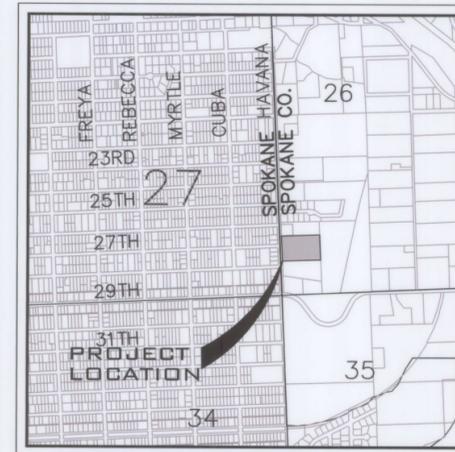


SW 1/4, SEC. 26, T. 25 N., R. 43 E., W.M.

STREET AND DRAINAGE PLANS COTTAGES ON HAVANA

LOCATED IN A PORTION OF THE
S.W. 1/4 OF SEC. 26, T. 25 N., R. 43 E., W.M.
SPOKANE COUNTY, WA.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS
BEFORE YOU DIG

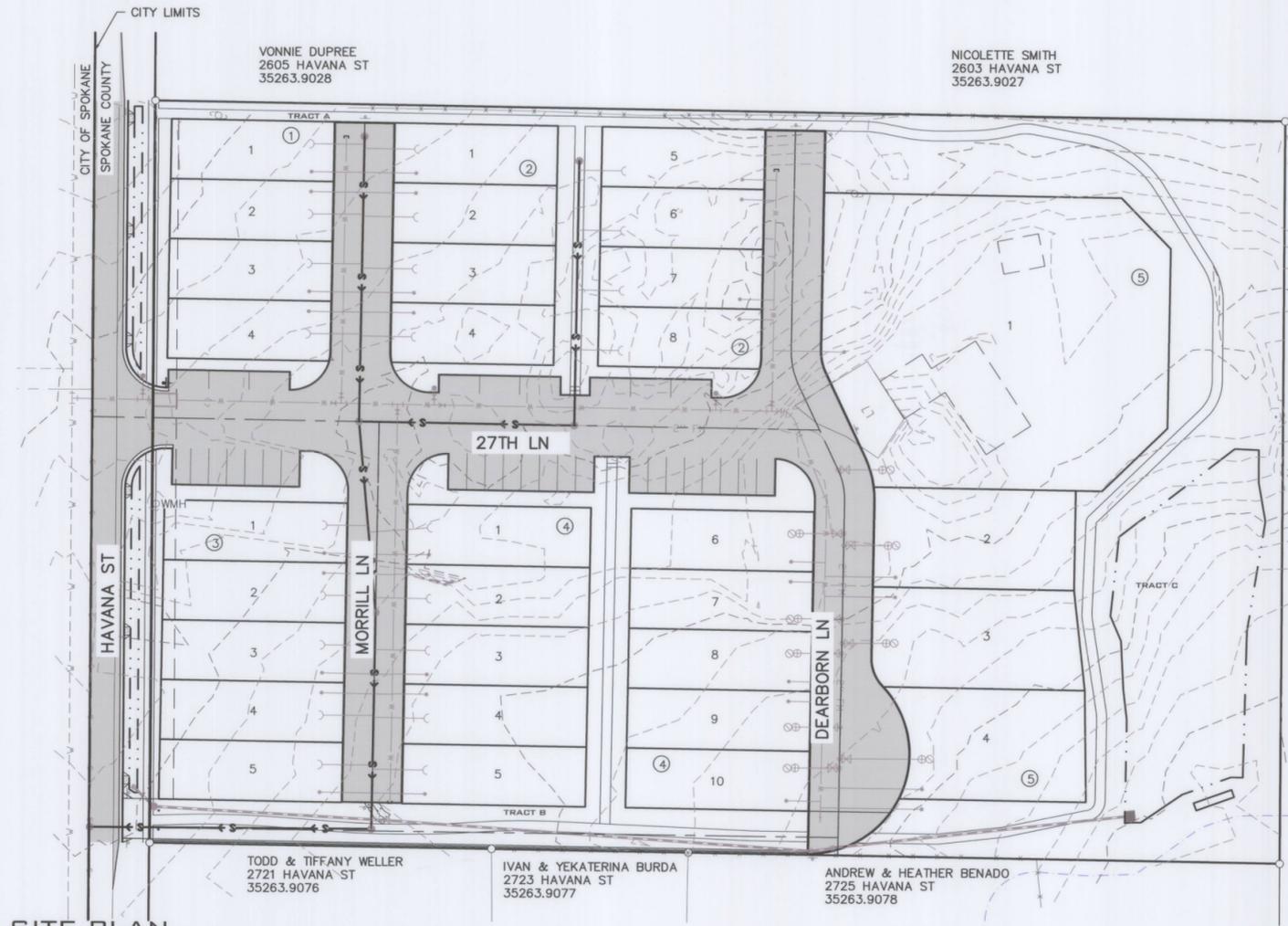


VICINITY MAP

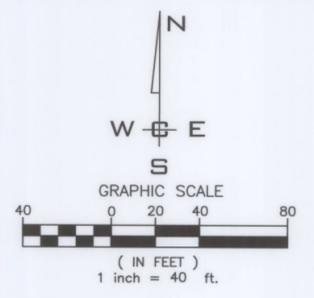
SHEET INDEX

- CO.0 COVER SHEET
- CO.1 GENERAL NOTES
- C3.0 SITE PLAN
- C3.1 SITE DETAILS
- C3.2 HORIZONTAL CONTROL PLAN
- C4.0 GRADING PLAN
- C4.1 HAVANA ST PLAN & PROFILE
- C4.2 WALL DETAIL
- C4.3 MORRILL LN & DEARBORN LN PLAN & PROFILE
- C5.0 STORM PLAN
- C5.1 STORM PLAN DETAILS
- C9.0 SWPPP/EROSION CONTROL PLAN/COVER SHEET
- C9.1 SWPPP/EROSION CONTROL NOTES AND DETAILS
- C9.2 SWPPP/EROSION CONTROL NOTES AND DETAILS
- C9.3 SWPPP/EROSION CONTROL NOTES AND DETAILS

TITLE	EXISTING	DESCRIPTION	PROPOSED
ROADWAY CENTER LINE	---	ROADWAY CENTER LINE	---
RIGHT OF WAY LINE	---	RIGHT OF WAY LINE	---
PROPERTY LINE	---	PROPERTY LINE	---
EASEMENT LINE	---	EASEMENT LINE	---
FENCE	---	FENCE	---
CURB	---	CURB	---
PAVEMENT	---	PAVEMENT	---
GRAVEL	---	GRAVEL	---
CONCRETE	---	CONCRETE	---
BUILDINGS & STRUCTURES	---	BUILDINGS & STRUCTURES	---
MONUMENT	---	MONUMENT	---
SEWER		SEWER	
SANITARY SEWER	---	SANITARY SEWER	---
MANHOLE	---	MANHOLE	---
CLEANOUT	---	CLEANOUT	---
SEWER SERVICE	---	SEWER SERVICE	---
WATER		WATER	
WATER LINE	---	WATER LINE	---
VALVE	---	VALVE	---
FIRE HYDRANT	---	FIRE HYDRANT	---
SERVICE	---	SERVICE	---
METER	---	METER	---
BLOWOFF	---	BLOWOFF	---
AIR VACUUM RELIEF STATION	---	AIR VACUUM RELIEF STATION	---
DRAINAGE		DRAINAGE	
DRAINAGE LINE	---	DRAINAGE LINE	---
MANHOLE	---	MANHOLE	---
DRYWELL	---	DRYWELL	---
CATCH BASIN	---	CATCH BASIN	---
DITCH	---	DITCH	---
GAS		GAS	
GAS LINE	---	GAS LINE	---
VALVE	---	VALVE	---
METER	---	METER	---
TELE-POWER		TELE-POWER	
BURIED TELEPHONE	---	BURIED TELEPHONE	---
POWER OR TELEPHONE POLE	---	POWER OR TELEPHONE POLE	---
BURIED POWER	---	BURIED POWER	---
TRANSFORMER PAD	---	TRANSFORMER PAD	---
TELEPHONE RISER	---	TELEPHONE RISER	---
TELEPHONE VAULT	---	TELEPHONE VAULT	---
OVERHEAD POWER	---	OVERHEAD POWER	---
GUY ANCHOR	---	GUY ANCHOR	---
POWER VAULT	---	POWER VAULT	---
LIGHT POLE	---	LIGHT POLE	---



SITE PLAN
SCALE: 1" = 40'



ABBREVIATIONS

ACT. LEN. ACTUAL LENGTH	GB GRADE BREAK	PRC POINT OF REVERSE CURVE
BCR BEGINNING OF CURVE RADIUS	FT./FT. FEET PER FOOT	PT POINT OF TANGENCY
BDRY. BOUNDARY	HYD. HYDRANT	RIM EL. RIM ELEVATION
CO. SEWER CLEANOUT	I.E. INVERT ELEVATION	RD ROAD
CSTC CRUSHED SURFACE	LN. LANE	RT. RIGHT
CT. COURT	LT. LEFT	SI STREET INTERSECTION
DIA. DIAMETER	MH MANHOLE	SS SANITARY SEWER
ECR END OF CURVE RADIUS	MCR MIDDLE OF CURVE RADIUS	STA. STATION
EXIST. EXISTING	PC POINT OF CURVATURE	STA. LEN. STATION LENGTH
G GRADE	PET. PETROLEUM	TG TOP OF GRATE
	PI POINT OF INTERSECTION	TC TOP OF CURB

SEWER MAINTENANCE

CITY OF SPOKANE
909 EAST SPRAGUE AVENUE
SPOKANE, WASHINGTON 99202
PHONE: 625-7900
CONTACT: GARY KAESEMAYER

STREETS-COUNTY

SPOKANE COUNTY ENGINEERS
1026 WEST BROADWAY AVE
SPOKANE, WASHINGTON 99260
PHONE: 477-3600
CONTACT: MAT ZARECOR, P.E.

TELEPHONE

CENTURY LINK
904 NORTH COLUMBUS
SPOKANE, WASHINGTON, 99202
PHONE: 623-0478
CONTACT: ARNE HILL

WATER

CITY OF SPOKANE
914 E NORTH FOOTHILLS DR
SPOKANE, WASHINGTON 99207
PHONE: 625-7854
CONTACT: JIM SAKAMOTO, P.E.

INSPECT.-COUNTY

INLAND PACIFIC ENGINEERING
P. O. BOX 1566
VERADALE, WASHINGTON 99037
PHONE: 290-5179
CONTACT: PAUL NELSON, P.E.

CABLE

COMCAST BROADBAND
1717 EAST BUCKEYE
SPOKANE, WASHINGTON, 99207
PHONE: 755-4717
CONTACT: BRYAN RICHARDSON

FIRE

SPOKANE COUNTY FIRE DIST. #8
12100 E. PALOUSE HIGHWAY
VALLEYFORD, WA 99036
PHONE: 509-926-6699
CONTACT: MARTY LONG

HEALTH

SPOKANE REGIONAL HEALTH
1101 WEST COLLEGE AVENUE
SPOKANE, WASHINGTON 99260
PHONE: 324-1578
CONTACT: PAUL SAVAGE

SURVEYOR

WHIPPLE CONSULTING ENGINEERS
2528 N. SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PHONE: 893-2617
CONTACT: JON GORDON, PLS

STREETS-CITY

CITY OF SPOKANE
808 W. SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201
PHONE: 625-6300
CONTACT: BOB HORROCKS

SOLID WASTE

CITY OF SPOKANE
1225 E MARIETTA AVENUE
SPOKANE, WASHINGTON 99207
PHONE: 625-7871
CONTACT: RICK HUGHES

ENGINEER

WHIPPLE CONSULTING ENGINEERS
P. O. BOX 949
SPOKANE VALLEY, WA 99216
PHONE: 893-2617
CONTACT: TODD WHIPPLE, P.E.

INSPECTION-CITY

CITY OF SPOKANE
1423 NORTH NORMANDIE
SPOKANE, WASHINGTON 99201
PHONE: 625-7716
CONTACT: JOHN HOGBERG

GAS / POWER

AVISTA UTILITIES
1411 EAST MISSION AVENUE
SPOKANE, WASHINGTON 99220
PHONE: 495-2991
CONTACT: MICHAEL TRUEX

OWNER

COPPER BASIN CONSTRUCTION
P. O. BOX 949
HAYDEN LAKE, IDAHO 83835
PHONE: 208-765-5059
CONTACT: STEVE WHITE, PRES.

ARCHITECT

D'ZIGN ARCHITECTURE GROUP, LLC
21 COMMERCE DR. STE. A
HAYDEN, ID 83835
PHONE: 208-699-6244
CONTACT: CHAD DODSON

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT # **P-1047**
DATE ACCEPTED: **10-25-16**
ACCEPTANCE EXPIRES: **10-25-18**
PROJECTS LANE MILES PUBLIC: **3.99**
PROJECTS LANE MILES PRIVATE: **3.99**
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, "AS-BUILT" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35
CBM NO. GP32395-201 ELEVATION= 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH.
AVENUE ELEVATION=2298.606

NO.	DATE	BY	REVISIONS

SCALE:
HORIZONTAL:
1"=40'
VERTICAL:
N/A

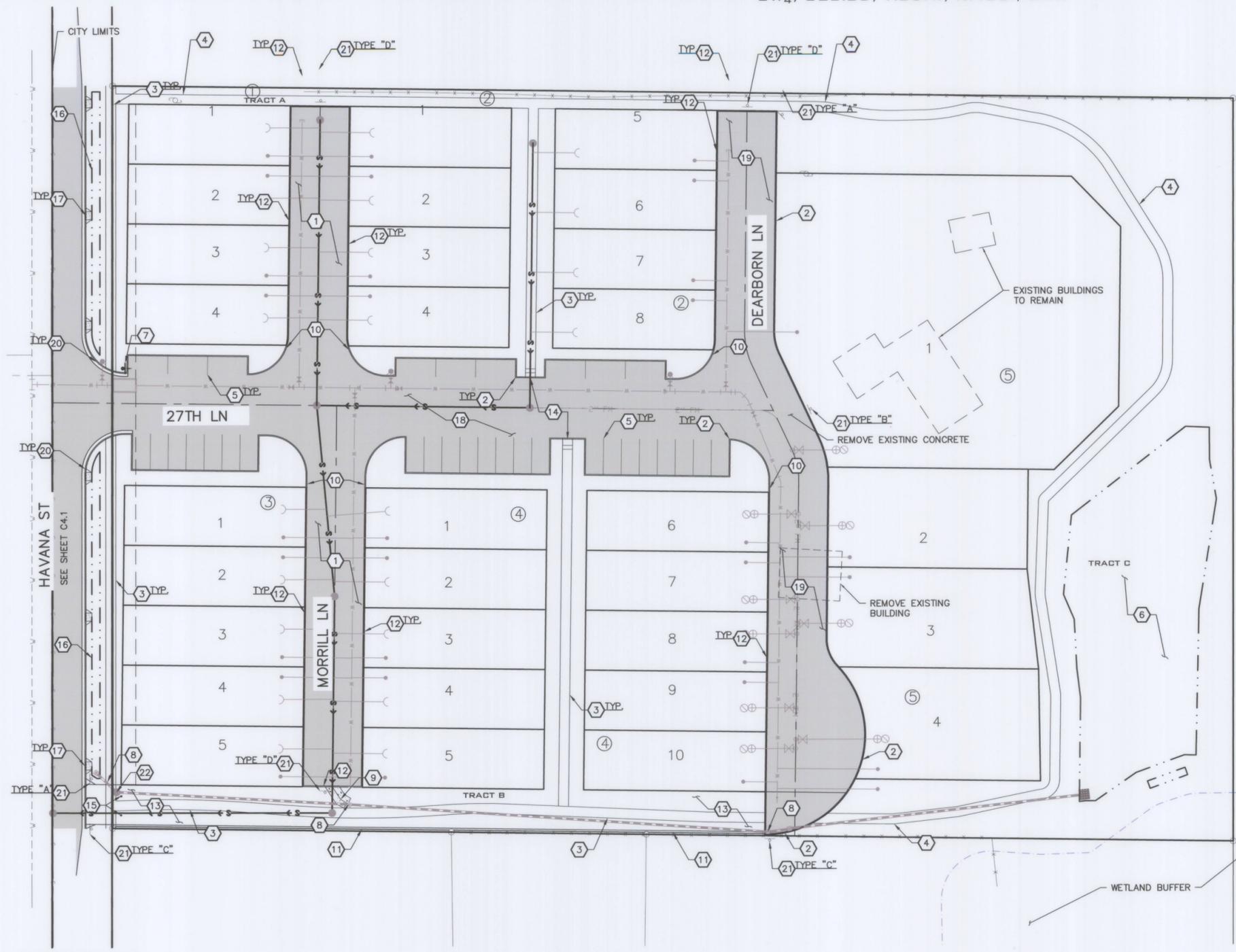
PROJ #: **15-1425**
DATE: **05/17/16**
DRAWN: **JPP**
REVIEWED: **TRW**

<input checked="" type="checkbox"/>	CIVIL
<input type="checkbox"/>	STRUCTURAL
<input type="checkbox"/>	SURVEYING
<input type="checkbox"/>	TRAFFIC
<input type="checkbox"/>	PLANNING
<input type="checkbox"/>	LANDSCAPE
<input type="checkbox"/>	OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

**COTTAGES ON HAVANA
COVER**
**27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA**

**SHEET
CO.0**
JOB NUMBER
15-1425



SITE NOTES

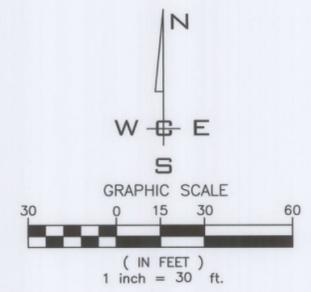
- SEE GRADING AND DRAINAGE PLANS FOR GRADING AND DRAINAGE INFORMATION.
- SEE ARCHITECTURAL SITE PLANS FOR ADDITIONAL INFORMATION.
- BUILDING CORNERS TO BE LOCATED BY PROFESSIONAL LICENSED SURVEYOR.
- SURFACE FEATURES IN THIS AREA HAVE BEEN REMOVED. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ANY REMAINING DEBRIS, FOUNDATIONS, ETC.
- LOT ADDRESSES SHALL BE POSTED SO THAT THEY ARE VISIBLE FROM THE PUBLIC RIGHT-OF-WAY DURING AND AFTER CONSTRUCTION.

CONSTRUCTION NOTES

- PROVIDE AND INSTALL PAVEMENT SECTION PER TYPICAL CROSS SECTION, SEE DETAIL A, SHEET C3.1.
- PROVIDE AND INSTALL TYPE 'A' CONCRETE CURB PER SPOKANE COUNTY ROAD STANDARD A-3.
- PROVIDE AND INSTALL 5' SIDEWALK PER SPOKANE COUNTY STANDARD PLAN A-4. FOR INTERIOR SIDEWALK SEE DETAIL 1.
- PROVIDE AND INSTALL 5' WIDE AND 4" THICK WALKWAY OF DECOMPOSED GRANITE.
- PAINT PARKING STALLS AS SHOWN. STRIPING SHALL BE 4" SWSL DOUBLE PAINTED PER WSDOT SPECIFICATION, 8-22 PAVEMENT MARKING.
- STORM DRAINAGE DETENTION POND. SEE STORM DRAINAGE AND POND PLANS, SHEETS C5.0 AND C5.1.
- PROVIDE & INSTALL 30" X 30" STOP SIGN PER SPOKANE COUNTY ROAD STANDARDS.
- PROVIDE & INSTALL CATCH BASIN AND 12" STORM PIPE. SEE SHEETS C5.0 AND C5.1 FOR DETAILS.
- PROVIDE & INSTALL 6" WIDE CONCRETE GUTTER FROM EDGE OF ASPHALT TO CATCH BASIN. SEE DETAIL 2, SHEET C3.1.
- PROVIDE & INSTALL 2" NOSE DOWN CURB TO TRANSITION FROM TYPE "A" CURB TO TYPE "S" CURB PER DETAIL 5, SHEET C3.1.
- PROVIDE & INSTALL CONCRETE WALL WITH FENCE. SEE SHEET C4.2 FOR PROFILE AND DETAILS.
- PROVIDE AND INSTALL TYPE "S" CONCRETE CURB PER SPOKANE COUNTY ROAD STANDARD A-3.
- PROVIDE AND INSTALL GRASSCRETE OR EQUIVALENT FOR EMERGENCY ACCESS. APPROXIMATELY 5,500 SQUARE FEET.
- PROVIDE AND INSTALL PEDESTRIAN ACCESS RAMP PER DETAIL 6, SEE SHEET C3.1.
- PROVIDE AND INSTALL REMOVABLE BOLLARDS PER SPOKANE STANDARDS AND SPECIFICATIONS.
- PROVIDE AND INSTALL ROADSIDE SWALES. SEE SHEET C4.1.
- PROVIDE AND INSTALL SPOKANE COUNTY TYPE 1 CURB INLET PER STANDARD PLANS B-8.
- PROVIDE AND INSTALL PAVEMENT SECTION PER TYPICAL CROSS SECTION, SEE DETAIL B, SHEET C3.1..
- PROVIDE AND INSTALL PAVEMENT SECTION PER TYPICAL CROSS SECTION, SEE DETAIL C, SHEET C3.1.
- PROVIDE AND INSTALL TYPE 'B' CONCRETE CURB PER SPOKANE COUNTY ROAD STANDARD A-3.
- PROVIDE AND INSTALL "NO PARKING-FIRE LANE" SIGNS FOR FIRE LANE PER TYPE SHOWN ON PLAN, SEE SIGN TYPES DETAILS THIS SHEET.
- PROVIDE AND INSTALL 1-48" STORM MANHOLE WITH SOLID LID LABELED "STORM" PER SPOKANE STANDARD U-2.

SITE PLAN
 SCALE: 1" = 30'

Sign Types



SPOKANE COUNTY PUBLIC WORKS
 OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
 PROJECT #: P-2047
 DATE ACCEPTED: 10-25-16
 ACCEPTANCE EXPIRES: 10-25-18
 PROJECTS LANE MILES: PUBLIC: .96
 PROJECT LANE MILES PRIVATE: .39
 CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS "AS-BUILT" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3600
 NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



COUNTY DATUM
 MONUMENT ID NO. 3394, HWY 395, MO 167.35,
 CBM NO. GP32395-201 ELEVATION= 1748.382
 SPIKE AT C/O OF HAVANA STREET AND 29TH.
 AVENUE ELEVATION= 2298.606

NO.	DATE	BY	REVISIONS

SCALE:
 HORIZONTAL: 1"=30'
 VERTICAL: N/A

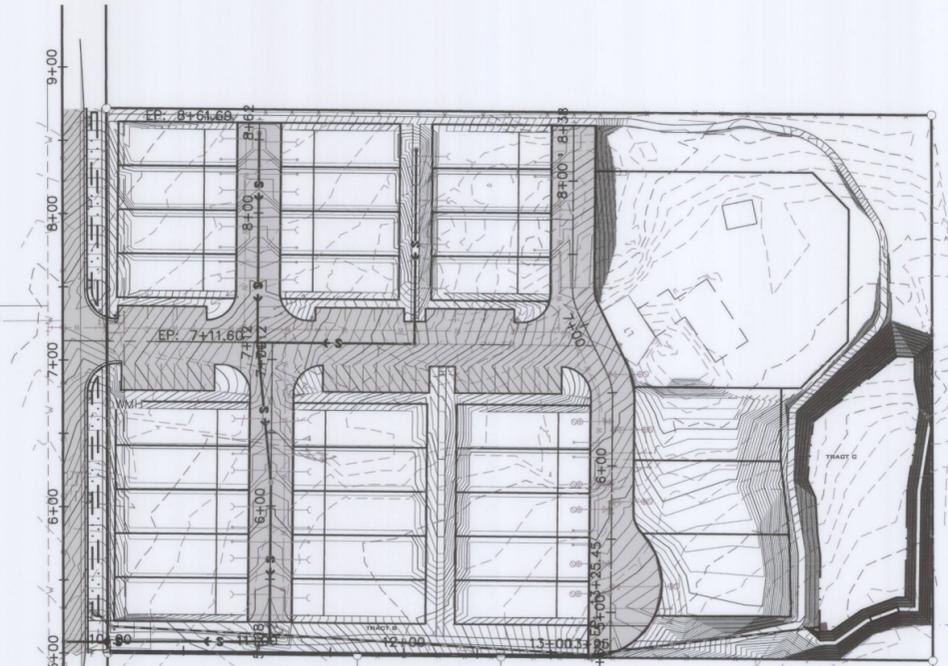
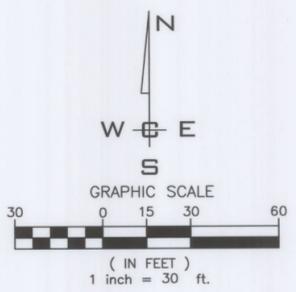
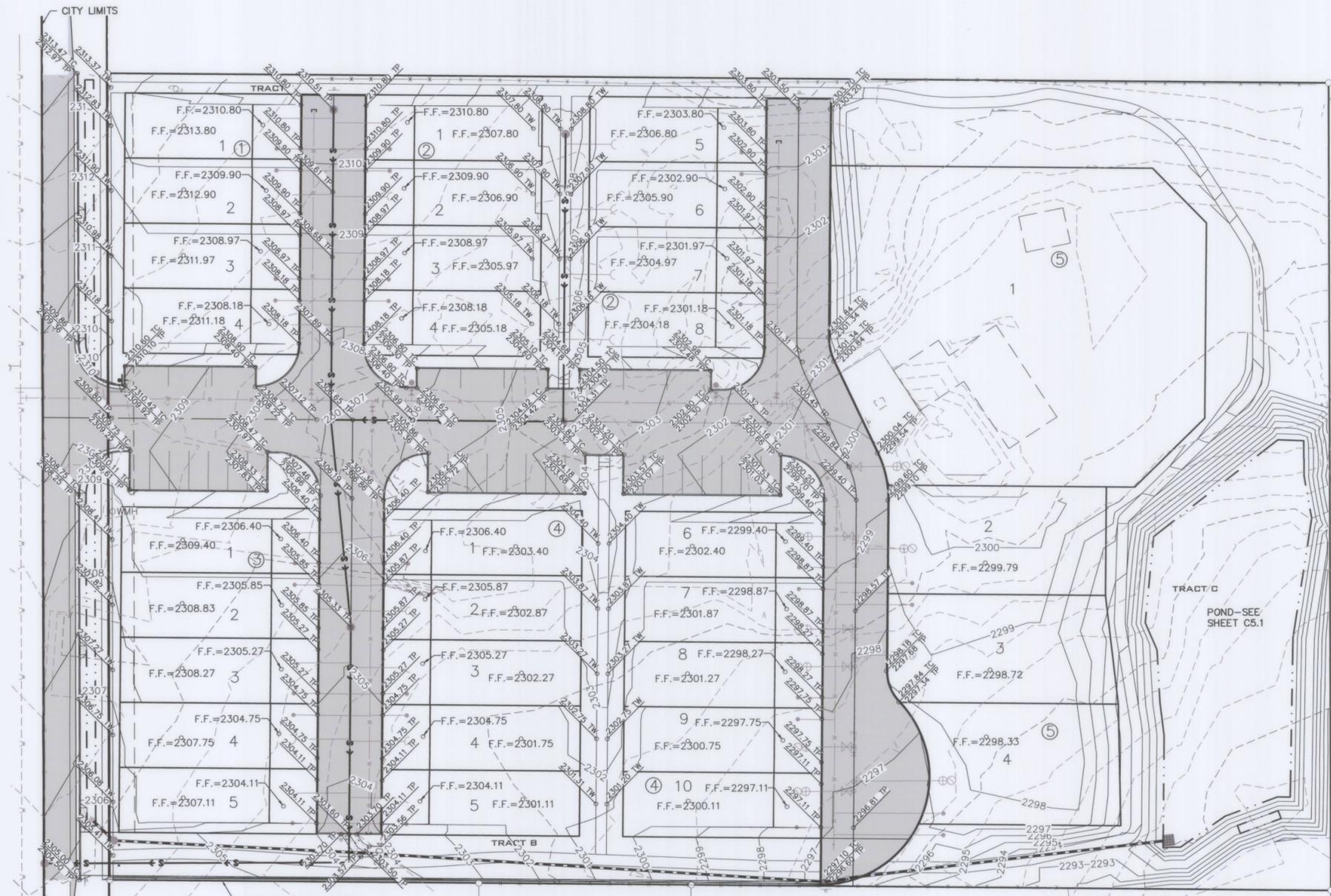
PROJ #: 15-1425
DATE: 05/17/16
DRAWN: JPP
REVIEWED: TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- PLANNING
- LANDSCAPE
- OTHER

IWCE
 WHIPPLE CONSULTING ENGINEERS
 2528 NORTH SULLIVAN ROAD
 SPOKANE VALLEY, WA 99216
 PH: 509-893-2617 FAX: 509-926-0227

COTTAGES ON HAVANA
SITE PLAN
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET C3.0
 JOB NUMBER 15-1425

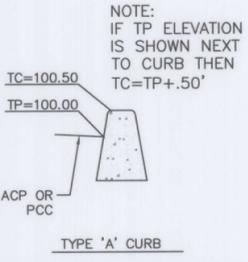


GRADING PLAN
SCALE: 1" = 30'

GRADING PLAN WITH 0.2' CONTOURS
SCALE: 1" = 60'

LEGEND

- PROPERTY LINE
- 1977.10 TP PROPOSED TOP OF PAVEMENT SPOT ELEVATION
- 1977.10 TW PROPOSED TOP OF WALK SPOT ELEVATION
- 1977.10 TC PROPOSED TOP OF PAVEMENT AND CURB SPOT ELEVATION
- 1976.60 TP



SPOT ELEVATION DETAIL ①
SCALE: NOT TO SCALE

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-25-18
DATE ACCEPTED: 10-25-18
ACCEPTANCE EXPIRES: 10-25-20
PROJECTS LANE MILES: PUBLIC: 0
PROJECTS LANE MILES: PRIVATE: 12
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3800
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP32395-201 ELEVATION=1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH
AVENUE ELEVATION=2298.606

NO.	DATE	BY	REVISIONS
-	XXX	xxx	xxx

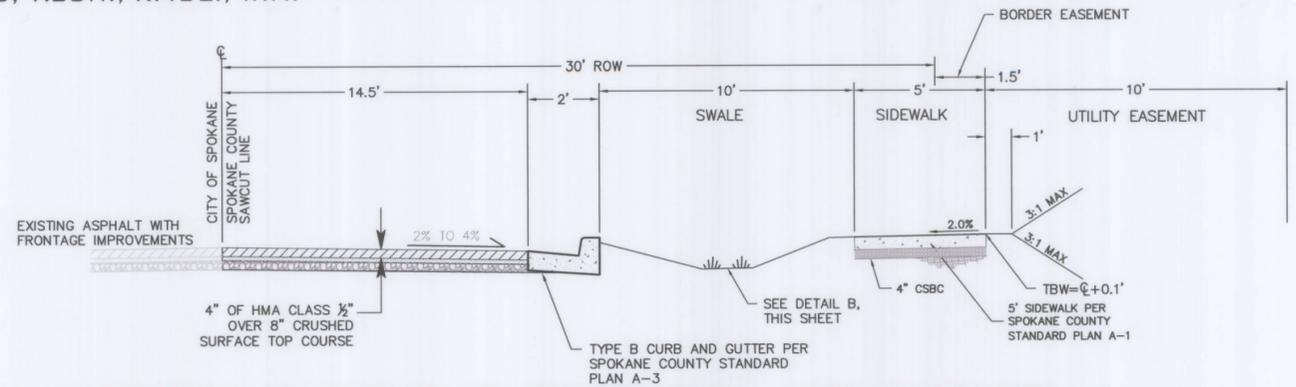
SCALE:	PROJ #: 15-1425
HORIZONTAL:	DATE: 05/17/16
1"=30'	DRAWN: JPP
VERTICAL:	REVIEWED: TRW
N/A	

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

**COTTAGES ON HAVANA
GRADING PLAN**
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

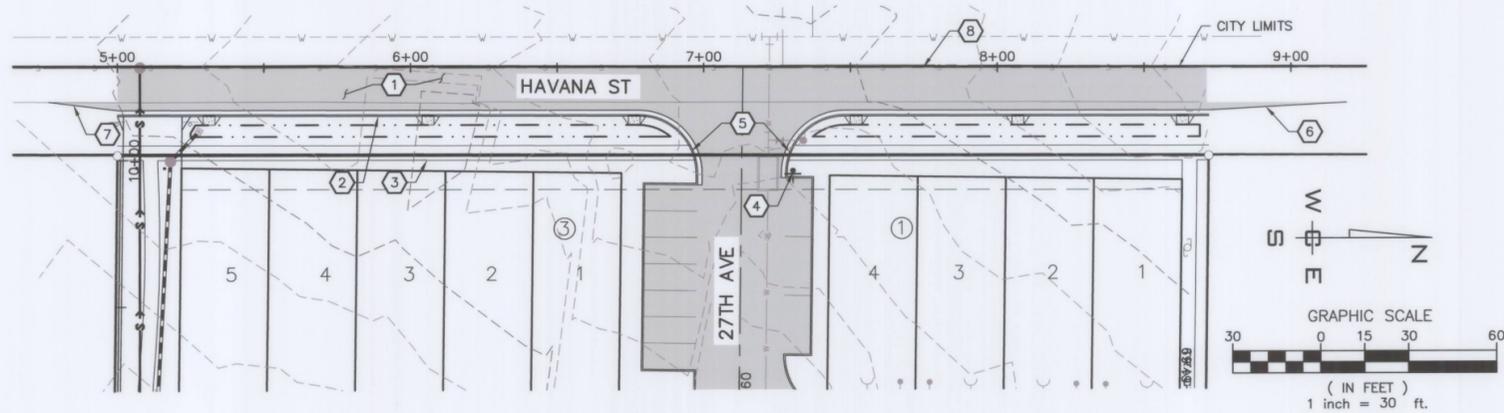
SHEET C4.0
JOB NUMBER
15-1425

	FIELD INFORMATION			Office Calculations					
	Station	C/L Elev	C/L Grade	Dist C/L to Sawcut	Ex Elev @ Sawcut	Dist Sawcut to EOP	Proposed Curb Elev./EP Elev.	Proposed TBC Grade	Proposed Cross-Slope
BEGIN CURB	500.04	2305.09		0	2305.09	14.50	2305.00		0.0325
	550.04	2306.45	0.0272	0	2306.45	14.50	2306.36	0.0272	0.0325
	600.04	2307.31	0.0172	0	2307.31	14.50	2307.22	0.0172	0.0325
	650.04	2308.25	0.0188	0	2308.25	14.50	2308.16	0.0188	0.0325
CRUB RETURN	677.89	2308.84	0.0212	0	2308.84	14.50	2308.75	0.0212	0.0325
			0.0000					0.0000	
CURB RETURN	747.89	2309.95	0.0220	0	2309.95	14.50	2309.86	0.0220	0.0325
	771.97	2310.48	0.0308	0	2310.48	14.50	2310.39	0.0308	0.0325
	821.97	2312.02	0.0308	0	2312.02	14.50	2311.93	0.0308	0.0325
END CURB	871.97	2313.56	0.0308	0	2313.56	14.50	2313.47	0.0308	0.0325
			0.0000					0.0000	



TYPICAL WIDENING SECTION - HAVANA ST

STA. 14+21.32 TO STA. 17+58.20
NOT TO SCALE



CONSTRUCTION NOTES

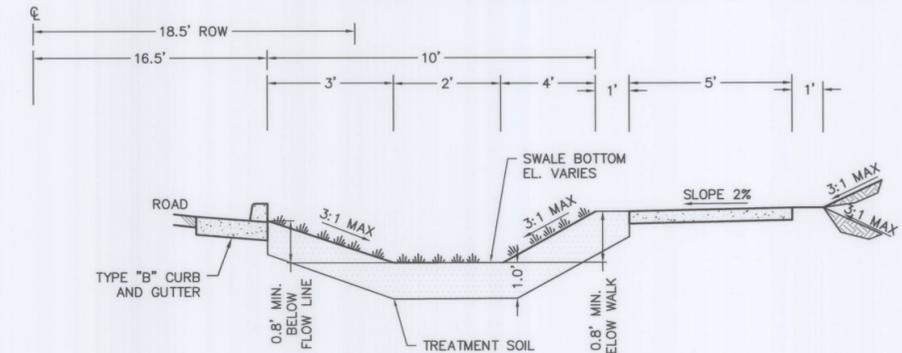
- 1 PROVIDE AND INSTALL ROADWAY WIDENING PER HAVANA TYPICAL WIDENING SECTION-SEE DETAIL A, THIS SHEET.
- 2 PROVIDE AND INSTALL TYPE 'B' CONCRETE CURB AND GUTTER PER SPOKANE COUNTY ROAD STANDARD A-3.
- 3 PROVIDE AND INSTALL 5' SIDEWALK PER SPOKANE COUNTY STANDARD PLAN A-4. FOR INTERIOR SIDEWALK SEE DETAIL 1.
- 4 PROVIDE & INSTALL 30" X 30" STOP SIGN PER SPOKANE COUNTY ROAD STANDARDS.
- 5 PROVIDE AND INSTALL PEDESTRIAN ACCESS RAMP PER DETAIL 6, SEE SHEET C3.1.
- 6 PROVIDE AND INSTALL 47' LONG ASPHALT TAPER ON NORTH END OF HAVANA ST FOR DEPARTING END OF THE ROAD WIDENING.
- 7 PROVIDE AND INSTALL 23.5' LONG ASPHALT TAPER ON THE SOUTH END OF HAVANA ST FOR THE ARRIVING END OF THE ROAD WIDENING.
- 8 SAWCUT AND REMOVE EXISTING ASPHALT AT CENTERLINE TO CREATE A CLEAN EDGE, TACK COAT AND MATCH TO EXISTING ASPHALT WITH NEW ASPHALT.

TAPER CALCULATIONS

$L = W(S)^2 / 60$
 $4.5(25^2) / 60 = 47'$ (DEPARTING)
 $133' / 2 = 23.5'$ (ARRIVING)

NOTE: MAINTAIN 2% TO 4% CROSS SLOPE AT ALL POINTS IN THE WIDENING SECTION.

CURB INLET LOCATION TABLE			
INLET	ALIGNMENT	STATION	OFFSET
1	HAVANA ST	5+31.30	16' RIGHT
2	HAVANA ST	6+05.92	16' RIGHT
3	HAVANA ST	6+76.28	16' RIGHT
4	HAVANA ST	7+51.93	16' RIGHT
5	HAVANA ST	8+06.98	16' RIGHT
6	HAVANA ST	8+63.04	16' RIGHT



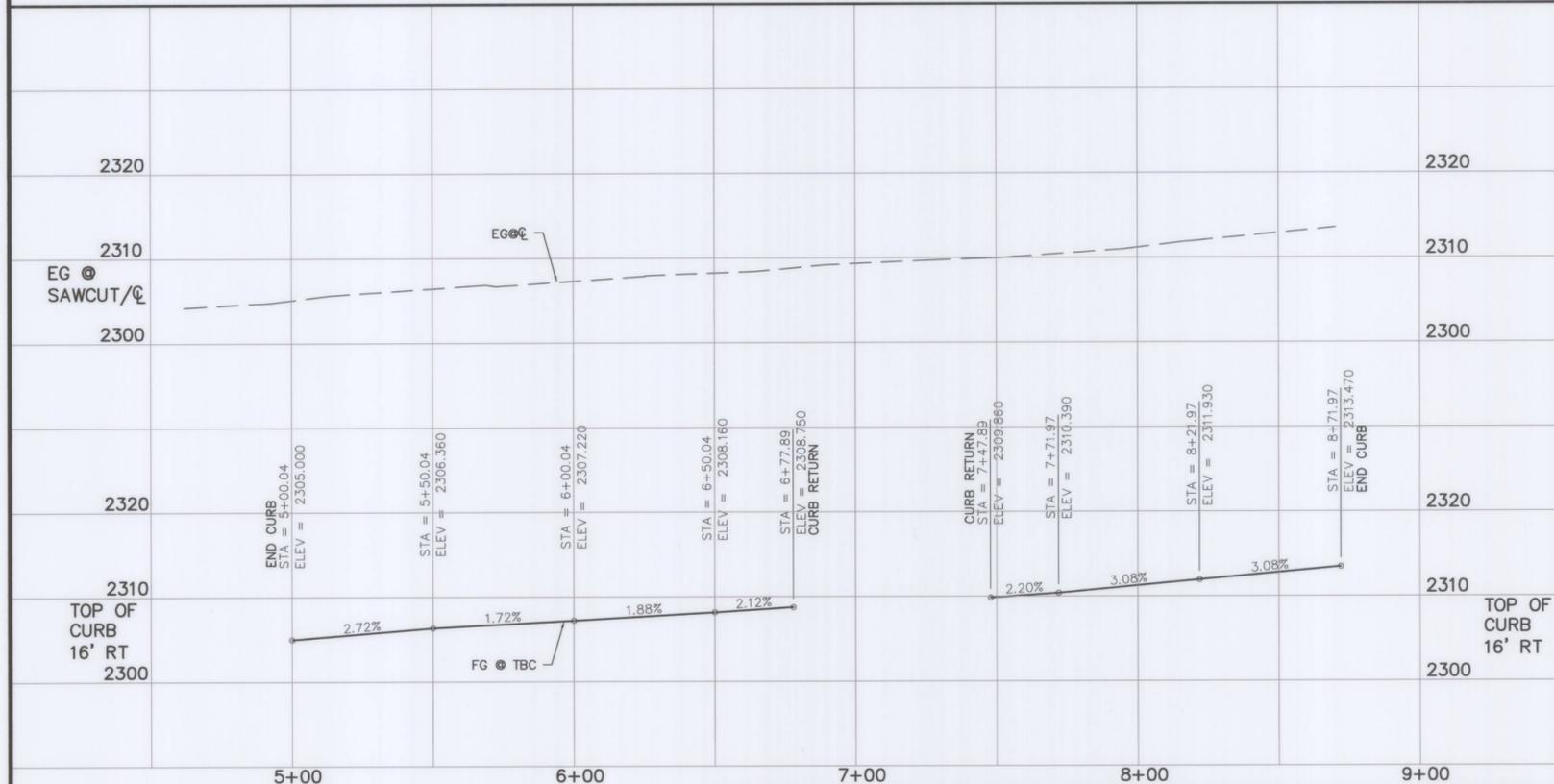
TYPICAL SWALE SECTION

NOT TO SCALE



TREATMENT SOIL NOTE:
 12" OF TREATMENT SOIL WITH AN INFILTRATIVE RATE BETWEEN 0.25 AND 0.5 INCHES/HOUR AND AVERAGE CATION EXCHANGE CAPACITY OF AT LEAST 15 MILLIQUIVALENTS/100 GRAMS OR AT LEAST 2% OF ORGANIC MATTER BY WEIGHT. SEE TABLE 6-1, PG. 6-16 OF THE SPOKANE REGIONAL STORMWATER MANUAL.
 WARNING - THE USE OF SILTY LOAM IS PROHIBITED AS POND BOTTOM MATERIAL.

SPOKANE COUNTY PUBLIC WORKS
 OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
 PROJECT #: P-2047
 DATE ACCEPTED: 10-25-16
 ACCEPTANCE EXPIRES: 10-25-18
 PROJECTS LANE MILES: PUBLIC: 0.014
 PROJECT LANE MILES PRIVATE: 0
 CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS: "AS-BUILT" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE.
 PERMIT REQUIRED? (509) 477-3600
 NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



COUNTY DATUM
 MONUMENT ID NO. 3394, HWY 395, MO 167.35,
 CBM NO. GP32395-201 ELEVATION = 1748.382
 SPIKE AT C/L OF HAVANA STREET AND 29TH AVENUE ELEVATION = 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:	PROJ #: 15-1425
HORIZONTAL:	DATE: 05/17/16
1"=30'	DRAWN: JPP
VERTICAL:	REVIEWED: TRW
1"=10'	

IWCE
 WHIPPLE CONSULTING ENGINEERS
 2528 NORTH SULLIVAN ROAD
 SPOKANE VALLEY, WA 99216
 PH: 509-893-2617 FAX: 509-926-0227

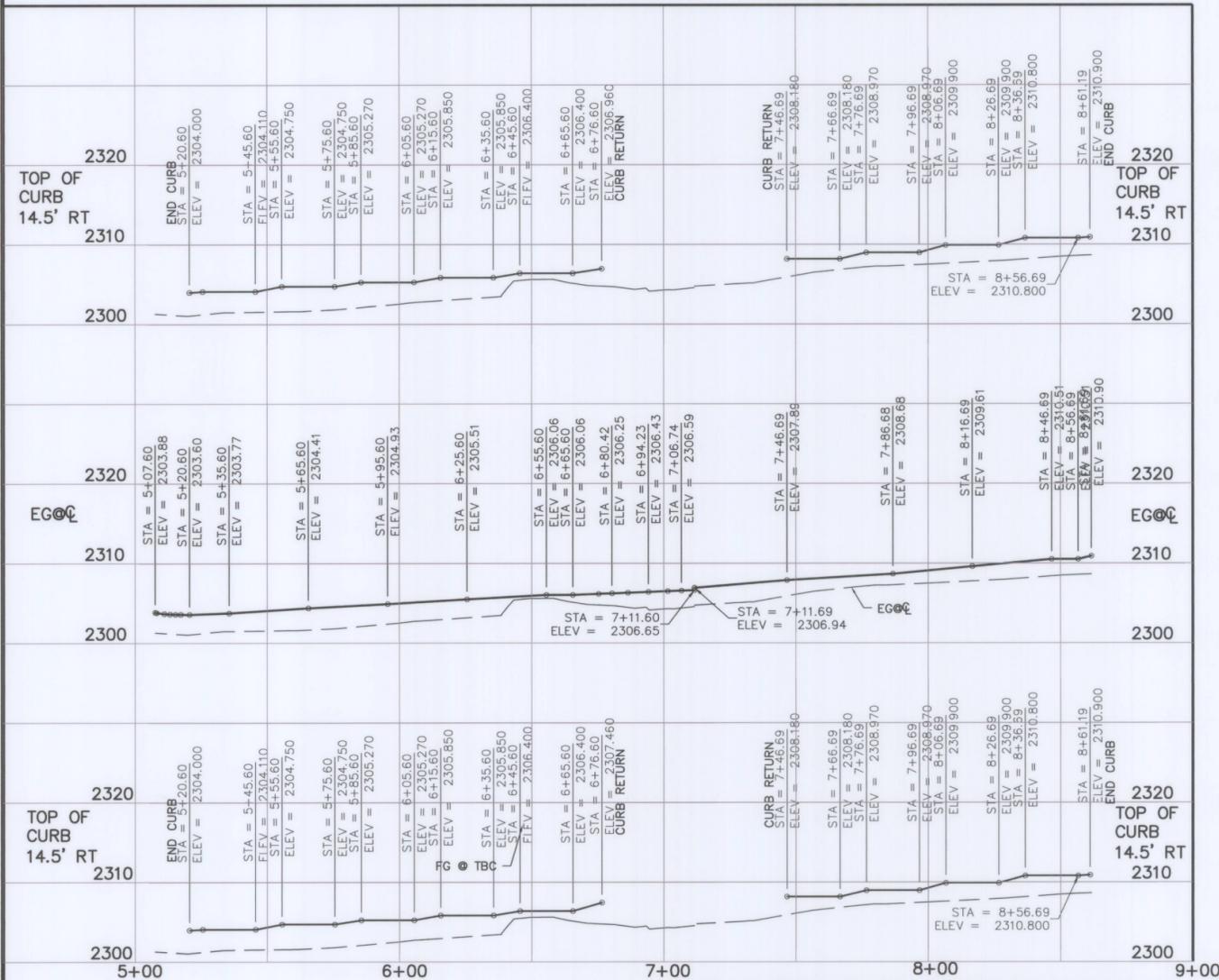
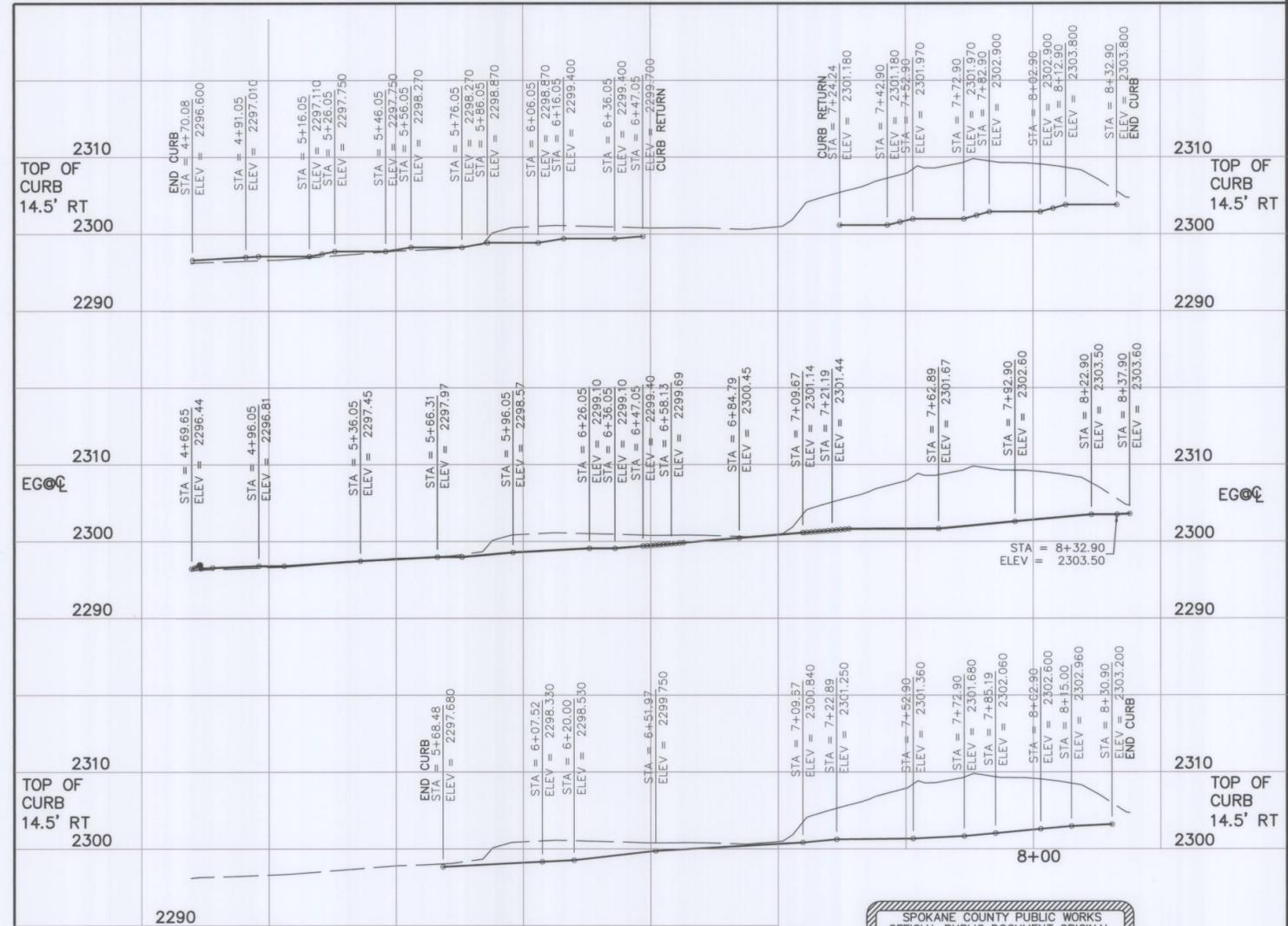
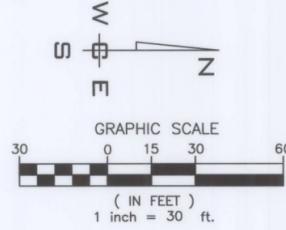
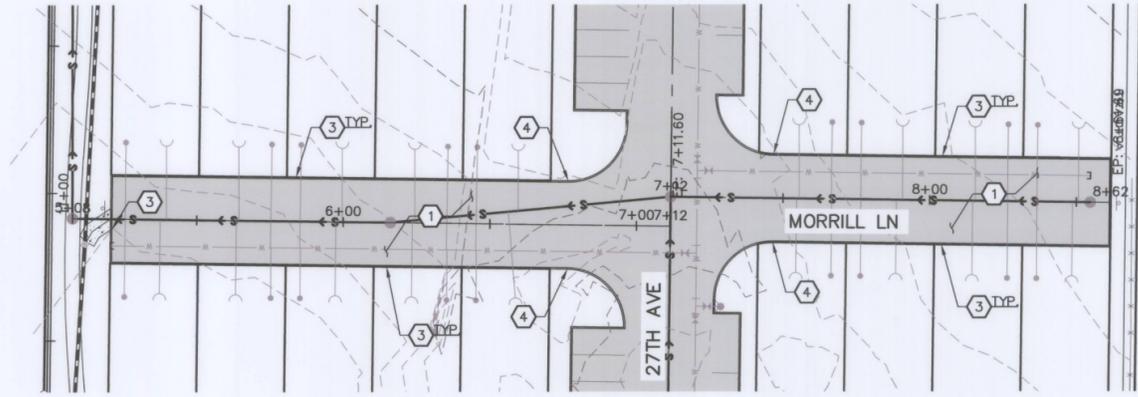
CITY PROJECT NUMBER: 2016155

**COTTAGES ON HAVANA
 HAVANA ST WIDENING
 27th AVENUE AND HAVANA STREET
 SPOKANE COUNTY, WA**

SHEET C4.1
 JOB NUMBER 15-1425

CONSTRUCTION NOTES

- 1 PROVIDE AND INSTALL ROADWAY WIDENING PER MORRILL LANE TYPICAL SECTION—SEE DETAIL A, SHEET C3.1.
- 2 PROVIDE AND INSTALL ROADWAY WIDENING PER DEARBORN TYPICAL SECTION—SEE DETAIL C, SHEET C3.1.
- 3 PROVIDE AND INSTALL TYPE 'S' CONCRETE CURB AND GUTTER PER SPOKANE COUNTY ROAD STANDARD A-3.
- 4 PROVIDE AND INSTALL TYPE 'A' CONCRETE CURB AND GUTTER PER SPOKANE COUNTY ROAD STANDARD A-3.



COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP32395-201 ELEVATION = 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH
AVENUE ELEVATION = 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:
HORIZONTAL:
1"=30'
VERTICAL:
1"=10'

PROJ #: 15-1425
DATE: 05/17/16
DRAWN: JPP
REVIEWED: TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- PLANNING
- LANDSCAPE
- OTHER

IWCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

**COTTAGES ON HAVANA
MORRILL LN & DEARBORN LN P&P
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA**

**SHEET
C4.3**
JOB NUMBER
15-1425

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-2047
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: 2.2
PROJECT LANE MILES PRIVATE: .27
CONSTRUCTION DOCUMENTATION AND CERTIFIED
RECORD DRAWINGS, "AS-BUILTS" ARE REQUIRED PRIOR
TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE
ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE
PERMIT REQUIRED! (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS
PRIOR TO CONSTRUCTION



P:\15\151425\151425_P&P\151425_P&P.dwg - 10/24/2016 11:40:01 AM



CONSTRUCTION NOTES

- 1 PROVIDE AND INSTALL DETENTION POND PER DETAILS, SHEET C5.1.
- 2 PROVIDE & INSTALL 6" WIDE CONCRETE GUTTER FROM EDGE OF ASPHALT TO CATCH BASIN. SEE DETAIL 2, SHEET C5.1.
- 3 PROVIDE AND INSTALL CATCH BASIN AND INLET PER SPOKANE COUNTY STANDARD B-7.
- 4 PROVIDE AND INSTALL 12" PVC STORM PIPE PER SPOKANE STANDARDS AND SPECIFICATIONS.
- 5 CONSTRUCT 3' X 2' CONCRETE SPLASH PAD FOR POND INLET. ELEVATION TO EQUAL POND BOTTOM ELEVATION.
- 6 PROVIDE AND INSTALL TYPE 1-48" SDMH PER COUNTY STANDARD U-2. LID TO BE LABELED "STORM."
- 7 PROVIDE AND INSTALL 12" PVC STORM PIPE PER SPOKANE STANDARDS AND SPECIFICATIONS.
- 8 PROVIDE AND INSTALL 12" ASTM D-3034 PVC STORM PIPE PER SPOKANE STANDARDS AND SPECIFICATIONS.

WCE GENERAL STORM WATER NOTES

1. FOR ALL SWALES AND PONDS, THE TOP 12 INCHES OF SOIL SHALL CONSIST OF A THOROUGHLY BLENDED MIX OF 50% COMPOST WITH 50% NATIVE SOILS.
2. WARNING - THE USE OF SILTY LOAM IS PROHIBITED AS POND BOTTOM MATERIAL.
3. 12" OF TREATMENT SOIL WITH AN INFILTRATIVE RATE BETWEEN 0.25 AND 0.5 INCHES/HOUR AND AVERAGE CATION EXCHANGE CAPACITY OF AT LEAST 15 MILLIQUIVALENTS/100 GRAMS OR AT LEAST 2% OF ORGANIC MATTER BY WEIGHT. SEE TABLE 6-1, PG. 6-16 OF THE SPOKANE REGIONAL STORMWATER MANUAL.



SITE PLAN
SCALE: 1" = 30'

COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP32395-201 ELEVATION = 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH.
AVENUE ELEVATION = 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:
HORIZONTAL: 1"=30'
VERTICAL: N/A

PROJ #: 15-1425
DATE: 05/17/16
DRAWN: JPP
REVIEWED: TRW

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

**COTTAGES ON HAVANA
DRAINAGE PLAN
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA**

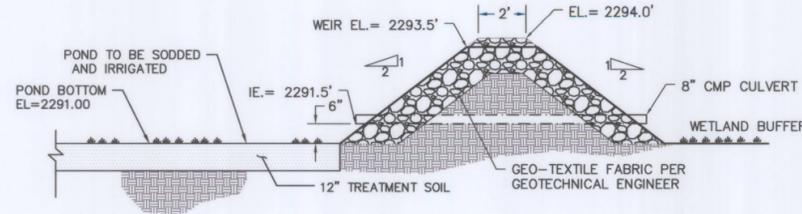
SHEET C5.0
JOB NUMBER 15-1425

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-2047
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: .06
PROJECT LANE MILES PRIVATE: .39
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS. "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



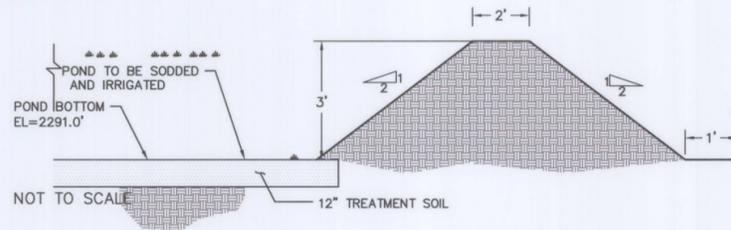
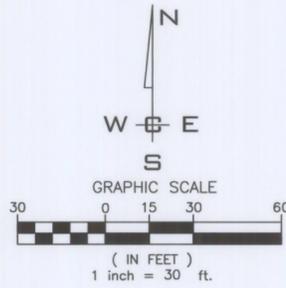
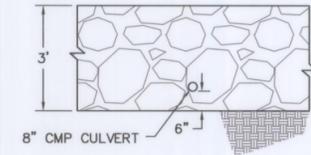
CONSTRUCTION NOTES

- 1 PROVIDE AND INSTALL DETENTION POND PER DETAIL A, THIS SHEET.
- 2 CONSTRUCT 3' X 2' CONCRETE SPLASH PAD FOR POND INLET. ELEVATION TO EQUAL POND BOTTOM ELEVATION.
- 3 PROVIDE AND INSTALL BROAD CRESTED WEIR PER DETAIL E, THIS SHEET.
- 4 PROVIDE AND INSTALL BERM PER PLAN VIEW AND DETAILS A THROUGH D.



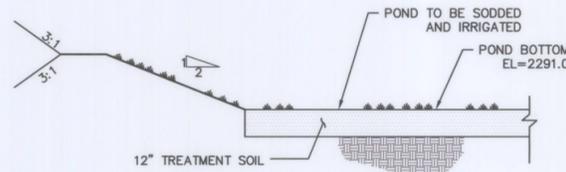
POND SECTION WITH CMP CULVERT

NOT TO SCALE



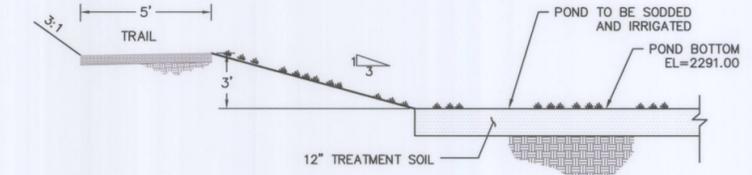
POND SECTION

B



POND SECTION

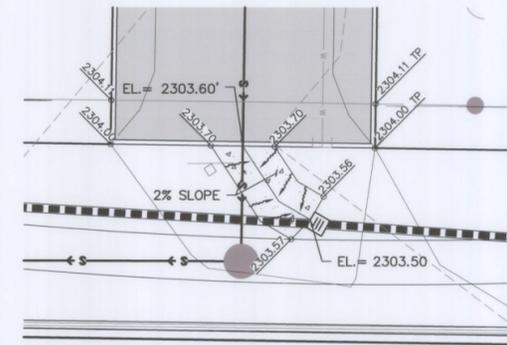
D



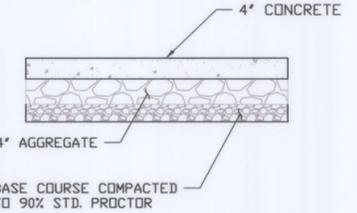
POND SECTION

NOT TO SCALE

C



* ALL DEPTHS ARE COMPACTED DEPTHS



CONCRETE GUTTER

SCALE: 1"=10'

2

POND '1' DETAIL

SCALE: 1" = 20'

POND:	1
FINISH GRADE POND BOTTOM EL=	2291.00
POND TREATMENT AREA PROVIDED=	10,154 SF
MINIMUM BERM ELEVATION=	2294.00

SEEDING NOTE:

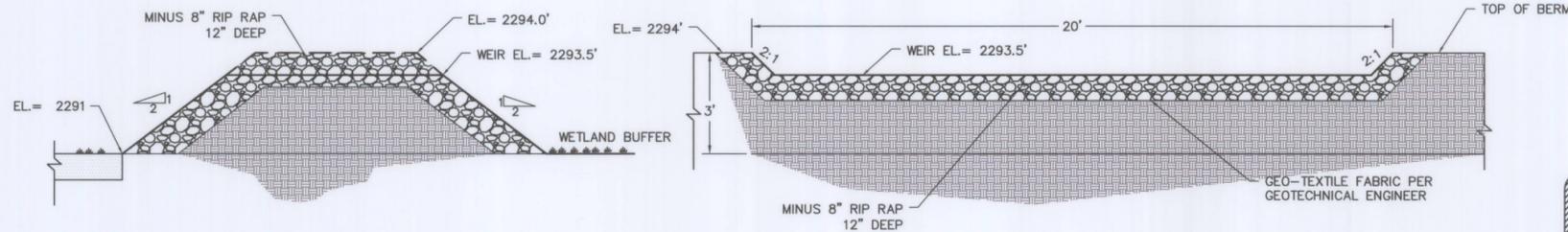
GRASS SEED: PROVIDE FRESH, CLEAN, NEW-CROP SEED COMPLYING WITH TOLERANCE OF PURITY AND GERMINATION ESTABLISHED BY THE OFFICIAL SEED ANALYSIS OF NORTH AMERICAN. PROVIDE SEED MIXTURE COMPOSED OF GRASS SPECIES AND PERCENTAGES AS FOLLOWS:

10 PER CENT	ELKA PERENNIAL RYE
20 PERCENT	DURAR HARD FESCUE
45 PERCENT	COVAR SHEEP/FESCUE
15 PERCENT	REUBENS CANADIAN BLUEGRASS

PROVIDE MIXTURE COMPOSED OF GRASS SEED AND FERTILIZER IN PERCENTAGES AS FOLLOWS:

GRASS SEED:	90 LBS. PER ACRE
FERTILIZER:	16-16-16 TIMED RELEASE COMPOSITION, 300 LBS. PER ACRE

ALL SEEDING OF SLOPES SHALL BE DONE IN ACCORDANCE WITH THE W.S.D.O.T. STANDARD SPECIFICATIONS, SECTION 8-01.



WEIR DETAIL

NOT TO SCALE

E

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: **P-2047**
DATE ACCEPTED: **10-25-16**
ACCEPTANCE EXPIRES: **10-28-18**
PROJECTS LANE MILES: PUBLIC: **0.00**
PROJECT LANE MILES PRIVATE: **0.39**
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS. "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE.
PERMIT REQUIRED (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CSM NO. GP23395-201 ELEVATION= 1748.382
SPIKE AT OIL OF HAVANA STREET AND 29TH.
AVENUE ELEVATION= 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:	PROJ #: 15-1425
HORIZONTAL: N/A	DATE: 05/17/16
VERTICAL: N/A	DRAWN: JPP
	REVIEWED: TRW

<input checked="" type="checkbox"/>	CIVIL
<input type="checkbox"/>	STRUCTURAL
<input type="checkbox"/>	SURVEYING
<input type="checkbox"/>	TRAFFIC
<input type="checkbox"/>	PLANNING
<input type="checkbox"/>	LANDSCAPE
<input type="checkbox"/>	OTHER

IWCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

COTTAGES ON HAVANA DRAINAGE DETAILS
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET C5.1
JOB NUMBER **15-1425**

SWPPP/EROSION CONTROL PLAN

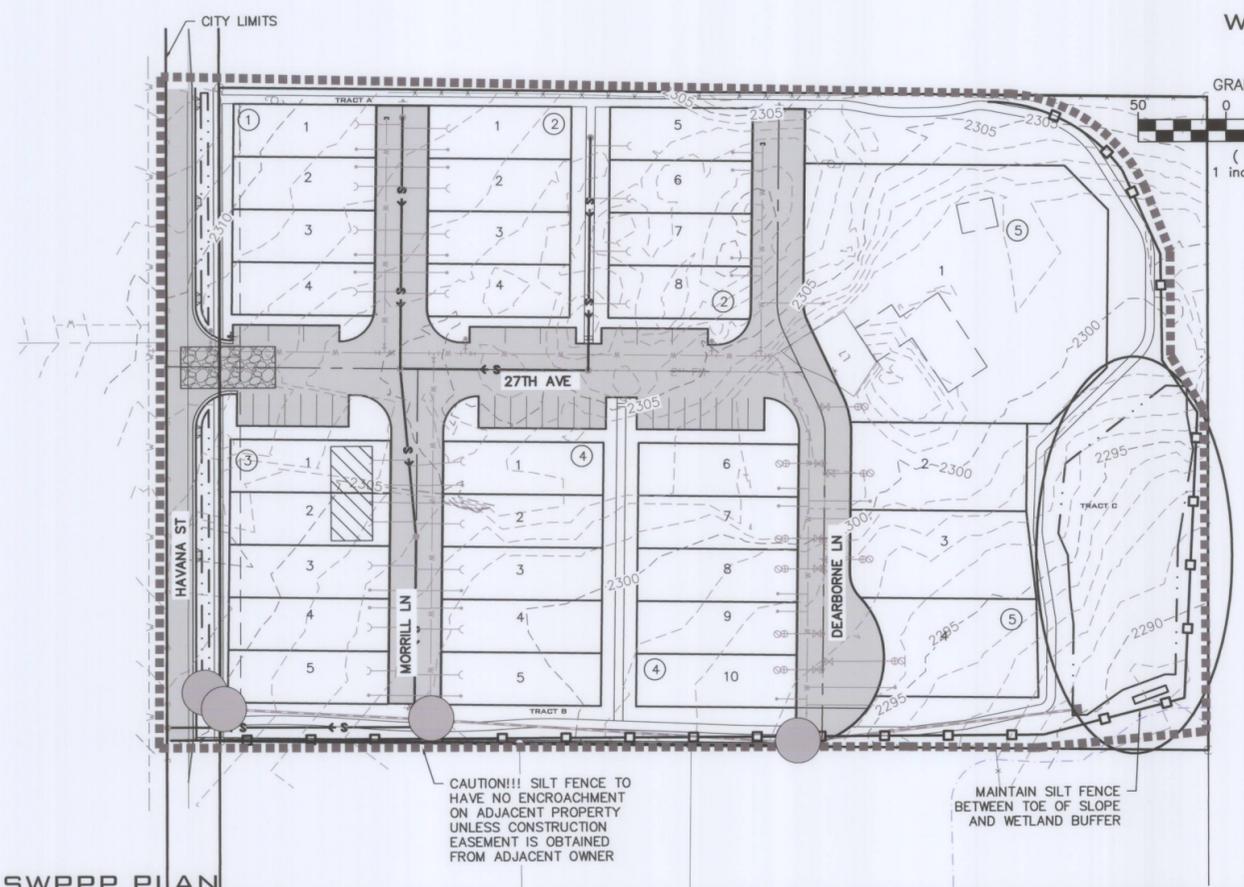
COTTAGES ON HAVANA

LOCATED IN A PORTION OF THE S.E. 1/4 OF S. 29, T. 27 N., R. 43 E., W.M. SPOKANE COUNTY, WA.

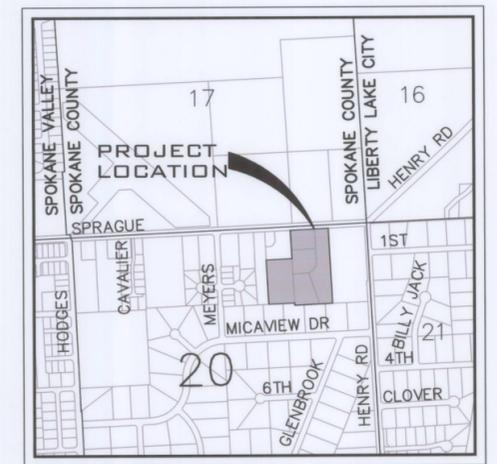


GENERAL NOTES

- ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF SITE IMPROVEMENTS SHALL MEET OR EXCEED SITE WORK STANDARDS AND THE STANDARDS AND SPECIFICATIONS SET FORTH IN SPOKANE COUNTY REGULATIONS AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE HIGHER QUALITY STANDARD SHALL APPLY. ALL WORK WITHIN PUBLIC R.O.W. OR EASEMENTS SHALL BE INSPECTED AND APPROVED BY SPOKANE COUNTY INSPECTOR. INSPECTION SERVICES AND CONSTRUCTION CERTIFICATION TO BE PROVIDED BY DESIGNEE OF PROJECT SPONSOR/OWNER.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT THE CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL NOTIFY SPOKANE COUNTY INSPECTOR AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS.
- THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH SPOKANE COUNTY AND ALL UTILITY COMPANIES WITH REGARD TO RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITIES DURING CONSTRUCTION, TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION, AND WITH A MINIMUM DISRUPTION OF SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE.
- THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND ONE (1) COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB ON-SITE AT ALL TIMES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING, BUT NOT LIMITED TO: EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
- IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED BY THE CONTRACTOR, HIS SUBCONTRACTORS, OR OTHER AFFECTED PARTIES WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
- ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.
- FOR WORK AFFECTING PUBLIC ROADWAYS OR IF REQUIRED BY SPOKANE COUNTY, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL AND PHASING PLAN IN ACCORDANCE WITH M.U.T.C.D. FOR APPROVAL. PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN OR AFFECTING THE RIGHT-OF-WAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY SAID PLANS. PRIOR TO INSTALLATION, A RECONSTRUCTION CONFERENCE SHALL BE HELD WITH SPOKANE COUNTY.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS SHOWN ON THESE DRAWINGS OR DESIGNATED TO BE PROVIDED, INSTALLED, CONSTRUCTED, REMOVED OR RELOCATED UNLESS SPECIFICALLY NOTED OTHERWISE.
- PER AGENCY STANDARDS THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING RECORD INFORMATION ON A SET OF RECORD DRAWINGS KEPT AT THE CONSTRUCTION SITE AND AVAILABLE TO SPOKANE COUNTY INSPECTOR AT ALL TIMES.
- DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. FOR ADDITIONAL INFORMATION CONTACT THE ENGINEER FOR CLARIFICATION AND NOTE ON THE RECORD DRAWINGS.
- ALL EROSION AND SEDIMENT CONTROL (E.S.C.) MEASURES SHALL BE INSTALLED AT THE LIMITS OF CONSTRUCTION PRIOR TO GROUND DISTURBING ACTIVITY. ALL E.S.C. MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS ARE STABILIZED WITH HARD SURFACE OR LANDSCAPING.
- THE CONTRACTOR SHALL SEQUENCE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO MINIMIZE POTENTIAL UTILITY CONFLICTS. IN GENERAL, STORM SEWER AND SANITARY SEWER SHOULD BE CONSTRUCTED PRIOR TO INSTALLATION OF WATER LINES AND DRY UTILITIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL UTILITY RELOCATIONS CONSISTENT WITH THE CONTRACTORS SCHEDULE FOR THIS PROJECT, WHETHER SHOWN OR NOT SHOWN, AS IT RELATES TO THE CONSTRUCTION ACTIVITIES CONTEMPLATED IN THESE PLANS.
- ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY IS SUBJECT TO THE JURISDICTION OF SPOKANE COUNTY ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS.
- ALL CONSTRUCTION OPERATIONS, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED EQUIPMENT SHALL GENERALLY BE LIMITED TO THE TIME PERIOD APPROVED BY SPOKANE COUNTY.
- BASED ON REQUIREMENTS FROM SPOKANE COUNTY, THE ENGINEER OR HIS DESIGNEE SHALL PERFORM MATERIALS TESTING AND QUALITY CONTROL ON THE PROJECT AND SHALL SUBMIT COPIES OF DAILY REPORTS, TEST REPORTS, PROJECT CERTIFICATION AND RECORD DRAWINGS TO THE CITY OF SPOKANE VALLEY/SPOKANE COUNTY ENGINEER.
- NO REVISIONS SHALL BE MADE TO THESE PLANS WITHOUT APPROVAL OF SPOKANE COUNTY ENGINEERS AND NOTIFICATION OF THE ENGINEER OF RECORD.
- ON-SITE GRADING SHALL BE IN ACCORDANCE WITH THE APPROVED GRADING PLAN AND E.S.C. PLAN. ANY IMPORT OR EXPORT OF MATERIAL SHALL BE FROM AN REPROVED SOURCE/DESTINATION AND COORDINATED WITH SPOKANE COUNTY DEPARTMENT OF BUILDING AND PLANNING 509-477-3675. GRADING ON THIS SITE OR ANY OTHER SITE MUST COMPLY WITH ALL DEVELOPMENT REGULATIONS INCLUDING, BUT NOT LIMITED TO GRADING PERMITS, S.E.P.A. REVIEW, TIMBER HARVEST PERMITS, CRITICAL AREAS, FLOOD PLAINS, DESIGNATED DRAINAGE WAYS, ETC.
- THE CONTRACTOR IS CAUTIONED THAT IT IS THE UNDERSTANDING OF THE OWNER AND THE ENGINEER THAT SHOULD A CONFLICT OR DISCREPANCY IN THESE PLANS, SPECIFICATIONS, GENERAL NOTES OR PLANS E.T.A.L. DETERMINED TO BE PART OF THE OVERALL PROJECT, INCLUDING BUT NOT LIMITED TO THE ARCHITECTURAL PLANS, MECHANICAL PLANS, ELECTRICAL PLANS, LANDSCAPE PLANS, GENERAL SPECIAL PROVISIONS, ETC., THAT WITHOUT WRITTEN CLARIFICATION FROM THE ENGINEER, OWNER OR OTHER PROFESSIONAL, DURING THE BIDDING PROCESS, THAT IN ALL INSTANCES THE CONTRACTOR WILL BE REQUIRED TO BID THE HIGHER STANDARD. FAILURE TO DO SO MAY RESULT IN THE HIGHER STANDARD BEING REQUIRED BY THE OWNER, ENGINEER OR OTHER PROFESSIONAL WITH NO CHANGE IN VALUE TO THE CONTRACT VIA CHANGE ORDER OR OTHER MECHANISM.
- CONSTRUCTION OF EVERY DRYWELL, INCLUDING FABRIC AND DRAINROCK, SHALL BE OBSERVED BY THE ON-SITE INSPECTOR TO CONFIRM THAT IT MEETS THE DESIGN DETAILS AND SPECIFICATIONS. DRYWELLS NOT OBSERVED SHALL HAVE THEIR PERFORMANCE VERIFIED BY A FULL-SCALE DRYWELL TEST.



SWPPP PLAN
SCALE: 1" = 50'



VICINITY MAP

LEGAL DESCRIPTION

INDEX TO PLAN SHEETS

- C9.0 SWPPP/EROSION CONTROL COVER SHEET
- C9.1 SWPPP NOTES
- C9.2 SWPPP BMP'S
- C9.3 SWPPP BMP'S

LEGEND

- STORM DRAINAGE POND - NO CONCRETE TRUCK WASHOUT AREA.
- BMP C233: SILT FENCE, SHEET C9.2.
- BMP C105: STABILIZED CONSTRUCTION ENTRY, SHEET C9.2
- BMP C220: STORM DRAIN INLET PROTECTION, SHEET C9.3.
- BMP C151: CONCRETE HANDLING - MAY ONLY TAKE PLACE ON UNCOMPACTED SUBGRADE AFTER ASPHALT REMOVAL, AND IN A NON-LANDSCAPED AREA. OTHERWISE ANY CONCRETE WASHOUT MUST BE OFF SITE. SHEET C9.3.
- LIMITS OF DISTURBANCE

SEWER MAINTENANCE WATER

CITY OF SPOKANE
909 EAST SPRAGUE AVENUE
SPOKANE, WASHINGTON 99202
PHONE: 625-7900
CONTACT: GARY KAESEMEYER

FIRE

CITY OF SPOKANE
914 E NORTH FOOTHILLS DR
SPOKANE, WASHINGTON 99207
PHONE: 625-7854
CONTACT: JIM SAKAMOTO, P.E.

STREETS-CITY

CITY OF SPOKANE
808 W. SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201
PHONE: 625-6300
CONTACT: BOB HURROCKS

INSPECTION-CITY

CITY OF SPOKANE
1423 NORTH NORMANDIE
SPOKANE, WASHINGTON 99201
PHONE: 625-7716
CONTACT: JOHN HOGBERG

ARCHITECT

D'ZIGN ARCHITECTURE GROUP, LLC
21 COMMERCE DR. STE. A
HAYDEN, ID 83835
PHONE: 208-699-6244
CONTACT: CHAD DODSON

STREETS-COUNTY

SPOKANE COUNTY ENGINEERS
1026 WEST BROADWAY AVE
SPOKANE, WASHINGTON 99260
PHONE: 477-3600
CONTACT: MAT ZARECOR, P.E.

INSPECT.-COUNTY

INLAND PACIFIC ENGINEERING
P. O. BOX 1566
VERADALE, WASHINGTON 99037
PHONE: 324-1578
CONTACT: PAUL SAVAGE

HEALTH

SPOKANE REGIONAL HEALTH
1101 WEST COLLEGE AVENUE
SPOKANE, WASHINGTON 99260
PHONE: 324-1578
CONTACT: PAUL SAVAGE

SOLID WASTE

CITY OF SPOKANE
1225 E MARIETTA AVENUE
SPOKANE, WASHINGTON 99207
PHONE: 625-7871
CONTACT: RICK HUGHES

GAS / POWER

AVISTA UTILITIES
1411 EAST MISSION AVENUE
SPOKANE, WASHINGTON 99220
PHONE: 495-8610
CONTACT: KEN CARLSON

TELEPHONE

CENTURY LINK
904 NORTH COLUMBUS
SPOKANE, WASHINGTON, 99202
PHONE: 623-0478
CONTACT: ARNE HILL

CABLE

COMCAST BROADBAND
1717 EAST BUCKEYE
SPOKANE, WASHINGTON, 99207
PHONE: 755-4717
CONTACT: BRYAN RICHARDSON

SURVEYOR

WHIPPLE CONSULTING ENGINEERS
2528 N. SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PHONE: 893-2617
CONTACT: JON GORDON, PLS

ENGINEER

WHIPPLE CONSULTING ENGINEERS
2528 N. SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PHONE: 893-2617
CONTACT: TODD WHIPPLE, P.E.

OWNER

COPPER BASIN CONSTRUCTION
P. O. BOX 949
HAYDEN LAKE, IDAHO 83835
PHONE: 208-765-5059
CONTACT: STEVE WHITE, PRES.

COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP32395-201 ELEVATION= 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH
AVENUE ELEVATION=2298.606

NO.	DATE	BY	REVISIONS

SCALE:
HORIZONTAL:
1"=50'
VERTICAL:
N/A

PROJ #: 15-1425
DATE: 05/17/16
DRAWN: JPP
REVIEWED: TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- PLANNING
- LANDSCAPE
- OTHER



COTTAGES ON HAVANA
EROSION CONTROL PLAN
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET
C9.0
JOB NUMBER
15-1425

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-2047
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: 0.54
PROJECT LANE MILES PRIVATE: 0.39
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION



EROSION & SEDIMENT CONTROL

GENERAL NOTES AND INFORMATION

- AN EROSION/SEDIMENT CONTROL (E.S.C.) PLAN IS REQUIRED FOR THIS PROJECT. IMPLEMENTATION OF THE E.S.C. PLAN, AND CONSTRUCTION, MAINTENANCE, AND UPGRADING OF THE E.S.C. FACILITIES ARE THE RESPONSIBILITY OF THE DEVELOPER UNTIL ALL CONSTRUCTION IS COMPLETED AND ACCEPTED BY SPOKANE COUNTY, OR UNTIL VEGETATION IS ESTABLISHED THROUGHOUT THE SITE, AND ACCEPTED BY SPOKANE COUNTY, WHICHEVER IS LATER.
- APPROVAL OF THE E.S.C. PLAN DOES NOT CONSTITUTE APPROVAL OF ANY OF THE PROPOSED ROAD, STORM DRAINAGE, GRADING OR UTILITY DESIGN ELEMENTS SHOWN ON THE E.S.C. PLAN.
- THE EROSION/SEDIMENT CONTROL MEASURES SHOWN ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THESE E.S.C. MEASURES DAILY, AND SHALL MAINTAIN AND UPGRADE THESE MEASURES AS NECESSARY TO PREVENT SEDIMENT-LADEN WATER FROM EITHER FLOWING OFF SITE, OR INTO NEW/EXISTING STORM DRAINAGE FACILITIES, SUCH AS DRYWELLS, CULVERTS, OR GRAVEL GALLERIES.
- GEOTEXTILE FABRIC IS TO BE PLACED ON THE RIMS, CATCH BASINS AND INLETS UNTIL SUCH TIME THAT THE VEGETATION ON THE SITE IS ESTABLISHED AND THE THREAT OF SEDIMENT DEPOSITION INTO THE DRAINAGE SYSTEM IS MITIGATED.
- THE SILT FENCES SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO OTHER SITE WORK, AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ROCK CONSTRUCTION ENTRIES AT ANY AND ALL LOCATIONS USED TO ENTER OR EXIT THE PROJECT SITE. SEE DETAIL.
- THE CONTRACTOR IS RESPONSIBLE FOR DESIGNATING A LOCATION WHERE CONCRETE TRUCKS AND EQUIPMENT CAN BE WASHED OUT, NOT LOCATED NEAR OR DRAINING INTO A STORM DRAINAGE AREA.
- PROPERTY OWNER: COPPER BASIN CONSTRUCTION
PERMIT APPLICANT: STEVE WHITE, 208-765-5059
CONTACT PERSON ON SITE: TBD
- PROJECT LOCATION: IN SPOKANE COUNTY, WASHINGTON IN THE SE 1/4 OF SECTION 29, TOWNSHIP 27 N., RANGE 43 E. W.M.
- PROJECT DESCRIPTION: THIS PROJECT CONSISTS OF A 27 NEW LOTS APPROXIMATELY 4.6 ACRES. THE PROJECT WILL REQUIRE CONSTRUCTION OF NEW PAVING, WATER, SEWER AND STORM DRAINAGE FACILITIES.
- DESCRIPTION OF E.S.C. MEASURES: USE OF SILT FENCES AND SEDIMENTATION FILTERS. ALL E.S.C. MEASURES MENTIONED ABOVE ARE TEMPORARY AND WILL BE REMOVED AFTER SITE IS LANDSCAPED.
- EXISTING VEGETATION: FIELD GRASS, TREES, AND BRUSH
- PLAN PREPARATION DATE: 05/16/2016
- SOILS: HARD TO VERY HARD SANDY SILT WITH ROCK
- STABILIZATION OF DENUDED AREAS:**
ANY DISTURBED AREAS, WHICH WOULD BE LEFT BARE FOR MORE THAN 7 DAYS AND ARE NOT INTENDED TO BE REWORKED WITHIN 30-45 DAYS SHALL BE SEEDED WITH A FAST STARTING NATIVE DRYLAND GRASS SUCH AS ANNUAL RYE, OR APPROVED EQUAL, AT A RATE OF 60 lbs/ACRE.
- CONTROL OF POLLUTANTS:**
ANY SPILLS WILL BE HANDLED ACCORDING TO D.O.E. AND D.O.H. GUIDELINES.
- LIMITS OF GRADING:**
DURING THE COURSE OF CONSTRUCTION, THE AMOUNT OF DISTURBED AREA SHALL BE KEPT TO A MINIMUM AND SHALL BE LIMITED TO THE AREA SHOWN AS "LIMITS OF GRADING" ON THIS SHEET OF THE EROSION CONTROL PLANS.

MAINTENANCE

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF THE TEMPORARY E.S.C. MEASURES.
- SEDIMENT BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RUNOFF-PRODUCING RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF FILTER FABRIC SHALL BE ACCOMPLISHED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RUNOFF-PRODUCING RAINFALL. DEPOSITS MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIER.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE E.S.C. STRUCTURE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.
- ALL TEMPORARY AND PERMANENT E.S.C. PRACTICES SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.
- ALL TEMPORARY E.S.C. MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMP'S ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DIRT, MUD AND OTHER CONSTRUCTION DEBRIS WHICH MAY ACCUMULATE ON PAVED STREETS ADJACENT TO THE SITE AS A RESULT OF CONSTRUCTION ACTIVITY. CLEANING SHALL BE ON AN "AS NEEDED" BASIS USING SWEEPING AND WATER TO WASH THE CONSTRUCTION DEBRIS FROM THE STREET.
- ON-SITE DUST CONTROL SHALL BE ACCOMPLISHED BY USING WATER. APPLICATIONS OF WATER MAY BE REQUIRED SEVERAL TIMES PER DAY DURING CONSTRUCTION ACTIVITY.

E.S.C. STANDARD PLAN NOTES FROM APPENDIX 9A OF THE

SPOKANE REGIONAL STORMWATER MANUAL

- THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS.
 - CLEAR AND GRUB SUFFICIENTLY FOR INSTALL OF TEMPORARY E.S.C. BMP'S;
 - INSTALL TEMPORARY E.S.C. BMPs, CONSTRUCTING SEDIMENT TRAPPING BMP'S AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
 - CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
 - STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
 - CLEAR, GRUB AND GRADE INDIVIDUAL LOTS OR GROUPS OF LOTS;
 - TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMP'S, LOTS OR GROUPS OF LOTS IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
 - CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES. (I.E. INLETS, PONDS, U.I.C.FACILITIES, ETC.);
 - PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMP'S;
 - INSTALL PERMANENT E.S.C. CONTROLS, WHEN APPLICABLE; AND,
 - REMOVE TEMPORARY E.S.C. CONTROLS WHEN;
- PERMANENT E.S.C. CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
- ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION AND SEDIMENTATION PROBLEMS HAVE CEASED; AND,
- VEGETATION HAD BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED E.S.C. PLAN ON FILE WITH THE LOCAL JURISDICTION.
- INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
- IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
- RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
- RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AND UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
- INSPECT SEDIMENT CONTROL BMP'S WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
- CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA.
- STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 TO SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THRU JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THE TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
- PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
- KEEP ROADS ADJACENT TO INLETS CLEAN.
- INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY FOR STORM EVENTS.
- CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERABLE BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
- STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
- COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NON-INERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 W.A.C. FOR THE DEFINITION OF INERT WASTE). USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
- CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEMS REPAIRS, SOLVENT AND DEGREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL RECONVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
- CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
- INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMP'S TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMP'S. NOTE THAT INLET PROTECTIONS DEVICES SHALL BE CLEANED OR REMOVED AND REPLACE BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
- REMOVE TEMPORARY E.S.C. BMP'S WITHIN 30 DAYS AFTER THE TEMPORARY BMP'S ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREA THAT ARE DISTURBED DURING REMOVAL PROCESS.

SRCAA GENERAL NOTES

- DUST EMISSIONS DURING DEMOLITION, CONSTRUCTION, AND EXCAVATION PROJECTS MUST BE CONTROLLED. THIS MAY REQUIRE THE USE OF WATER SPRAYS, TARPS, SPRINKLERS, OR SUSPENSION OF ACTIVITY DURING CERTAIN WEATHER CONDITIONS.
- MEASURES MUST BE TAKEN TO AVOID THE DEPOSITION OF DIRT AND MUD FROM UNPAVED SURFACES ONTO PAVED SURFACES. IF TRACKING OR SPILLS OCCUR ON PAVED SURFACES, MEASURES MUST BE TAKEN IMMEDIATELY TO CLEAN THESE SURFACES.
- DEBRIS GENERATED, AS A RESULT OF THIS PROJECT, MUST BE DISPOSED OF BY MEANS OTHER THAN BURNING (I.E., CONSTRUCTION WASTE, VEGETATIVE WASTE, ECT.).
- SPOKANE CLEAN AIR (SRCAA) STRONGLY RECOMMENDS THAT ALL TRAVELED SURFACES (I.E., INGRESS, EGRESS, PARKING AREAS, ACCESS ROADS, ECT.) BE PAVED AND KEPT CLEAN TO MINIMIZE DUST EMISSIONS.
- IF OBJECTIONABLE ODORS RESULT FROM THIS PROJECT, EFFECTIVE CONTROL APPARATUS AND MEASURES MUST BE TAKEN TO REDUCE ODORS TO A MINIMUM.
- SPECIAL ATTENTION SHOULD BE GIVEN TO PROPER MAINTENANCE OF DIESEL POWERED CONSTRUCTION EQUIPMENT TO REDUCE THE IMPACT OF DIESEL EXHAUST, A SUSPECTED CARCINOGEN.
- A NOTICE OF CONSTRUCTION AND APPLICATION FOR APPROVAL IS REQUIRED TO BE SUBMITTED AND APPROVED BY SRCAA PRIOR TO THE CONSTRUCTION, INSTALLATION, OR ESTABLISHMENT OF AN AIR POLLUTION SOURCE. THIS INCLUDES EMERGENCY GENERATORS RATED AT 500 HP(375 KW) OR HIGHER, NATURAL GAS HEATING EQUIPMENT UNITS RATED AT FOUR MMBTU/HOUR OR HIGHER (INPUT), AND HEATING EQUIPMENT UNITS FIRED WITH OTHER FUELS (E.G., DIESEL) RATED AT ONE MMBTU/HOUR (INPUT) OR HIGHER. CONTACT SPOKANE CLEAN AIR (SRCAA) FOR A NOTICE OF CONSTRUCTION APPLICATION.
- NOTICE OF INTENT MUST BE SUBMITTED TO SRCAA PRIOR TO ANY DEMOLITION PROJECT OR ASBESTOS PROJECT. AN ASBESTOS SURVEY MUST BE DONE BY AN HERA-ACCREDITED BUILDING INSPECTOR PRIOR TO THE DEMOLITION OR RENOVATION OF BUILDINGS TO DETERMINE IF ASBESTOS-CONTAINING MATERIAL IS PRESENT AT THE SITE. CONTACT SPOKANE CLEAN AIR (SRCAA) FOR A NOTICE OF INTENT APPLICATION.

COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35
CBM NO. GP32395-201 ELEVATION= 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH.
AVENUE ELEVATION=2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:

HORIZONTAL:
N/A

VERTICAL:
N/A

PROJ #: 15-1425

DATE: 05/17/16

DRAWN: JPP

REVIEWED: TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- PLANNING
- LANDSCAPE
- OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

COTTAGES ON HAVANA
EROSION CONTROL BMP'S
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET
C9.1

JOB NUMBER

15-1425

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-2047
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: 0.24
PROJECT LANE MILES PRIVATE: 0.39
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS "AS-BUILT" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3000
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION

STEVE WHITE
REGISTERED PROFESSIONAL ENGINEER
25462
10/24/16

DATE PLOTTED: 15/05/2016 10:03:42 AM - PLOTTER: HP DesignJet 2400 - PLOT: C:\Users\jpp\Documents\15-1425\15-1425-C9.1.dwg

BMP C233: SILT FENCE

INFORMATION TAKEN FROM CHAPTER 7 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL 2004 EDITION

PURPOSE: USE OF SILT FENCE REDUCES THE TRANSPORT OF COARSE SEDIMENT FROM A CONSTRUCTION SITE BY PROVIDING A TEMPORARY PHYSICAL BARRIER TO SEDIMENT AND REDUCING THE RUNOFF VELOCITIES OF OVERLAND FLOW. SEE FIGURE 7.3.20 OF THE EASTERN WASHINGTON STORMWATER MANUAL OR DETAIL BELOW FOR DETAILS ON SILT FENCE CONSTRUCTION.

CONDITIONS OF USE: SILT FENCE MAY BE USED DOWNSLOPE OF ALL DISTURBED AREAS. SILT FENCE IS NOT INTENDED TO TREAT CONCENTRATED FLOWS, NOR IS IT INTENDED TO TREAT SUBSTANTIAL AMOUNTS OF OVERLAND FLOW. ANY CONCENTRATED FLOWS MUST BE CONVEYED THROUGH THE DRAINAGE SYSTEM TO A SEDIMENT POND. THE ONLY CIRCUMSTANCE IN WHICH OVERLAND FLOW CAN BE TREATED SOLELY BY A SILT FENCE, RATHER THAN BY A SEDIMENT POND, IS WHEN THE AREA DRAINING TO THE FENCE IS ONE ACRE OR LESS AND FLOW RATES ARE LESS THAN 0.5 CFS.

SILT FENCES SHOULD NOT BE CONSTRUCTED IN STREAMS OR USED IN V-SHAPED DITCHES. THEY ARE NOT AN ADEQUATE METHOD OF SILT CONTROL FOR ANYTHING DEEPER THAN SHEET OR OVERLAND FLOW.

DESIGN AND INSTALLATION: DRAINAGE AREA OF 1 ACRE OR LESS OR IN COMBINATION WITH SEDIMENT BASIN IN A LARGER SITE.

MAXIMUM SLOPE STEEPNESS (NORMAL OR PERPENDICULAR TO FENCE LINE) 1:1.

MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE FENCE OF 100 FEET.

NO FLOWS GREATER THAN 0.5 CFS.

THE GEOTEXTILE USED SHALL MEET THE FOLLOWING STANDARDS. ALL GEOTEXTILE PROPERTIES LISTED BELOW ARE MINIMUM AVERAGE ROLL VALUES.

POLYMETRIC MESH AOS (ASTM D4751)	0.60MM MAX. FOR SLIT WOVENS (#30 SIEVE), 0.30MM MAX. FOR ALL OTHER GEOTEXTILE TYPES (#50 SIEVE), 0.15MM MAX. FOR ALL FABRIC TYPES (#100 SIEVE), 0.02/SEC MIN.
WATER PERMITTIVITY (ASTM D4491)	180 LBS. MIN. FOR EXTRA STRENGTH FABRIC, 100 LBS. MIN. FOR STANDARD STRENGTH FABRIC
GRAB TENSILE STRENGTH (ASTM D4632)	30% MAX.
GRAB TENSILE ELONGATION (ASTM D4632)	70% MIN.
ULTRAVIOLET RESISTANCE (ASTM D4335)	

STANDARD STRENGTH FABRICS SHALL BE SUPPORTED WITH WIRE MESH, CHICKEN WIRE, 2-INCH X 2-INCH, SAFETY FENCE, OR JUST MESH TO INCREASE THE STRENGTH OF FABRIC. SILT FENCE MATERIALS ARE AVAILABLE THAT HAVE SYNTHETIC MESH BACKING ATTACHED.

FILTER FABRIC MATERIAL SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF SIX MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0F. TO 120F.

100 PERCENT BIODEGRADABLE SILT FENCE IS AVAILABLE THAT IS STRONG, LONG LASTING, AND CAN BE LEFT IN PLACE AFTER THE PROJECT IS COMPLETED, IF PERMITTED BY LOCAL REGULATIONS.

CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SILT FENCES AT THE LOCATIONS SHOWN IN THE PLANS. THE SILT FENCE SHALL BE CONSTRUCTED IN THE AREAS OF CLEARING, GRADING, OR DRAINAGE PRIOR TO STARTING THOSE ACTIVITIES. A SILT FENCE SHALL NOT BE CONSIDERED TEMPORARY IF THE SILT FENCE MUST OPERATE BEYOND THE LENGTH OF THE CONTRACT. THE SILT FENCE SHALL PREVENT SOIL CARRIED BY RUNOFF WATER FROM GOING BENEATH, THROUGH, OR OVER THE TOP OF THE SILT FENCE, BUT SHALL ALLOW WATER TO PASS THROUGH THE FENCE.

THE MINIMUM HEIGHT OF THE TOP OF SILT FENCE SHALL BE 2 FEET AND THE MAXIMUM SHALL BE 2.5 FEET ABOVE THE ORIGINAL GROUND SURFACE.

DESIGN AND INSTALLATION: (CONTINUED)

THE GEOTEXTILE SHALL BE SEWN TOGETHER AT THE POINT OF MANUFACTURE, OR AT AN APPROVED LOCATION AS DETERMINED BY THE ENGINEER, TO FORM GEOTEXTILE LENGTHS AS REQUIRED. ALL SEWN SEAMS SHALL BE LOCATED AT A SUPPORT POST. ALTERNATIVELY, TWO SECTIONS OF SILT FENCE CAN BE OVERLAPPED, PROVIDED THE CONTRACTOR CAN DEMONSTRATE, TO THE SATISFACTION OF THE ENGINEER, THAT THE OVERLAP IS LONG ENOUGH AND THAT THE ADJACENT FENCE SECTIONS ARE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP.

THE GEOTEXTILE SHALL BE ATTACHED ON THE UP-SLOPE SIDE OF THE POSTS AND SUPPORT SYSTEM WITH STAPLES, WIRE, OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE GEOTEXTILE SHALL BE ATTACHED IN A MANNER THAT REDUCES THE POTENTIAL FOR GEOTEXTILE TEARING AT THE STAPLES, WIRE, OR OTHER CONNECTION DEVICE. SILT FENCE BACKUP SUPPORT FOR THE GEOTEXTILE IN THE FORM OF A WIRE OF PLASTIC MESH IS DEPENDENT ON THE PROPERTIES OF THE GEOTEXTILE SELECTED FOR USE. IF WIRE OR PLASTIC BACK-UP MESH IS USED, THE MESH SHALL BE FASTENED SECURELY TO THE UP-SLOPE OF THE POSTS WITH THE GEOTEXTILE BEING UP-SLOPE OF THE MESH BACK SUPPORT.

THE GEOTEXTILE AT THE BOTTOM OF THE FENCE SHALL BE BURIED IN A TRENCH TO A MINIMUM DEPTH OF 4" BELOW THE GROUND SURFACE. THE TRENCH SHALL BE BACKFILLED AND THE SOIL TAMPED IN PLACE OVER THE BURIED PORTION OF THE GEOTEXTILE, SUCH THAT NO FLOW CAN PASS BENEATH THE FENCE AND SCOURING CAN NOT OCCUR. WHEN WIRE OR POLYMETRIC BACK-UP SUPPORT MESH IS USED, THE WIRE OR POLYMETRIC MESH SHALL EXTEND INTO THE TRENCH A MINIMUM OF 3".

THE FENCE POSTS SHALL BE PLACED OR DRIVEN A MIN. OF 18". A MIN. DEPTH OF 12" IS ALLOWED IF TOPSOIL OR OTHER SOFT SUBGRADE SOIL IS NOT PRESENT AND A MIN. DEPTH OF 18" CANNOT BE REACHED. FENCE POST DEPTHS SHALL BE INCREASED 6" IF THE FENCE IS LOCATED ON SLOPES PF 3:1 OR STEEPER AND THE SLOPE IS PERPENDICULAR TO THE FENCE. IF REQUIRED POST DEPTHS CANNOT BE OBTAINED, THE POSTS SHALL BE ADEQUATELY SECURED BY BRACING OR GUYING TO PREVENT OVERTURNING OF THE FENCE DUE TO SEDIMENT LOADING.

SILT FENCES SHALL BE LOCATED ON CONTOUR AS MUCH AS POSSIBLE, EXCEPT AT THE ENDS OF THE FENCE, WHERE THE FENCE SHALL BE TURNED UPHILL SUCH THAT THE SILT FENCE CAPTURES THE RUNOFF WATER AND PREVENTS WATER FROM FLOWING AROUND THE END OF THE FENCE.

IF THE FENCE MUST CROSS CONTOURS, WITH THE EXCEPTION OF THE END OF THE FENCE, GRAVEL CHECK DAMS PLACED PERPENDICULAR TO THE BACK OF THE FENCE SHALL BE USED TO MINIMIZE CONCENTRATED FLOW AND EROSION ALONG THE BACK OF THE FENCE. THE GRAVEL CHECK DAMS SHALL BE APPROXIMATELY 1' DEEP AT THE BACK OF THE FENCE. IT SHALL BE CONTINUED PERPENDICULAR TO THE FENCE AT THE SAME ELEVATION UNTIL THE TOP OF THE CHECK DAM INTERCEPTS THE GROUND SURFACE BEHIND THE FENCE. THE GRAVEL CHECK DAMS SHALL CONSIST OF CRUSHED SURFACING TOP COURSE, GRAVEL BACKFILL FOR WALLS, OR SHOULDER BALLAST. THE GRAVEL CHECK DAMS SHALL BE LOCATED EVERY 10' ALONG THE FENCE WHERE THE FENCE MUST CROSS THE CONTOURS. THE SLOPE OF THE FENCE LINE WHERE THE CONTOURS MUST BE CROSSED SHALL NOT BE STEEPER THAN 3:1.

WOOD, STEEL OR EQUIVALENT POSTS SHALL BE USED. WOOD POSTS SHALL HAVE MINIMUM DIMENSIONS OF 2"x2"x3' MIN. LENGTH, AND SHALL BE FREE OF DEFECTS SUCH AS KNOTS, SPLITS, OR COUGES. STEEL POSTS SHALL CONSIST OF EITHER SIZE NO. 6 REBAR OR LARGER, ASTM A 120 STEEL PIPE WITH A MIN. DIAMETER, OR 1-INCH, U, T, L, OR C SHAPE STEEL POSTS WITH A MIN. WEIGHT OF 1.35 LBS./FT. OR OTHER STEEL POSTS HAVING EQUIVALENT STRENGTH AND BENDING RESISTANCE TO THE POST SIZES LISTED. THE SPACING OF THE SUPPORTS POSTS SHALL BE A MAXIMUM OF 6'.

FENCE BACK-UP SUPPORT, IF USED, SHALL CONSIST OF STEEL WIRE WITH A MAX. MESH SPACING OF 2', OR A PREFABRICATED POLYMERIC MESH. THE STRENGTH OF WIRE OR POLYMERIC MESH SHALL BE EQUIVALENT TO OR GREATER THAN 180 LBS. GRAB TENSILE STRENGTH. THE POLYMERIC MESH MUST BE AS RESISTANT TO ULTRAVIOLET RADIATION AS THE GEOTEXTILE IT SUPPORTS.

SILT FENCE INSTALLATION USING THE SLICING METHOD SPECIFICATION DETAILS FOLLOW.

THE BASE OF BOTH END POSTS MUST BE AT LEAST 2-4" ABOVE THE TOP OF THE SILT FENCE FABRIC ON THE MIDDLE POSTS FOR DITCH CHECKS TO DRAIN PROPERLY. USE A HAND LEVEL OR STRING LEVEL, IF NECESSARY, TO MARK BASE POINTS BEFORE INSTALLATION.

INSTALL POSTS 3-4' APART IN CRITICAL RETENTION AREAS, AND 6-7' APART IN STANDARD APPLICATIONS.

INSTALL POSTS 24" DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC. ENABLING POSTS TO SUPPORT THE FABRIC FROM THE UPSTREAM WATER PRESSURE.

INSTALL POSTS WITH NIPPLES FACING AWAY FROM THE SILT FENCE FABRIC.

ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITH THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1 INCH VERTICALLY APART. IN ADDITION, EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENING TO PREVENT SAGGING.

WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.

NO MORE THAN 24" OF A 36" FABRIC IS ALLOWED ABOVE GROUND LEVEL.

THE ROPE LOCK SYSTEM MUST BE USED IN ALL DITCH CHECK APPLICATIONS.

THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATION BEFORE COMPACTION. USE A FLAT-BLADED SHOVEL TO TUCK FABRIC DEEPER INTO THE GROUND IF NECESSARY.

COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE WITH THE FRONT WHEEL OF A TRACTOR, SKID STEER, OR ROLLER EXERTING 60 PSI, COMPACT THE UPSTREAM SIDE FIRST AND THEN EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS

ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.

IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT POND.

IT IS IMPORTANT TO CHECK THE UPHILL SIDE OF THE FENCE FOR SIGNS OF THE FENCE CLOGGING AND ACTING AS A BARRIER TO FLOW AND THEN CAUSING CHANNELIZATION OF THE FLOWS PARALLEL TO THE FENCE, IF THIS OCCURS, REPLACE THE FENCE OR REMOVE THE TRAPPED SEDIMENT.

SEDIMENT DEPOSITS SHALL EITHER BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-THIRD THE HEIGHT OF THE SILT FENCE, OR A SECOND SILT FENCE INSTALLED.

IF THE FILTER FABRIC OR GEOTEXTILE HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.

BMP C105: STABILIZED CONSTRUCTION ENTRANCE

INFORMATION TAKEN FROM CHAPTER 7 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL 2004 EDITION

PURPOSE: CONSTRUCTION ENTRANCES ARE STABILIZED TO REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PAVED ROADS BY VEHICLES OR EQUIPMENT BY CONSTRUCTING A STABILIZED PAD OF QUARRY SPALLS AT ENTRANCES TO CONSTRUCTION SITES.

CONDITIONS OF USE: CONSTRUCTION ENTRANCES SHALL BE STABILIZED WHEREVER TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND TRAVELING ON PAVED ROADS OR OTHER PAVED AREAS WITHIN 1,000 FEET OF THE SITE.

ON LARGE COMMERCIAL, HIGHWAY, AND ROAD PROJECTS, THE DESIGNER AND OR CONTRACTOR SHOULD INCLUDE ENOUGH MATERIALS IN THE CONTRACT TO ALLOW FOR ADDITIONAL STABILIZED ENTRANCES NOT SHOWN IN THE INITIAL CONSTRUCTION SWPPP. IT IS DIFFICULT TO DETERMINE EXACTLY WHERE ACCESS TO THESE PROJECTS WILL TAKE PLACE; ADDITIONAL MATERIALS WILL ENABLE THE CONTRACTOR TO INSTALL THEM WHERE NEEDED.

DESIGN AND INSTALLATION: SEE FIGURE 7.3.2 OF THE EASTERN WATER STORMWATER MANAGEMENT MANUAL OR DETAIL BELOW.

THE SURFACE MATERIAL SHALL BE 4"-8" QUARRY SPALLS. SMALLER CRUSHED ROCK SUCH AS BASE COURSE MAY BE APPROPRIATE IN SOME SITUATIONS BUT, SINCE IT IS MORE LIKELY TO BE TRACKED OFF-SITE, MUST BE APPROVED BY THE LOCAL JURISDICTION.

A SEPARATION GEOTEXTILE SHALL BE PLACED UNDER THE SPALLS TO PREVENT FINE SEDIMENT FROM PUMPING UP INTO THE ROCK PAD. THE GEOTEXTILE SHALL MEET THE FOLLOWING STANDARDS:

GRAB TENSILE STRENGTH (ASTM D4751)	200 PSI MIN.
GRAB TENSILE ELONGATION (ASTM D4632)	30% MAX.
MULLEN BURST STRENGTH (ASTM D3786-80A)	400 PSI MIN.
AOS (ASTM D4751)	20-45 (U.S. STANDARD SIEVE SIZE)

IF SITE CONDITIONS DO NOT WARRANT THE USE OF GEOTEXTILE, IT IS NOT REQUIRED.

MAINTENANCE STANDARDS: IF QUARRY SPALLS (OR HOG FUEL) SHALL BE ADDED IF THE PAD IS NO LONGER IN ACCORDANCE WITH THE SPECIFICATIONS.

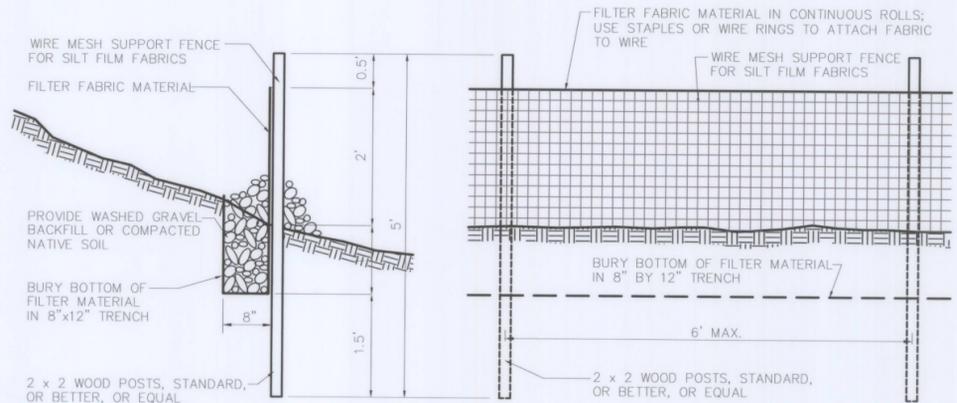
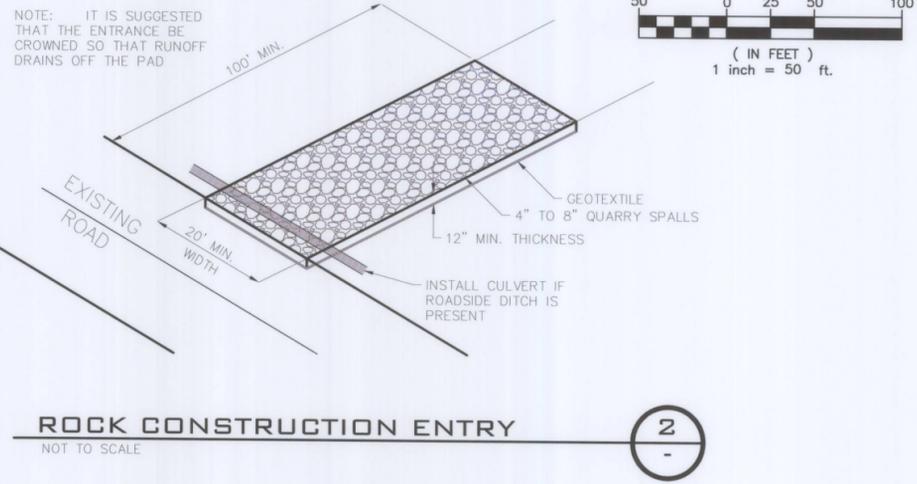
IF THE ENTRANCE IS NOT PREVENTING SEDIMENT FROM BEING TRACKED ONTO PAVEMENT, THEN ALTERNATIVE MEASURES TO KEEP THE STREETS FREE OF SEDIMENT SHALL BE USED. THIS MAY INCLUDE STREET SWEEPING, AN INCREASE IN THE DIMENSIONS OF THE ENTRANCE, OR THE INSTALLATION OF A WHEEL WASH.

ANY SEDIMENT THAT IS TRACKED ONTO PAVEMENT SHALL BE REMOVED BY SHOVELING OR STREET SWEEPING. THE SEDIMENT COLLECTED BY SWEEPING SHALL BE REMOVED OR STABILIZED ON SITE. THE PAVEMENT SHALL NOT BE CLEANED BY WASHING DOWN THE STREET, EXCEPT WHEN SWEEPING IS INEFFECTIVE AND THERE IS A THREAT TO PUBLIC SAFETY. IF IT IS NECESSARY TO WASH THE STREETS, THE CONSTRUCTION OF A SMALL SUMP SHALL BE CONSIDERED. THE SEDIMENT WOULD THEN BE WASHED INTO THE SUMP WHERE IT CAN BE CONTROLLED.

ANY QUARRY SPALLS THAT ARE LOOSEENED FROM THE PAD, WHICH END UP ON THE ROADWAY SHALL BE REMOVED IMMEDIATELY.

IF VEHICLES ARE ENTERING OR EXITING THE SITE AT POINTS OTHER THAN THE CONSTRUCTION ENTRANCE(S), FENCING (SEE BMPs C103 AND C104) SHALL BE INSTALLED TO CONTROL TRAFFIC.

UPON PROJECT COMPLETION AND SITE STABILIZATION, ALL CONSTRUCTION ACCESSES INTENDED AS PERMANENT ACCESS FOR MAINTENANCE SHALL BE PERMANENTLY STABILIZED.



SECTION
SILT FENCE DETAIL
NOT TO SCALE

ELEVATION
1

MAINTENANCE STANDARDS:

COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP32395-201 ELEVATION = 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH
AVENUE ELEVATION = 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:	PROJ #: 15-1425	<input checked="" type="checkbox"/> CIVIL
HORIZONTAL:	DATE: 05/17/16	<input type="checkbox"/> STRUCTURAL
VERTICAL:	DRAWN: JPP	<input type="checkbox"/> SURVEYING
	REVIEWED: TRW	<input type="checkbox"/> TRAFFIC
		<input type="checkbox"/> PLANNING
		<input type="checkbox"/> LANDSCAPE
		<input type="checkbox"/> OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

COTTAGES ON HAVANA
EROSION CONTROL BMP'S
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET
C9.2
JOB NUMBER
15-1425

SPOKANE COUNTY PUBLIC WORKS
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: F-204
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: 3.4
PROJECT LANE MILES PRIVATE: 0.1
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE PERMIT REQUIRED! (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION

TODD R. WHIPPLE
25482
REGISTERED PROFESSIONAL ENGINEER

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

BMP C220: STORM DRAIN INLET PROTECTION

INFORMATION TAKEN FROM CHAPTER 7 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL 2004 EDITION

PURPOSE: TO PREVENT COARSE SEDIMENT FROM ENTERING DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA

CONDITIONS OF USE: WHERE STORM DRAIN INLETS ARE TO BE MADE OPERATIONAL BEFORE PERMANENT STABILIZATION OF THE DISTURBED DRAINAGE AREA, PROTECTION SHOULD BE PROVIDED FOR ALL STORM DRAIN INLETS DOWNSLOPE AND WITHIN 500 FEET OF A DISTURBED OR CONSTRUCTION AREA, UNLESS THE RUNOFF THAT ENTERS THE CATCH BASIN WILL BE CONVEYED TO A SEDIMENT POND OR TRAP. INLET PROTECTION MAY BE USED ANYWHERE TO PROTECT THE DRAINAGE SYSTEM. IT IS LIKELY THAT THE DRAINAGE SYSTEM WILL REQUIRE CLEANING.

TABLE 7.3.9 (IN THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL) LISTS SEVERAL OPTIONS FOR INLET PROTECTION. ALL OF THE METHODS FOR STORM DRAIN INLET PROTECTION ARE PRONE TO PLUGGING AND REQUIRE A HIGH FREQUENCY OF MAINTENANCE. DRAINAGE AREAS SHOULD BE LIMITED TO 1 ACRE OR LESS. EMERGENCY OVERFLOWS MAY BE REQUIRED WHERE STORMWATER PONDING WOULD CAUSE A HAZARD. IF AN EMERGENCY OVERFLOW IS PROVIDED, ADDITIONAL END-OF-PIPE TREATMENT MAY BE REQUIRED.

DESIGN AND INSTALLATION: **EXCAVATED DROP INLET PROTECTION** - AN EXCAVATED IMPOUNDMENT AROUND THE STORM DRAIN. SEDIMENT SETTLES OUT OF THE STORMWATER PRIOR TO ENTERING THE STORM DRAIN.

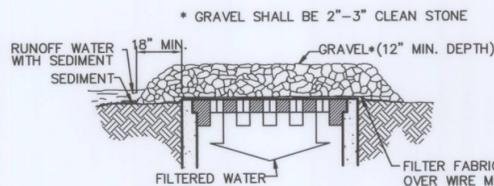
- DEPTH 1-2 FT AS MEASURED FROM THE CREST OF THE INLET STRUCTURE.
- SIDE SLOPES OF EXCAVATION NO STEEPER THAT 2:1
- MINIMUM VOLUME OF EXCAVATION 35 CUBIC YARDS
- SHAPE THE BASIN TO FIT THE SITE WITH THE LONGEST DIMENSION ORIENTED TOWARD THE LONGEST INFLOW AREA.
- INSTALL PROVISIONS FOR DRAINING TO PREVENT STANDING WATER PROBLEMS.
- CLEAR THE AREA OF ALL DEBRIS.
- GRADE THE APPROACH TO THE INLET UNIFORMLY.
- DRILL WEEP HOLES INTO THE SIDES OF THE INLET.
- PROTECT WEEP HOLES WITH SCREEN WIRE AND WASHED AGGREGATE.
- SEAL WEEP HOLES WHEN REMOVING STRUCTURE AND STABILIZING AREA.
- IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE TO THE DOWN SLOPE STRUCTURE TO PREVENT BYPASS FLOW.

BLOCK AND GRAVEL FILTER - A BARRIER FORMED AROUND THE STORM DRAIN INLET WITH STANDARD CONCRETE BLOCKS AND GRAVEL. SEE FIGURE 4.15 IN THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL.

- HEIGHT 1-2 FT ABOVE THE INLET.
- RECESS THE FIRST ROW 2" INTO THE GROUND FOR STABILITY.
- SUPPORT SUBSEQUENT COURSES BY PLACING A 2X4 THROUGH THE BLOCK OPENING.
- DO NOT USE MORTAR.
- LAY SOME BLOCKS IN THE BOTTOM ROW ON THEIR SIDE FOR DEWATERING THE POOL.
- PLACE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS OVER ALL BLOCK OPENINGS.
- PLACE GRAVEL JUST BELOW THE TOP OF BLOCKS ON SLOPES 2:1 OR FLATTER.
- AN ALTERNATIVE DESIGN IN A GRAVEL DONUT.
- INLET SLOPE OF 3:1.
- OUTLET SLOPE OF 2:1.
- 1-FOOT WIDE LEVEL STONE AREA BETWEEN THE STRUCTURE AND THE INLET.
- INLET SLOPES STONES 3" IN DIAMETER OR LARGER.
- OUTLET SLOPE USE GRAVEL 1/2" TO 3/4" AT A MINIMUM THICKNESS OF 1 FOOT.

GRAVEL AND WIRE MESH INLET - A GRAVEL BARRIER PLACED OVER TOP OF THE INLET. THIS STRUCTURE DOES NOT PROVIDE AND OVERFLOW

- HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS.
- COARSE AGGREGATE.
- HEIGHT 1-FOOT OR MORE, 18" WIDER THAN INLET ON ALL SIDES.
- PLACE WIRE MESH OVER THE DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1-FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE.
- IF MORE THAN ONE STRIP OF MESH IS NECESSARY, OVERLAP THE STRIPS.
- PLACE COARSE AGGREGATE OVER THE WIRE MESH.
- THE DEPTH OF THE GRAVEL SHOULD BE AT LEAST 12" OVER THE ENTIRE INLET OPENING AND EXTEND AT LEAST 18" ON ALL SIDES.



GRAVEL AND WIRE MESH INLET SEDIMENT FILTER

NOT TO SCALE

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED ACRES.

MAINTENANCE STANDARDS:

SW 1, SEC. 26, T. 25N., R. 43E., W.M.

DESIGN AND INSTALLATION: CONTINUED

CATCH BASIN FILTERS - INSERTS SHOULD BE DESIGNED BY THE MANUFACTURER FOR USE AT CONSTRUCTION SITES. THE LIMITED SEDIMENT STORAGE CAPACITY INCREASES THE AMOUNT OF INSPECTION AND MAINTENANCE REQUIRED, WHICH MAY BE DAILY FOR HEAVY SEDIMENT LOADS. THE MAINTENANCE REQUIREMENTS CAN BE REDUCED BY COMBINING A CATCH BASIN FILTER WITH ANOTHER TYPE OF INLET PROTECTION. THIS TYPE OF INLET PROTECTION PROVIDES FLOW BYPASS WITHOUT OVERFLOW AND THEREFORE MAY BE A BETTER METHOD FOR INLETS LOCATED ALONG ACTIVE RIGHTS-OF-WAY.

- 5 CUBIC FEET OF STORAGE
- DEWATERING PROVISIONS
- HIGH-FLOW BYPASS THAT WILL NOT CLOG UNDER NORMAL USE AT A CONSTRUCTION SITE.
- THE CATCH BASIN FILTER IS INSERTED IN THE CATCH BASIN JUST BELOW THE GRATING.

CURB INLET PROTECTION WITH WOODEN WEIR - BARRIER FORMED AROUND CURB INLET WITH A WOODEN FRAME AND GRAVEL.

- WIRE MESH WITH 1/2" OPENINGS.
- EXTRA STRENGTH FILTER FABRIC TO THE FRAME.
- PILE COARSE WASHED AGGREGATE AGAINST THE WIRE/FABRIC.
- PLACE WEIGHT ON FRAME ANCHORS.

BLOCK AND GRAVEL CURB INLET PROTECTION - BARRIER FORMED AROUND AN INLET WITH CONCRETE BLOCKS AND GRAVEL. SEE FIGURE 7.3.16 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL.

- WIRE MESH WITH 1/2" OPENINGS.
- PLACE 2 CONCRETE BLOCKS ON THEIR SIDES ABUTTING THE CURB AT EITHER SIDE OF THE INLET OPENING. THESE ARE SPACER BLOCKS.
- PLACE A 2X4 STUD THROUGH THE OUT HOLES OF EACH SPACER BLOCK TO ALIGN THE FRONT BLOCKS.
- PLACE BLOCKS ON THEIR SIDES ACROSS THE FRONT OF THE INLET AND ABUTTING THE SPACER BLOCKS.
- PLACE WIRE MESH OVER THE OUTSIDE VERTICAL FACE.
- PILE COARSE AGGREGATE AGAINST THE WIRE TO THE TOP OF THE BARRIER.

CURB AND GUTTER SEDIMENT BARRIER - SANDBAG OR ROCK BERM (RIPRAP AND AGGREGATE) 3 FEET HIGH AND 3 FEET WIDE IN A HORSESHOE SHAPE. SEE FIGURE 7.3.17 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL.

- CONSTRUCT HORSESHOE SHAPED BERM, FACED WITH COARSE AGGREGATE IF USING RIPRAP, 3 FEET HIGH AND 3 FEET WIDE, AT LEAST 2 FEET FROM THE INLET.
- CONSTRUCT A HORSESHOE SHAPED SEDIMENTATION TRAP ON THE OUTSIDE OF THE BERM SIZED TO SEDIMENT TRAP STANDARDS FOR PROTECTING A CULVERT INLET.

CATCH BASIN FILTERS SHOULD BE INSPECTED FREQUENTLY, ESPECIALLY AFTER STORM EVENTS. IF THE INSERT BECOMES CLOGGED, IT SHOULD BE CLEANED OR REPLACED.

FOR SYSTEMS USING STONE FILTERS: IF THE STONE FILTER BECOME CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET AND CLEANED OR REPLACED. SINCE CLEANING OF GRAVEL AT A CONSTRUCTION SITE MAY BE DIFFICULT, AN ALTERNATIVE APPROACH WOULD BE USED TO USE THE CLOGGED STONES FILL AND PUT FRESH STONE AROUND THE INLET.

DO NOT WASH SEDIMENT INTO STORM DRAINS WHILE CLEANING. SPREAD ALL EXCAVATED MATERIAL EVENLY OVER THE SURROUNDING LAND AREA OR STOCKPILE AND STABILIZE AS APPROPRIATE.

BMP C151: CONCRETE HANDLING

INFORMATION TAKEN FROM CHAPTER 7 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL 2004 EDITION

PURPOSE: CONCRETE WORK CAN GENERATE PROCESS WATER AND SLURRY THAT CONTAIN FINE PARTICLES AND HIGH PH, BOTH OF WHICH CAN VIOLATE WATER QUALITY STANDARDS IN THE RECEIVING WATER. THIS BMP IS INTENDED TO MINIMIZE AND ELIMINATE CONCRETE PROCESS WATER AND SLURRY FROM ENTERING WATERS OF THE STATE.

CONDITIONS OF USE: ANY TIME CONCRETE IS USED, THESE MANAGEMENT PRACTICES SHALL BE UTILIZED. CONCRETE CONSTRUCTION PROJECTS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- CURBS
- SIDEWALKS
- ROADS
- BRIDGES
- FOUNDATIONS
- FLOORS
- RUNWAYS

DESIGN AND INSTALLATION: CONCRETE TRUCK CHUTES, PUMPS, AND INTERNALS SHALL BE WASHED OUT ONLY INTO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT.

UNUSED CONCRETE REMAINING IN THE TRUCK AND PUMP SHALL BE RETURNED TO THE ORIGINATING BATCH PLANT FOR RECYCLING.

HAND TOOLS INCLUDING, BUT NOT LIMITED TO, SCREEDS, SHOVELS, RAKES, FLOATS, AND TROWELS SHALL BE WASHED OFF ONLY INTO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT.

EQUIPMENT THAT CANNOT BE EASILY MOVED, SUCH AS CONCRETE PAVERS, SHALL ONLY BE WASHED IN AREAS THAT DO NOT DIRECTLY DRAIN TO NATURAL OR CONSTRUCTED STORMWATER CONVEYANCES.

WASHDOWN FROM AREAS SUCH AS CONCRETE AGGREGATE DRIVEWAYS SHALL NOT DRAIN DIRECTLY TO NATURAL OR CONSTRUCTED STORMWATER CONVEYANCES.

WHEN NO FORMED AREAS ARE AVAILABLE, WASHWATER AND LEFTOVER PRODUCT SHALL BE CONTAINED IN A LINED CONTAINER. CONTAINED CONCRETE SHALL BE DISPOSED OF IN A MANNER THAT DOES NOT VIOLATE GROUNDWATER OR SURFACE WATER QUALITY STANDARDS.

MAINTENANCE STANDARDS: CONTAINERS SHALL BE CHECKED FOR HOLES IN THE LINER DAILY DURING CONCRETE POURS AND REPAIRED THE SAME DAY.

BMP C140: DUST CONTROL

INFORMATION TAKEN FROM CHAPTER 7 OF THE EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL 2004 EDITION

PURPOSE: DUST CONTROL PREVENTS WIND TRANSPORT OF DUST FROM DISTURBED SOIL SURFACES ONTO ROADWAYS, DRAINAGE WAYS, AND SURFACE WATERS. WIND EROSION IS A SIGNIFICANT CAUSE OF SOIL MOVEMENT FROM CONSTRUCTION SITES IN EASTERN WASHINGTON. ALTHOUGH WIND EROSION CAN CONTRIBUTE TO WATER QUALITY IMPACTS, DUST CONTROL IS REGULATED IN SOME AREAS OF EASTERN WASHINGTON PRIMARILY THROUGH LOCAL AIR QUALITY AUTHORITIES. WHERE SUCH AN ENTITY EXISTS, CONTACT THE LOCAL AIR QUALITY AUTHORITY FOR APPROPRIATE AND REQUIRED BMPs FOR DUST CONTROL TO IMPLEMENT AT YOUR PROJECT SITE.

CONDITIONS OF USE: IN AREAS (INCLUDING ROADWAYS) SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON-SITE AND OFF-SITE IMPACTS TO ROADWAYS, DRAINAGE WAYS, SURFACE WATERS ARE LIKELY.

DESIGN AND INSTALLATION: CONTACT YOUR LOCAL AIR POLLUTION CONTROL AUTHORITY FOR GUIDANCE AND TRAINING ON OTHER DUST CONTROL MEASURES. COMPLIANCE WITH THE LOCAL AIR POLLUTION CONTROL AUTHORITY CONSTITUTES COMPLIANCE WITH THIS BMP.

WATER APPLIED TO CONSTRUCTION SITES FOR DUST CONTROL MUST NOT LEAVE THE SITE AS SURFACE RUNOFF.

SEE ALSO "TECHNIQUES FOR DUST PREVENTION AND SUPPRESSION," ECOLOGY PUBLICATION NUMBER 96-433, REVISED APRIL 2002.

TECHNIQUES THAT CAN BE USED FOR CONSTRUCTION PROJECTS INCLUDE:

VEGETATE OR MULCH AREAS THAT WILL NOT RECEIVE VEHICLE TRAFFIC. IN AREAS WHERE PLANTING, MULCHING, OR PAVING IS IMPRACTICAL, APPLY GRAVEL OR LANDSCAPING ROCK.

LIMIT DUST GENERATION BY CLEARING ONLY THOSE AREAS WHERE IMMEDIATE ACTIVITY WILL TAKE PLACE, LEAVING THE REMAINDER AREA(S) IN THE ORIGINAL CONDITION, IF STABLE. MAINTAIN THE ORIGINAL GROUND COVER AS LONG AS PRACTICAL.

CONSTRUCT NATURAL OR ARTIFICIAL WINDBREAKS OR WINDSCREENS. THESE MAY BE DESIGNED AS ENCLOSURES FOR SMALL DUST SOURCES.

SPRINKLE THE SITE WITH WATER UNTIL THE SURFACE IS WET. REPEAT AS NEEDED. TO PREVENT CARRYOUT OF MUD ONTO STREET, REFER TO STABILIZED CONSTRUCTION ENTRANCE (BMP C105).

IRRIGATION WATER CAN BE USED FOR DUST CONTROL. IRRIGATION SYSTEMS SHOULD BE INSTALLED AS A FIRST STEP ON SITES WHERE DUST CONTROL IS A CONCERN.

SPRAY EXPOSED SOIL AREAS WITH A DUST PALLIATIVE, FOLLOWING THE MANUFACTURER'S INSTRUCTIONS AND CAUTIONS REGARDING HANDLING AND APPLICATION. USED OIL IS PROHIBITED FROM USE AS A DUST SUPPRESSANT. LOCAL GOVERNMENTS MAY APPROVE OTHER DUST PALLIATIVES SUCH AS CALCIUM CHLORIDE OR PAM.

PAM (BMP C126) ADDED TO WATER AT A RATE OF 0.5 LBS PER 1,000 GALLONS OF WATER PER ACRE AND APPLIED FROM A WATER TRUCK IS MORE EFFECTIVE THAN WATER ALONE. THE IS DUE TO THE INCREASED INFILTRATION OF WATER INTO THE SOIL AND REDUCED EVAPORATION. IN ADDITION, SMALL SOIL PARTICLES ARE BONDED TOGETHER AND ARE NOT AS EASILY TRANSPORTED BY WIND. ADDING PAM MAY ACTUALLY REDUCE THE QUANTITY OF WATER NEEDED FOR DUST CONTROL, ESPECIALLY IN EASTERN WASHINGTON. SINCE THE WHOLESALE COST OF PAM IS ABOUT \$4.00 PER POUND, THIS IS AN EXTREMELY COST-EFFECTIVE DUST CONTROL METHOD.

TECHNIQUES THAT CAN BE USED FOR UNPAVED ROADS AND LOTS INCLUDE:

LOWER SPEED LIMITS. HIGH VEHICLE SPEEDS INCREASES THE AMOUNT OF DUST STIRRED UP FROM UNPAVED ROADS AND LOTS.

UPGRADE ROAD SURFACE STRENGTH BY IMPROVING PARTICLE SIZE, SHAPE, AND MINERAL TYPES THAT MAKE UP THE SURFACE AND BASE MATERIALS.

ADD SURFACE GRAVEL TO REDUCE THE SOURCE OF DUST EMISSION. LIMIT THE AMOUNT OF FINE PARTICLES (THOSE SMALLER THAN .075 MILLIMETERS) TO 20 PERCENT.

USE GEOTEXTILE FABRIC TO INCREASE THE STRENGTH OF NEW ROADS OR ROADS UNDERGOING RECONSTRUCTION.

ENCOURAGE THE USE OF ALTERNATE, PAVED ROUTES, IF AVAILABLE.

RESTRICT USE BY TRACKED VEHICLES AND HEAVY TRUCKS TO PREVENT DAMAGE TO ROAD SURFACE AND BASE.

APPLY CHEMICAL DUST SUPPRESSANTS USING THE ADMIX METHOD, BLENDING THE PRODUCT WITH THE TOP FEW INCHES OF MATERIAL. SUPPRESSANTS MAY ALSO BE APPLIED AS SURFACE TREATMENTS.

PAVE UNPAVED PERMANENT ROADS AND OTHER TRAFFICKED AREAS.

USE VACUUM STREET SWEEPERS.

REMOVED MUD AND OTHER DIRT PROMPTLY SO IT DOES NOT DRY AND THEN TURN INTO DUST.

LIMIT DUST-CAUSING WORK ON WINDY DAYS.

MAINTENANCE STANDARDS: REPAY AREA AS NECESSARY TO KEEP DUST TO A MINIMUM. WATER APPLIED TO CONSTRUCTION SITES FOR DUST CONTROL MUST NOT LEAVE THE SITE AS SURFACE RUNOFF.



COUNTY DATUM
MONUMENT ID NO. 3394, HWY 395, MO 167.35,
CBM NO. GP922395-201 ELEVATION= 1748.382
SPIKE AT C/L OF HAVANA STREET AND 29TH.
AVENUE ELEVATION= 2298.606

NO.	DATE	BY	REVISIONS
-	XXX	XXX	XXX

SCALE:	PROJ #: 15-1425
HORIZONTAL:	DATE: 05/17/16
N/A	DRAWN: JPP
VERTICAL:	REVIEWED: TRW
N/A	

<input checked="" type="checkbox"/> CIVIL
<input type="checkbox"/> STRUCTURAL
<input type="checkbox"/> SURVEYING
<input type="checkbox"/> TRAFFIC
<input type="checkbox"/> PLANNING
<input type="checkbox"/> LANDSCAPE
<input type="checkbox"/> OTHER

IWCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-895-2617 FAX: 509-895-0227

COTTAGES ON HAVANA
EROSION CONTROL BMP'S
27th AVENUE AND HAVANA STREET
SPOKANE COUNTY, WA

SHEET C9.3

JOB NUMBER
15-1425

SPokane County Public Works
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: P-1247
DATE ACCEPTED: 10-25-16
ACCEPTANCE EXPIRES: 10-25-18
PROJECTS LANE MILES: PUBLIC: 14.0
PROJECT LANE MILES PRIVATE: 3.9
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, "AS-BUILTS" ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE. PERMIT REQUIRED! (509) 477-3600
NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION

TODD R. WHIPPLE
REGISTERED PROFESSIONAL ENGINEER
25462
LICENSED

DATE PLOTTED: 05/17/16 10:47:17 AM PLOTTER: HP DesignJet T1100PS PLT FILE: C:\PROJECTS\15-1425\DWG\15-1425-C9.3.dwg PLOTTER DRIVER: HP DesignJet T1100PS PLT