## Index

Numbers	aquifer, 167-168
100-year flood, 146	aquitard, 167
•	arc, 16, 25, 27-28, 128
A	arch, 97
abutment	arch bridge, 97, 109
bridge, 91, 97-98, 102	arch dam, 150
dam, 150, 158	armoring, 92, 133, 164, 196. See αlso
AC (alternating current), 5, 20-21, 27, 127, 128	overtopping protection; revetment; riprap;
access hatch, 184, 188	soil-cement
accessibility, 67	armor unit, 135
accretion, 134	arrester, 24, 36
activated sludge, 192	arterial roadway, 63–65
active device, 47	artificial reef, 134
active warning device, 123-124	asphalt, 83, 85. See also pavement
actuated signal control, 72	at grade, 63, 91
adaptive signal control technologies, 73	auger, 210
administrative building, 8	automated guided vehicle, 137
aeration basin, 192	auxiliary spillway, 158
aerial lift, 210	axle, 116
aerobic process, 192	_
aggregate, 83	В
air compressor, 210	backfill, 45, 106, 172
air insulated switchgear, 25, 27-29	backflow prevention, 169
air lock, 173	backhaul, 58
air quality, 111	backup generator, 43, 57, 188
air release valve, 173	backwash, 176
alignment, 87, 116	baffle block, 159, 196
all-terrain crane, 205	baffled chute, 158
alternating current (AC), 5, 20-21, 27, 127, 128	baghouse, 8
altitude, 53	ballast, 116
aluminum, 19	bank, 145
amplifier, 42	bank intake, 163–164
AM radio, 50-51, 57	barrel, 202
anaerobic process, 192	barricade, 202
anchor, 49, 80, 139	barrier, 68, 76, 84, 202
anchorage, 98	barrier gate, 124
angle of repose, 79	bar screen, 191. See also screen
annular space, 167–168	base, 83
antenna	base station, 57–59
cellular communication, 57-59	basket screen, 188
satellite communications, 53-54	beach nourishment, 134
towers for, 49-51	beam (naval), 138
traffic signals, 73	beam (structure), 91, 97, 101
types of, 50, 54, 58	beam bridge, 91, 97
antenna array, 50	bearing, 91, 101-103
antenna level, 58	bearing block, 80
approach, 91	bedding, 154, 172
aqueduct, 163, 164, 171-173	bell (audible warning), 123-124
<del>-</del>	

bell (pipe), 172	buoy, 139. See also boom (warning device)
bending force, 97	bus, 23, 28
bent, 91, 102	bushing, 27, 26
bentonite clay, 168	buttress, 149, 150
berm, 64	buttress dam, 149
berth, 138	
Betz limit, 12	C
bicycle lane, 64, 67-68	cab, 205, 209
biofouling, 165	cable-stayed bridge, 98
biogas, 192	cable termination, 36
biosolid, 192	cable TV, 41-42, 47
bird decoy, 58	cable vault, 45
bird spikes, 58	call button, 68
bitumen, 83	canal, 141, 171. See also channel
black hole effect, 107	cant. See superelevation
blackout, 3, 32	cantilever, 75, 80, 98, 123
bladder, 158, 203	cantilever bridge, 98
blade, 11-12, 28, 209	cap, 91, 102. See also pile cap
blasting hole, 106	capacitance, 21
block system, 119-120	capacitor, 29
boiler, 7-8	casing, 167
bollard, 138	catenary, 128
boom (machinery), 138, 205-206, 209-210	cat's eye, 77
boom (warning device), 164	CATV (cable television), 41–42, 47
boom lift, 210	CATV (cable television), 41-42, 47 CATV power supply, 42
booster chlorination station, 177	cell, 57-59
booster pump, 172	cell on wheels, 59
booster transformer, 129	cellular communication, 57–59
borehole, 45, 167	
	cement grout, 168, 172
boring, 45, 106	centripetal force, 87-88, 116
box girder, 101	chamber, 141
branch sewer, 187	channel, 109, 134, 145. See also canal; gutter
breakaway, 76, 84. See αlso crashworthy	channelization, 196
breakwater, 133, 135	check dam, 202
breather switch, 117. See $lpha lso$ expansion joint	check valve, 146, 169
bridge	chicane, 69
approach to, 79	chlorine, 176-177, 192. See αlso disinfection
aqueduct, 171	chute, 158
highway grade separation, 91-93	circuit, 16
to outlet tower, 157	circuit breaker, 23-24, 28, 32, 35-36
overview, 95	clarifier, 175, 191-192
railway, 117, 123	Clarke Belt, 54
types, 97-99	clearance, 71
typical section of, 101–103	clearance interval, 72
sign, 76	clearwell, 183
brownout, 3	clear zone, 84, 116
bucket, 209	climbing frame, 206
buffer, 68	clip, 115
bulk carrier, 137	closure, 146
bundle, 20	closure rail, 120

cloverleaf interchange, 92	contact wire, 128
coagulant, 175	container, 137
coal, 7-8, 176	containment building, 8
coating, 165, 172	control building, 24
coaxial cable, 41-42, 47	control joint, 67
cofferdam, 203	controlled access roadway. See highway
collector pipe, 154	control point, 201
collector road, 63-65	conveyor belt, 8, 106
colocation, 50	cooling tower, 9
column, 91, 102, 109, 185	core (embankment), 133, 154
column pipe, 164, 168	core (transformer), 27
communications cabinet, 47	corner casting, 138
communication space, 41	corona discharge, 20
compaction, 83, 85, 91, 145, 153, 210	corona ring, 20
complete streets, 67	corrosion, 19, 46, 129, 172, 181
composite tank, 185	countdown timer, 68
concrete	counterweight, 124, 128, 206
as armoring against erosion, 92, 135, 145	coupler, 116
as canal lining, 171	course, 83
in crane foundations, 206	crack, 64, 67, 101, 150
equipment for handling, 209–210	crane, 137-138, 205-207
expansion and contraction of, 67, 150	crane mat, 206
joints in, 67, 150	crash cushion, 76, 85
as nuclear reactor containment, 8	crashworthy, 76, 84
as pavement, 83	crawler crane, 205
as pipe, 172	crest, 146, 149, 154
placement considerations of, 101	crest curve, 88
reinforcement of, 93	crest gate, 158
in retaining walls, 80	crib intake, 163
in sidewalks, 67	cross arm, 32
in tunnels, 109	crossbuck, 123
concrete dam, 149-151	crossing bell, 123-124
concrete mixer truck, 210	cross section, 79, 101, 109
concrete pump, 210	crosswalk, 68, 73
conductors	crown, 64, 84, 101, 195
for lightning protection, 16	crushed rock, 24, 116
materials, 19	crusher, 8
resistance of, 15	cul-de-sac, 65
skin effect, 20	culvert, 142, 146, 196
within a substation, 23	curb, 64, 69, 109
on utility poles, 31-32	curb cut, 67
conduit, 157, 164. See also pipeline	curb inlet, 109, 195
cone, 202	curb strip, 64
conical wheels, 116	current, 5, 15, 24, 28-29
connecting rod, 120	current transformer, 28
conservator, 27	curve, 79, 87, 116
constellation, 53	cut, 79, 209
construction office, 202	cut-and-cover tunnel, 105-106, 109-110
construction site, 201-203	cutoff wall, 154
contact patch, 115	cutterhead, 106
outlinest patient, 110	Jacconnous, 100

cuttings, 167	drill string, 45
cylinder, 176	drop (electric railways), 128
	drop (telecommunications), 42
D	DSL, 47
dam	duct, 36, 45-46, 110
concrete, 149-151	
embankment, 153–155	E
spillways and outlet works of, 157–159	earthfill, 79, 138, 153
damper (air handling), 110, 111	earth wire. See grounding electrode
damper (vibrations), 20	earthwork, 79–81, 83, 91–92, 134, 153–154, 209, 211
DC (direct current), 5, 21, 127	effluent, 191-193
dead-end, 23, 31, 180	elastomeric bearing pad, 91, 102
deck, 91, 97-98, 101-102	electrical grid, 3-5
deck arch bridge, 98	balancing supply and demand, 3-4
deck truss, 97	distribution of, 31
dendritic system, 187	monitoring of, 28
design speed, 87	synchronization of, 3, 7, 21
design vessel, 138	electric motor, 168
detention pond, 196	electrified railway, 127–129
dewatering, 105, 142, 158, 203	electrode, 16, 31
diamond, 120-121	electromagnetism, 17, 27, 42, 49–51, 57, 129
diamond interchange, 91	electrostatic precipitator, 8
dielectric oil. See oil	elevated storage, 183. See $lpha lso$ water tower
differential, 116	embankment, 79, 91, 116, 153-155, 196
diffuser, 192	embankment dam, 153–155
digestate, 192	emergency exit, 110
digester, 192	emergency spillway, 158
digital subscriber line, 47	entrance pit, 45
dike, 145-147	environment
dipole antenna, 50	aqueduct impact on, 171-172
direct current, 5, 21, 127	city impact on, 195
directional antenna, 50, 58	coastal structure impact on, 134
directional boring, 45	construction impact on, 202
directional drill rig, 45	culvert impact on, 196
direct potable reuse, 193	dam impact on, 155
disconnect switch, 27, 35	improvement of through wastewater treatment
disinfection, 176, 177, 180, 192	191-192
distribution (of electrical power), 3, 31-33, 35-37	intake structure impact on, 164
distribution transformer, 31, 33, 35	low water crossing impact on, 99
ditch, 84, 196	restoration of through dam removal, 151
ditch lights, 124	sewer system impact on, 199
Doppler shift, 53	thermal power plant impact on, 9
downconversion, 54	equator, 53-54
dozer, 209	equipment cabinet, 57. See $lpha lso$ communications
draft, 138	cabinet
drain, 101, 109, 150, 154	equipotential, 24
drainage, 64, 109, 146, 195-197, 202	erosion
dredging, 134, 164	of canals, 171
drilled concrete shaft, 80. See αlso pile	of coastal areas, 133–135
drill rig, 45, 167, 210	at construction sites, 202

of embankment slopes, 92, 145, 154	floodplain, 145
of retaining walls, 80	floodwall, 145–146
of river banks, 164	flue gas, 8
from spillway and outlet flows, 159, 196	fluted-column tank, 185
evacuation corridor, 110	flyover, 92. See αlso bridge
evaporation, 9, 171	FM radio, 50, 57
excavator, 45, 209	foot (rail), 115
exhaust, 110, 127	footing, 80, 102
exit gate, 124	force main, 188
expansion joint, 67, 103, 115, 117	foreshortening, 77
expansion loop, 42	formation, 167–168
extend, 206	fossil fuel, 7
	foundation
F	bridge, 91, 102
facing panels, 80, 92	crane, 206
failsafe, 124	dam, 149, 154
fall protection equipment, 202	transmission tower, 16
fatberg, 188	wind turbine, 11
feeder, 23, 31-33	freeboard, 146
feedhorn, 54	freeway. See highway
feed line, 50	freight train, 7
fence, 24, 128, 202	frog, 120-121
fender, 138	fuel handling building, 8
fiber-optic cable, 16, 41–42, 47, 58	furnace, 7-8
field of view, 88	fused cutout, 35
figure-8 cable, 41	, 55
fill, 79, 138	G
filter, 154, 176	gallery, 150
filter module, 176	gantry crane, 138, 164
filter sock, 202	gas insulated switchgear, 25
filter strip, 197	gasket, 172
filtration, 176	gate (railway grade crossings), 123-124
final grade, 79, 211	gate (water), 141, 146, 157-158, 163-164
finished water reservoir, 183	gauge, 115
firefighting, 179, 180, 183	gearbox, 11
fire hydrant, 180	generation, 3, 7
fish ladder, 155	generator, 7, 11
fishplate, 115	geogrid, 80
fishway, 155	geology
fission, 8	of aquifers, 167–168
fixed crane, 205–206	of dams, 150, 153–154
flange, 101, 116, 120	roadside, 81
flap gate, 146	of tunnels, 106, 109
flare, 192	of wharves, 138
flashover. See arc	geostationary satellite, 53, 55
flight (of locks), 142	geotextile, 80
flip bucket, 158-159	girder, 97-98, 101-102
floating bitt, 142	glass beads, 77
floc, 175	GPS (Global Positioning System), 13, 39, 53, 58, 211
flocculant, 175	grade, 79, 88, 116

1	1 0 1
grade crossing, 123-125	hot, 35. See αlso voltage
grade crossing number, 123	hub, 11
grader, 209	hustler, 137
grade separation. See interchange	HVDC (high-voltage direct current), 21
gravel, 153, 168, 176. See αlso aggregate	hydraulic grade line, 184
gravel pack, 168	hydraulic jump, 159
gravity dam, 149	hydropower plant, 4, 149, 157
grid	hydrostatic pressure, 149
electric. See electrical grid	T.
roads in a, 65	
water mains in a, 179	I&I (inflow and infiltration), 189
gridlock, 72	ice bridge, 50
grinder, 189	ice lens, 64
grit, 191	immersed tube construction, 106
grit chamber, 191	impact basin, 158
groin, 133-134	impact head, 84
ground freezing, 105	impeller, 168
ground grid, 24	induced crack, 67
grounding electrode, 16, 31	inductive loop sensor, 72
ground-level tank, 183	inflow and infiltration, 189
ground pressure, 109	injection system, 176
groundwater, 105, 109, 167-168, 175	inspector, 201
grout, 168, 172	instrumentation, 151
guard rail (railways), 120	instrument transformer, 28
guardrail (roadways), 76, 84	insulating joint, 120
guide sign, 75	insulator
gutter, 64, 195	on AM radio antenna towers, 51
guy, 31, 49	in railroad tracks, 120, 127
guyed tower, 49-50	in substations, 23, 27
gyroscope, 107	in transmission lines, 16, 19-20
	in underground power lines, 36
н	use of dielectric gas as an, 25
hanger, 98, 101-102	on utility poles, 31
harbor, 133	insulator strings, 19
hard hat, 202	intake, 150, 163-165
head (rail), 115	interceptor sewer, 187
head-end, 42	interchange, 87, 91-93, 97
headlight, 88, 124	interior wall, 109
headwall, 196	International Space Station, 54
H-frame tower, 16	Internet of Things, 59
high-service pump, 179, 183	intersection, 63-64, 69, 71-73, 87, 91-93, 120-121
high-visibility clothing, 202	inverted siphon, 172
high-voltage direct current (HVDC), 21	isolation switch. See disconnect switch
highway, 61, 63, 84, 87-89, 91-93	
hinged disconnect switch, 28	J
hitch, 207	jackhammer, 210
hoist, 158, 206	Jersey barrier, 84
hook, 205	jet fan, 110
hopper, 175	jet pump, 168
horn, 124-125	jetty, 134

jib, 205	mains voltage, 31
joint, 67, 103, 115, 117, 150	mangrove forest, 134
joint pole, 41. See αlso utility pole	manhole, 187-188, 195
jumper, 47	manually bored tunnel, 106, 109-110
	marker (fire hydrants), 180
K	marker (telecommunications lines), 42
keeper, 150	mast, 54, 205. See also tower
kilovolt, 19-21, 31	mechanically stabilized earth, 80, 92
kilo-Volt-Ampere, 35	median, 84, 124
•	membrane, 176
L	messenger wire, 41, 128
labyrinth weir, 159	microorganism, 175-176, 192
lateral earth pressure, 79-80	microwave antenna, 58
lateral sewer, 187	minor road, 91
lattice tower, 16, 49, 57	miter gate, 141
layout, 87	mixed liquor, 192
lead pipe, 181	mobile crane, 205
leaf, 157	moment, 206
levee, 145-147	monolith, 150
level indicator, 183	monopole antenna, 50, 57
lift, 153	monopole tower, 16
lift station, 188–189	mooring line, 138, 142
lightning protection, 16, 24, 35–36, 51, 57	morning glory spillway, 158
line extender, 42	mountain tunnel, 105
lining	moveable barrier, 89
canal, 171	moveable bridge, 98-99
pipe, 172	movement, 71
reservoir, 183	multicolumn tank, 185
tunnel, 106, 109, 172	multiple arch dam, 150
loader, 209	
load following, 4	N
load line, 139	nacelle, 11
load shedding, 4, 28	nappe, 150
local telephone exchange, 41, 43, 46	natural gas, 8
lock, 141-143	natural grade, 79
log-periodic antenna, 50	naval architect, 138
longitudinal ventilation, 110	navigation aid, 139
longshore drift, 133-134	neckdown, 69
louvers, 47	neutral, 32, 35
low-Earth orbit, 53	neutral temperature, 115
low-head dam, 150-151	nitrogen, 46
low impact development, 197	non-ionizing radiation, 50-51
low-noise block, 54	normal force, 88
low water crossing, 99	nozzle cap, 180
luff, 206	nuclear power station, 8-9
1011, 200	
M	nut, 80
machine-bored tunnel, 106, 109-110	0
main cable, 98	object marker, 75
	object marker, 75 obstacle, 84, 87-88
main sewer, 187	obstacte, 04, 0/-00

obstruction, 88, 119	pipeline
off-channel reservoir, 154-155	air within a, 173
off-ramp, 91-92	analogy to electrical circuits, 15
ogee, 158	as an aqueduct, 171-173
oil, 27, 28, 35	backflow of, 169
omnidirectional antenna, 50	corrosion of through stray current, 129
on-ramp, 91-92	drain collector, 154
operator, 157	natural gas, 8
optical node, 47	from a reservoir, 157
orbital period, 53	within a water distribution system, 179–180
outer jacket, 41, 46	pitch (wind turbines), 12
outfall, 195	placebo, 68
outlet, 154, 196. See also outlet works	plain-old telephone service (POTS), 41, 43
outlet works, 157-159	platform, 58
outrigger, 205	platoon, 72
overflow, 184	Plimsoll line, 139
overhead telecommunications, 31	plunge pool, 158
overpass, 91	pneumatic tools, 210
overtopping protection, 158	point, 120
overtopping protection, 150	pole, 54
P	pole tag, 37
paddle, 142	pool, 149
pad-mounted transformer, 36. See also distribution	port (maritime), 137–139
transformer	port (markine), 137-139 port (water control), 142, 163
painted bike lane, 68. See also bicycle lane	port (water control), 142, 103
Panama Canal, 143	potable water, 175, 179, 193
pantograph, 128	pot bearing, 102
pantograph disconnect switch, 28	pot bearing, 102 pothead, 36
	pothole, 64
parabolic antenna, 50	<del>-</del>
parking lane, 64	power, 15
passing loop, 116-117	power factor, 29
passive warning device, 123-124	power rating, 35
pavement, 64, 83-85, 101	power transformer, 15, 23, 27
pavement marking, 76-77, 123	precast concrete, 93, 101, 109
paving machine, 85, 209	preemption device, 72
pedestal, 47	preservative, 31, 37
pedestrian cross lights, 68	pressure
pedestrian infrastructure, 67-69, 73, 101	ground, 109
pedestrian scramble, 73	hydrostatic, 149
penstock, 149, 157	lateral earth, 79-80
personal protective equipment, 202	uplift, 149
phase (electrical), 5, 16, 17, 21, 23, 32, 35	water distribution system, 179, 183–184
phase (traffic signal), 71	pressurized pipeline, 172. See also pipeline
piano key weir, 159	pre-stressed concrete, 93
pier, 91, 97-98, 102	primary clarifier, 191–192
pig, 165	primary distribution conductor, 31–33, 41. See also
pigtail, 188	feeder
pile, 16, 80, 102, 138, 210	primary treatment, 191
pile cap, 102	principal spillway, 158
pile driver, 210	prismatic elements, 77

profile, 88, 116	regulatory sign, 75
project sign, 201	reinforcement, 80, 92, 93, 109
pulley, 128	relay, 24, 28, 120, 128
pump	remote concentrator, 47
concrete, 210	remote radio head, 57
dewatering, 105, 203	repeater, 47
dredging, 134	reservoir, 133, 149, 183
drainage, 146	reservoir intake, 163
high-service, 179, 183	residual, 177
off-channel reservoir, 154	resistance, 15, 27, 33
raw water, 164	retaining wall, 79–81, 92, 102, 105, 138
tunnel drainage, 110	retention pond, 196
wastewater, 188	retract, 206
pump column, 164, 168	retreat, 135
pump house, 164	retroreflection, 76-77
pumping station, 164-165, 172, 188-189	reversible lanes, 89
purple pipes, 193	revetment, 133, 135, 145
pylon. See tower	rigging, 207
pylon. see tower	right of way (land), 16, 116, 128
Q	right of way (taffic), 71, 91, 123
	riprap, 154, 164, 196. See also armoring; revetment
quay, 138	rise (lock), 142
queue, 71, 124	riser conduit, 36
quiet zone, 125	road base, 83
R	
	rocker bearing, 102
radar detector, 72	rockfill, 153
radiation pattern, 58	roller bearing, 102
radiator, 27	roller compactor, 83, 85, 210
radioactivity, 8	rolling gate, 142
radio antenna tower, 49–51, 53, 57	rolling outage, 4. See also load shedding
radius, 69, 87, 116	rolling stock, 115-116
rail, 115-116	roof, 106
railfan, 113	rooftop water tank, 185
railroad tracks, 115-117	rotor shaft, 11
rail trail, 121	rough terrain crane, 205
rain garden, 197	roundabout, 63
raised pavement marker, 76	route marker, 75
rake, 191	rubber joint filler, 67, 103
rapid transit tunnel, 105, 109-110, 127	rumble strip, 76
raw water, 163–164, 171, 175	running rail, 128. See αlso rail
reach stacker, 138	runoff, 63, 99, 195-197, 202. See αlso drainage
reactive power, 29	rush hour, 89
reactor, 8	
reamer, 45	S
recloser, 28, 36	Saccardo nozzle, 110
recurve, 133	saddle, 180
recycled water, 193	safety barrier, 101. See αlso barrier
reflector, 50, 54	safety space, 41
regenerative energy, 127	sag, 88, 195
registration arm, 128	sand, 134, 154, 176

sandbag, 147	signal bungalow, 120, 123
sanitary sewer, 187-189, 195	signal-controlled intersection, 63, 91, 124. See $lpha lso$
sanitation, 161	traffic signal
satellite, 13, 53-55, 106	signal coordination, 72
satellite dish, 54	signal head, 119
saturated, 71	sign bridge, 76. See also support structure
scaffolding, 202	sign-controlled intersection, 63, 91
scissor lift, 210	signpost, 75
scraper (clarifiers), 175	silt fence, 202
scraper (earthwork), 209	single-pedestal tank, 185
screen, 164, 167, 188, 191	sinker, 139
scrubber, 8	skid-steer, 209
scum, 191	skimmer, 192
seawall, 133, 134	skin effect, 20
secondary clarifier, 192	slack loop, 42-43
secondary electrical line, 41. See αlso service	sleeper, 115
connection	slew, 206
secondary treatment 192	slide gate, 157
secondary voltage. See mains voltage	sling, 207
sector antenna, 58	slip base, 76
sector gate, 141-142	slipforming, 209
sedimentation, 175	slope
seepage, 153-154, 171	of aqueducts, 172
self-supporting tower, 49	of canals, 141, 171
service connection, 31, 180	of earthworks and embankments, 79, 92, 145, 153
service spillway, 158	of railways, 116
sewer, 110. See αlso sanitary sewer; storm sewer	of roadways, 88
SF <sub>6</sub> , 25, 28	of sewers, 187, 195
shaft (mechanical), 168	of sidewalks, 67
shaft (underground), 172	slope paving, 92
sharrow, 68	slot, 54
sheepsfoot drum, 210	sludge, 175
sheet pile, 80, 203	slurry, 134
shell, 154	smoke testing, 189
shield, 106	soil-cement, 154
shield wire, 16	soil nail, 80
shipping, 133, 137	solar power, 1, 33
ship-to-shore crane, 137, 138	spacer, 20
shoe, 127, 128	spaghetti junction, 92
shore protection structure, 133-135	spark gap, 51
shotcrete, 80, 109	spectroscopy, 111
shoulder, 84, 116	speed bump, 69
shutoff valve, 180	speed hump, 69
side pond, 143	speed limit, 68-69, 87
side slope, 171	speed lump, 69
sidewalk, 64, 67	spigot, 172
siding, 116-117	spike, 115
sight distance, 88-89, 119, 123	spillway, 157-159
signal (railway), 119	splice enclosure, 41, 47
signal (roadway). See traffic signal	splicing truck, 42

split-phase, 35	equipment within, 27-29
spool, 45, 206	overview of, 23-25
spreader, 138	substructure, 91, 101-102
stabilized entrance, 202	Suez Canal, 138
stack, 8	sulfur hexafluoride, 25, 28
stacker, 7	sump, 110, 164, 191
stack interchange, 92	sun kink, 115
staging area, 201	superelevation, 88, 116
stake, 201	superintendent, 201
standpipe, 184	superstructure, 91, 101-102
startup, 71	supply air, 110
static pole, 24	support structure
stationing, 201	for traffic signals, 71
stay, 98, 101-102	for traffic signs, 75–76
stealth cell site, 58	for railway crossing lights, 123
steel	surface water, 163
in bridges, 98, 101	surge tank, 173
cables, 41, 49, 98	surveying, 106-107, 151, 201, 210
in containers, 137	suspension bridge, 98
piles, 80, 102, 203	suspension tower, 16
in pipes, 157, 167, 172	switch, 120
in railways, 113, 115	switch machine, 120
reinforcement, 80, 93	switchstand, 120
in tanks, 183, 185	
in transmission line conductors, 19	Т
stem, 157	T1, 47
step-down, 23	tactile pavement, 67
stilling basin, 159	tag line, 206
Stockbridge damper, 20	Tainter gate, 158
stockpile, 7	tanker, 137
stock rail, 120	tap, 42, 47
stoplog, 158	TBM, 106
stoplog slots, 158	telecommunications
storage bracket, 43	overhead, 41-43
storage silo, 8	underground, 45-47
storage trailer, 202	telephone, 41-42, 46-47, 57-59
storm sewer, 189, 195-196	telescoping boom, 205
storm surge, 133, 145	temporary road, 201
stormwater drain. See storm sewer	tension tower, 16
straddle carrier, 138	terminal. 137
strain insulator, 31	terminal tractor, 137
strand, 19	thalweg, 163
stray current, 129	thermal expansion
streetlamp, 64	of bridges, 91, 102, 103
stringline, 210	of coaxial cable, 42
stripe, 76-77	of concrete, 67
subgrade, 64, 83, 116	of overhead electric wires, 128
submersible pump, 168	of rails, 115, 117
substation	thermal power station, 4, 7-9
within electrical grid, 3, 31	thermoplastic, 76
	and an option of the state of t

third rail, 127-128	truss bridge, 97
three-phase power, 5, 16, 21, 32, 35	tunnel, 95, 105-107, 109-111, 127, 171-172
through arch bridge, 98	tunnel boring machine, 106
through street, 65	tunnel lining, 106, 109, 172
through truss, 97	turbidity, 175
thrust, 98	turbine, 7-8, 11-13, 150
tide, 133	turnout, 120
tie, 115-116	turntable, 205
tieback, 80	twilight wedge, 54
tied arch bridge, 98	twisted pair, 41
tie plate, 116	twist lock, 138
toe berm, 153	
toilet-to-tap, 193	U
torque. See moment	ultraviolet light, 192
tower	underground aqueduct, 171-172
antenna, 49-51, 53, 57	underground electrical service, 15, 24, 36
bridge, 98	underground telecommunications, 45–47, 105, 201
electrical transmission lines, 11, 15–17	underwater tunnel, 105
outlet works, 157	uniformity, 68, 71, 75
tower crane, 205-206	uplift pressure, 149
track circuit, 120, 123–124, 128	utility location markings, 201
tracks (heavy equipment), 205	utility pole, 31-32, 35-37, 41
traction motor, 127	atility pote, 31 32, 33 37, 41
traffic calming, 69	V
traffic control devices, 75-77	vacuum breaker, 28
traffic sign, 75-77	valve
traffic signal, 63, 68, 71-73, 124	air release, 173
traffic signal controller, 72	check, 146, 169
training wall, 158	lock, 142
transformer, 15, 23, 27, 31, 33, 35-36	shutoff, 180
transmission (of electrical power), 3, 15, 19, 31	speed of closing, 173
transmission line	valve key, 180
components of, 19-21	
for radio signals, 50	vegetated rooftop, 197 vent, 184, 187–188
termination of, 23	
	ventilation, 110-111, 188
towers, 15-17	verge, 64
transmission tower, 15-17	vertical turbine pump, 168
transmitter building, 50	viaduct, 117. See also bridge
transposition tower, 17	video camera, 72
transverse ventilation, 110	visual pollution, 16, 36, 45, 58, 196
trash rack, 157	voltage, 5, 15, 20-21, 24, 27-29, 33
travel, 206	voltage regulator, 33
travel lane, 68, 84	voltage transformer, 28
trench, 45, 105-106, 172	vortex, 164
trencher, 209	vortex breaker, 164
trolley, 205	14/
truncated domes, 68	W
trunk sewer, 187	walkway, 101. See αlso sidewalk
trunnion, 158	wall, 109. See $lpha l$ so retaining wall; tunnel lining
truss, 97-98, 101-102	wand, 210

warning light, 13, 49, 123 weir, 150, 158, 159, 164, 175, 192 warning marker, 20 well, 167-169 warning sign, 24, 75, 128, 177, 202 well development, 168 warning tape, 45 wellhead, 168 warning time, 124 wet well, 164, 188. See also sump warrant, 119 wharf, 138 wastewater treatment, 191-193 whistle post, 124-125 water distribution system, 179-181 winch, 138 water hammer, 173 wind farm, 4, 11-13 water main, 179-180, 184 wind sensor. 12 water meter. 180 wind turbines, 11-13 water recycling, 193 efficiency, 12 water-saving basin, 143 speed, 11 watershed, 195, 197 warning lights, 13 water tank, 183-185 wingwall, 196 water tower, 58, 179, 183-185 water treatment, 175-177, 179, 183 wearing course. See pavement Yagi antenna, 50 weathervane, 206 yard, 137 web, 101, 115 yaw, 12