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## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

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	1352	Total Co.	and the same		

Stream & Location: Borks River EB Ust of	Kidge Road RM: 17.50 Date: 29/12/19
LI CAITI OL LOUGIOTTI   TOTAL	Full Name & Affiliation: Northeast Ohio Regional Sewer District
	Lat./Long: 41,2814181.7425 Office verified location
1 CURSTRATE Check ONLY Two substrate TYPE BOXES;	Check ONE (Or 2 & average)
estimate % of note every type present	DIEGLE ORIGIN QUALITY
BLDR /SLABS [10]   HARDPAN [4]	HEAVY [-2] ☐ TILLS [1] ☐ SUIT MODERATE [-1] Substra
BOULDER [9]	WETLANDS [0] SILT NORMAL [0]
GRAVEL [7] X X D SILT [2]	HARDPAN [0] FREE [1] 12.5
SAND [6] K V ARTIFICIAL [0]	SANDSTONE [0] SODEO STENSIVE [-2] MAXIMU  SET IGNORE   RIP/RAP [0] MODERATE [-1]
□ □ BEDROCK [5] (Score natural substrate  NUMBER OF BEST TYPES: □ 4 or more [2] sludge from point-	
Comments 3 or less [0]	☐ SHALE [-1] ☐ NONE [1]
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very quality; 2-Moderate amounts, but not of hig	small amounts or if more common of marginal AMOUNT thest quality or in small amounts of highest Check ONE (Or 2 & average)
quality; 2-Moderate amounts, but not of ny quality; 3-Highest quality in moderate or greater amounts (e.g., very larg diameter log that is stable, well developed rootwad in deep / fast water,	ne houlders in deep or fast water, large
diameter log that is stable, well developed roowad in deep real watch,  UNDERCUT BANKS [1] POOLS > 70cm [2]	OXBOWS, BACKWATERS [1] MODERATE 25-75% [7]
OVERHANGING VEGETATION [1]ROOTWADS [1]	AQUATIC MACROPHYTES [1] SPARSE 5-<25% [3] LOGS OR WOODY DEBRIS [1] NEARLY ABSENT <5% [1]
SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] ROOTMATS [1]	Cover
Comments	Maximum 20
3] CHANNEL MORPHOLOGY Check ONE in each category (Or	2 & average) NN STABILITY
SINUOSITY DEVELOPMENT CHANNELIZATIO	HIGH [3]
HIGH [4]   EXCELLENT [7]   NONE [6]   MODERATE [3]   GOOD [5]   RECOVERED [4]	MODERATE [2]
LOW [2] FAIR [3] REGOVERING [3]	Channel Channel
NONE [1] POOR [1] RECENT OR NO REC	Maximum 14.5
Good pouls (7/m) but shallow riffle	
41 BANK EROSION AND RIPARIAN ZONE Check ONE in ea	ach category for EACH BANK (Or 2 per bank & average)
River right looking downstream RIPARIAN WIDTH  EROSION NUMBER 550m (4)	FLOOD PLAIN QUALITY  OPEST SWAMP (3)  CONSERVATION TILLAGE [1]
NONE/LITTLE [3] MODERATE 10-50m [3]	HRUB OR OLD FIELD [2] URBAN OR INDUSTRIAL [0]
MODERATE [2]	ESIDENTIAL, PARK, NEW FIELD [4] LI MINING / CONSTRUCTION [U]
	ENCED PASTURE [1] Indicate predominant land use(s) PEN PASTURE, ROWCROP [0] past 100m riparian. Riparian
Comments	Maximum 10
5] POOL / GLIDE AND RIFFLE / RUN QUALITY	CURRENT VELOCITY Recreation Potential
MAXIMUM DEPTH Check ONE (ONLY!)  CHANNEL WIDTH Check ONE (Or 2 & average)	Check ALL that apply Primary Contact
Ø > 1m [6] POOL WIDTH > RIFFLE WIDTH [2] □	TORRENTIAL [-1] SLOW [1] Secondary Contact VERY FAST [1] INTERSTIFIAL [-1] (circle one and comment on back)
	VERY FAST [1] INTERSTIFIAL [-1] [circle one and comment on back)  FAST [1] INTERMITTENT [-2]
0.2<0.4m[1]	MODERATE (1) DEDDIES (1)
□ < 0.2m [0]	Indicate for reach - pools and filles.  Maximum
Comments	12
Indicate for functional riffles; Best areas must be	large enough to support a population ON RIFFLE [metric (Or 2 & average).
Of fillic-obligate operior.	/ RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS
DEET ADEAS - 40cm [2]   MAXIMUM > 50cm [2]   STABLE (	e.g., Cobble, Boulder) [2] NONE [2]
BEST AREAS 5-10cm [1] MAXIMUM < 50cm [1] MOD. STA	BLE (e.g., Large Gravel) [1] LOW [1]
BEST AREAS < 5cm WINSTABL	E (e.g., Fine Gravel, Sand) [0] MODERATE [0] Run  EXTENSIVE [-1] Maximum
Comments	Waxing
6] GRADIENT (5.43 ft/mi) UERY LOW - LOW [2-4]	%POOL: %GLIDE: Gradient
DRAINAGE AREA MODERATE [6-10]	%RUN: %RIFFLE: Maximum
(34,4 mi2) HIGH - VERY HIGH [10-6]	MKUIA.

		ens.		WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE WASH H20 / TILE / H20 TABLE ATMOSPHERE / DATA PAUCITY  Fy MEASUREMENTS  X depth max. depth max. depth bankfull width bankfull width bankfull max. depth foodprone x² width foodprone x² width aftench. ratio	the sold is book
				Caralleria de la como	gravel 5 mm
				Circle some & COMMENT	pool orm ending bont
				DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Shellow stilled south
			Will be a second of the second	BJAESTHETICS    NUISANCE ALGAE   INVASIVE MACROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR   SLUDGE DEPOSITS   CSOS/SSOS/OUTFALLS   CSOS/SSOS/OUTFALLS	gravel Jundered Sand Front met
METHOD STAGE  BOAT 1st -sample pass - 2nd	WADE THEN	NORMAL	DISTANCE   LOW	0.5 Km	Stream Drawing:

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## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 48



Stream & Location:	Cocky River E. Br	US Bonnie Pk a		@@Date: 81011/9
River Code: \3-10	0-000 STORET #:\\\	/29 Lat./Long.:\	Northeast C	Phio Regional Sewer District  Office verified location
	NLYTwo substrate TYPE BOXES;	NAD 83 - decimal 1 -		
estimate	% or note every type present	00	Check ONE (Or 2 &	
	OL RIFFLE OTHER TYPES	POOL RIFFLE LIMES	RIGIN	QUALITY  HEAVY [-2]
☐ ☐ BLDR /SLABS [10]	HARDPAN [4]	TILLS	41	MODERATE [-1] Substrate
COBBLE [8]	□ □ MUCK [2]	WETLA		NORMAL [0]
GRAVEL [7]	[2] SILT [2] ARTIFICIAL [0]	☐ HARDF	STONE [0] CODES	FREE [1]
SAND [6] SEDROCK [5]	/Score natural su	hetrates ignore RIP/RA	P[0]	Maximum 20 NONE [1]
NUMBER OF BEST TY	PES: 4 or more [2] sludge from	point-sources) LAGUS	TURINE (0) III	NORMAL [0] 20
Comments	3 or less [0]	- COAL	FINES [-2]	E HORE III
	8+0+0-03	The second second		Line Land
quality: 3-Highest quality in n	ETATION [1] ROOTWADS	ery large boulders in deep owater, or deep, well-defined im [2] OXBOWS, E	all aniourus of highest of fast water, large d, functional pools.  BACKWATERS [1]  [ACROPHYTES [4]	Check ONE (Or 2 & average)  EXTENSIVE >75% [11]  MODERATE 25-75% [7]  SPARSE 5-<25% [3]  NEARLY ABSENT <5% [1]
Comments	4+3		A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Cover Maximum 20
31 CHANNEL MORPHO	LOGY Check ONE in each categor	ry (Or 2 & average)		
	LOPMENT CHANNELIZ		BILITY	
	ELLENT [7] NONE [6]	HIGH		
☐ MODERATE [3] ☐ GO	OD [5] RECOVERED [4 R [3] RECOVERING [		DERATE [2] V [1]	
NONE [1] PO	BOOK AND	RECOVERY [1]	6 3 9 4 - 1 6 6	Channel Maximum
Comments	E+1+6+1	1 美型		Waximum 20
River right looking downstream EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [1]	□ □ NARROW 5-10m [2] □ □ VERY NARROW < 5m [1] □	FLOOD PLAI FOREST, SWAMP [3]	IN QUALITY  D [2]  NEW FIELD [1] D Indicate	CONSERVATION TILLAGE [1] JRBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] Predominant land use(s) Om riparian. Riparian
Comments	2.5+4+1.5			Maximum 10
MAXIMUM DEPTH Check ONE (ONLY!)	RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) POOL WIDTH > RIFFLE WIDTH [2] POOL WIDTH = RIFFLE WIDTH [1] POOL WIDTH < RIFFLE WIDTH [0]	VERY FAST [1]	nat apply SLOW [1] INTERSTITIAL [-1] INTERMITTENT [-2] EDDIES [1]	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)  Pool / Current Maximum
Comments	011110			12
Indicate for function of riffle-obligate spaces	1.7	t be large enough to ONE ( <i>Or</i> 2 & average). FLE / RUN SUBSTRA		tion NO RIFFLE [metric=0]
☐ BEST AREAS > 10cm [2] ☐ BEST AREAS 5-10cm [1] ☐ BEST AREAS < 5cm [metric=0]	☐ MAXIMUM > 50cm [2] ☐ STAE ☐ MAXIMUM < 50cm [1] ☐ MOD ☐ UNS		avel) [1] L	ONE [2] OW [1] IGDERATE [0] VIENSIVE [-1] Run
Comments		W. Valley	out the same of	XTENSIVE [-1] Run Maximum
6] GRADIENT ( ) 7	ft/mi) VERY LOW - LOW [2-4] MODERATE [6-10] MI2) HIGH - VERY HIGH [10-4]	%POOL 61 %RUN:		

FI MEASUREMENTS berikfull max. depth Roodprone x\* width bankfull X depth X bankfull width Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. entrench. ratio Legacy Tree: max. depth W/D ratio x depth X width Shale HARDENED / URBAN / DIRT&GRIME LOGGING / IRRIGATION / COOLING BMPs-CONSTRUCTION-SEDIMENT WWTP / CSO / NPDES / INDUSTRY FALSE BANK / MANURE / LAGOON NATURAL / WETLAND / STAGNANT ATMOSPHERE / DATA RAUCITY ACID / MINE / QUARRY / FLOW WASH H20 / TILE / H20 TABLE PARK/GOLF/LAWN/HOME BANK / EROSION / SURFACE CONTAMINATED / LANDFILL inside dom, Dodl Circle some & COMMENT Rack of Sannie FLOOD CONTROL / DRAINAGE PUBLIC / PRIVATE / BOTH / NA ACTIVE/ HISTORIC / BOTH / NA MODIFIED / DIPPED OUT / NA MOVING-BEDLOAD-STABLE YOUNG-SUCCESSION-OLD IMPOUNDED / DESICCATED SPRAY / SNAG / REMOVED RELOCATED / CUTOFFS DI MAINTENANCE ARMOURED / SLUMPS ISLANDS / SCOURED LEVEED / ONE SIDED COST-GOOM INVASIVE MACROPHYTES ☐ SLUDGE DEPOSITS
☐ CSOS/SSOS/OUTFALLS BIAESTHETICS **EXCESS TURBIDITY NUISANCE ALGAE** CJ RECREATION AREA DEPTH POOL: □>100ft²□>3ft NUISANCE ODOR DISCOLORATION TRASH / LITTER FOAM / SCUM 6 OIL SHEEN 3 Stream Drawing: Flow 턍 ☐ SECCHI DEPTH☐ UP NORMAL LOW DRY Ist-sample pass- 2nd --sample pass--CLARITY □ > 70 cm/ CTB STAGE 20-<40 cm AJ SAMPLED REACH □ 40-70 cm Check ALLithat apply HEH □ < 20 cm LOW DRY <10%-CLOSED □ > 85%- OPEN CANOPY DISTANCE 55%-<85% 30%-<55% 10%-<30% 0.15 Km 0.12 Km METHOD OTHER meters L. LINE OTHER 0.5 Km 0.2 KT BOAT WADE 

Chieffa	The Allerton A. Wall of the Control	itat Evaluation Index sment Field Sheet	QHEI Score: (78)
Stream & Location:  River Code: 13 - 10	Kocky River End Brow Score 10-100 STORET #: TO I WE	ers Full Name & Affiliation: North	M: G.25 Date: 81 119 neast Ohio Regional Sewer District  Office Verified location
BEST TYPES BEST TYPES CONTROL	ONLY Two substrate TYPE BOXES; e % or note every type present	Check ONE (I ORIGIN  CRIGIN  CRIGIN  CRIGIN  CRICIN  CRICIN  CRIMESTONE [1]  C	Or 2 & average)  QUALITY  HEAVY [-2]  WODERATE [-1]  WODERATE [-1]  PERTENSIVE [-2]  WODERATE [-1]  MAXIMUL [0]  HONE [1]
quality; 3-Highest quality in I	quality; 2-Moderate amounts, but not of moderate or greater amounts (e.g., very veil developed rootwad in deep / fast wat pools > 70cm ROOTWADS (I)	ery small amounts or if more common of mighest quality or in small amounts of highest quality of the small amounts of highest quality of highest quality of the small amounts of highest quality of highest	hest Check ONE (Or 2 & average)  EXTENSIVE >75% [11]  MODERATE 25-75% [7]  SPARSE 5-25% [3]
SINUOSITY DEVE	CLOGY Check ONE in each category ( LOPMENT CHANNELIZAT  CHANLELIZAT  CHANNELIZAT  C	STABILITY  HIGH [3]  MODERATE [2]  LOW [1]	Channel Maximum 20
River right looking downstream  EROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY/SEVERE [1]	RIPARIAN WIDTH	SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD [1] FENGED PASTURE [1]	R CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] URBAN OR INDUSTRIAL [0] MINING / GONSTRUCTION [0] Indicate predominant land use(s) east 100m riperian. Planetan
MAXIMUM DEPTH Check ONE (ONLY!)	3+4+2.5  RIFFLE / RUN QUALITY  CHANNEL WIDTH  Check ONE (Or 2 & sverage)	CURRENT VELOCITY Check ALL that apply	Recreation Potential
□ 0.7-	POOL WIDTH = RIFFLE WIDTH [4] [ POOL WIDTH < RIFFLE WIDTH [0] (	TORRENTIAL [4] USLOW[4] VERY FAST [4] UNTERSTITIAL [4] FAST [4] UNTERMITTENT MODERATE [4] EDINES [4] Indicate for reach - pools and riffles.	Secondary Contact

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

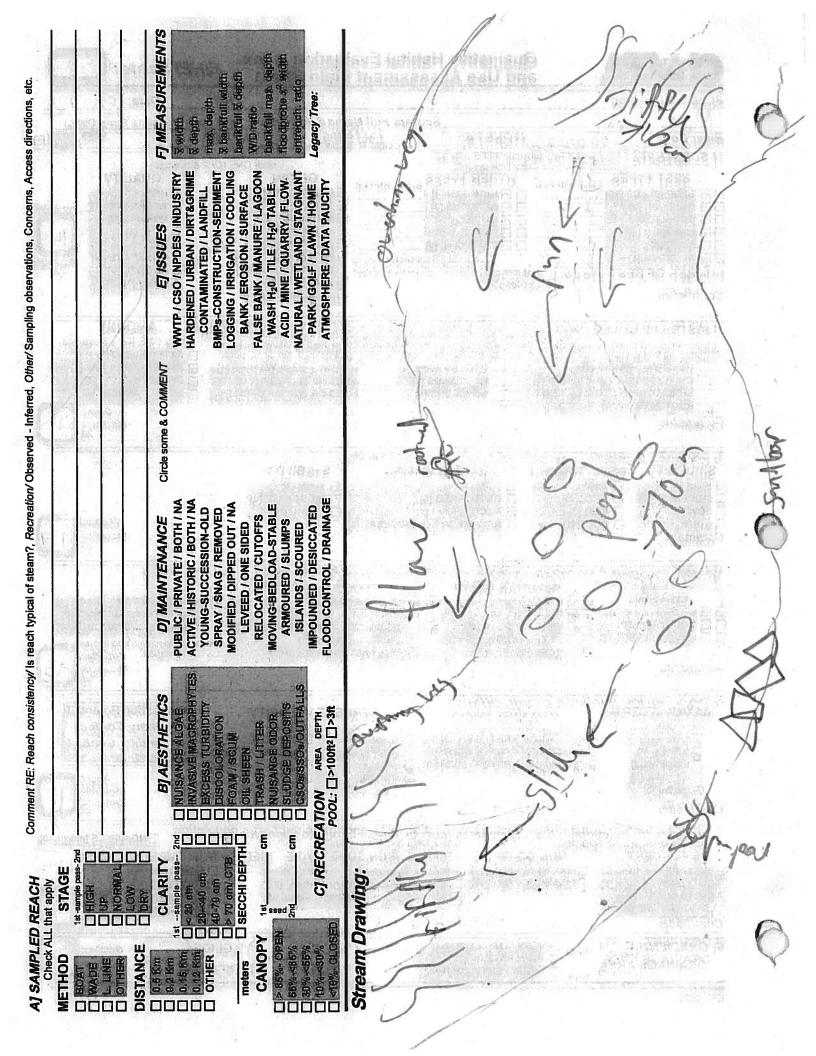
Check ONE (Or 2 & average). ☐NO RIFFLE [metric=0] RIFFLE DEPTH **RUN DEPTH** RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS BEST AREAS > 10cm (2) STABLE (e.g., Colible, Boulder) [2] MONE [2] LOW [1]

MODERATE [0]

Riffle /
Run

EXTENSIVE [4]

Maximum BEST AREAS 5-10cm [1]
BEST AREAS < 5cm [metric=0] ☐ MCD. STABLE (e.g., Large Gravel) [1]☐ UNSTABLE (e.g., Fine Gravel, Sand) [0] **Comments** 6] GRADIENT (5,24 ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-18] ft/mi) %GLIDE %POOL Gradient DRAINAGE AREA Maximum %RUN: %RIFFLE: HIGH - VERY HIGH [10-6] **EPA 4520** 06/16/06



## ChiEFA

## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

d	1000		100	k
11	1	100	10	A)
ı.	6	7 -	75	ij.
8.	W.	3.	/3	П
	Sec.	-		,

Stream & Locat	tion: Rocky River El	B list of Metro	panks Valley Parkino	Y RM: 0.15 Da	te: 7/29/19
Miles	1	1 100	Full Name & Affiliation	Northeast Ohio Regio	- For the T
River Code:_\	<u>3-160-000</u> sto	RET#:101231	Lat./Long.: 41 . 40	6 181.8846	Office verified location
1] SUBSTRATE BEST TYP	Check ONLY Two substrate estimate % or note every types PES POOL RIFFLE OT	TYPE BOXES; pe present HER TYPES POOL F		ONE (Or 2 & average)	JALITY
BLDR /SLAB: BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BE	EST TYPES: 4 or mor	DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [0] (Score natural substrates e [2] sludge from point-si	Ulimestone [1]  TILLS [1]  WETLANDS [0]  HARDPAN [0]  SANDSTONE [0]  ; ignore RIP/RAP [0]  Durces) LACUSTURINE [0]	SILT MODEO	/Y [-2] ERATE [-1] Substrate
Comments	13+2-	+0+1-0	SHALE [-1] COAL FINES [-2]		[1]
quality; 3-Highest quality; 3-Hi	uality in moderate or greater stable, well developed rootw BANKS [1] NG VEGETATION [1] IN SLOW WATER) [1]	amounts, but not of high	nall amounts or if more comment quality or in small amounts boulders in deep or fast wate deep, well-defined, functional OXBOWS, BACKWATE AQUATIC MACROPHY LOGS OR WOODY DE	of highest r, large Check ONE CHECK	MOUNT E (Or 2 & average) IVE >75% [11] ATE 25-75% [7] 5-<25% [3] ABSENT <5% [1]
Comments	4	+3			Cover Maximum 20
3] CHANNEL MC SINUOSITY	PRPHOLOGY Check ONE	in each category (Or 2 &	average) STABILITY	72	
HIGH [4] MODERATE [3] LOW [2] NONE [1] Comments	☐ EXCELLENT [7]	NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOV	HIGH [3]  MODERATE [2]  LOW [1]		Channel
4	2+5+6+	-3			Maximum 20
River right looking dov	WINSTREAM DE RIPARIAN ZO	<b>WIDTH</b>	category for EACH BANK (OF	r 2 per bank & average) TV	
EROSION NONE / LITTLE MODERATE [2] HEAVY / SEVE	WIDE > 50m [	4]	EST, SWAMP [3] JB OR OLD FIELD [2] DENTIAL, PARK, NEW FIELD ED PASTURE [1]	CONSERVAT	FION TILLAGE [1] INDUSTRIAL [0] INSTRUCTION [0] It land use(s)
Comments	34	-3,25 + 2	PASTURE, ROWCROP [0]	past 100m riparian.	Riparian Maximum 10
5] POOL / GLIDE MAXIMUM DEF Check ONE (ONL)    > 1m [6]   0.7-<1m [4]   0.4-<0.7m [2]   0.2-<0.4m [1]   < 0.2m [0]  Comments		WIDTH 2 & average) FLE WIDTH [2]  TOR FLE WIDTH [4]  VER FLE WIDTH [0]  FAS	CURRENT VELOCITY Check ALL that apply IRENTIAL [-1] SLOW [1] Y FAST [1] INTERSTIT T [1] INTERMITI DERATE [1] DEDDIES [1] Ilicate for reach - pools and riffi	Seconda (circle one and	on Potential by Contact comment on back
Indicate for funding for riffle-obligate RIFFLE DEPTHEM BEST AREAS > 10cm   BEST AREAS < 5cm   BEST AREAS < 5cm   Find the comments	RUN DEPTH m [2] MAXIMUM > 50ci m [1] MAXIMUM < 50ci	RIFFLE / RU  TI STABLE (e.g., on [1] MOD. STABLE	N SUBSTRATE RIFF	Deputation Note   Depute   Dep	Riffle /
6] GRADIENT (/2 DRAINAGE AR	(, 2 ft/mi) UERY LOW REA MODERAT 6.8 mi²) HIGH - VER	E [6-10]		%GLIDE:	Gradient Maximum

