteration shall support a use expressly allowed in this MU in this Comprehensive Plan as defined in the Definitions in the Introduction to this Comprehensive Plan; it shall be for a specified short period of time, not to exceed three years; and the area and affected resources shall be restored to their original condition.

9) Short-term fills for temporary alterations provided the estuarine areas impacted shall be restored following removal of the fill.

10) Water-related uses; non-water-dependent uses, non-water-related uses not requiring dredge or fill; and activities identified in Natural and Conservation MUs may also be allowed where consistent with the purposes of this MU and adjacent shorelands designated Water Dependent (or designated for waterfront redevelopment). In designating areas for these uses, local governments shall consider the potential for using upland sites to reduce or limit the commitment of the estuarine surface area for surface uses.

Finding: The proposal is consistent with these criteria because:

- the request is for approval of a Conditional Use permit for the following uses: Water-dependent and Water-related Uses; fill;, temporary alteration; short-term fill for temporary alteration; retaining wall (seawall); and enhancement and restoration of the existing riprap;
- the application and findings demonstrate compliance with the criteria;
- the temporary alterations that support these uses will be for less

than one year;

- the area and affected resources will be restored to their original condition or better than the original condition;
- no upland sites are available that can meet these criteria and serve the specific objectives of this Siuslaw Interpretive Wayside and Stormwater Demonstration Project, i.e., there are no alternative upland sites available that can provide the necessary visual access to the estuary and the bridge and for stormwater demonstration and education and observation with minimal environmental impacts or the improved environmental conditions that will result from this proposal, as demonstrated in the attached Biological Assessment and letter from NMFS.

d. Dredging projects, other than maintenance dredging as permitted in b, above, and any project which requires fill in the estuary, shall be allowed only if the project or activity complies with all of the following criteria:

1) The dredging or fill is expressly permitted in sections b or c, above;
2) A substantial public benefit is demonstrated and the activity does not unreasonably interfere with public trust rights;
3) No alternative upland locations are feasible;
4) Adverse impacts on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary allowed in b and c, above are minimized;
5) Land use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions. Where shown to be necessary, water and erosion control structures, such as riprap, jetties, bulkheads, seawalls, and similar protective structures; and fill, whether located in the waterways or on shorelands above the ordinary high water mark, shall be designed to minimize adverse impacts on water currents, erosion, and accretion patterns.
6) Dredge or fill activities, as otherwise approved, must be mitigated, if found to be subject to the mitigation requirement in state law, by creation, restoration or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary such as its natural biological productivity, habitats and species diversity, unique features and water quality.
7) All federal and state permit requirements, including mitigation requirements, are met as a condition of approval.

Finding: The proposal is consistent with these criteria because the fill in the estuary for Wayside complies with all of the above criteria, as follows:

- the fill is expressly permitted in section c, above;

- the Wayside provides a substantial public benefit for social, economic, recreation, education, and observation, as reflected in other findings in this application;
- the activity does not interfere with public trust rights;
- no alternative upland locations are feasible, as follows.
  - The uses are Water-dependent activities that require an estuarine location in order to achieve their purpose and Water-related activities which, by their nature, cannot locate on an upland site and still achieve their objectives. An “Interpretive Wayside” that interprets the estuary and the understory and span of the bridge, and a stormwater demonstration project that discharges directly to the estuary, must locate close enough to allow for the observation required for this activity to take place.
  - There are no alternative upland locations available that could achieve these objectives while minimizing environmental impacts and improving environmental conditions, as will result from this proposal.
  - The project involves wetland restoration and a Stormwater Demonstration Project that will employ state-of-the-art natural on-site treatment techniques designed to improve water quality and fish and wildlife habitat.
  - the area under the bridge is already impacted with fill, dredging, pilings, and extensive non-native vegetation and blockage of light from the bridge above; and
  - the site was purchased by the City specifically for this purpose, consistent with Comprehensive Plan policies which identify the location of the “Wayside and parking area” adjacent to the estuary.
- adverse impacts on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary allowed in b and c, above are minimized and in fact these conditions are significantly improved by the proposal because the proposed uses enhance the existing undeveloped site and these actions will improve water quality in the wetlands and in the estuary;
- the fill at Wayside East and the seawall, fill, and riprap enhancement in Wayside West are necessary in order to ensure a stable platform for the water-dependent and water-related uses, and, as shown in the attached Site Investigation Reports and Environmental Impact Studies, they will be designed to minimize adverse impacts on water currents, erosion, and accretion patterns;
- fill activities, as otherwise approved, will be mitigated, if found to be subject to the mitigation requirement in state law, by creation, restoration or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary such as its natural biological productivity, habitats and species diversity, unique features and water quality;
- all federal and state permit requirements, including mitigation requirements, will be met as a condition of approval.

Estuary Management Units (MU)

Consistent with Goal 16 requirements, the designation of the Siuslaw River as a Shallow Draft Development Estuary, and Management Unit designa-

tions in the *Lane County Coastal Resources Management Plan,* estuarine areas are designated in this Plan as Natural Estuary, Conservation Estuary, or Development Estuary Management Units. Estuary Zoning Districts are applied to portions of the estuary within the Florence UGB as depicted on "Map 17-1: Estuary and Coastal Shorelands Management Units in the Florence UGB" in Chapter 17 of this Comprehensive Plan. Within city limits, estuary zoning districts are depicted on the City of Florence Zoning Map.

<u>Development Estuary Management Unit (MU) Designation</u>

The Development Estuary Management Unit provides for navigational, public, commercial and industrial water-dependent needs. The dredged navigation channel and the jetties are designated Development Estuary MU essentially responding to the existing situation. The primary purpose of the Development Estuary MU (DE) is to provide for navigational needs and public, commercial and industrial water-dependent uses which require an estuarine location. Uses which are not water dependent which do not damage the overall integrity of estuarine resources and values should be considered, provided they do not conflict with the primary purpose of the MU.

Historical development activities have produced adverse effects on the Siuslaw Estuary. Sedimentation resulting from past logging practices has contributed to sedimentation of the dredge channel and necessitated larger amounts of dredging; and contributed to the turbidity of the water. Bank and streambed erosion can result when flow is constricted through the emplacement of bridge supports. In addition, industrial or residential development can cause further chemical and biological changes in the estuary.

The Development Estuary MU applies within the Florence UGB to Management Units A, E, F, and R on Map 17-1. (See Appendix)

<u>Management Unit F</u> is east and west of the Highway 101 Bridge.

Rationale is:

a. Area includes Bay Bridge Marina and Port of Siuslaw Holiday Marina;
b. Shorelands are developed in urban uses;
c. In 1978, this Management Unit contained no significant biological areas as listed in the Lane County Coastal Resources Inventory (pages III, 58-63).

The following subunits have been designated:

<u>Management Unit F.2</u> (Old Town and Port of Siuslaw), from the eastern boundary of Unit #1 to the Munsel Creek outlet. The channel and turning basin follow this shoreline for most of its length. Development in this area includes the Highway 101 Bridge, permits for utility cable crossings, the city dock at the end of Laurel Street, piers, turning basin, Port of Siuslaw moorage facilities and dock, a boat ramp, marina and a spoils stockpiling site. The substrate is primarily sand in the main part of the river and mixed sand and mud in the tideflat area. No significant areas of wetlands occur in the area although a small amount of salt marsh is found near the bridge. The channel

follows the shoreline for most of this MU and is considered appropriate for development. Sediment in this area has consistently been tested "clean" and suitable for in-water disposal. Subject to the approval of federal and state agencies, maintenance dredging is appropriate in this MU to maintain the existing navigation channel and marina but maintenance dredging is not appropriate outside these areas in this MU or in the tide flats.

Finding: The proposal is consistent with this Development Estuary Management Unit designation, as follows:

- The proposed uses provide for public water-dependent needs (stormwater best management practices and demonstration) which require an estuarine location and for water-related uses (observation, passive recreation, education) which do not damage the overall integrity of estuarine resources and values, as demonstrated in the enclosed environmental impact reports, and do not conflict with the primary purpose of the MU.
- The proposal is consistent with MU F.2 because the proposal site is appropriate for development, and the proposed use of the site will have minimal impacts compared to other types of development such as the construction of buildings on the site.
- The proposal will not have a negative impact on wetlands

CHAPTER 17: COASTAL SHORELANDS: OCEAN, ESTUARY, AND LAKE SHORELANDS

Policies

5. The management of Coastal Shorelands shall be compatible with the characteristics of the adjacent coastal waters. The policies in this Chapter are in addition to the policies in Chapter 16, Siuslaw River Estuary; and where conflicts exist, the policies and provisions of Chapter 16 shall prevail.

Finding: The proposal is consistent with this criterion because these findings show consistency with the policies in Chapter 16, Siuslaw River Estuary.

6. Land use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions. Where shown to be necessary, water and erosion control structures, such as riprap, jetties, bulkheads, seawalls, and similar protective structures; and fill, whether located in the waterways or on shorelands above ordinary high water mark, shall be designed to minimize adverse impacts on water currents, erosion, and accretion patterns.

Finding: The proposal is consistent with this criterion because the seawall, fill and riprap enhancements are shown in this proposal to be necessary and, as shown in the attached Biological Assessment and letter from NMFS, they will be designed to minimize adverse impacts on water currents, erosion, and accretion patterns.

7. The City, together with Lane County, state, tribal, and federal agencies, shall, within the limits of their authorities, maintain the diverse environmental, economic, cultural, and social values of Coastal Shorelands and water quality in coastal waters. Within those limits, they shall also minimize human-induced sedimentation in estuaries, near shore ocean waters, and coastal lakes.

Finding: The proposal is consistent with this criterion because the proposed education uses maintain and enhance the diverse environmental, economic, cultural, and social values of these shorelands and the Stormwater Demonstration project and facilities will enhance water quality in the estuary and minimize human-induced sedimentation in the estuary.

8. This Plan, implementing actions, and permit reviews shall include consideration of the strong relationships between Coastal Shorelands and traditional tribal land use patterns which have been heavily dependent on the resources of coastal and estuarine waters, and shall conserve archaeological resources. Actions shall avoid, where possible, impacts to archaeological resources. Unavoidable impacts to tribal archaeological resources shall be mitigated in consultation with the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians. Mitigation may include data recovery (archaeological excavation), capping, or other appropriate methods of preserving the archaeological value of the site.

Finding: The proposal is consistent with this criterion because it will have no impact on archeological resources, as shown in the attached Archeological Reports and in the following findings.

- SHPO concurred with "a finding of no historic properties affected (Archeology) for the project" in the memorandum and transmittal, included in this application and submitted for the record, from Cindy Orendorff, Geo-Environmental Section, State Historic Preservation Office (SHPO) to Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians and others, Request for Concurrence Finding of No Historic Properties Affected (Archaeology) Siuslaw River Bridge Interpretive Waysides (Florence) Project Lane County, Oregon, Key Number 13228, Federal Aid Number S009(190)PE, dated July 13, 2009.

- **Wayside East:** The archeological study for the Wayside East concluded that "no further archaeological investigation is recommended prior to construction;" and, if any cultural materials or deposits are discovered during construction, state law requires suspension of work in the area and consultation with the State Historic Preservation Office (SHPO). This finding is based on the following excerpts from the HRA Letter Report 09-6: Archaeological Discovery Probing for the Siuslaw River Bridge Interpretive Wayside in Florence, Lane County, Oregon, by Kendra Carlisle, M.A., RPA and Linda Hart, M.A. Heritage Research Associates, Inc. to Scott E. Olson, P.E. Branch Engineering, Inc. dated March 5, 2009, included in this application and submitted for the record:

"Shovel testing in the area of the proposed wayside yielded a mixture of modern and historical material that was largely unidentifiable due to the fragmentary or extremely corroded condition of the recovered items. Only a few temporally diagnostic historical artifacts were found, and these were in disturbed contexts. Overall, the matrix observed in the probes appeared to be disturbed and/or fill. For these reasons, no further archaeological investigation is recommended prior to construction."

"If ground disturbance during construction exposes buried cultural materials or deposits that were not previously detected, Oregon State laws (ORS 97.740 to 97.760, 358.905 to 358.955, and 390.235), as well as any federal laws and regulations that may be applicable, require that work in the vicinity of any such discoveries be suspended. The State Historic Preservation Office (SHPO), appropriate tribes, and involved agencies should be notified immediately, and a qualified archaeologist should be contacted to evaluate the find and recommend subsequent courses of action in consultation with the SHPO and the appropriate tribes."

10. Existing visual and physical access points in the UGB shall be retained (see Table 17.1). The City, in coordination with the Parks and Recreation Division, shall develop and implement a program to provide increased public access to Coastal Shorelands. Existing public ownerships, rights of way, and similar public easements in Coastal Shorelands which provide access to or along coastal water shall be retained or replaced if sold, exchanged or transferred. Rights of way may be vacated to permit redevelopment of shoreland areas provided public access across the affected site is retained.

Finding: The proposal is consistent with this criterion because the Wayside will retain and enhance existing visual and physical access to the estuary.

11. Coastal Shorelands in the Florence UGB shall be all lands contiguous with the ocean, the Siuslaw Estuary, and four lake areas: Munsel Lake, Heceta Junction Lake, South Heceta Junction Seasonal lakes, and North Jetty Lake. The following Management Unit designations, as described in this Chapter of the Comprehensive Plan, shall apply to Shorelands within the Florence UGB: Shoreland Dredged Material Disposal Sites, Natural Resources Conservation, Mixed Development, Residential Development, and Prime Wildlife Area. Application of these MUs to specific areas is shown on "Map 17-1: Estuary and Coastal Shoreland Management Units in the Florence UGB," in this chapter of this Comprehensive Plan.

Implementation requirements in Lane Code Chapter 10 Overlay Zoning Districts shall apply to these MUs within the Florence UGB, outside city limits, and Florence City Code Title 10, Chapter 19, shall apply within Florence city limits.

Finding: The proposal is consistent with this criterion because, as stated in the findings below, the proposal meets the criteria for Mixed Develop-

ment Management Unit and complies with the requirements in Florence City Code Title 10, Chapter 19.

12. General priorities for the overall use of Coastal Shorelands (from highest to lowest) shall be to:

1. Promote uses which maintain the integrity of estuaries and coastal waters;
2. Provide for water-dependent uses;
3. Provide for water-related uses;
4. Provide for nondependent, nonrelated uses which retain flexibility of future use and do not prematurely or inalterably commit shorelands to more intensive uses;
5. Provide for development, including nondependent nonrelated uses, in urban areas compatible with existing or committed uses;
6. Permit nondependent, nonrelated uses which cause a permanent or long-term change in the features of coastal shorelands only upon a demonstration of public need.

Finding: The proposal is consistent with this criterion because all of the proposed uses will maintain and enhance the integrity of the estuary and will provide for water-dependent and water-related uses.

15. In <u>Mixed Development Management Units</u>, the following additional policies shall apply:

a. For Shorelands in the Mixed Development MU within the Florence UGB, implementation requirements in Lane Code Chapter 10 Overlay Zoning Districts shall apply outside city limits, and the Mixed Development Overlay Zoning District in Florence City Code Title 10 Chapter 19 shall apply inside city limits.

b. Uses shall respect the priorities set out in the General Priority statement (Policy 12).

c. Native riparian vegetation should be maintained or encouraged to provide erosion control, bank stabilization, aesthetic quality and to maintain water quality and temperature, except where maintenance of vegetation would preclude use of the site for a water-dependent use and removal will not be detrimental to erosion control, bank stabilization or water quality.

Finding: The proposal is consistent with these criteria because, as stated in the findings in this document, the proposal is consistent with the implementation requirements in Florence City Code Title 10 Chapter 19 for Mixed Development Overlay Zone; the uses respect the priorities in Policy 12; and native riparian vegetation will be maintained and enhanced wherever it is present at the time of the development.

<u>Mixed Development Management Unit Designation</u>

This designation recognizes the value of commercial and industrial activities to the area. Existing mixed uses are located in this MU

where appropriate, including existing residential uses in close proximity to commercial or industrial uses.

The very limited nature of available appropriate land for any public, commercial, or industrial activity of a water-dependent nature places a great burden on the governing body to responsibly allocate any available lands for these uses. The long-term economic health of the area should dominate short-term personal gain.

An example of a mixed development area is the Waterfront/Marine District in Old Town, adopted as part of the Coastal Resources Management Plan in 1991. During this same time period and into the 1990s, there was extensive development of shorelands within Florence, some of which have developed severe bank erosion problems including potential for the loss of dwellings. This designation is implemented by the Mixed Development Overlay District in Florence City Code Chapter 19, inside city limits.

The Mixed Development Management Unit within the Florence UGB applies to Management Units #2 and #4 on Map 17-1.

<u>Management Unit #4</u> is the developed shoreline of Old Town Florence and the Port from Kingwood Street to the North Fork tideflats, including the Highway 101 Bridge, the Port of Siuslaw Marina, and Dredge Spoils Site #19.

Rationale is:
a. Existing urban residential and commercial development within the City of Florence;
b. Existing marina development;
c. Existing water-dependent, water-related uses;
d. Dredge spoils site.

The following sub-units have been designated by the City:

> **<u>Management Unit 4.1 (Old Town)</u>: This unit is part of the historic "Old Town" waterfront area. It extends from Kingwood Street to Nopal Street and includes the area south of Bay Street. Existing ownership and uses are the City's mini-park at the end of Laurel Street and the pump station at Maple Street.**
>
> **Riprap has been placed along most of this area to halt erosion. This area contains the Kyle Building which received Bicentennial funds for restoration. There are additional buildings and sites in this area which date back to the early beginnings of the city. The old ferry slip was located at the site of the mini-park. The Old Mapleton Railroad Station has been relocated to Bay Street and restored. Water-dependent and water-related uses and the types of uses allowed in the base zone are appropriate for this MU. Maintaining the existing bay front character should be recognized in development. Public, pedestrian and visual access should be provided to the extent possible when development takes place. Due to the proximity of known archaeological sites, there is a relatively high probabil-**

ity that there are currently unidentified archaeological sites in this Management Unit.

Findings: The proposal is consistent with this Management Unit designation because:

1. the proposed uses are water-dependent and water-related activities;
2. the existing bay front character will be recognized in the development because no buildings will be constructed;
3. the development will provide visual access and access for the public and pedestrians;
4. the use of the site for water-dependent and water-related uses responsibly allocates these available lands for these uses, benefiting the long-term economic health of the area;
5. the proposed uses support the rationale for the management unit designation #4 for existing water-dependent and water-related uses;
6. the uses support, and provide observation and interpretive signage for, the historic “Old Town” waterfront area;
7. the proposal for a seawall will and riprap will enhance the riprap that has been placed along most of this area to halt erosion;
8. water-dependent and water-related uses and the types of uses allowed in the base zone are proposed for this MU;
9. the proposal maintains the existing bay front character;
10. the proposal provides public, pedestrian and visual access to the estuary and the bridge; and
11. the Archeological Report identifies no significant archaeological resources will be impacted by the proposal.

E. Findings of Consistency with Florence City Code, Title 10

CHAPTER 1: ZONING ADMINISTRATION

FCC 10-1-1-4: APPLICATION

B. Except when this Code provides to the contrary, an application or petition regulated by Titles 10 and 11 of this Code:

2. Shall identify the public facilities and access which may be needed to support the development, including but not limited to utilities and transportation infrastructure, and how they will be financed.

3. Shall identify off-site conditions including property lines, utility locations and sizes, existing and future streets, land uses, significant grade changes and natural features such as streams, wetlands and sand dunes for an area not less than three hundred (300) feet from the proposed application site that is one (1) acre or larger and within 100 feet from the proposed application site that is less than one (1) acre in size. (Amd. By Ord. No. 4, Series 2011)

Finding: The proposed land use applications are consistent with these criteria because they identify the public facilities and access which may be needed to support the development, including but not limited to utilities and transportation infrastructure, and how they will be financed; off-site conditions including property lines, utility locations and sizes, existing and future streets, land uses, significant grade changes and natural features such as wetlands for an area not less than 100 feet from the proposed application site which is less than one (1) acre in size.

FCC 10-1-4: DEFINITIONS

Finding: The proposed uses are consistent with the following definitions for Fill, Temporary Estuary Alteration, Water-dependent Use, Water-related Use, Basic Utilities, and Community Services. The use for the parking spaces are "accessory" as defined in findings of consistency with FCC 10-3 and are not "parking facilities" as defined in 10-1-4, below.

FILL. For the purposes of this Code and the Comprehensive Plan, the definition of fill shall be the definition used in the Statewide Planning Goals: The placement by man of sand, sediment, or other material, usually in submerged lands or wetlands, to create new uplands or raise the elevation of land. [Note that the Army Corps of Engineers' (ACOE) and the Department of State Lands' (DSL) definitions are different from this Statewide Planning Goals definition and the definitions of this federal and other state agency have been interpreted to include pilings and riprap in the estuary.]

Finding: The proposed fill in Wayside East and West is consistent with this definition because it will place sand, sediment and other material in submerged lands to raise the elevation of land.

TEMPORARY ESTUARY ALTERATION. Dredging, filling, or another estuarine alteration occurring over a specified short period of time which is needed to facilitate a use allowed by the Florence Comprehensive Plan. Temporary alterations may not be for more than three years and the affected area must be restored to its previous condition. Temporary alterations include: (1) alterations necessary for federally authorized navigation projects (e.g., access to dredged material disposal sites by barge or pipeline and staging areas or dredging for jetting maintenance), (2) alterations to establish mitigation sites, alterations for bridge construction or repair and for drilling or other exploratory operations, and (3) minor structures (such as blinds) necessary for research and educational observation.

Finding: There is no dredging proposed with this project. The proposed filling of the estuary in this proposal fits this definition of a Temporary Estuary Alteration because the filling, or another estuarine alteration will occur over one-year, a specified short period of time which is needed to facilitate uses specifically allowed and required by the Florence Comprehensive Plan. The temporary alterations will be for less than three years and the affected area will be restored to better than its previous condition. The temporary alterations are for observation areas, minor structures necessary for research and educational observation.

WATER-DEPENDENT USE. A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production,

or source of water, where:

- **"Access" means physical contact with or use of the water;**
- **"Requires" means the use either by its intrinsic nature (e.g., fishing navigation, boat moorage) or at the current level of technology cannot exist without water access;**
- **"Water-borne transportation" means use of water access:**
  - **(1) Which are themselves transportation (e.g., navigation);**
  - **(2) Which require the receipt of shipment of goods by water; or**
  - **(3) Which are necessary to support water-borne transportation (e.g., moorage fueling, servicing of watercraft, ships boats, etc. terminal and transfer facilities;**
- **"Recreation" means water access for fishing, swimming, boating, etc. Recreation uses are water dependent only if use of the water is an integral part of the activity.**
- **"Energy production" means uses which need quantities of water to produce energy directly (e.g. hydroelectric facilities, ocean thermal energy conversion);**
- **"Source of water" means facilities for the appropriation of quantities of water for cooling, processing or other integral functions.**

Typical examples of "water dependent uses" include the following:

(1) "Industrial" - e.g., manufacturing to include boat building and repair; water-borne transportation, terminals, and support; energy production which needs quantities of water to produce energy directly; water intake structures for facilities needing quantities of water for cooling, processing, or more integral functions.
(2) "Commercial," e.g., commercial fishing marinas and support; fish processing and sales; boat sales, rentals, and supplies.
(3) "Recreational," e.g., recreational marinas, boat ramps and support.
(4) Aquaculture.
(5) Certain scientific and educational activities which, by their nature, require access to coastal waters - estuarine research activities and equipment mooring and support.

Examples of uses that are not "water dependent uses" include restaurants, hotels, motels, bed and breakfasts, residences, parking lots not associated with water dependent uses; and boardwalks.

Finding: The proposed uses are consistent with this definition of "Water-dependent Use," as demonstrated in the finding of consistency with this definition in the Comprehensive Plan in the section above.

WATER-RELATED. Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

Finding: The proposed uses are consistent with this definition of “Water-related Use,” as demonstrated in the finding of consistency with this definition in the Comprehensive Plan in the section above.

FCC 10-1-5: LAND USE CATEGORY DEFINITIONS:

The following are land uses and activities grouped into use categories on the basis of common functional, product, or physical characteristics and defined as follows.

COMMERCIAL USE CATEGORIES

Parking Facility: Parking facilities provide parking that is not accessory to a specific use. A fee may or may not be charged. A facility may be a surface parking lot or structured parking garage. A facility that provides both accessory parking for a specific use and regular fee parking for people not connected to the use is also classified as a Parking facility.

Finding: The parking area in this proposal is not a “parking facility” as that term is defined in FCC 10-1-5, above, because the parking area is accessory to the proposed Wayside and will not provide “regular fee parking” for people not connected to the use.

INSTITUTIONAL AND CIVIC USE CATEGORIES

Basic Utilities: Basic Utilities are infrastructure services that need to be located in or near the area where the service is provided. Basic Utility uses generally do not have regular employees at the site. Services may be public or privately provided. Some examples are electrical substations, water storage facilities, sewer pump stations and bus stops.

Finding: The proposed Stormwater Demonstration Project fits the definition of a Basic Utility because it provides an infrastructure service that needs to be located in and near the area where the service is provided; has no regular employees at the site, services are public provided.

Community Services: Community Services are uses of a public, nonprofit, or charitable nature generally providing a local service to people of the community. Generally, they provide the service on the site or have employees at the site on a regular basis. The service is ongoing, not just for special events.

Community centers or facilities that have membership provisions but are open to the general public to join at any time, (for instance, any senior citizen could join a senior center). The use may provide mass shelter or short term housing where tenancy may be arranged for periods of less than one month when operated by a public or non-profit agency. The use may also provide special counseling, education, or training of a public, nonprofit or charitable nature. Some examples are libraries, museums and social service facilities.

Finding: The proposed use, Wayside, fits the definition of Community Services because the uses are of a public nature, providing a local service to people of the community, service at the site that is on-going and provides education of a public nature.

FCC TITLE 10 CHAPTER 2: GENERAL ZONING PROVISIONS

FCC 10-2-2: SIMILAR USES:

When the term "other uses similar to the above" is mentioned, it shall be deemed to mean other uses which, in the judgment of the Planning Commission, are similar to and not more objectionable to the general welfare than the uses listed in the same section.

Finding: The proposal includes uses which are “Similar Uses” to those specifically called out in the FCC. The definition of these uses is determined based on the provisions in FCC 10-2-2, above. Please see “Definitions of Proposed Uses” in Section I.4 of this Application for the reasoning behind the definitions of proposed uses.

10-2-12: USES AND ACTIVITIES PERMITTED IN ALL ZONES:

The following uses and activities are permitted in all zones without review unless specifically required otherwise:

A. Operation, maintenance, repair or preservation of public roads and highway facilities, including, but not limited to sewer, water line, electrical power, or telephone or television cable system, with the following exceptions:

4. Development or activities involving reconstruction or modernization in a location identified as environmentally or culturally sensitive, such as floodplains, estuarine areas, wetlands, and archeological sites.

Finding: A portion of the proposal is located in the public right-of-way of the Siuslaw Bridge. This portion of the project is not exempt from land use approvals because the location of this portion is within and adjacent to the Siuslaw estuary, as per FCC 10-2-12-A-4, above.

FCC TITLE 10 CHAPTER 3: OFF-STREET PARKING AND LOADING

FCC 10-3-1: PURPOSE:

The purpose of Chapter 3 is to provide basic and flexible standards for development of vehicle and bicycle parking. The design of parking areas is critically important to the economic viability of some commercial areas, pedestrian and driver safety, the efficient and safe operation of adjoining streets, and community image and livability. Because vehicle parking facilities occupy large amounts of land, they must be planned and designed carefully to use the land efficiently, minimize stormwater runoff, and maintain the visual character of the community.

This Chapter recognizes that each development has unique parking needs and provides a flexible approach for determining parking space requirements (i.e., "minimum" and "performance-based" standards). This Chapter also provides standards for bicycle parking because many people use bicycles for recreation, commuting, and general transportation. Children as well as adults need safe and adequate spaces to park their bicycles throughout the community.

Finding: The proposed parking spaces are consistent with the purpose statement in FCC 10-3-1 because:

- the proposed parking is consistent with the basic standards for development of vehicle and bicycle parking;
- the design of the proposed parking areas is critically important to the economic viability of the Downtown commercial area, pedestrian and driver safety, the efficient and safe operation of adjoining streets, and community image and livability;
- the spaces are planned and designed carefully to use the land efficiently, minimize stormwater runoff, and maintain the visual character of the community;
- the proposed parking area meets the unique parking needs of the Wayside for visual access to the estuary and the bridge as well as physical access to the Wayside and Stormwater Demonstration Project.

Additionally, the proposed approach to the parking reflects a flexible approach for determining parking space requirements, meeting both the minimum and performance based standards, as described below. Finally, the proposal meets standards for bicycle parking because many people use bicycles for recreation, commuting, and general transportation and children as well as adults need safe and adequate spaces to park their bicycles throughout the community.

FCC 10-3-2: GENERAL PROVISIONS:

A. The provision for and maintenance of off-street parking and loading spaces are continuing obligations of the property owners. No building or other permit shall be issued until plans are presented that show property that is and will remain available for exclusive use as off-street parking and loading space.

Finding: The proposed parking area under the bridge provides off-street parking for the Wayside, consistent with this criterion.

B. At the time of new construction or enlargement or change in use of an existing structure within any district in the City, off-street parking spaces shall be provided as outlined in this Chapter, unless requirements are otherwise established by special review or City Council action. Additional parking spaces shall meet current code.

Finding: The proposed parking area under the bridge provides off-street parking for the Wayside, and the parking spaces meet current code, as stated in the findings below, consistent with this criterion.

C. If parking space has been provided in connection with an existing use or is added to an existing use, the parking space shall not be eliminated if elimination would result in less space than is required by this Chapter.

Finding: The proposed parking area under the bridge provides off-street parking for the Wayside, and none of these spaces have already been provided in connection with an existing use, although the on-street parking in front of the Wayside West area will continue to serve existing uses in this portion of Old Town, consistent with this criterion.

D. Required parking spaces shall be available for the parking of passenger automobiles of residents, customers, patrons and employees, and shall not be used for storage of materials of any type.

Finding: The proposed parking spaces are consistent with these criteria because the spaces will be available for the parking of passenger automobiles of residents, customers, patrons and employees and will not be used for storage of materials of any type.

E. Ingress and egress for parking and loading shall not endanger or impede the flow of traffic.

Finding: The proposal is consistent with this criterion because ingress and egress for parking will not endanger or impede the flow of traffic, as demonstrated below.

In determining if the existing driveway is consistent with this section, a reference was made to AASHTO's Geometric Design of Highways and Streets (2004). According to the AASHTO publication the minimum recommended intersection sight distances in a 20 MPH speed zone for a passenger car to safely depart from the site driveway is 225 feet for exiting left turns when looking to the right, and 195 feet when looking to the left and for right turns. The existing driveway access to the proposed parking area meets the AASHTO intersection sight distance requirements with available sight distances that exceed the minimum criterion.

Below are pictures of the existing available sight distance from the driver's vantage point:

Looking left

Looking right

Furthermore, the proposed driveway will not create queuing conditions or hesitation on a state highway or safety hazards. The parking area design features internal maneuvering area meeting the parking design standards, allowing vehicles to maneuver on-site. Additionally a throat at the driveway approach to Bay Street is included to allow egress vehicles space to queue while waiting for gaps in traffic when departing the site and to allow ingress vehicles refuge from the traveled way.

F. The required off-street parking for nonresidential uses shall not be used for loading and unloading operations during regular business hours.

Finding: The proposed parking area is consistent with this criterion because the required off-street parking will not be used for loading and unloading operations.

G. Parking and Loading standards that are listed under specific zoning districts supersede the general requirements of this chapter.

Finding: The proposed parking area is consistent with this criterion because the proposal is consistent with this chapter as well as the standards listed under the specific zoning districts, as demonstrated in the findings of compliance with the applicable zoning districts, below.

H. Provisions of this Chapter shall not apply to any parking located in an organized parking district.

Finding: The proposed parking is not located in an organized parking district; thus, this criterion does not apply.

I. The provisions of this Chapter shall be in addition to the provisions for parking design and construction in FCC Title 9 Chapter 5 and, where there are conflicts, Title 9 Chapter 5 shall prevail.

Finding: The proposal is consistent with both the provisions of this Chapter and the provisions of FCC Title 9 Chapter 5, as demonstrated in the findings of consistency with FCC Title 9, Chapter 5, below.

FCC 10-3-3: MINIMUM STANDARDS BY USE:

The number of required off-street vehicle parking spaces shall be determined in accordance with the standards in Table 10-3-1, or alternatively, through a separate parking demand analysis prepared by the applicant and approved by the Design Review Board. Where a use is not specifically listed in this table, parking requirements are determined by finding that a use is similar to one of those listed in terms of parking needs, or by estimating parking needs individually using the demand analysis option described above. Parking that counts toward the minimum requirement is parking in garages, carports, parking lots, bays along driveways, and shared parking. Parking in driveways does not count toward required minimum parking.

Table 10-3-1, Minimum Required Parking By Use:

B. Institutions and Public Assembly Types:

Stadiums, grandstands, coliseums, auditoriums:	**1 space for each 4 persons of seating capacity, except that on-street parking in non- residential and theaters areas, within 1,000 feet of the main assembly area may be used toward fulfilling this requirement.**

Finding: The proposed parking spaces in this proposal are consistent with this criterion because the number of required off-street vehicle parking spaces has been determined in accordance with the standards in Table 10-3-1. The proposed use, a Wayside, is not specifically listed in Table 10-3-1. Thus, a “similar use” must be identified in order to determine the appropriate number of parking spaces. The Florence City Code defines “similar uses” as follows:

FCC 10-2-2: SIMILAR USES:

When the term "other uses similar to the above" is mentioned, it shall be deemed to mean other uses which, in the judgment of the Planning Commission, are similar to and not more objectionable to the general welfare than the uses listed in the same section.

Finding: This analysis finds that the Wayside has characteristics most similar to “stadiums, grandstands and coliseums” and the proposed uses are much less objectionable to the general welfare than stadiums, grandstands, or coliseums. These uses share the following characteristics with the Wayside:

a. the Wayside provides outdoor seating (i.e., benches and picnic tables) for observation; in this case, the estuary and the bridge (both above and below the bridge); stadiums and coliseums also provide outdoor seating for observation;

b. the Wayside does not involve an enclosed building for the use; similarly, stadiums and coliseums typically involve outdoor events that do not require an enclosed building;

c. users of the Wayside will stop and visit the site for a period of time throughout the day and night, sit, walk, and observe the surroundings; similarly, patrons of stadiums and coliseums also sit, walk and observe an event.

The following parking analysis is for eight (8) off-street parking spaces that provide the minimum requirement in parking for the Wayside and not in driveways.

Parking Space Requirement Analysis:

1 space for each 4 persons of seating capacity:

Wayside East: Four (4) picnic tables: Seating Capacity = 16
Five (5) benches: Seating Capacity = 10

Seating Capacity = 26

Wayside West: Three (3) benches: Seating Capacity = 6

Total Parking Space Requirement = 32/4=8

FCC 10-3-4: MINIMUM REQUIRED PARKING BY USE:

During the largest shift at peak season, fractional space requirements shall be counted as the next lower whole space (rounded down). Square footages will be taken from the gross floor area (measurements taken from exterior of building). Applicants may ask the Design Review Board a reduction for parking spaces as part of their land use application. The applicant will have to provide the burden of evidence to justify the reduction proposed. The Design Review Board and/or staff may require the information be prepared by a registered traffic engineer. Table 10-3-1 lists the minimum parking spaces required by use, with a minimum no less than two (2) spaces.

Finding: The proposal is consistent with these criteria because the eight (8) spaces proposed meet the minimum parking space requirements of no less than two spaces per use and no reduction for parking spaces is requested as part of this land use application.

FCC 10-3-5: VEHICLE PARKING - MINIMUM ACCESSIBLE PARKING:

A. Accessible parking shall be provided for all uses in accordance the standards in Table 10-3-2; parking spaces used to meet the standards in Table 10-3-2 shall be counted toward meeting off-street parking requirements in Table 10-3-1;

B. Such parking shall be located in close proximity to building entrances and shall be designed to permit occupants of vehicles to reach the entrance on an unobstructed path or walkway;

C. Accessible spaces shall be grouped in pairs where possible;

D. Where covered parking is provided, covered accessible spaces shall be provided in the same ratio as covered non-accessible spaces;

E. Required accessible parking spaces shall be identified with signs and pavement markings identifying them as reserved for persons with disabilities; signs shall be posted directly in front of the parking space at a height of no less than 42 inches and no more than 72 inches above pavement level. Van spaces shall be specifically identified as such.

Table 10-3-2 - Minimum Number of Accessible Parking Spaces Source: ADA Standards for Accessible Design 4.1.2(5)			
Total Number of Parking Spaces Provided (per lot)	**Total Minimum Number of Accessible Parking Spaces (with 60" access aisle, or 96" aisle for vans*)**	**Van Accessible Parking Spaces with min. 96" wide access aisle**	**Accessible Parking Spaces with min. 60" wide access aisle**
	Column A		
1 to 25	**1**	**1**	**0**

Finding: The proposal is consistent with these criteria because:

a. Two of the required parking spaces will be accessible: one with 60" access aisle and one with 96" aisle for vans;
b. Accessible parking will be located at the east end of the parking area, in closest proximity to the Wayside and will be designed to permit occupants of vehicles to reach the entrance on unobstructed paths, as shown in the conceptual plans;
c. Accessible spaces will be grouped in pairs, as shown;
d. No covered parking will be provided;
e. Required accessible parking spaces will be identified with signs and pavement markings identifying them as reserved for persons with disabilities; signs will be posted directly in front of the parking space at a height of no less than 42 inches and no more than 72 inches above pavement level. Van spaces will be specifically identified as such.

FCC 10-3-7: OFF-SITE PARKING: Except parking for residential uses, the vehicle parking spaces required by this Chapter may be located on another parcel of land, provided the parcel is within 500 feet of the use it serves and the City has approved the off-site parking through Design Review. The distance from the parking area to the use shall be measured from the nearest parking space to a building entrance, following a sidewalk or other pedestrian route. The right to use the off-site parking must be evidenced by a recorded deed or easement. The Design Review Board may grant approval for off-site parking only if affirmative findings can be made to the criteria listed in 10-3-7.

A. The location of the parking facility will not be detrimental to the safety and welfare of residents in the area; and,
B. Reasonably safe pedestrian access will be provided from the parking facility to the building or use requiring the parking; and,
C. The property owner of land for which a building or use requires off-site parking has recorded a covenant agreeing to require any occupant or tenant to maintain such parking facilities; and,
D. The applicant requesting off-site parking has furnished a copy of a deed showing ownership of the property or a recorded exclusive, perpetual easement granted by the property owner of the land for which the off-site parking is to be located, use of the off-site property for parking purposes in perpetuity.

Finding: The proposed parking area is consistent with these criteria because:

a. the vehicle parking spaces required by this Chapter will be located on the same parcel of land as the Wayside and these spaces will provide parking for the Wayside East which is located less than 500 feet from the parking area;
b. the City is requested, in this application, to approve the off-site parking through Design Review;
c. the distance from the parking area to the use, as shown in the Site Plans, is measured from the nearest parking space to the entrance to the Wayside, following a sidewalk;
d. the right to use the off-site parking will be evidenced by a recorded deed or easement;
e. the proposal meets the following criteria listed in 10-3-7 for Design Review Board approval for off-site parking, although, as presented in the finding for FCC 10-1-5, above, the parking area in this proposal is <u>not</u> a “parking facility” as that term is defined in FCC 10-1-5, because the parking area is accessory to the proposed Wayside and will not provide “regular fee parking” for people not connected to the use:

    A. The location of the parking area will not be detrimental to the safety and welfare of residents in the area because the parking will be located under the bridge in a well-observed and well-lit area of Old Town;
    B. The well-lit sidewalk will provide reasonably safe pedestrian access from the parking area to the Wayside and Overlook;
    C. The City, the property owner of land for which the Wayside requires off-site parking is party to an intergovernmental agreement requiring the City to maintain such parking facilities; and,
    D. The City, the applicant requesting off-site parking, has furnished a copy of an intergovernmental agreement with the State of Oregon demonstrating permission for the proposed use of the public right-of-way, which the off-site parking is to be located, for parking purposes.

FCC 10-3-8: PARKING AREA IMPROVEMENT STANDARDS

All public or private parking areas, loading areas and outdoor vehicle sales areas shall be improved according to the following: All required parking areas shall have a durable, dust free surfacing of asphaltic concrete, cement concrete , porous concrete, porous asphalt, permeable pavers such as turf, concrete, brick pavers or other materials approved by the City. Driveways aprons shall be paved for the first fifty feet (50’) from the street.

Finding: The proposal is consistent with these criteria because the parking area will have a durable, dust free surface of asphaltic concrete; and the entire driveway apron will be paved.

B. All parking areas except those required in conjunction with a single-family or duplex dwelling shall be graded so as not to drain storm water over public sidewalks. All drainage systems shall be connected to storm sewers where available. Parking lot surfacing shall not encroach upon a public right of way except where it abuts a concrete public sidewalk, or has been otherwise approved by the City.

Finding: The proposal is consistent with these criteria because the parking area will be graded away from the public sidewalk; and all drainage systems in the parking area will be connected to storm sewers.

C. Parking spaces shall be located or screened so that headlights do not shine onto adjacent residential uses.

Finding: The proposal is consistent with this criterion because the parking spaces will be located so that the headlights shine north and south, away from residential uses.

D. Except for parking areas required in conjunction with a single-family or duplex dwelling, all parking areas shall provide:

1. A curb of not less than six inches (6") in height near abutting streets and interior lot lines. This curb shall be placed to prevent a motor vehicle from encroaching on adjacent private property, public walkways or sidewalks or the minimum landscaped area required in paragraph D2 of this subsection.

Finding: The proposed parking area is consistent with these criteria because a six inch curb near the abutting street will be placed to prevent a motor vehicle from encroaching on adjacent private property, public walkways or sidewalks or the minimum landscaped area required in D2 below.

2. Except for places of ingress and egress, a five foot (5') landscaped area wherever it abuts street right-of-way. In areas of extensive pedestrian traffic or when design of an existing parking lot makes the requirements of this paragraph unfeasible, the Design Review Board may approve other landscaped areas on the property in lieu of the required five foot (5') landscaped area. See also FCC 10-34-3-6 and -7 for parking lot landscaping standards.

Finding: The proposal is consistent with this standard because the Design Review Board is requested to approve a less than five foot landscaped area where the Wayside abuts Bay Street and no landscaping because the entire parking area is within the public right of

way and is an area expected to have extensive pedestrian traffic and the design of the parking area makes this requirement unfeasible; and landscaping is provided elsewhere in these two portions of the site. See also Findings of Consistency with FCC 10-34-3-6 and -7 for parking lot landscaping standards.

E. No parking area shall extend into the public way except by agreement with the City.

Finding: The proposal is consistent with this standard, as the proposed parking area is entirely within the public right-of-way and the City is the applicant, negating the requirement for an agreement with the City.

G. Lighting: (Lighting should provide a safe level of illumination and be designed as not to become a nuisance to residential area or cause glare to drivers.) Except for single family and duplex dwellings, applicants shall submit a lighting plan which shows the location, type and projected amount of light at night. The plan shall also address the following policies for design review. The following policies also apply to the replacement of lighting fixtures within parking lots.

Finding: The proposal is consistent with this standard because the lighting plan submitted for approval shows that the lighting will provide a safe level of illumination and be designed as not to become a nuisance or cause glare to drivers; there are no adjacent residential areas; and the lighting plan shows the location, type and projected amount of light at night; and the lighting plan and the findings below address the following policies for design review:

1. Illumination: Parking areas shall have lighting to provide at least two (2) foot-candles of illumination at any point in the entire lot with a maximum of five (5) foot-candles over parking spaces and walkways. The Design Review Board may decrease the minimum if the applicant can provide documentation that the overall parking lot has adequate lighting. The Design Review Board may increase the maximum on a case-by-case basis, with no greater than 7 foot-candles measured directly under the light fixture.

Finding: The Wayside has one antique light pole located at the NE corner of the lot. This is the last antique light east of the bridge. Ten feet from that antique pole, there is a power pole with a cobra head on it. Antique light poles along Bay St. appear to be located about 80-100' apart when they are present. The adjacent eastern property has an antique light located on their eastern property line setback about 60-80' from the right-of-way, at an off-street entrance into the Old Town park. The Wayside location would appear to need no additional street lights, with or without the cobra.

On-site and towards the river, there may be the need for an additional light, as indicated by the eastern property's placement of a

light internally on their property. There is a cobra located on a power pole just east of the bridge on the south side of Bay Street. There is the possible need for another on the west side of the bridge 80' away or so.

The illumination fields for the cobras and antique lights are adequate lighting. The site plans show that the guy wires presently on the bridge site coming from the power pole mentioned above will be removed.

As shown on the lighting plan, the parking area will have lighting to provide at least two (0.2) foot-candles, which is an industry standard, of illumination at any point in the entire lot with a maximum of five (5) foot-candles over parking spaces and walkways.

2. Glare: Light fixtures shall be directed downward. Direct glare and reflection shall be fully shielded to prevent lighting spillover into any adjacent residential district or use.

Finding: the proposal is consistent with this criterion, as demonstrated in the attached lighting plan.

3. Height: Lighting Standards in parking lots in or adjacent to residential zones or residential uses shall not exceed twenty feet in height as measured from the adjacent grade to the top of the light fixture. Heights in other zoning districts shall not exceed 25 feet unless the Design Review Board adopts findings that the higher light fixtures are necessary to achieve proper illumination levels.

Finding: the proposal is consistent with this criterion, as all proposed antique light poles are less than 25 feet.

4. Times: Main lights shall be extinguished at closing of business with a minimum lighting remaining for security after hours.

Finding: this criterion is not relevant as there is no business associated with the application and the proposed parking area is open to the public after typical business hours.

5. Review Period. A thirty-day review period beginning with the first day in business using the new lighting system shall be required to evaluate and adjust illumination levels of parking lots in and adjacent to residential districts or other sensitive land uses. The City may ask for lighting to be adjusted in this time period based on public comments or staff inspections. (Section G amended by Ord 9, 2008)

H. Except for single-family and duplex dwellings, groups of more than two (2) parking spaces shall be so located and served by

a driveway that their use will require no backing movements or other maneuvering within a street right of way other than an alley.

Finding: this criterion is irrelevant to the application as the entire parking area is within the right-of-way; however, there are no backing movements into the street which meets the intent of the criterion.

J. Building permits are required for all parking lot construction or resurfacing.

Finding: This criterion is irrelevant to the application, as the parking area is within the right-of-way and therefore not under the jurisdiction of the building department; rather applicable permits will be obtained from Florence Public Works and/or the Oregon Department of Transportation.

FCC 10-3-9: PARKING STALL DESIGN AND MINIMUM DIMENSIONS:

All off-street parking spaces shall be improved to conform to City standards for surfacing, stormwater management, and striping and where provisions conflict, the provisions of FCC Title 9 Chapter 5 shall prevail. Standard parking spaces shall conform to minimum dimensions specified in the following standards and Figures 10-3(1) and Table 10-3-3:

A. Motor vehicle parking spaces shall measure nine (9) feet and six (6) inches wide by nineteen (19) feet long.
B. Each space shall have double line striping with two feet (2') wide on center.
C. The width of any striping line used in an approved parking area shall be a minimum of 4" wide.
D. All parallel motor vehicle parking spaces shall measure eight (8) feet six (6) inches by twenty-two (22) feet;
E. Parking area layout shall conform to the dimensions in Figure 10-3(1), and Table 10-3-3, below;
F. Parking areas shall conform to Americans With Disabilities Act (ADA) standards for parking spaces (dimensions, van accessible parking spaces, etc.). Parking structure vertical clearance, van accessible parking spaces, should refer to Federal ADA guidelines.

10-3-10: BICYCLE PARKING REQUIREMENTS:

All uses that are subject to Site Design Review shall provide bicycle parking, in conformance with the standards and subsections A-H, below.

A. Minimum Size Space: Bicycle parking shall be on a two (2) feet by six (6) feet minimum.

B. Minimum Required Bicycle Parking Spaces. Short term bicycle parking spaces shall be provided for all non-residential uses at a ratio of one bicycle space for every ten vehicle parking spaces. In calculating the number of required spaces, fractions shall be rounded up to the nearest whole number, with a minimum of two spaces.

E. Visibility and Security. Bicycle parking for customers and visitors of a use shall be visible from street sidewalks or building entrances, so that it provides sufficient security from theft and damage;

F. Lighting. For security, bicycle parking shall be at least as well lit as vehicle parking.

G. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

H. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards. If bicycle parking cannot be provided safely, the Design Review Board may waive the bicycle parking requirements.

Finding: The attached Parking and Lighting Plans demonstrate compliance with the criteria in FCC 10-3-9 and 10-3-10.

FCC 10-17A: OLD TOWN DISTRICT AREA A:

10-17A-1 PURPOSE FOR AREA A:

Old Town Area A is intended as the primary tourist destination, which provides for shopping, entertainment and water-related activities for visitors and residents of Florence.

10-17A-2 LAND USES FOR AREA A:

The following establishes permitted, conditional, and prohibited uses for the Old Town District Area A:

A. Permitted Uses:

Uses which are administratively determined to have an impact similar to or less than Permitted uses listed below:

- **Recreational facilities (facility must be outdoor, water-related, and non-motorized)**
- **Educational services (accessory only, not school)**
- **Basic utilities (water, sewage, electrical, and communication facilities - not staffed)**
- **Retail sales and service (Retail sales and service uses involve the sale, rental, and repair of new or used products, supplies, goods and foodstuffs to/for the general public. The retail category also includes personal services such as banking, real estate, and personal care activities. Note that restaurant, entertainment and recreation, lodging, and vehicle-related uses are otherwise listed in this section and are thus excluded from the general retail category.)**

Finding: The proposed uses are permitted uses in the Old Town District A because the use, a Wayside, provides recreational facilities (walking paths, picnic

tables and/or benches), educational services (interpretive signage, stormwater demonstration), basic utilities (stormwater demonstration); and the parking area is an accessory use to these primary uses. As stated under "retail sales," above, "vehicle-related uses are otherwise listed in this section..;" the parking area is a vehicle-related use which is accessory to the primary uses described herein.

10-17A-4 SITE AND DEVELOPMENT PROVISIONS FOR AREA A

D. Sidewalks: Public sidewalks shall be a minimum of eight feet (8') wide.

E. Parking and Loading Spaces: Non-residential parking spaces may be located on-street in front of the lot, and/or may be located in an interior parking lot within the block or in an off-site lot. Individual parking areas or lots will not be approved unless no other alternative exists. Parking may not be located between the building and the street.

Residential parking spaces may be specifically designated within any parking area. Individual parking areas or lots will not be approved unless no other alternative exists; such off-site parking assigned to specific residential buildings in Area A shall be located on the same block (to avoid crossing a street) and shall not be more than 500 feet from the residential building entrance.

Bike racks shall be located either in the interior parking lot or by an entrance. Bike racks may not be located in the required eight feet (8') minimum pedestrian walkway.

G. Signs: Signs shall be in accordance with Title 4, Chapter 7 of this Code. (Ord. 4, 2011)

H. Fences, Hedges, Walls and Landscaping: Landscaping shall be in accordance with FCC 10-34, except as modified by the following specific standards:

1. Landscaping: A minimum of ten percent (10%) landscaping is required. The calculation of the required minimum may include street trees installed and maintained by an applicant, planters and window boxes which are the property of the applicant/owner, as well as plantings within courtyard areas. All landscaping included within the ten percent (10%) calculation must be installed and maintained by the applicant or his/her successors.

2. Walls, Fences and Hedges: Interior parking lots may be separated from rear courtyards by walls, fences and/or hedges four feet (4') in height or less. Eating establishments may separate outdoor eating areas from parking areas and adjacent buildings or structures by a fence, wall or hedge not to exceed six feet (6') in height. Pedestrian walkways may be separated from abutting uses by plantings or fences which allow visual surveillance of the walkway and surrounding areas. Chain link fences are prohibited in Area A.

I. Lighting: Street lighting and lighting of interior parking lots and walkways shall conform to the following lighting standards:

1. Where there are antique street lights within the public right of way, new light fixtures shall match the antique streetlights. (See Figure 17.2)

2. In the areas where the antique street lights are not currently located, the light fixtures within the public right of way shall use the Central Lincoln Public Utility District's Ornamental streetlights. (See Figure 17.2)

3. Light fixtures shall conform to the lighting styles in the Downtown Architectural Guidelines.

4. Lighting shall be pedestrian scaled.

5. Light fixtures shall be placed to allow adequate illumination for safe pedestrian movement. Lighting plans shall show the illumination fields for each fixture.

6. Wiring for historic light fixtures shall be placed underground.

7. Other overhead wiring shall be placed underground, where possible.

Findings: The proposal is consistent with these criteria, as follows:

- The public sidewalk will exceed eight feet (8') in width at the east portion of the site, while the existing public sidewalk at the west portion of the site is five feet (5'). Widening of the sidewalk is proposed for the central 25 feet of the frontage where feasible and the remaining frontages include landscape treatments.
- Parking will be located in an interior parking lot within the block (on the site, connected by public right-of-way) and not located between the building and the street.
- Parking is not "off-site" because Wayside East and Wayside West are connected by and within right-of-way;
- Bike racks will be located in the interior parking lot and not in the required eight feet (8') minimum pedestrian walkway;
- Signs shall be in accordance with Title 4, Chapter 7 of the Code;
- Landscaping will be in accordance with FCC 10-34, except as modified by the following specific standards:

    - Landscaping: A minimum of ten percent (10%) landscaping is required. The calculation of the required minimum may include street trees installed and maintained by an applicant, planters and window boxes which are the property of the applicant/owner, as well as plantings within courtyard areas. All landscaping included within the ten percent (10%) calculation must be installed and maintained by the applicant or his/her successors.

- Pedestrian walkways may be separated from abutting uses by plantings or fences which allow visual surveillance of the walkway and surrounding areas. Chain link fences are prohibited in Area A.

- Lighting: Street lighting and lighting of interior parking lots and walkways shall conform to the following lighting standards:

  - Where there are antique street lights within the public right of way, new light fixtures shall match the antique streetlights. (See Figure 17.2)

  - In the areas where the antique street lights are not currently located, the light fixtures within the public right of way shall use the Central Lincoln Public Utility District's Ornamental streetlights. (See Figure 17.2)

  - Light fixtures shall conform to the lighting styles in the Downtown Architectural Guidelines.

  - Lighting shall be pedestrian scaled.

    - Light fixtures shall be placed to allow adequate illumination for safe pedestrian movement. Lighting plans shall show the illumination fields for each fixture.

      - Wiring for historic light fixtures shall be placed underground.

      - Other overhead wiring shall be placed underground, where possible.

J. Trash Enclosures: At least one trash receptacle shall be provided on site. Dumpsters or similar utilitarian trash receptacles shall be screened with a solid fence or wall not less than 5' in height. Trash receptacles for pedestrians shall have a consistent design in order to provide consistency in street furniture.

Finding: One waste receptacle that matches the style of other Old Town receptacles is located in front of both portions of the Wayside.

FCC 10-19-4: DEVELOPMENT ESTUARY

Findings: The findings presented in section D, Findings of Consistency with the Florence Realization 2020 Comprehensive Plan, Chapter 16, apply to the following Code criteria).

10-19-1: ESTUARY DISTRICT ADMINISTRATION

A. Applicability

1. The following three Estuary Zoning Districts apply to the Siuslaw River Estuary within the Florence city limits: Natural Estuary, Conservation Estuary, and Development Estuary.

These districts implement the requirements of Statewide Planning Goal 16 and policies in the Florence Comprehensive Plan

and corresponding "management units." In addition to findings of consistency with this Code, findings are required for consistency with the Florence Comprehensive Plan Chapter 16, Siuslaw Estuarine Resources.

2. Estuary Zoning Districts are applied to portions of the estuary within city limits as classified on the City of Florence Zoning Map.

10-19-4: DEVELOPMENT ESTUARY DISTRICT (DE):

A. Purpose and Extent: The primary purpose of the Development Estuary District (DE) is to provide for navigational needs and public, commercial and industrial water-dependent uses which require an estuarine location. Uses which are not water dependent which do not damage the overall integrity or estuarine resources and values should be considered, provided they do not conflict with the primary purpose of the District. The DE District is designed to apply to navigation channels, sub-tidal areas for in-water disposal of dredged material, major navigational appurtenances, deep-water areas adjacent to the shoreline and areas of minimal biological significance needed for uses requiring alteration of the estuary. These are as defined on the City Zoning Map as specified by this Title.

F. Conditional Uses: Outside of Areas Managed for Water Dependent Activities, the following uses and activities are allowed in the estuary with a Conditional Use Permit, subject to the applicable criteria. A Conditional Use Permit may be approved according to the procedures set forth in Chapter 4 of this Title upon affirmative findings that: the use or activity is consistent with the purposes of the DE District; it must not be detrimental to natural characteristics or values in the adjacent estuary; and it must comply with the specific criteria below, and the applicable criteria in I and either G or H (if dredging or fill is required, the requirements in G apply; if the use will otherwise alter the estuary, the requirements in H apply):

1. Dredge or fill.
2. Flood and erosion control structures such as jetties, bulkheads, seawalls, and groin construction, may be installed and maintained, and riprap may be installed and expanded; provided all such uses are needed to protect existing uses or uses specifically allowed in this Code section
3. Navigation and water-dependent commercial enterprises and activities, including docks and piers to support existing uses or uses specifically permitted in this Code section.
8. Temporary alterations, subject to the following additional criteria: the alteration shall support a use expressly allowed in this MU in this Comprehensive Plan as defined in the Definitions in the Introduction to this Comprehensive Plan; it shall be for a specified short period of time, not to exceed three years; and the area and affected resources shall be restored to their original condition.
9. Short-term fills for temporary alterations provided the estuarine areas impacted shall be restored following removal of the

fill.

Findings: Please see section A, Conditional Use Permit, of this report for findings of consistency with these criteria.

G. Dredging projects, other than maintenance dredging as permitted in C, above, and any project which requires fill in the estuary, shall be allowed only if the project or activity complies with all of the following criteria:

1. **The dredging or fill is expressly permitted in sections D, E, or F, above, or is necessary to support a use expressly permitted in D, E or F, above;**
2. **A substantial public benefit is demonstrated and the activity does not unreasonably interfere with public trust rights;**
3. **No alternative upland locations are feasible;**
4. **Adverse impacts on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary allowed in D, E, or F, above, are minimized;**
5. **Land use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions. Where shown to be necessary and as allowed in B through F, above, erosion control structures such as jetties, bulkheads, seawalls, groin construction and riprap; and fill, whether located in the waterways or on shorelands above the ordinary high water mark, shall be designed to minimize adverse impacts on water currents, erosion, and accretion patterns.**
6. **Dredge or fill activities, as otherwise approved, must be mitigated, if found to be subject to the mitigation requirement in state law, by creation, restoration or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary such as its natural biological productivity, habitats and species diversity, unique features and water quality.**
7. **All federal and state permit requirements, including mitigation requirements, are met as a condition of approval.**

Findings: Please see findings of consistency with Comprehensive Plan Policy 18.d of this report for findings of consistency with these criteria.

FCC 10-19-7: MIXED DEVELOPMENT OVERLAY DISTRICT (/MD)

A. Purpose: The Mixed Development Overlay District (/MD) is applied to those coastal shorelands which are recognized in the City Comprehensive Plan and supportive technical data as being all or partially committed to commercial, industrial and public uses. The proximity of these lands to the dredged channel of the Siuslaw River dictates that opportunities shall be provided to preserve and expand existing water-dependent and water- related commercial, industrial or public uses. . If the shorelands are adjacent to the estuary, refer to the adjacent Estuary District for additional allowed uses and criteria. The requirements of any adjacent Estuary District shall supersede the re-

quirements of this Section of the Code. Shoreland uses and buffer zones shall not prohibit landside components of activities and uses as otherwise permitted in the adjacent estuary.

In addition, the /MD District is specifically intended to carry out the following purposes:

1. **Provision, adjacent to deep water environments, of shorelands sites for use by water-dependent and water- related commercial and industrial uses.**
2. **Protection of previously-existing water-dependent and water-related commercial and industrial sites in shorelands areas.**
3. **Provision of opportunities for non-water-dependent and non-water-related uses where designated in the Comprehensive Plan.**
4. **Protection of coastal waters and avoidance of geographic and hydrologic hazards.**

Finding: The proposed uses are consistent with the purposes of this District because they are water-dependent uses and public water-related uses that protect the estuary and avoid geographic and hydrologic hazards, as demonstrated in the attached Site Investigation Report Phase II, Biological Assessment, and other attached documents; and the proposal is consistent with the criteria for the adjacent Development Estuary, as stated in the findings of consistency for those criteria in this report.

C. Special Uses Approved by Administrative Review: In addition to Special Uses specifically allowed in the adjacent Estuary District, the following uses are permitted only with a Special Use Permit. A Special Use Permit may be approved according to the procedures set forth in Chapter 1 of this Title, provided they are consistent with the requirements of the adjacent Estuary District and upon satisfaction of the applicable criteria in Section F and below:

1. **All permitted buildings and uses permitted outright in the base zoning district, provided the requirements of the base zoning district are met.**

2. **Water-dependent and water-related commercial, industrial and public uses, subject to the following criteria and conditions:**

    a. **The site has the potential for water-dependent and water-related uses.**
    b. **Maintain or encourage riparian vegetation for erosion control and temperature and general aesthetics where feasible.**

Finding: The proposed uses are water-dependent and water-related public uses that are permitted outright in the Old Town District A, the applicable base zoning district, and, as demonstrated in the findings for that District, the proposal is consistent with the requirements of the base zoning district; the site has the potential for water-dependent uses; and the proposal will use riparian vegetation for erosion control and temperature and general aesthetics wherever feasible, as demonstrated in the attached Site

Plans, Drainage Plans, and Landscaping Plans. The uses will be approved as part of the Conditional Use Permit process, as stated in the findings of consistency in Section A of this application.

F. Site and Development Requirements for Special and Conditional Uses: The development requirements specified herein shall be in addition to those provided by the base zoning district. See also Chapter 7, Special Development Standards for any applicable requirements.

1. A 50 foot buffer of riparian vegetation measured from the mean high tide shall be maintained to promote bank stabilization, maintain water quality and temperature, reduce erosion and for general aesthetics, except where unfeasible in connection with a water-dependent or water-related use.

2. The applicant must submit an analysis of all physical and biological impacts upon the shorelands area and upon coastal waters and water resources. The report shall consider at a minimum the critical relationships which exist between coastal shorelands and coastal water resources and the potential for geological and hydrological hazards.

3. The benefits of the proposed activity to the long term economic development or improved public recreational use shall outweigh the negative impacts on water quality, temperature and resources, bank stabilization, erosion control and general aesthetics.

Finding: The proposal is consistent with the above Site and Development Requirements in addition to those provided by the base zoning district and the criteria in Chapter 7, Special Development Standards applicable requirements (see above related findings) for the following reasons:

1. As demonstrated in these findings and the attached reports, it is not feasible to maintain a 50 foot buffer, on the entire site, of riparian vegetation measured from the mean high tide because this is a Water-dependent use and, as such, must be located within the 50-foot buffer in order to achieve its stated outcomes.

2. The attached Biological Assessment and letter from NMFS and Site Investigation Report contain an analysis of all physical and biological impacts upon the shorelands area and upon the estuary and the report considers at a minimum the critical relationships which exist between coastal shorelands and coastal water resources and the potential for geological and hydrological hazards.

3. The benefits of the proposed activity to the long term improved public recreational use outweigh any negative impacts on water quality, temperature and resources, bank stabilization, erosion control and general aesthetics; and, in any event, the effects of the proposed uses, overall, on all of these resources and conditions will be positive, as demonstrated in the attached reports and plans.

CHAPTER 34: LANDSCAPING

FCC 10-34-2: LANDSCAPE CONSERVATION

Finding: The criteria in 10-34-2 apply only to the Wayside East, and not to Wayside West because public right-of-way is specifically exempted from section 2 of Chapter 34 of Title 10, as stated in 10-34-2-1.

10-34-2-1: Applicability.

Except for single family homes and duplexes the provisions of this Section are applicable to all development sites which contain stands of Native Vegetation or specific Significant Vegetation, as defined below. "Development sites" do not include any street, alley, or public right-of-way.

10-34-2-2: Native Vegetation.

"Native vegetation" means those plant species native to the Florence region that are listed as native on the suggested *Tree and Plant List for the City of Florence*, such as Shore Pine, Fir, Hemlock, Spruce, Native Rhododendron, Wax Myrtle, Kinnikinnick, Huckleberry and Salal. Preservation of existing native vegetation is strongly encouraged and preferred over removal of vegetation and re-planting. Existing native vegetation may be credited toward the landscape requirements of Section 10-34-3-3 if it is preserved in accordance with the following standards:

- **A. Living plant material covers a minimum of 70 percent of the area proposed for preservation;**
- **B. Preservation area(s) are a minimum of 30 square feet for any one area with dimensions a minimum of 5 feet on any side to ensure adequate space for healthy plant growth;**
- **C. Preservation area(s) are setback from new construction areas a minimum of 10 feet from new structures, and a minimum of 5 feet from new hard-surface areas (e.g. parking lot, walkways), and replanted with native vegetation if damaged during construction;**
- **D. The preservation area is clearly marked and identified for protection on the landscaping plan as well as on-site (e.g. construction fencing) prior to site disturbance.**
- **E. Existing noxious weeds1 within the preservation area are removed prior to approval of the installed landscaping; and**
- **F. Preservation areas with grade changes around the perimeter are addressed with appropriate transition or stabilization measures (e.g. retaining wall) to avoid erosion.**

10-34-2-3: Significant Vegetation.

"Significant vegetation" means:

- **A. Native vegetation, or**
- **B. Plants within designated sensitive land areas such as wetlands, riparian areas, and slopes steeper than 40%, or**
- **C. Trees having a DBH of four (4) inches or larger measured 4½ feet above ground.**

10-34-2-4: Preservation Credit.

The City may grant a "Preservation Credit" if existing significant vegetation on the site is preserved, in the form of a reduction of the overall landscape area and planting requirements of Sections 10-34-3-3. The City may authorize credits which effectively reduce the required landscaping if the following standards are met:

A. Significant vegetation species and areas to be preserved shall be mapped and flagged in support of the site development application. Significant trees shall be mapped individually and identified by species and diameter. Wetland resources shall have a current delineation approved by the Department of State Lands. Appropriate protection from Noxious and invasive weeds are those identified by the current Lane County Public Works "Noxious and Invasive Weed Management List," with additional City of Florence footnotes. If a current county list is not available, the list in the current Oregon Department of Agriculture in "Noxious Weed Policy and classification System" will be used. Noxious weeds common to the area are Scotch Broom, English Ivy, Gorse, and Himalayan (Armenian) Blackberry. construction damage shall be in place prior to site disturbance. For a "Burn to Learn" site, significant vegetation that can be saved shall be protected.

B. Native vegetation, wetland, riparian, and steep slope vegetation shall meet the standards set forth in Section 10-34-2-2 subsections A through F above.

C. Dead or diseased vegetation and split, leaning, or unstable trees shall not qualify as preserved vegetation.

D. Mature vegetation shall be trimmed and pruned as appropriate by qualified personnel to form a long-term element of the site landscaping.

E. Landscape credit for preserved significant vegetation areas shall be granted at the ratio of 2 to 1 (e.g. every one square foot of preserved significant vegetation shall be counted as two square feet in meeting the total specified landscape area for a site). However, in no case shall the requirement for actual landscaped area be reduced below 2/3 of the area that would be required with no credit.

F. Landscape credit for preserved trees shall be granted at the ratio of one less new tree planting for every two (2) inches diameter of preserved significant trees (e.g. a preserved tree of six inch diameter counts as three newly planted trees). This credit can be applied against required front yard, parking island, buffer, and/or street trees. However in no case shall this credit reduce the requirement for newly planted trees below 2/3 of the number that would be required with no credit. All preserved trees shall be protected from construction compaction or grade changes of more than six inches on the surface area in relation to the crown of the tree canopy.

G. Figure 10-34(1): Native Preservation Credit Trade-off

10-34-3-2: Landscaping Plan Required.

A landscape plan is required. All landscape plans shall include the following information:

A. The location and height of existing and proposed fences and walls, buffering or screening materials.

B. The location of existing and proposed terraces, retaining walls, decks, patios, shelters, and play areas.

C. The location, size, and species of the new proposed plant materials (at time of planting).

D. The location(s) of areas where existing vegetation will be cleared and the location(s) of areas where existing vegetation will be preserved, delineated on a recent aerial photo or site plan drawn to scale.

E. Existing and proposed building and pavement outlines.

F. Specifications for soil at time of planting, irrigation and anticipated planting schedule.

G. Other information as deemed appropriate by the City Planning Official.

10-34-3-3: Landscape Area and Planting Standards.

The minimum landscaping area is 10% of the lot area (for Old Town District A), unless specified otherwise in the applicable zoning district2 for the proposed use. This required minimum landscaping area may be reduced if preservation credits are earned as specified in Section 10-34-2-4.

A. Landscaping shall include planting and maintenance of the following:

1. One tree per 30 lineal feet as measured along all lot lines that are adjacent to a street.
2. Six shrubs per 30 lineal feet as measured along all lot lines that are adjacent to a street.
3. Living plant materials shall cover a minimum of 70 percent of the required landscape area within 5 years of planting.
4. Except for preservation of existing significant vegetation, the required plant materials on-site shall be located in areas within the first 20 feet of any lot line that abuts a street. Exceptions may be granted where impracticable to meet this requirement or the intent is better served. Required trees may be located within the right-of-way and must comply with Section 10-34-4. Plant materials may be installed in any arrangement and do not need to be equally spaced nor linear in design. Plantings and maintenance shall comply with the vision clearance standards of FCC 10-35-2-13.
5. Pocket-planting with a soil-compost blend around plants and

trees shall be used to ensure healthy growth.

B. Noxious Weeds shall be removed during site development and the planting of invasive or noxious weeds is prohibited.

10-34-3-4: Landscape Materials.

Permitted landscape materials include trees, shrubs, ground cover plants, non-plant ground covers, existing native vegetation, outdoor hardscape features and storm water features, as described below.

A. Plant Selection. A combination of deciduous and evergreen trees, shrubs, and ground covers shall be used for all planted areas, consistent with the purpose of this Chapter. A suggested *Tree and Plant List for the City of Florence* and the *Sunset Western Garden Book* are available at City Hall. The selection of plant and tree species shall be based upon site conditions such as wind and sun exposure, space limitations, water availability, and drainage conditions. The use of indigenous plants is encouraged, and may be required where exposure, slope or soil conditions warrant.

1. Ground Cover. Ground cover may consist of separate plants or mowed grass turf. Ground cover plant species shall meet the following minimum standards: plants from 4-inch pots shall be spaced a maximum of 18 inches on center, and 1-2 gallon size plants shall be spaced a minimum of 3 feet on center.

2. Shrubs. Shrub plant species shall be planted from 3 gallon containers unless otherwise specified in the *Tree and Plant List for the City of Florence*.

3. Trees. Evergreen and deciduous tree species shall meet the following minimum standards: deciduous trees shall be a minimum of 1 ¾ inch caliper (diameter) measured 6 inches above grade, and evergreen trees shall be a minimum of 5 feet tall (Nursery Grade 5/6).

4. Non-plant Ground Covers. Bark dust, chips, aggregate, or other non-plant ground covers may be used. Non-plant ground cover located adjacent to pedestrian ways shall be confined to the material within the planting bed to avoid safety hazards by edging 4 inches above-grade or recessing from grade. Non-plant ground covers cannot be a substitute for ground cover plants.

B. Existing Native Vegetation. Preservation of existing native vegetation is encouraged and preservation credits in accordance with Section 10-34-2-4 may be used to meet the landscape requirements of this Chapter.

C. Hardscape features, such as plazas, pathways, patios and other pedestrian amenities may count toward ten (10) percent of the required landscape area, except in the Old Town and Main Street districts

where hardscape features may count toward 50 percent of the landscape area, provided that such features conform to the standards of those districts. Swimming pools, sports courts, decks and similar facilities may not be counted toward fulfilling the landscape requirement in any zone.

D. Storm Water Facilities. Storm water facilities, such as detention/retention ponds and swales shall be landscaped. Landscaped bio-swales are encouraged and shall count toward meeting the landscaping requirement of this section if they are designed and constructed in accordance with the standards specified in Title 9 Chapter 5, and approved by the Public Works Department. Storm water facilities shall be landscaped with water-tolerant, native plants.[4]

10-34-3-5: Irrigation.

Permanent, underground irrigation is required for all landscaping, except existing native vegetation that is preserved in accordance with the specifications of Section 10-34-2-2 and new drought tolerant plants which must have temporary irrigation for plant establishment. All irrigation systems require an irrigation permit and shall be installed with a backflow prevention device per FCC 9-2-3-5.

10-34-3-6: Parking Lot Landscape Standards.

All parking lots shall meet Parking Area Improvement Standards set forth in FCC 10-3-8. Parking areas with more than twenty (20) spaces shall include interior landscaped "islands" to break up the parking area. Interior parking lot landscaping shall count toward the minimum landscaping requirement of Section 10-34-3-3. The following standards apply:

10-34-3-7: Buffering and Screening. Buffering and screening are required under the conditions listed below. Walls, fences, and hedges shall comply with the vision clearance requirements and provide for pedestrian circulation, in accordance with FCC 10-35-2-13. (See Section 10-34-5 for standards specific to fences and walls.)

A. Parking/Maneuvering Area Adjacent to Streets and Drives. Where a parking or maneuvering area is adjacent and parallel to a street or driveway, a berm; an evergreen hedge; decorative wall (masonry or similar quality material) with openings; arcade; trellis; or similar partially opaque structure 3-4 feet in height shall be established between street and driveway or parking area. See also FCC 10-3-8-D for standards specific to parking lots adjacent to the street. The required screening shall have breaks or portals to allow visibility (natural surveillance) into the site and to allow pedestrian access to any adjoining walkways. Hedges used to comply with this standard shall be a minimum of 36 inches in height at maturity, and shall be of such species, number, and spacing to provide year-round screening within five (5) years after planting. Vegetative ground cover is re-

[4] 3 Pocket-planting is used in conjunction with sandy soils by removing existing sand approximately twice the width and the same depth of the pot, and replacing it with a soil-compost blend.

quired on all surfaces between the wall/hedge and the street/driveway line.

10-34-4: STREET TREES:

Street trees are trees located within the right-of-way.

A. Street Tree List. Trees shall be selected from the *Tree and Plant List for the City of Florence* based on climate zone, growth characteristics and site conditions, including available space, overhead clearance, soil conditions, exposure, and desired color and appearance. Other tree species are allowed with City approval.

B. Caliper Size. The minimum diameter or caliper size at planting, as measured six (6) inches above grade, is one and one half (1 ½) inches with a high graft (lowest limb a minimum of 5 foot high from the ground) to ensure pedestrian access.

C. Spacing and Location. Street trees shall be planted within the street right-of-way within existing and proposed planting strips or in sidewalk tree wells on streets without planting strips, except when utility easements occupy these areas, in accordance with the requirements of FCC 10-35-2-3 and 10-36-2-16. Street tree spacing shall be based upon the type of tree(s) selected and the canopy size at maturity and, at a minimum, the planting area shall contain sixteen (16) square feet, or typically, a four (4) foot by four (4) foot square. In general, trees shall be spaced no more than thirty (30) feet apart, except where planting a tree would conflict with existing trees, retaining walls, utilities and similar physical barriers. All street trees shall be placed outside utility easements, and shall comply with the vision clearance standards of FCC 10-35-2-13.

D. Soil Preparation, Planting and Care. Street trees shall be planted with root guards to preserve the physical integrity of sidewalks and streets. Pocket-planting with a soil compost blend around trees shall be used to ensure healthy growth (see footnote to FCC 10-34-3-3-A-5). The developer shall be responsible for planting street trees, including soil preparation, ground cover material, staking, and temporary irrigation for three years after planting. The developer shall also be responsible for tree care (pruning, watering, fertilization, and replacement as necessary) during the first three years after planting, after which the adjacent property owners shall maintain the trees.

Finding: The proposal is consistent with all of the above criteria, as demonstrated in the Landscape Plans and Site Plans (by Branch Engineering) for Wayside East and Wayside West. There are no street trees at either of the site locations. The Site Plans and Landscaping Plans show that non-native vegetation will be cleared on either side of the bridge; trees are already there and two new trees will be planted back in the vicinity.

10-34-5: FENCES AND WALLS: Construction of fences and walls shall conform to all of the following requirements:

D. Specific Requirements

3. Retaining walls exceeding four (4) feet in height and freestanding walls or fences greater than six (6) feet in height require a building permit

E. Maintenance. For safety and for compliance with the purpose of this Chapter, walls and fences required as a condition of development approval shall be maintained in good condition, or otherwise replaced by the property owner.

Finding: The proposal complies with this criteria because the City is the owner of the Wayside and is required by law to maintain City property; no building permit is required for the retaining wall because it will be in ODOT right-of-way; and the City will maintain the Wayside and parking area as stipulated in the agreement between ODOT and the City. See City of Florence/State of Oregon – Dept. of Transportation Agreement No. 21381, as amended.

CHAPTER 35: ACCESS AND CIRCULATION

10-35-2: VEHICULAR ACCESS AND CIRCULATION

10-35-2-1: Intent and Purpose.

This Section implements the access management policies of the City of Florence Transportation System Plan. The intent of this Section is to manage vehicular and bicycle access and on-site circulation to ensure the continued operational safety, capacity and function of the transportation system in a cost effective manner.

10-35-2-2: Applicability.

Section 10-35-2 applies to vehicle access and on-site circulation facilities in the City of Florence. This Section applies to any type of land use or development permit. Access to a designated state or county highway is subject to the provisions of this Section in addition to the requirements of the applicable roadway authority. Where regulations of the City conflict with those of the roadway authority the more restrictive requirements apply.

10-35-2-3: Access Approval Required.

Access will generally be reviewed in conjunction with a land division or building permit. If a property owner wishes to access a public street (e.g., a new curb cut or driveway approach), or make improvements within the public right-of-way (e.g., install or replace sidewalk), the property owner must obtain a "Construction Permit in Right-of-Way". In either case, approval of an access shall follow the procedures and requirements of the applicable road authority.

10-35-2-7: Intersection Separation; Backing onto Public Streets.

New and modified accesses shall conform to the following standards:

A. Except as provided under subsection B, below, the distance from a street intersection to a driveway shall meet the following minimum

spacing requirements for the street's classification, as measured from side of driveway to street or alley pavement (see Figure 10-35(1)). A greater separation may be required for accesses onto an arterial or collector for compliance with ODOT or County requirements.

Separation Distance from Driveway to Pavement:

- **Alley 15 feet**
- **Local Street 25 feet**
- **Collector Street 30 feet**
- **Arterial Street 50 feet**

Figure 10-35(1): Separation Distance from Driveway to Street

B. Where the City finds that reducing the separation distance is warranted, such as:

a. no other alternatives exist (e.g., alley or shared access is not feasible, building lot is too narrow, existing building prohibits access at correct distance, etc.), or

b. planned improvements or traffic circulation patterns show a different location to be efficient and safe, the City may allow construction of an access connection at a point less than the dimensions listed above. In such case, the access should be as far away from the intersection as possible, and the total number of access points to the site shall be limited to the minimum necessary to provide reasonable access. The City may also require shared/joint access and/or impose turning restrictions (i.e., right in/out, right in only, or right out only).

C. Access to and from off-street parking areas shall be designed to prevent backing onto a public street, except that single-family and duplex dwellings are exempt. Existing non-conforming accesses and parking lots shall be brought into conformance, as practical, when expanded or redeveloped.

10-35-2-8: Site Circulation.

New developments shall be required to provide a circulation system that accommodates expected traffic on the site. Pedestrian and bicycle connections on the site, including connections through large sites, and connections between sites (as applicable) and adjacent sidewalks, trails or paths, must conform to the provisions in Section 3-35-3.

10-35-2-11: Driveway Design.

All openings onto a public right-of-way and driveways shall conform to the following:

A. Driveway Approaches. Driveway approaches, including private alleys, shall be approved by the Public Work Director and designed and located with preference given to the lowest functional classification street. Consideration shall also be given to the characteristics of the property, including location, size and orientation of structures on site, number of driveways needed to accommodate anticipated traf-

fic, location and spacing of adjacent or opposite driveways.

B. Driveways. Driveways shall meet the following standards, subject to review and approval by the Public Works Director:

2. Driveways shall have a minimum width of ten (10) feet, except where a driveway serves as a fire apparatus lane, in which case city-approved driveway surface of 12 feet minimum width shall be provided within an unrestricted, twenty (20) foot aisle, or as approved by the Fire Code Official.

3. Where a driveway is to provide two-way traffic, the minimum width shall be 18 feet.

4. One-way driveways shall have appropriate signage designating the driveway as a one-way connection. Fire apparatus lanes shall be so marked (parking prohibited).

5. The maximum allowable driveway grade is fifteen (15) percent, except that driveway grades exceeding fifteen (15) percent may be allowed, subject to review and approval by the Public Works Director and Fire Code Official, provided that the applicant has provided an engineered plan for the driveway. The plan shall be stamped by a registered geotechnical engineer or civil engineer, and approved by the Public Works Director.

C. Driveway Apron Construction.

Driveway aprons (when required) shall be constructed of concrete and shall be installed between the street right-of-way and the private drive, as shown in Figure 10-35(2). Driveway aprons shall conform to ADA requirements for sidewalks and walkways, which generally require a continuous unobstructed route of travel that is not less than three (3) feet in width, with a cross slope not exceeding two (2) percent, and providing for landing areas and ramps at intersections. Driveways are subject to review by the Public Works Director.

D. Fire access lanes with turnarounds shall be provided in conformance with the Fire code. Except as waived in writing by the Fire Code Official, a fire equipment access drive shall be provided for any portion of an exterior wall of the first story Setback Sidewalk with Landscaping of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive. The drive shall contain unobstructed aisle width of 20 feet and turn-around area for emergency vehicles. The fire lanes shall be marked as "No Stopping/No Parking." See figure 10-35(3) for examples of fire lane turn-rounds. For requirements related to cul-de-sacs or dead-end streets, refer to FCC 10-36.

10-35-2-12: Vertical Clearances.

Driveways, private streets, aisles, turn-around areas and ramps shall have a minimum vertical clearance of 13' 6" for their entire length and width.

10-35-2-13: Vision Clearance.

No visual obstruction (e.g., sign, structure, solid fence, or shrub vegetation) shall block the area between two and one-half feet (2 ½') and eight (8) feet in height in "vision clearance areas" on streets, driveways, alleys, mid-block lanes, or multi-use paths where no traffic control stop sign or signal is provided, as shown in Figure 10-35(4). The following requirements shall apply in all zoning districts:

B. At the intersection of an alley or driveway and a street, the minimum vision clearance shall be ten feet (10').

C. At the intersection of internal driveways, the minimum vision clearance shall be ten feet (10').

The sides of the minimum vision clearance triangle are the curb line or, where no curb exists, the edge of pavement. Vision clearance requirements may be modified by the Public Works Director upon finding that more or less sight distance is required (i.e., due to traffic speeds, roadway alignment, etc.). This standard does not apply to light standards, utility poles, trees trunks and similar objects. Refer to Section 10-1-4 of this Title for definition.

10-35-3: PEDESTRIAN ACCESS AND CIRCULATION:

All new development shall be required to install sidewalks along the street frontage, unless the City has a planned street improvement, which would require a non-remonstrance agreement.

10-35-3-1: Site Layout and Design.

To ensure safe, direct, and convenient pedestrian circulation, all developments shall provide a continuous pedestrian system. The pedestrian system shall be based on the standards in subsections A - C, below:

A. Continuous Walkway System. The pedestrian walkway system shall extend throughout the development site and connect to all future phases of development, and to existing or planned off-site adjacent trails, public parks, and open space areas to the greatest extent practicable. The developer may also be required to connect or stub walkway(s) to adjacent streets and to private property with a previously reserved public access easement for this purpose in accordance with the provisions of Section 10-35-2, Vehicular Access and Circulation, and Section 10-36-2 Street Standards.

C. Connections Within Development. Connections within developments shall be provided as required in subsections 1 - 3, below:

2. Walkways shall connect all on-site parking areas, storage areas, recreational facilities and common areas, and shall connect off-site adjacent uses to the site to the extent practicable. Topographic or existing development constraints may be cause for not making certain walkway connections; and

10-35-3-2: Walkway and Multi-Use Path Design and Construction.

Walkways and multi-use paths shall conform to all applicable standards in subsections A - D, as generally illustrated in Figure 10-35(6):

A. Vehicle/Walkway Separation. Except for pedestrian crossings (subsection B), where a walkway abuts a driveway or street it shall be raised six (6) inches and curbed along the edge of the driveway/street. Alternatively, the decision body may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is protected from all vehicle maneuvering areas. An example of such protection is a row of decorative metal or concrete bollards designed to withstand a vehicle's impact, with adequate minimum spacing between them to protect pedestrians.

B. Pedestrian Crossing. Where a walkway crosses a parking area, or driveway, it shall be clearly marked with contrasting paving materials (e.g., light-color concrete inlay between asphalt), which may be part of a raised/hump crossing area. Painted or thermo-plastic striping and similar types of non-permanent applications may be approved for crossings of not more than twenty-four (24) feet in length.

C. Width and Surface. Walkway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, as approved by the Public Works Director, at least five (5) feet wide, without curb. Multi-use paths (i.e., for bicycles and pedestrians) shall be concrete or asphalt, at least ten (10) feet wide. (See also, Section 10-36-2)

D. Accessible routes. Walkways and multi-use paths shall conform to applicable Americans with Disabilities Act (ADA) requirements. The ends of all raised walkways, where the walkway intersects a driveway or street shall provide ramps that are ADA accessible, and walkways shall provide direct routes to primary building entrances.

Finding: The proposal is consistent with all of the criteria in Chapter 35 cited above, as demonstrated in the Site Plans, Landscaping Plans, and Parking Plans attached to this application.

CHAPTER 36: PUBLIC IMPROVEMENTS

FCC 10-36-2-16: Sidewalks, Planter Strips, Bicycle Lanes. Sidewalks, planter strips, and bicycle lanes shall be installed in conformance with applicable provisions of the Florence Transportation System Plan, Comprehensive Plan, adopted street plans, City of Florence Standards and Specifications and the following standards:

A. Sidewalks may be placed adjacent to the street or at the property line with planter strips where practicable, or as otherwise directed by the Public Works Director.

C. In areas with high pedestrian volumes, the City may approve a minimum 12-foot wide sidewalk area, curb tight, with street trees in tree wells and / or landscape planters.

10-36-3: SANITARY SEWERS, WATER, STORMWATER, AND FIRE PROTECTION

A. Sewers, Water, and Stormwater Mains Required. Sanitary sewers, water mains, and stormwater drainage shall be installed to serve each new development and to connect developments to existing mains in accordance with the City's Wastewater Master Plan, Water System Master Plan, and Stormwater Master Plan, Florence Code Title 9 Chapters 2, 3 and 5, and the applicable construction specifications. When streets are required to be stubbed to the edge of the subdivision; stormwater, sewer and water system improvements shall also be stubbed to the edge of the subdivision for future development.

B. Sewer, Water, and Stormwater Plan Approval. Development permits for stormwater drainage, sewer and water improvements shall not be issued until the Public Works Director or their designee has approved all stormwater, sanitary sewer and water plans in conformance with City standards, and Florence Code Title 9 Chapters 2, 3 and 5.

Finding: The proposal is consistent with all of the criteria in Chapter 36 cited above, as demonstrated in the Site Plans, Stormwater Management Plan, Landscaping Plans, and Parking Plans attached to this application.

V. Conclusions

The proposal is consistent with all of the applicable criteria in the Florence Realization 2020 Comprehensive Plan and Florence City Code.